...tion of Trains and Stationwork

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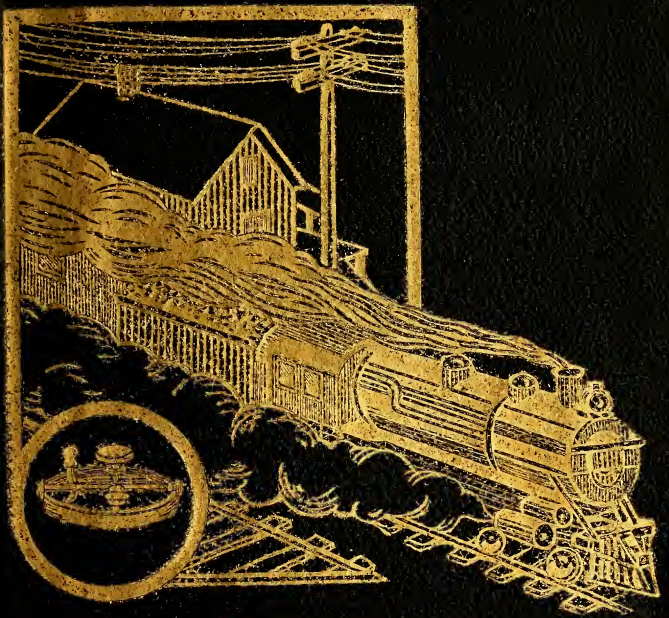

Operation of Trains and Station Work

COMPILED AND EDITED BY
FREDERICK J. PRIOR

ILLUSTRATED

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PREFACE.

Among railway men may be noticed two broad class distinctions—one represented by the man who never concerns himself with anything more than the regular performance of his routine duties and who seldom advances; the other represented by the man who is constantly on the alert for information, who by seeking reasons learns to reach conclusions and, unceasingly widening the range of his knowledge, increases his chances to grasp opportunities, fits himself for promotion and inevitably rises to a commanding position.

For every possible "why" there is a "because" which should be sought out. One who possesses the spirit of inquiry is not content merely with the knowledge gained by his personal experience. Valuable though it be, something more is needed by men who eventually go out and do things. This spirit has been and is being developed more and more by the varied classes of employees in the transportation department. With the rapid development, expansion, improvement and change in railways in recent years has come a change in their operating forces fully as marked; as much an evolution in the one as in the other case. What the future holds in store for railroad men can be only surmised; but whatever it be, the keen minds of the bright young railroad men of today, may safely be trusted to keep their profession in the forefront of human progress, through a manifestation of the spirit of inquiry, observation and study, coupled with experience and intelligent practical application of their knowledge.

The proper administration of the transportation department is of first importance; it is in closest contact with the general public. Trains must be run safely and on time; freight must be promptly handled without friction with shippers. Its numerous departmental employees should not only "know their business," but should be able to take the initative when sudden emergencies or new conditions are met.

This volume—one of a series—is designed to meet the needs of the student and the busy railway man, who, not being satis-

fied with statements, seeks reasons and asks "why?" It gives in concise form the fruits of ripe experience, research and study. In its compilation many authorities were consulted, and an endeavor made to present in a different light and in a new combination only that which appeared most suitable for the purpose. Neither originality of subject-matter nor railway experience is claimed by the compiler, nevertheless after many years of active work among and with railway men on different railroads he felt wholly competent to undertake the labor of which this book is the result. If, inadvertently, credit has not been given where due he ventures to hope that the "will be accepted for the deed"—and to those writers to whom credit is given in the text, as well as to F. L. Meyer, and G. E. Collingwood, whose valuable writings have been either consulted or quoted he desires to make grateful acknowledgement, and also to Professor E. R. Dewsnup from whose very excellent book: "Railway Organization and Working," extensive quotations have been made. The forms or blanks shown in the appendices comprise a few of the many contained in Kirkman's "Science of Railways," a most valuable work for those wishing a more comprehensive and scholarly treatment of the subject. That portion relating to telegraphy was especially prepared by Mr. F. W. Hallett, who, in referring to the perplexing cares of telegraphy and those who daily labor at it says: he, too, has "shared their anxious cares," and he hopes that what he has written may "help lighten their burdens."

Finally, in the hope that it may be found of real interest and benefit by those for whom it is primarilly intended, this book is sent forth upon its mission.

THE COMPILER.

INTRODUCTION

The conducting of modern transportation is becoming constantly more and more complex; the day of happy-go-lucky, rule-of-thumb railroading, while not entirely gone, will soon be but a shadow of the past. There is no industry at the moment which demands keener intellect, shrewder wit, and better trained comprehension; no industry in which the failure of these qualities in its officers and, to no small extent, in its men, would be more disastrous to the general interests of the country. The necessity for, and demand for, an adequate supply of these qualities is increasing with the extension of the industry. In sheer self-defense, even from a dividend point of view, the railways of the country will have to pay more attention than they have ever done before to the improvement of the quality of the men they take into their employment. For their own interests, they must stimulate a steady flow of the brightest minds of each rising generation into their service, so that they may have ample choice of selection in filling up the lieutenancies and corporalships, some of those appointed to which, in turn, will qualify for responsibility as captains and colonels, and, maybe, even as generals of the railway army. There are all varieties of transportation problems; but, without doubt, the most difficult one of all is that of securing competent and trustworthy service.

If faithfulness is demanded of any people in the world it is demanded of railway employees; and those railways are successful, most successful, who have the most faithful employees, those who do their duties faithfully whether the officer who is in charge of them is present or not and who are likely to attend to them

more faithfully when he is away than when he is overlooking their work.

Railroad men do not always regard their interests as absolutely identical with those of the corporations that employ them, yet there is no group of men whose welfare and prosperity are more absolutely united.

Railroad men form a class by themselves, different in many respects from their fellows. They are essentially hard workers, from the lowest to the highest; they are clannish, having a strong friendship for each other; and, generally have an ambition leading them not only to do for themselves, but especially to advance the interests of the company that employs them; they are brave and generous, and, as a rule, possessors of strong intellects and sharp, keen wits.

The service keeps them on a tension; the strife for business, the excitements of the road, the desire to accomplish the greatest possible results, and the sense of being, to some extent, always before the public, all unite to stimulate them to do their best. Although the requirements are strict and exacting, the labor arduous, yet there is a fascination and exhilaration connected with the work that compensates for all the disadvantages. Railroading is a profession, as high in degree as any other, and calling for equal abilities and talents.

Discipline is one of the great essentials in railroad operation. To administer discipline properly and justly is an accomplishment which can only be attained through long experience and direct contact with the work and the workers. Being one of the fundamental principles of railroad operation, the absence of discipline invites disaster. Being educational, much trouble has been caused by its misapplication. If it is fair and just, the employee

welcomes it because he knows that it is the foundation, the rock on which he stands.

It is essential that the employee know why he is disciplined, learning wherein he was wrong, so that should the same conditions prevail in the future he would know what was right. In order to so instruct, the official in charge must be conversant with the work, its surroundings and significance. Not only must the one who administers the discipline be just and fair, but he must also be capable of judging what is the right thing to do, and be able to show the offender why and how he was wrong.

If the rules, regulations, and orders of the railroad manager were always followed, nineteen-twentieths of the accidents would be avoided; therefore, the question would seem to be "how best to have the rules, regulations and orders obeyed."

Regarding the training of railroad officials, the wider the officer's experience, the better. It should apply to the physical conditions of the road as well as to the human element connected with it. The better he understands and knows his problem, the nearer he is to the highest efficiency, the same as in any profession or undertaking. There is much for him to learn from the first day of his connection with the railroad company to the last day he remains with it. The longer he is "in harness" the more he realizes the magnitude of the proposition.

The wider a man's experience, the more thorough his training,—the more valuable he becomes, and the better fitted to direct the work of others. The railway profession, however, like other professions of this day and generation, is becoming so specialized that it is almost

impossible that any one man should have received an all-round training in all branches of the road's operation. Of necessity, the great departments under the operation officers must be put in charge of specialists, each in his own department, each in turn being held strictly accountable for his own work, and reporting to the one man in charge of the whole.

STATION WORK.

EMPLOYEES AT STATIONS, THEIR QUALIFICATIONS AND DUTIES.

MESSENGER BOY.

*"With 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.

After 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.

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 promptly respond when needed, and, while thus disengaged, he should improve his education by 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 may secure an old "key" and "sounder" and get some experienced hand to fix him up with a "short circuit," on which to learn the characters used, and, by

*From Houlihan's Handbook.

application at "odd times" he can learn to "send" fairly well, and in time will be able to catch the "office calls" on the main line. Gradually he thus 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 becomes a fairly good operator, and he is then given a trial, most likely a "night office" at some small station.

TELEGRAPH OPERATOR.

On being installed as an operator his 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 the 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 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 who 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.

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., con-

tinuing 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.

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 employees 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 in placing him in a superior position when an opportunity presents itself.

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 do this only 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.

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 is 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 enforcing good discipline among employees 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 that 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 condition as good as, if not better 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 employees 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 react 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."*

Describing the duties of a railroad agent, in "Railroad Men" Mr. Geo. H. Stevens, General Agent New York Central, says:

"Success comes from a knowledge of details and the application of force to the subject-matter.

"Years ago when freight was billed under class rates, work was minimized, but now there are so many special, commodity and proportionate rates used, that tariffs and special instructions have multiplied until the agent is

*Houlihan.

obliged to carry a memorandum book in his pocket for ready reference.

"Admitting that an agent knows the letter of his instructions, he still finds it at times very difficult to understand them, on account of the style of phraseology used. Good judgment bridges the gap between no instructions and prompt action required, and in this particular the agent necessarily has to act independently of either.

"An agent receives instructions from the operating, transportation, traffic and accounting departments—which requires him to have a general knowledge of each.

"A systematic arrangement of labor is a factor not to be overlooked, for it is by systematically arranging force, and the application of energy, that results are obtained, particularly in the matter of expense.

"In the handling of men, an agent finds the greatest use for his knowledge of details. He not only has to explain them, but must know that they are carried out in accordance with the general arrangement; otherwise results will not be satisfactory, and criticism, which often means an erroneous opinion of his capability, will follow.

"The requirements of the public are at times at variance with custom and rule, which is not an easy matter to explain satisfactorily. To obtain certain results, imposition is practiced indiscriminately. This requires the agent to use tact and diplomacy, which reminds him that his position is one to serve, not only the Company by whom he is employed, but the public as well.

"Responsibility is only a matter of self-reliance, but not every one can adapt himself to it.

"While opportunity plays a prominent part in achieving success, it requires knowledge to take advantage of it.

"Personal habit has much to do with every man's future, particularly so if he would become a leader of, or have control over, others.

"At times recognition seems very remote, but there is always an opportune time, and one's ability is bound to be recognized sooner or later."

GENERAL RULES COVERING THE MANAGEMENT OF RAILWAY STATIONS.

The Agent. The business of a railway station is usually placed in charge of a station agent who is under the immediate direction of the superintendent. For faithful service and safe keeping of the company's property and money, he must give satisfactory bonds, the amount varying according to the importance of the station. He must strictly observe the rules and regulations covering the business, see that the employees at the station properly discharge their duties and that all treat the public with courtesy. He should make himself thoroughly familiar with the rules of his company, particularly with those relating to his own duties. He must divulge the business affairs of his company to none but the proper officials but should at all times cheerfully give to the public all information to which it is properly entitled.

Authority of Agents. The agent has control of the station-house, sidings and other property of the company, is held responsible for the general oversight of the same and employees connected therewith. He is also held responsible for the care and safety of all property of the company and should see that all records and tariffs are properly filed for convenient reference.

Authority at Large Stations. At large points, the different departments are given in charge and controlled separately by a ticket agent, freight agent, baggage master and yard master. They are all more or

less under the charge of the superintendency of the station agent, the authority varying on different roads.

The Yardmaster. The yardmaster is under the direction of the superintendent and has charge of the yard and sidetracks of stations where trains are made up, the movement of trains therein, and the yard force employed at those points. In the absence of the yardmaster the duties of that official are usually performed by the agent.

At Smaller Stations. In addition to other duties the agent at smaller stations usually acts as telegraph operator, express agent, and baggage master, etc., etc.

Absence From Duty. Unless by special permission from the superintendent, agents are not allowed to absent themselves from duty or leave their stations in charge of others.

Classification of Station Business. The business which comes under the supervision of the station agent may be divided into four separate departments, viz., "Freight," "Passenger or Ticket," "Telegraph" and "Baggage." "Express" may be added on some roads, the agent at smaller stations on most roads acting for the Express Company.

Tariffs in Force. Tariffs are effective until superseded by the issuance of another tariff or by regular cancelling or by cancellation through limitation.

Conducting Correspondence. Communications should be given prompt attention, and when received from patrons or prospective patrons of the company relative to rates or other matters, should be answered courteously and as fully as the circumstances demand. When communications are addressed to the different

general offices, the printed envelopes usually provided should be used. In other cases care should be taken to see that the envelopes are correctly addressed.

Routing. When so requested by shippers or passengers, agents should give information regarding the various routes with which his company's line connects but should not endeavor to influence them in favor of any particular route, excepting that preference may be given to the "through route" which will give the longest haul to his company at the same time serving equally well the interests of the patron.

FREIGHT FORWARDED.

Freight Forwarded. When offered to them by shippers, station agents must receive goods and give the proper receipts for all goods in good shipping order, plainly marked, except articles which are prohibited by the rules of the company. When giving receipts for cars loaded by shippers, the receipt should read, "Shippers count——" "More or less," except where the correct amount, etc., is positively known by the agent Releases for household goods and for freight of a smaller character should be taken in duplicate.

Shipping Bill. When freight is offered for transportation a shipping bill giving written shipping directions must be taken which should be signed by the consignor or his representative when the freight is delivered at the depot. The agent or tally man who receives the freight should tally same, checking each item on the shipping bill and sign his name under the check marks made by him after making notation "tallied when received." Freight received from connecting lines, should be treated in the same manner.

Way-Bills. On all freight forwarded from a station, way-bills must be made out and delivered to the conductor of the train taking same. Separate way-bills must be made for the contents of each car, and also for goods destined to different stations. A way-bill is a blank form printed so as to admit of the insertion of a detailed record of every consignment of freight. Special conditions should be noted on the way-bill. When perishable property is being shipped, the words "perishable freight" should be noted in red ink on the outside of the way-bill. The agent should know by examination and count that he actually receives all freight for which he gives a receipt. He should also know that the marks agree with those indicated on the shipping bill and that the goods are correctly described. General terms such as "merchandise" or "grain" must not be used. When the same kind of freight is in packages of varying sizes the number and weight should always be shown.

Way-Bills, How Made. The following essential details should be shown on way-bills: The car initials, car number, way-bill number, date when forwarded, name of the station from which forwarded, name of the station at which goods are to be delivered, name of the consignor and consignee, the rate, and a full description of all articles shipped and other particulars, all of which should be entered in the freight forwarded book. Conductors should enter their names in proper place on way-bill for freight hauled in their trains.

Copies of Way-Bills. Way-bills are generally written with copying ink and an imprint of them taken on tissue sheets although at some of the more important stations, in large cities, billing machines similar to the

The Atchison, Topeka & Santa Fe Railway Company.

WAY-BILL

SERIES U P No. 24762

From CHICAGO To FT RILEY KAS Date DEC 17 1902

ROUTE. 1st Junction: KAN CITY; 2d Junction; 3d Junction

Weigh at Stop at

MARKED CAPACITY OF CAR LBS.

FOR

Gross

Tare

Net

WEIGHED AT NT WD

CAR

INITIAL	NUMBER	TRANSFERRED AT
N Y C	54156	
Transfers Records		

*When a thru gloat is used and the shipment is to be re-way-billed en route, the subdivisions must be shown in the rate column in road order, noting opposite each proportion the initial of the road to which it accrues.

Connecting Line Name and Way Bill No.	MARKS CONSIGNEE AND DESTINATION	No. of Packages	ARTICLES AND CLASSIFICATION CONDITIONS (O. R. C. R. Rel. Gl... etc.)	WEIGHT	Rate and Authority*	FREIGHT	ADVANCES	PREPAID	FREIGHT BILL NO.
UNION LINE 12/3 42 JERSEY CITY	C A STEADMAN	1	DESK BXD O R	190	103 5 22 110 132	2 51		2 51	
BUTLER BROS	ORDER	1	BDL WHIPS	20	195	39			
	BUTLER BROS	3	BX TINW NSTD	215	110 5	2 38			
	NTFY	1	BX STPD TINW NSTD SLO	150	82	1 23			
	C W MERRITT	1	CRT AXE HDLS O R	50	60	30			
			DELIVER ON B/L ONLY	625		6 81		2 51	

Leave this Space Blank for Binding

Agents at Junction Stations receiving this Way-bill from Connecting Line must stamp in spaces below, in consecutive order, the names of their stations and date upon which the Way-bill is received.

1 Stamp of Junction Forwarding Agt

2 Stamp of Junction Forwarding Agt

3 Stamp of Junction Forwarding Agt

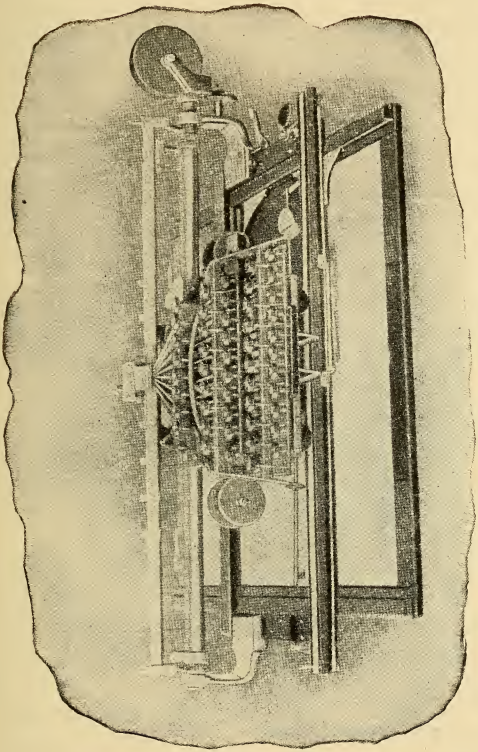
Conductors must enter in space provided on back of this blank number of train, station taken from and left at, date and signature.

AGENT AT DESTINATION

WILL ENTER HEREIN THIS DATE REPORTED.

CARD WAY-BILL MUST BE ATTACHED (NOT PASTED) TO THE REGULAR WAY-BILL BEFORE SENDING TO AUDIT OFFICE.

WAY-BILL WRITTEN BY WAY-BILLING MACHINE.



MODERN WAY-BILLING MACHINE

typewriter are now used. At smaller stations, copies of way-bills are usually re-written in a record book. The regulations vary on different roads in regard to the forwarding of duplicate copies but as a rule duplicate copies must be forwarded to the proper official at the general office.

Freight Received. The agent should critically examine the way-bill delivered with freight from other stations to ascertain if all footings, etc., are correct.

Notifying Consignee. Agents should notify by postal card or otherwise the consignee when freight arrives at a station, giving the amount of the charges.

Refusing to Accept Freight. If a shipper refuses to comply with the company's rules, the agent should explain that only by compliance with the terms and conditions as set forth in the classification tariffs and general rules may freight be accepted by him for transportation. If the shipper persists in refusing to comply, the agent will be justified in declining to receive freight, but in such a case he should immediately notify or advise the General Freight Agent, stating the particulars.

Owner's Risk. Freight for shipment to prepaid stations is accepted at owner's risk of loss or damage after it is unloaded at destination. "O R" meaning Owner's Risk must be marked on receipts issued for such freight unless a special rule is in force applying to same. Household goods are transported at a cheaper rate only when released to $5.00 per hundredweight, (cwt.). When it is shipped the bill should be marked "O. Rel. Val. $5 cwt." or "O. R." notation should be made by the shipper upon the shipping bill, never by the agent unless by special instructions. The atten-

tion of the shipper should be directed by the agent to the difference in rates when carried at "Owner's Risk" and "Carrier's Risk."

Refusal by Shipper to Sign Releases. If shipper refuses to sign a release the agent must collect the charges (prepaid) to destination only at the increased rates for shipments not released.

Except when shipper has an annual release, all freight so described under classification, to be released, is subject to release. When shipments of perishable freight are made from a given point, an agent may obtain from the shipper an annual release in duplicate, forwarding original copy to the freight auditor and retaining duplicate copy for his business record and when accepting freight for shipper having such annual release, a notation to the effect that an annual release applies thereto, should be noted on the shipping bill, bill of lading, way-bill and receipt. Agents must refuse to accept or forward freight if offered by a connecting line without release until the necessary conditions have been complied with. The requirements of all release contracts must be fully and properly made out when forwarding freight.

Perishable Property. Property, liable to damage, by the weather, when offered for shipment to points at which the company has no refrigerator car service, should be declined and the shipper referred to the express company. When shippers insist upon forwarding same as freight, agent should accept it only upon condition that the entire risk of damage is assumed by the shipper. The agent must in such cases properly secure a release for such freight, using the prescribed form. When perishable property is accepted for

transportation, it should be taken only upon payment of the freight charges to destination or upon a guarantee of the charges, in writing, from a responsible party. All goods of doubtful value or perishable should be guaranteed when not prepaid. When a special blank is not provided to meet such cases, it will be sufficient for the agent to write "charges guaranteed" on the bill of lading or other receipt given the shipper. Agents should be careful not to accept guarantees from irresponsible parties, because if not paid, the agent is held responsible for such guarantees. Connecting lines delivering freight upon which the charges should be guaranteed are required to comply with the regulations covering the guarantee of such freight and all such guarantees should be made in writing. It is not sufficient for an agent to accept the guarantee of the original shipper when freight is transferred from a connecting line to his own. Before forwarding freight from a connecting line, agent should demand the regular freight bills and should not receipt for freight when accompanied by bills bearing such notations as: "Memorandum bill," "Regular bill to follow," "Weight and numbers to follow," etc. If an agent discovers the marks on packages differ from those in the bill as to the name of consignee, destination or route, he should hold shipment, at once notify the shipping agent of the discrepancy and ask him for correct directions for delivery. In the case of perishable freight, when there is no time to obtain a reply by mail, he should communicate the particulars by wire.

Transferring Freight to Other Cars. When freight is received or "set out" to be transferred into other

cars, the number and initial of the car to which the freight is transferred should be noted in ink on the way-bill and the agent making the transfer should sign his name in full. Any difference in the tallying should be noted in the way-bill, also the original car number as well as No. of the car into which the freight has been transferred should be shown. If the shipment is in carload lots or is made in through cars and so are not checked or transferred the way-bill should show a notation to that effect.

"Mem" Bills. These are used in billing cars of company's material when the agent has had no time to make a regular bill. When used, regular way-bills should follow by first mail to station to which the shipment was consigned as shown on the "mem" or card bill. These should show the numbers and initials of cars, destination, name of Superintendent or other official by whose authority they were way-billed and the signature of the agent at station from which the shipment originated.

"Over," "Short" and "Damaged" Reports. Regular forms are furnished for the purpose of making these reports which should be filled out and forwarded promptly in accordance with the printed instructions given on each. The agent should advise the freight claim agent when such "over," "short" or damaged claims have been properly accounted for, rectified or disposed of. The freight claim department number, known as the F. C. D. number should be shown on the stub at the bottom of the "over," "short" or "damaged" report which is torn off and returned to the agent showing the number by which such report may be identified in the office of the freight claim agent. When

these stubs have been received from the freight claim agent by the station agent, they should be written in the "over," "short" and "damaged" copying book and the stubs fastened over the reports, in that book, to which they refer.

Over-charge, Loss or Damage. Claims for over-charge, loss or damage should be immediately forwarded to freight claim agent together with an itemized bill of the claim, bill of lading or shipper's receipt given for the shipment. The original freight bill and original invoice, copies of way-bill and all notations thereon, duplicate copies of short or bad order reports and any and all information which the agent has or may be able to obtain in relation to the claim. If the claimant declines to hand over the original invoice, the agent should examine it, and then certify that the claim is made at the invoice price. When a claim has been presented for freight lost, which is afterwards found, the freight claim agent should be notified.

PASSENGER OR TICKET DEPARTMENT.

Ticket agents or station agents in charge of selling tickets at stations are required to furnish all necessary facilities to pasengers for the purchase of tickets. They should have their offices open at least half an hour prior to the departure of each train carrying passengers. The tariffs, circulars, books of instruction, time-tables and other equipment should be kept in methodical order, ready for instant reference or use. Ticket agents and agents in charge of selling tickets should be well informed regarding the time of trains scheduled to carry passengers, routes, fares, and available connections. They should study the various kinds

of tickets and their arrangement in the ticket cases, the circulars and other information regarding fares and the tariffs. They should also be thoroughly familiar with the map of the railroad and also with the contents of the manual or book of instructions issued by the company.

Classification of Tickets. Tickets may be classed as follows: First class, second class, local or coupon, half, commutation, excursion, special, interline, and mileage-books. Tickets are local when used only on the line of road which issues them. They are interline when used for a continuous journey over more than one railroad. Fares are quoted in the various tariffs known as local tariffs and interline tariffs, both joint and individual. "Observance of tariffs, rates and regulations is required, both as a necessity of proper accounting and in compliance with the interstate commerce law and similar state laws."*

Coupon or Interline Tickets. A coupon ticket is one having two or more coupons. It may be local or interline. Interline tickets are first and second class colonist, settlers, immigrant one way, round trip tourist, home-seekers, excursion, special excursion for meetings, holiday excursion, etc. They have a form of contract with provision for limitation by "punch-out" in the margins. Sometimes a space is provided for the signature of the passengers, sometimes for a description of the passenger by punch holes.

Dating Tickets. Every ticket sold, regardless of its form, should be plainly stamped on the back with the date of sale, stamped or perforated with the dating machine or stamp provided for that purpose. When interline, coupon or tourist tickets are sold, each cou-

*Meyer.

pon and also that part of the ticket containing the contract must be thus stamped: "Agents should be particularly careful to change the date of their dating stamps, before commencing the sale of tickets for trains leaving after midnight thus insuring the proper legal date from midnight to midnight of the day on which the ticket is sold."*

Writing on Tickets. When it is necessary to write on tickets it should be done with pen and ink and the writing should be plain. The name of the station should be followed by the name of the state on account of the similarity in the names of stations in various states. When a mistake is made in writing, punching, stamp or otherwise, alterations should not be made on the ticket but a new one should be issued properly filled out and stamped. The spoilt one should be marked "Void," by writing that word across the contract and each coupon, and sent to ticket auditor with a report.

Supplies. Agents should watch their stock of tickets closely and always keep on hand a sufficient quantity of active forms. When making a requisition to the general passenger agent it should be done in good time, at least ten days in advance of possible needs. A separate requisition should be used for the different kinds of tickets required.

Arrangement of Ticket Cases. Forms of tickets for temporary use for special occasions only, should have a special place in the ticket-case convenient for any unusual demand liable to occur. Tubes are usually provided in case for card tickets, the arrangement of which may be either alphabetical or geographical. Hooks are provided for simplex, coupon or similar

tickets and these are usually kept in numerical order of their forms although some roads desire them kept by other arrangement. Interline tickets are kept either in numerical order by their form numbers or alphabetical by name of terminal line as shown in charts or forms.

Responsibility of Agents for Tickets. Tickets furnished to an agent are charged to him. Therefore the utmost care should be taken to prevent loss. The ticket-case should be kept locked, and never opened except for the sale of tickets or for checking purposes. Much anxiety and trouble may be avoided by care being used to not mislay tickets and to properly care for tickets marked "Void" and to guard against tickets falling down at back of case and being lost. It is a safe plan and one usually followed by careful agents to keep in the safe such tickets as mileage-books, excess-baggage—book-tickets, commutation tickets, prepaid orders, etc.

BAGGAGE DEPARTMENT.

Baggage. The term "baggage" should be applied only to passengers' personal effects, consisting of wearing apparel and other things necessary for their journey. For each full ticket, the weight limit on nearly all roads is 150 lbs. Weight in excess of 150 pounds must be charged for as "Excess baggage" at the prescribed rates as given in the tariff.

Baggage, How Packed. Personal effects and wearing apparel of passengers should be packed in trunks for checking, although valises, satchels, suit-cases and leather hat-boxes, may be received and checked. Sometimes camp equipages, the properties of theatrical companies, emigrant effects packed in bags, also

sailor's bags are offered as baggage for checking, and if securely fastened may be accepted and checked. If, however, trunks, satchels or other articles have bundles tied to them or if two pieces of baggage are fastened together with a rope or strap they must not be checked until separated.

Examining Baggage Before Checking. Before giving checks for baggage, examination should be made to see whether locks or hinges are broken or missing, or locks unfastened. If baggage is found in a condition which renders it risky for transportation, it should be rendered as safe as possible by the passenger, the baggage-master or agent assisting when practicable. Such baggage is known and described as "Bad Order" and should be so designated against its number in the daily report.

Transferring Baggage at Junctions, etc. Baggage transferred at transfer points should be examined, if found in bad order, the attention of the person from whom it is received should be called to its condition and the customary notation made in the daily report. Special reports in writing of "Bad Order" baggage on the prescribed form should likewise be made to the general baggage agent.

Baggage Destined to Stations Without Agents. When baggage is checked to "no agent stations" the passenger should be informed of the fact that as no agent will be at destination the train-baggage-master must have checks given to him before train arrives in order that he may put off the baggage. It should be explained that without such surrender of checks the baggage would be carried to the first station beyond at which there is an agent.

Baggage "Over" and "Short." Baggage "over" or "on hand" for any reason should have an ("on hand") "O. H." tag attached thereto, showing date, train, and conductor, from whom received, also the number of the over, short and damaged—("O. S. & D.") report made regarding it.

If baggage is "short" when duplicate checks are offered, the letters in full, numbers, date of issue, and station issued at, route, etc., should be immediately telegraphed to the general baggage agent. When baggage so reported is subsequently received, the general baggage agent should be notified.

Monthly Reports of Baggage. Monthly reports vary in detail. Different roads have different requirements, generally speaking however, a monthly report shows the number of pieces of baggage received and forwarded and total amount collected for excess baggage. Sometimes the report provides for comparison showing increase or decrease with the corresponding month of the previous year.

Unclaimed Baggage Reports. Reports which describe the kind of baggage, marks, check numbers, destination, etc., on hand unclaimed, should be made weekly to the general baggage agent. This report is usually made to also cover what supplies of stationery, checks, etc., are on hand.

Responsibility for Baggage. Agents and others who have the handling or care of baggage cannot be too careful. Many claims for damage and loss which railway companies have paid might have been prevented by the exercise of more care on the part of those responsible. Baggage should be put in the baggage-room, directly after delivery from train, if left on plat-

form it should be watched. Passengers, expressmen, hackmen and others should not be permitted to remove checks from baggage. By exercising due precaution loss of baggage through pieces being taken away by mistake or by theft may be obviated. Before delivery checks must be correctly matched. No person not having business there should be allowed in the baggage room and when the agent or person in charge is absent doors and windows should be closed and securely fastened.

Note:—The following rules are in force on the Chicago & Northwestern System. They cover the essential points which all companies require of their agents. Each company has its own rules, but with a few minor differences, necessary because of local conditions, they are much the same.

"Station agents are not allowed to be absent without leave from superintendent, except through illness, in which case they must immediately inform superintendent and arrange for some competent person to discharge their duties."

"They must at all times see that their offices, waiting rooms, freight houses and platforms are kept in a clean and orderly condition; that all grass, straw, or other combustible material is promptly removed from depot grounds and premises; that stock yards are kept in good order and ready for use, and that closets receive the same careful and daily attention as waiting rooms and offices."

"Agents will be held responsible for the position of switches and cars at their stations. Switches must be set and locked for the main track, except when in use. Agents must know before leaving their stations at

night that all switches are locked for the main track, and that cars have the brakes set or are otherwise secured, so that they cannot be moved by the wind, or their position changed so as to interfere with the passage of trains on the main track."

"Keeping switch and semaphore lights in good condition is of the utmost importance. To this end agents will have them taken down every morning, refilled, the lenses carefully cleaned, and put back in the evening. They must be kept under cover when not in use."

"They are required to use every effort to secure the prompt dispatch of cars, and will have way-bills ready promptly, so that trains will not be delayed. They must see that empty, as well as loaded cars, are taken by trains at the earliest possible moment, subject to order of the train dispatcher."

"Whenever any company material in carloads is received at any station, for which there is no disposition, agent will report them to chief train dispatcher at once, by wire, giving contents and any other information he may have, so that it may be arranged to have them unloaded promptly."

"Through freight must not be loaded into a car containing freight for way stations, except where it is absolutely necessary."

"Give particular attention to the loading and unloading of stock. Agents will render all possible assistance in loading and unloading of stock, and must see that cars are in proper condition, and that doors are securely fastened before leaving station."

"In loading hay, straw, tow and similar freight that is liable to catch fire, agents will be particular to select tight cars and see that all openings are closed

and securely fastened. Such cars must be distinctly marked with the card that is furnished for that purpose, one card being placed on each side of car."

"Agents are required to see that cars are properly loaded, to obtain, if possible, the maximum capacity, and not permit an overload to exceed ten per cent of marked capacity. It is important that load be distributed evenly securely staked, and that no projections extend over ends of cars."

"No agent is excusable for allowing perishable property to spoil on his hands. When such property is received and is refused or unclaimed by the consignee, notice should be sent to assistant claim agent by wire of that fact; and forward to him by first train copy of the way-bill for the freight, together with report as to value of property and why same is refused, or, if unclaimed, state whether consignee's whereabouts is known to agent, and name and address of shipper, if known."

"Freight, baggage and other articles must not be allowed to stand upon depot platforms where they might cause accident or inconvenience to passengers or employes, or receive damage from weather."

"Agents will not allow a car to stand upon main track to be loaded or unloaded without special permission, in each case, from superintendent."

"Agents will see that conductors of freight trains do not block public crossings longer than five minutes."

"Agents will decline to allow any boards, posters or advertising matter to be placed on the company's cars, except such cards as are furnished by the company, as "time freight" cards, or cards of direction. At destination and at junction stations with other di-

visions, or foreign roads, agents will remove all advertising matter that is not authorized by the above or by special instructions."

"Agents must keep doors of their freight houses closed and securely locked at all times when proper employes are absent. They will not permit delivery of any freight except in the presence of themselves or representatives."

"Tickets must not be sold for stations at which trains do not stop, or for trains that do not carry passengers."

"Tickets must not be sold to persons not in condition to care for themselves, unless accompanied by a proper person, nor must tickets be sold for excursion or extra trains unless so authorized."

"Ticket offices must be open at least thirty minutes before arrival of trains that stop, and kept open until trains have passed."

"Station agents, who also act as agents of any express or other company, must give preference to duties of the business pertaining to the railway company."

"Agents will promptly advise superintendent, either by wire or mail, of any unusual events that have occurred in their neighborhood, which are of general interest or importance, such as fires, disasters, deaths of prominent persons, etc."

"Agents will familiarize themselves with and obey instructions of other departments."

The first duty of a conductor is to be absolutely certain that his train is perfectly protected and safe, protected against accidents by being supplied with the proper signals; and in case a train is delayed, to see that the rear man goes back with danger signals to warn an approaching train. This is a very important duty, and no conductor can be too careful in properly protecting his train, as many accidents have happened by short flagging.

He must know his engineer and men, and keep in touch with them, and notify them of all orders received, and must know and be familiar with all signals and orders received from train master and other officials.

He must be vigilant and watchful—careful as to the safety and comfort of the passengers and property entrusted to his care, always keeping in mind that he represents the owners and officials of the railway he is employed upon—and, as he is the man who comes directly in contact with the public as the representative of the railway company, he must be a good judge of human nature and be thoughtful and intelligent in the transaction of the company's business affairs, careful not to allow any loss to occur on any account, and be courteous, gentlemanly and business-like, always endeavoring to avoid giving offense to any one.

He should also see that the cars are clean and properly heated and well ventilated. At each terminal he should make correct reports of all trains and the time, and return same to the proper officials. Before starting on a

trip he should know that his train has been properly inspected, that he has the authority for the movement of all cars in his train, that the air brakes are in proper working order, that he has the proper train orders or clearance in his possession to move, and that all over-due trains have arrived and departed, and that he has the right of track to proceed before giving the signal that starts the train. While train is running, it is his duty to keep a sharp lookout to see if any of the journals are running hot, brake-shoes sticking, etc.

Not only does the responsibility for the safety of the train devolve upon the conductor, calling for an everlasting alertness while on the road, but the numerous forms of transportation must be watched, and the bulletins and instructions carried out. It is an easy matter for a conductor to involve his company in a suit by improperly handling a "crank" who has been sold a ticket to a point at which the train does not stop, or one whose transportation is questionable. There are a great many things which must be left to the conductor's judgment, as all emergencies cannot be covered by instructions.

In the collection of transportation he must be careful not to accept any ticket or pass the limit of which has expired, or one that has been advertised as lost or stolen. He must be familiar with all forms of tickets issued by other roads, and be able to answer all questions intelligently in regard to connections, leaving time of trains at junction points, etc. In fact he is a walking encyclopædia and timetable, all of which must be done in a pleasant manner, as the popularity of the road depends in a great measure on the way passengers are treated by the employees.

The duties of the conductor vary according to the run, whether it is local or a through run. On a through run a conductor reports in full uniform thirty minutes before leaving time, inspects train and reports any defects to the division superintendent or other proper officer to whom such reports are to be made; sees that trainmen are on duty in full uniform and that it is neat and clean; ascertains engine number, engineer and fireman's names, number and names of coaches in train; makes out wheel report to Car Accountant; and during the trip makes out trip report, showing time of train passing different stations; makes a notation of detention and causes for same, and reports them by wire at division terminal to Division Superintendent; collects transportation in coaches and in sleeping cars; collects transportation of passengers to destination of car, enclosing it after detaching his coupon in separate envelopes, one for each sleeper, and turns them over to connecting conductor at junction point.

On arrival at end of his run he makes out cash report showing cash collected during trip and also makes out mileage report of tickets, turning them in with all collections to the proper officer on his line to whom they should be sent.

Diplomacy and tact are essential in bringing harmony out of confusion, in preventing complaints from real or fancied grievances, and in avoiding claims for damages when conciliation as a preventive may be successful.

The conductor being the captain of his train, should instill in the members of his crew the principles of efficiency, deportment, studiousness in their efforts to practice economy, fidelity to the interests of their employers and the comfort and convenience of passengers entrusted to their care.

While acting as a passenger conductor, 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 employees 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.

FREIGHT CONDUCTOR.

The freight conductor must show his ability in a different manner. The through freight man is in a class by himself. His duties are to get over the road with as much dispatch as possible, keep the dispatcher posted as to how his train is moving, and by so doing help the dispatcher make his meeting points for him. The local conductor comes last, but not least. He is born, not made. His duties are endless. He can make himself valuable to his company, but to do so depends a good deal on his disposition, as he comes more in contact with the patrons of the road than his brother on the through freight.

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.

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 toward gambling, regardless of their posi-

tion 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 a great extent.

THE STANDARD CODE TRAIN RULES.

AMERICAN RAILWAY ASSOCIATION.

GENERAL RULES.

A. Employes whose duties are prescribed by these rules must provide themselves with a copy.

B. Employes must be conversant with and obey the rules and special instructions. If in doubt as to their meaning they must apply to proper authority for an explanation.

C. Employes must pass the required examinations.

D. Persons employed in any service on trains are subject to the rules and special instructions.

E. Employes must render every assistance in their power in carrying out the rules and special instructions.

F. Any violation of the rules or special instructions must be reported.

G. The use of intoxicants by employes while on duty is prohibited. Their use, or the frequenting of places where they are sold, is sufficient cause for dismissal.

H. The use of tobacco by employes when on duty in or about passenger stations, or on passenger cars is prohibited.

J. Employes on duty must wear the prescribed badge and uniform and be neat in appearance.

K. Persons authorized to transact business at stations or on trains must be orderly and avoid annoyance to patrons.

L. In case of danger to the Company's property, employes must unite to protect it.

DEFINITIONS.

Engine—A locomotive propelled by any form of energy.

Train—An engine, or more than one engine coupled, with or without cars, displaying Markers.

Regular Train—A train authorized by a time-table schedule.

Section—One of two or more trains running on the same schedule displaying signals, or for which signals are displayed.

Extra Train—A train not authorized by a time-table schedule. It may be designated as:

Extra—For any extra train, except work extra.

Work Extra—For work train extra.

Superior Train—A train having precedence over other trains.

Train of Superior Right—A train given precedence by train order.

Train of Superior Class—A train given precedence by the timetable.

Train of Superior Direction—A train given precedence in the direction specified in the time-table as between trains of the same class.

Note—Superiority by direction is limited to single track.

Time-table—The authority for the movement of regular trains subject to the rules. It contains the classified schedules of trains with special instructions relating thereto.

Schedule—That part of a time-table which prescribes class, direction, number and movement for a regular train.

Division—That portion of a railway assigned to the supervision of a ———.

Subdivision—A part of a division so designated on the timetable.

Main Track—A track extending through the yards and between stations, upon which the current of traffic may be in either specified direction.

Single Track—A track upon which trains are operated in both directions.

Double Track—Two main tracks, upon one of which the current traffic is in a specified direction, and upon the other in the opposite direction.

Current of Traffic—The movement of trains on a main track in one direction, specified by the rules.

Station—A place designated on the time-table by name, at which a train may stop for traffic, or to enter or leave the main track, or from which fixed signals are operated.

Siding—An auxiliary track for meeting or passing trains, limited to the distance between two adjoining telegraph stations.

Fixed Signal—A signal of fixed location indicating a condition affecting the movement of a train.

Note to Definition of Fixed Signals—The definition of This definition covers such signals as slow boards, stop boards, yard limits, switch, train order, block, interlocking, semaphore, disc, ball or other means for indicating stop, caution or proceed.

Yard—A system of tracks within defined limits provided for the making up of trains, storing of cars and other purposes, over which movements not authorized by time-table, or by train orders, may be made, subject to prescribed signals and regulations.

Yard Engine—An engine assigned to yard service and working within yard limits.

Pilot—A person assigned to a train when the engineman or conductor or both are not fully acquainted with the physical character or running rules of the road, or portion of the road, over which the train is to be moved.

RULES FOR SINGLE TRACK.

STANDARD TIME

1. Standard Time obtained from ——— observatory will be telegraphed to all points from designated offices at ——, ——m. daily.

NOTE to Rule 1.—In order to detect possible errors at junction points and to secure uniformity, the Committee recommends that the time be disseminated to all points at the same hour. The Committee considers it of great importance that the time be obtained from some observatory of recognized standing.

2. Watches that have been examined and certified to by a designated inspector must be used by the conductor, enginemen and —*. The certificate in prescribed form must be renewed and filed with ——— every ———.

*The committee recommends that in filling the blank each company add such other classes of employes as it may desire.

(Form of Certificate.)

CERTIFICATE OF WATCH INSPECTOR.

This is to certify that on .....19....
the watch of .....
employed as .....on the
.....
was examined by me. It is correct and reliable, and in

my judgment will, with proper care, run within a variation of thirty seconds per week.

Name of maker .....
Brand .....
Number of Movement .....
Open or Hunting Case .....
Metal of Case .....
Stem or Key Winding .....
Signed, ...
Inspector.

Address .....

3. Watches of conductors, enginemen and ——* must be compared, before starting on each trip, with a clock designated as a Standard Clock. The time when watches are compared must be registered on a prescribed form.

NOTE to Rule 3.—The conditions under which conductors and enginemen whose duties preclude access to a standard clock are required to obtain standard time, vary so much on different roads that the Committee recommends that each adopt such regulations to cover the case supplementary to this rule, as may best suit its own requirements.

TIME-TABLES.

4. Each timetable, from the moment it takes effect, supersedes the preceding timetable, and its schedules take effect on any division (or subdivision) at the leaving time at their initial stations on such division (or subdivision). But when a schedule of the preceding timetable corresponds in number, class, day of leaving, direction, and initial and terminal stations, with a schedule of the new timetable, a train authorized by the preceding

timetable will retain train orders and assume the schedule of the corresponding number of the new timetable.

Schedules on each division (or subdivision) date from their initial stations on such divisions (or subdivisions).

5. Not more than two times are given for a train at any station; where one is given, it is unless otherwise indicated the leaving time; where two, they are the arriving and leaving time.

Unless otherwise indicated, the time applies to the switch where an inferior train enters the siding; where there is no siding, it applies to the place from which fixed signals are operated; where there is neither siding nor fixed signal, it applies to the place where traffic is received or discharged.

Schedule meeting or passing points are indicated by figures in full-faced type.

Both the arriving and leaving time of a train are in full-faced type when both are meeting or passing times, or when one or more trains are to meet or pass it between those times.

When trains are to be met or passed at a siding extending between two adjoining stations, the time at each end of the siding shall be shown in full-faced type.

Where there are one or more trains to meet or pass a train between two times, or more than one train to meet a train at any station, attention is called to it by

——

NOTE to Rule 5.—The Committee recommends that each company adopt such method as it may prefer in filling the blank.

6. The following signs when placed before the figures of the schedule, indicate:

"s"—Regular stop.

"f"—Flag stop to receive or discharge passengers or freight.

—Stop for meals.

"L."—Leave.

"A."—Arrive.

SIGNAL RULES.

7. Employes whose duties may require them to give signals must provide themselves with the proper appliances, keep them in good order and ready for immediate use.

8. Flags of the prescribed color must be used by day, and lamps of the prescribed color by night.

9. Night signals are to be displayed from sunset to sunrise. When weather or other conditions obscure day signals, night signals must be used in addition.

VISIBLE SIGNALS.

10. COLOR SIGNALS.

(a) *Color,* Red.—*Indication.*—Stop.

(b) ——.—Proceed, and for other uses prescribed by the rules.

(c) ——.—Proceed with caution, and for other uses prescribed by the rules.

(d) Green and white.—Flag stop. See Rule 28.

(e) Blue.—See Rule 26.

NOTE to Rule 10.—The Committee has omitted giving the colors of signals "b" and "c" in Rule 10, leaving it discretionary with each road to use such colors as it may prefer.

11. A fusee on or near the track, burning red, must not be passed until burned out. When burning green it is a caution signal.

12. HAND, FLAG, AND LAMP SIGNALS.

(a) *Manner of Using,* Swung across the track.—*Indication.*—Stop.

(b) Raised and lowered vertically.—Proceed.

(c) Swung vertically in a circle at half-arm's length across the track when the train is standing.—Indication, "Back."

(d) Swung vertically in a circle at arm's length across the track, when train is running.—Train has parted.

(e) Swung horizontally above the head when the train is standing—"Apply air-brakes."

(f) Held at arm's length above the head, when train is standing—Release air-brakes.

13. Any object waved violently by anyone on or near the track is a signal to stop.

AUDIBLE SIGNALS.

14. Engine Whistle Signals.

Note.—The signals prescribed are illustrated by "o" for short sounds; "——" for longer sounds. The sound of the whistle should be distinct, with intensity and duration proportionate to the distance signal is to be conveyed.

(a) o.....Stop. Apply brakes.

(b) —— ——....Release brakes.

(c) —— ooo.....Flagman go back and protect rear of train.

(d) — — — —....Flagman return from west or south.

(e) — — — — —..Flagman return from east or north.

(f) —— —— ——.When running, train parted; to be repeated until answered by signal prescribed by Rule

12 (d). Answer to 12 (d).

(g) oo.....Answer to any signal not otherwise provided for.

(*H.*) *ooo*....When train is standing back. Answer to 12 (c) and 16 (c). When train is running, answer to 16 (d).

(j) oooo.....Call for signals.

(*K.*) —*oo*...To call the attention of yard engines, extra trains or trains of the same or inferior class or inferior right of signals, displayed for a following section.

(l) —— —— o o..Approaching public crossings at grade.

(m) ————.....Approaching stations, junctions and railroad crossings at grade.

A succession of short sounds of the whistle is an alarm for persons or cattle on the track.

15. The explosion of one torpedo is a signal to stop; the explosion of two not more than 200 feet apart is a signal to reduce speed, and look out for a stop signal.

16. AIR-WHISTLE OR BELL-CORD SIGNALS.

Sound.	*Indication.*
(a) Two.....	When train is standing, start.
(b) Two.....	When train is running, stop at once.
(c) Three.....	When train is standing, back the train.
(d) Three.....	When train is running, stop at next station.
(e) Four.....	When train is standing, apply or release air-brakes.
(f) Four.....	When train is running, reduce speed.

(g) Five.....When train is standing, call in flagman.

(h) Five.....When train is running, increase speed.

TRAIN SIGNALS.

17. The head-light will be displayed to the front of every train by night, but must be concealed when a train turns out to meet another and has stopped clear of main track, or is standing to meet trains at the end of double track or at junctions.

18. Yard engines will display the head-light to the front and rear by night. When not provided with a head-light at the rear, two white lights must be displayed. Yard engines will not display markers.

19. The following signals will be displayed one on each side of the rear of the train, as markers, to indicate the rear of the train: By day, green flags. By night, green lights to the front and side, and red lights to the rear, except when the train is clear of the main track, when green lights must be displayed to the front, side and rear.

20. All sections, except the last, will display two green flags and, in addition two green lights by night, in the places provided for that purpose on the front of the engine.

21. Extra trains will display two white flags and in addition, two white lights by night, in the places provided for that purpose on the front of the engine.

22. When two or more engines are coupled, the leading engine only shall display the signals as prescribed by Rules 20 and 21.

23. One flag or light displayed where in Rules 19, 20

and 21 two are prescribed, will indicate the same as two; but the proper display of all train signals is required.

24. When cars are pushed by an engine (except when shifting or making up trains in yards), a white light must be displayed on the front of the leading car by night.

25. Each car on a passenger train must be connected with the engine by a communicating signal appliance.

26. A blue flag by day and a blue light by night, displayed at one or both ends of an engine, car or train, indicates that workmen are under or about it. When thus protected it must not be coupled to or moved. Workmen will display the blue signals and the same workmen are alone authorized to remove them. Other cars must not be placed on the same track so as to intercept the view of the blue signals, without first notifying the workmen.

USE OF SIGNALS.

27. A signal imperfectly displayed, or the absence of a signal at a place where a signal is usually shown, must be regarded as a stop signal, and the fact reported to the ——.

28. A combined green and white signal is to be used to stop a train only at the flag stations indicated on its schedule. When it is necessary to stop a train at a point that is not a flag station on its schedule, a red signal must be used.

29. When a signal (except a fixed signal), is given to stop a train, it must, unless otherwise provided, be acknowledged as prescribed by Rule 14 (g) or (h).

30. The engine-bell must be rung when an engine is about to move.

31. The engine-bell must be rung on approaching every public road crossing at grade, and until it is passed;

and the whistle must be sounded at all whistling-posts.

32. The unnecessary use of either the whistle or the bell is prohibited. They will be used only as prescribed by rule or law, or to prevent accident.

33. Watchmen stationed at public road and street crossings must use red signals only when necessary to stop trains.

SUPERIORITY OF TRAINS.

71. A train is superior to another train by right, class, or direction.

Right is conferred by train order; class and direction by timetable.

Right is superior to class or direction.

Direction is superior as between trains of the same class.

72. Trains of the first class are superior to those of the second; trains of the second class are superior to those of the third; and so on.

Trains in the direction specified by the timetable are superior to trains of the same class in the opposite direction.

73. Extra trains are inferior to regular trains.

MOVEMENT OF TRAINS.

82. Timetable schedules, unless fulfilled, are in effect for 12 hours after their time at each station.

Regular trains 12 hours behind either their schedule arriving or leaving time at any station lose both right and schedule, and can thereafter proceed only as authorized by train order.

83. A train must not leave its initial station on any division (or sub-division), or a junction or pass from

double to single track, until it has been ascertained whether all trains due, which are superior or of the same class, have arrived or left.

84. A train must not start until the proper signal is given.

85. When a train of one schedule is on the time of another schedule of the same class in the same direction, it will proceed on its own schedule.

Trains of one schedule may pass trains of another schedule of the same class, and extras may pass and run ahead of extras.

86. An inferior train must clear the time of a superior train in the same direction not less than five minutes, but must be clear at the time a first-class train, in the same direction, is due to leave the next station in the rear where time is shown.

87. An inferior train must keep out of the way of opposing superior trains, and failing to clear the main track by the time required by rule, must be protected as prescribed by rule 99.

Extra trains must clear the time of regular trains—— minutes unless otherwise provided, and will be governed by train orders with respect to opposing extra trains.

88. At a meeting point between trains of the same class the inferior train must clear the main track before the leaving time of the superior train.

At meeting points between extra trains, the train in the inferior timetable direction must take the siding, unless otherwise provided.

Trains must pull into the siding when practicable; if necessary to back in, the train must first be protected as prescribed by Rule 99, unless otherwise provided.

89. At meeting points between trains of different classes the inferior train must take the siding and clear the superior train at least five minutes and must pull into the siding when practicable. If necessary to back in, the train must first be protected as per Rule 99, unless otherwise provided.

NOTE to Rules 88 and 89.—The Committee recommends that where greater clearance is necessary, Rule 88 should require a clearance of FIVE minutes, and Rule No. 89 of TEN minutes.

90. Trains must stop at schedule meeting stations, if the train to be met is of the same class, unless the switch is right and the track clear. When the expected train of the same class is not found at the schedule meeting station, the superior train must approach all sidings prepared to stop, until the expected train is met

Trains must stop clear of the switch used by the train to be met in going on the siding.

91. Unless some form of block signals is used trains in the same direction must keep at least five minutes apart, except in closing up at stations.

NOTE to Rule 91.—The Committee recommends, that where greater clearnace is necessary, Rule No. 91 should allow a clearance of TEN minutes or more.

92. A train must not arrive at a station in advance of its schedule arriving time.

A train must not leave a station in advance of its schedule leaving time.

93. Within yard limits the main track may be used, protecting against ——— class trains. ——— class and extra trains must move within yard limits, prepared to stop unless the main track is seen or known to be clear.

94. A train which overtakes another train so dis-

abled that it cannot proceed, will pass it, if practicable, and if necessary will assume the schedule and take the train orders of the disabled train, proceed to the next open telegraph office, and there report to the ————. The disabled train will assume the schedule and take the train orders of the last train with which it has exchanged and will, when able, proceed to and report from the next open telegraph office.

When a train, unable to proceed against the right or schedule of an opposing train, is overtaken between the telegraph stations by an inferior train or a train of the same class having right or schedule which permits it to proceed, the delayed train may, after proper consultation with the following train, precede it to the next telegraph station, where it must report to ————. When opposing trains are met under these circumstances it must be fully explained to them by the leading train that the expected train is following.

95. Two or more sections may be run on the same schedule.

Each section has equal timetable authority.

A train must not display signals for a following section without order from the ————.

96. When signals displayed for a section are taken down at any point before that section arrives, the conductor will, if there be no other provision, arrange in writing with the operator, or if there be no operator, with the switchtender, or in the absence of both, with a flagman left there for the purpose, to notify all opposing inferior trains or trains of the same class leaving such point, that the section for which signals were displayed has not arrived.

NOTE to Rule 96.—The Committee recommends, if a company desires to have all opposing trains notified, that the last sentence of Rule 96 be changed to read: "To notify all opposing trains that the section for which signals were displayed has not arrived."

97. Extra trains must not be run without orders from the ———.

98. Trains must approach the end of double track, junctions, railroad crossings at grade, and drawbridges, prepared to stop, unless the switches and signals are right and the track is clear. When required by law, trains must stop.

99. When a train stops or is delayed, under circumstances in which it may be overtaken by another train, the flagman must go back immediately with stop signals a sufficient distance to insure full protection. When recalled he may return to his train, first placing two torpedoes on the rail when the conditions require it.

The front of a train must be protected in the same way, when necessary, by the ———.

100. When the flagman goes back to protect the rear of his train, the ——— must, in the case of passenger trains, and the next brakeman in the case of other trains, take his place on the train.

101. If a train should part while in motion, trainmen must, if possible, prevent damage to the detached portion. The signals prescribed by rules 12 (d) and 14 (f) must be given.

The detached portion must not be moved or passed until the front portion comes back.

102. When cars are pushed by an engine (except when shifting and making up trains in yards), a flagman must take a conspicuous position on the front of the leading car.

103. Messages or orders respecting the movement of trains or the condition of track or bridges must be in writing.

104. Switches must be left in proper position after having been used. Conductors are responsible for the position of the switches used by them and their trainmen, except where switchtenders are stationed.

A switch must not be left open for a following train unless in charge of a trainman of such train.

105. Both conductors and enginemen are responsible for the safety of their trains and, under conditions not provided for by the rules, must take every precaution for their protection.

106. In all cases of doubt or uncertainty the safe course must be taken and no risks run.

RULES FOR MOVEMENT BY TRAIN ORDERS.

201. For movements not provided for by timetable, train orders will be issued by authority of the ———. They must contain neither information nor instructions not essential to such movements.

They must be brief and clear; in the prescribed forms when applicable; and without erasure, alteration or interlineation.

202. Each train order must be given in the same words to all persons and trains addressed.

203. Train orders will be numbered consecutively each day, beginning with No. — at midnight.

204. Train orders must be addressed to those who are to execute them, naming the place at which each is to receive his copy. Those for a train must be addressed to the conductor and engineman, and also to any one who acts as its pilot. A copy for each person addressed must be supplied by the operator.

Orders addressed to operators restricting the movement of trains must be respected by conductors and enginemen the same as if addressed to them.

205. Each train order must be written in full in a book provided for the purpose at the office of the ———; and with it recorded the names of those who have signed for the order; the time and the signals which show when and from what offices the order was repeated and the responses transmitted; and the train dispatcher's initials. These records must be made at once, and never from memory or memoranda.

206. Regular trains will be designated in train orders by their numbers, as "No. 10." or "2d No. 10," adding engine numbers if desired.

Extra trains will be designated by engine numbers and the direction as "extra 798 'East' or 'West'." Other numbers and time will be stated in figures only.

207. To transmit a train order, the signal "31" or the signal "19" followed by the direction must be given to each office addressed, the number of copies being stated, if more or less than three—thus: "31 West copy 5," or "19 East copy 2."

NOTE to Rule 207.—Where forms "31" and "19" are not both in use the signal may be omitted.

208. (*A.*) A train order to be sent to two or more offices must be transmitted simultaneously to as many of them as practicable. The several addresses must be in order of superiority of trains, each office taking its proper address. When not sent simultaneously to all, the order must be sent first to the superior train.

208 (*B.*) A train order to be sent to two or more offices must be transmitted simultaneously to as many of them as practicable.

The several addresses must be in the order of superiority of trains, and when practicable must include the operator at the meeting or waiting point, each office taking its proper address.

When not sent simultaneously to all, the order must be sent first to the superior train.

Copies of the order addressed to the operator at the meeting or waiting point must be delivered to all trains affected until all have arrived from one direction.

209. Operators receiving train orders must write them in manifold during transmission, and if they cannot at one writing make the requisite number of copies, must trace others from one of the copies first made.

Note to Rule 209.—If the typewriter is used for copying train orders, when additional copies are made, the order must be repeated from such copies to the train dispatcher, and complete, given in the usual manner.

210. When a "31" train order has been transmitted, operators must (unless otherwise directed) repeat it at once from the manifold copy in the succession in which the several offices have been addressed, and then write the time of the repetition on the order. Each operator receiving the order should observe whether the others repeat correctly.

Those to whom the order is addressed, except enginemen, must then sign it, and the operator will send their signatures preceded by the number of the order to the ———. The response "complete," and the time, with the initials of the ———, will then be given by the train dispatcher. Each operator receiving this response will then write on each copy the word "complete," the time, and his last name in full, and then deliver a copy to each person addressed, except enginemen. The copy

for each engineman must be delivered to him personally by ———.

NOTE to Rule 210.—The blanks in the above rule may be filed for each road to suit its own requirements. On roads where the signature of the engineman is desired, the words "except enginemen," and the last sentence in the second paragraph may be omitted. If preferred, each person receiving an order may be required to read it aloud to the operator.

211. When a "19" train order has been transmitted, operators must (unless otherwise directed) repeat it at once from the manifold copy, in the succession in which the several offices have been addressed. Each operator receiving the order should observe whether the others repeat correctly. When the order has been repeated correctly by an operator, the response "complete" and the time, with the initials of the ———, will be given by the train dispatcher. The operator receiving this response will then write on each copy the word "complete," the time, and his last name in full, and personally deliver a copy to each person addressed without taking his signature.

But when delivery to engineman will take the operator from the immediate vicinity of his office, the engineman's copy will be delivered by ———.

When a "19" train order restricting the superiority of a train is issued for it at the point where such superiority is restricted, the train must be brought to a stop before delivery of the order.

212. A train order may, when so directed by the train dispatcher, be acknowledged without repeating, by the operator responding: "X ——— (number of train order) to ——— (train number)," with the operator's

initials and office signal. The operator must then write on the order his initials and the time.

213. "Complete" must not be given to a train order for delivery to an inferior train until the order has been repeated or the "X" response sent by the operator who receives the order for the superior train.

214. When a train order has been repeated or "X" response sent, and before "complete" has been given, the order must be treated as a holding order for the train addressed, but must not be otherwise acted on until "complete" has been given.

If the line fails before an office has repeated an order or has sent the "X" response, the order at that office is of no effect and must be there treated as if it had not been sent.

215. The operator who receives and delivers a train order must preserve the lowest copy.

216. For train orders delivered by the train dispatcher the requirements as to the record and delivery are the same as at other points.

217. A train order to be delivered to a train at a point not a telegraph station, or at one at which the telegraph office is closed, must be addressed to

"C and E. ——— (at ———), care of ———."

and forwarded and delivered by the conductor or other person in whose care it is addressed. When form 31 is used "complete" will be given upon the signature of the person by whom the order is to be delivered, who must be supplied with copies for the conductor and the engineman addressed, and a copy upon which he shall take their signatures. This copy he must deliver to the first operator accessible, who must preserve it, and at once transmit the signatures of the conductor and engineman to the train dispatcher.

Orders so delivered must be acted on as if "complete" had been given in the usual way.

For orders which are sent, in the manner herein provided, to a train the superiority of which is thereby restricted, "complete" must not be given to an inferior train until the signatures of the conductor and engineman of the superior train have been sent the ———.

218. When a train is named in a train order by its schedule number alone, all sections of that schedule are included, and each must have copies delivered to it.

219. Unless otherwise directed, an operator must not repeat or give the "X" response to a train order for a train which has been cleared or of which the engine has passed his train-order signal, until he has obtained the signatures of the conductor and engineman to the order.

220. Train orders once in effect continue so until fulfilled, superseded or annulled. Any part of an order specifying a particular movement may be either superseded or annulled.

Orders held by or issued for, or any part of an order relating to, a regular train, become void when such train loses both right and schedule as prescribed by rules 4 and 82, or is annulled.

221. (A). A fixed signal must be used at each train-order office, which shall indicate "stop" when there is an operator on duty, except when changed to "proceed" to allow a train to pass after getting train orders, or for which there are no orders. A train must not pass the signal while "stop" is indicated. The signal must be returned to "stop" as soon as a train has passed. It must be fastened at "proceed" only when no operator is on duty.

Operators must have the proper appliances for hand

signaling ready for immediate use if the fixed signal should fail to work properly. If a signal is not displayed at a night office, trains which have not been notified must stop and ascertain the cause and report the facts to the ——— from the next open telegraph office.

Where the semaphore is used, the arm indicates "stop" when horizontal, and "proceed" when in an inclined position.

NOTE to Rule 221 A.—The conditions which affect trains at stations vary so much that it is recommended each road adopt such regulations supplementary to this rule as may best suit its own requirements.

221 (B). A fixed signal must be used at each train-order office, which shall indicate "stop" when trains are to be stopped for train orders. When there are no orders the signal must indicate "proceed."

When an operator receives the signal "31" or "19," followed by the direction, he must immediately display the "stop signal" for the direction indicated and then reply "stop displayed," adding the direction; and until the orders have been delivered or annulled the signal must not be restored to "proceed." While stop is indicated, trains must not proceed without a clearance card (Form—"A").

Operators must have the proper appliances for hand signaling ready for immediate use if the fixed signal should fail to work properly. If a signal is not displayed at a night office, trains which have not been notified must stop and ascertain the cause, and report the facts to the ———from the next open telegraph office. Where the semaphore is used, the arm indicates "stop" when horizontal, and "proceed" when in an inclined position.

NOTES to Rules 221 A and 221 B.—The Committee has recommended two forms of Rule 221, leaving it discretionary to adopt one or both of these forms according to the circumstances of the traffic.

222. Operators will promptly record and report to the ——— the time of departure of all trains and the direction of extra trains. They will record the time of arrival of trains and report it when so directed.

223. The following signs and abbreviations may be used:

Initials for signature of the ———.

Such office and other signals as are arranged by the ———.

C. & E.—For Conductor and Engineman.

X—Train will be held until order is made "complete."

Com.—for Complete.

O. S.—Train Report.

No.—For Number.

Eng.—For Engine.

Sec.—For Section.

Psgr.—For Passenger.

Frt.—For Freight.

Mins.—For Minutes.

Jct.—For Junction.

Dispr.—For Train Dispatcher.

Opr.—Operator.

31 or 19—To clear the line for Train Orders, and for operators to ask for Train Orders.

S. D.—For "Stop Displayed."

The usual abbreviations for the names of the months and stations.

General Note.—Blanks in the rules may be filled by each road to fill its own organization or requirements.

FORMS OF TRAIN ORDERS.

FORM A. FIXING MEETING POINTS FOR OPPOSING TRAINS.

(1.) ——— meet ——— at ———.

(2.) ——— meet ——— at ——— ——— at ——— (and so on).

EXAMPLES.

(1.) No. 1 meet No. 2 at "B."
No. 3 meet 2d No. 4 at "B."
No. 5 meet Extra 95 East at "B."
Extra 652 North meet Extra 231 South at "B."

(2.) No. 2 and 2d No. 4 meet Nos. 1 and 3 at "C" and Extra 95 West at "D."
No. 1 meet No. 2 at "B" 2d No. 4 at "C" and Extra 95 East at "D."

Trains receiving these orders will run with respect to each other to the designated points and there meet in the manner provided by the Rules.

FORM B. DIRECTING A TRAIN TO PASS OR RUN AHEAD OF ANOTHER TRAIN.

(1.) ——— pass ——— at ———.

(2.) ——— pass ——— when overtaken.

(3.) ——— run ahead of ——— ——— to ———.

(4.) ——— run ahead of ——— ——— until overtaken.

(5.) ——— pass ——— at ———, and run ahead of ——— ——— to ———.

EXAMPLES.

(1.) No. 1 pass No. 3 at "K."

(2.) No. 6 pass No. 4 when overtaken.

(3.) Extra 594 East run ahead of No. 6 "M" to "B."

(4.) Extra 95 West run ahead of No. 3 "B" until overtaken.

(5.) No. 1 pass No. 3 at "K" and run ahead of No. 7 "M" to "Z."

When under (1), a train to pass another, both trains will run according to rule to the designated point, and there arrange for the rear train to pass promptly.

Under (2) both trains will run according to rule until the second-named train is overtaken, and then arrange for the rear train to pass promptly.

Under (3) the second-named train must not exceed the speed of the first-named train between the points designated.

Under (4) the first-named train will run ahead of the second-named train from the designated station until overtaken, and then arrange for the rear train to pass promptly. When an inferior train receives an order to pass a superior train, right is conferred to run ahead of the train passed, from the designated point.

FORM C. GIVING RIGHT TO A TRAIN OVER AN OPPOSING TRAIN.

——— has right over ——— ——— to ———.

EXAMPLES.

(1.) No. 1 has right over No. 2 "G" to "X."

(2.) Extra 37 East has right over No. 3 "F" to "A."

This order gives right to the train first named over the other train between the points named.

If the trains meet at either of the designated points, the first-named train must take the siding, unless the order otherwise prescribes.

Under (1), if the second-named train reaches the point last named before the other arrives, it may proceed, keeping clear of the opposing train as many minutes as such train was before required to clear it under the Rules.

Under (2) the regular train must not go beyond the point last named until the extra train has arrived, unless directed by train order to do so.

FORM E. TIME ORDER.

(1.) ——— run ——— late ——— to ———.

(2.) ——— run ——— late ——— to ——— and ——— late ——— to ——— etc.

(3.) ——— wait at ——— until ——— for ———

(4.) ——— wait at ——— until ———
——— until ———
——— until ———

EXAMPLES.

(1.) No. 1 run 20 min. late "A" to "G."

(2.) No. 1 run 20 min. late "A" to "G," and 15 min. late "G" to "K," etc.

(3.) No. 1 wait at "H" until 10:00 a. m. for No. 2.

(4.) Nos. 1 and 3 wait at "N" until 10:00 a. m.
"P" until 10:30 a. m.
"R" until 10:55 a. m.
Etc.

(1) and (2) make the schedule time of the train named, between the points mentioned, as much later as stated in the order, and any other train receiving the order is required to run with respect to this later time, as before required to run with respect to the regular schedule time. The time in the order should be such as can be easily added to the schedule time.

Under (3) the train first named must not pass the designated point before the time given, unless the other train has arrived. The train last named is required to run with respect to the time specified at the designated point or any intermediate station where schedule time

is earlier than time specified in the order, as before, required to run with respect to the schedule time of the train first named.

Under (4) the train (or trains) named must not pass the designated points before the times given. Other trains receiving the order are required to run with respect to the time specified at the designated points or any intermediate station where schedule time is earlier than the time specified in the order as before required to run with respect to the schedule time of the train or trains named.

All of these examples may be used in connection with an extra train under example (3) of form G, and the times at each point stated in the example have the same meaning as "schedule times" in the foregoing example.

FORM F. FOR SECTIONS.

(1.) ——— display signals and run as ——— ——— to ———

(2.) ——— run as ——— ——— to ———

(3.) ——— display signals ——— to ——— for ———

(6.) ——— is withdrawn as ——— at ———

(7.) ——— instead of ——— display signals and run as ——— ——— to ———

(8.) ——— take down signals at ———

(9.) ——— and ——— reverse position as ——— and ——— ——— to ———

EXAMPLES.

(1.) *Eng. 20 will display signals and run as 1st No. 1 A to Z.*

(2.) *Eng. 25 run as 2d No. 1 A to Z.*

(3.) *No. 1 display signals A to G for Eng. 65. 2d No. 1 display signals B to E for Eng. 99.*

These examples may be modified as follows:

(4.) *Engs. 20, 25 and 99 run as 1st, 2d and 3d No. 1 A to Z.*

Example (1) is to be used when the number of the engine for which signals are displayed is unknown, and is to be followed by example (2), both being single order examples.

Under examples (2) and (3) the engine named will not display signals.

Under (4) the engine last named will not display signals.

FOR CHANGING SECTIONS.

To add an intermediate section the following modification of example (1) will be used:

(5.) *Eng. 85 display signals and run as 2d No. 1 N to Z. Following sections change numbers accordingly.*

Under (5) Eng. 85 will display signals and run as directed, and following sections will take the next higher number.

To drop an intermediate section the following example will be used:

(6.) *Eng. 85 is withdrawn as 2d No. 1 at H. Following sections change numbers accordingly.*

Under (6) Eng. 85 will drop out at H, and following sections will take the next lower number.

To substitute one engine for another on a section, the following will be used:

(7.) *Eng. 18 instead of Eng. 85 display signals, and run as 2d No. 1 R to Z.*

Under (7) Eng. 85 will drop out at R, and Eng. 18 will run as directed.

If Eng. 85 is last section, the words "display signals and" will be omitted. Following sections need not be addressed.

To discontinue the display of signals the following example will be used:

(8.) *2d No. 1 take down signals at D.*

Under (8) 2d No. 1 will take down signals as directed, and a following section must not proceed beyond the point named.

To pass one section by another, the following will be used:

(9.) *Engs. 99 and 25 reverse positions as 2d and 3d No. 1 H to Z.*

Under (9) Eng. 99 will run ahead of Eng. 85 to Z, and, if necessary, both engines will arrange signals accordingly. Following sections, if any, need not be addressed.

The character of a train for which signals are displayed must be stated. Each section affected by the order must have copies and must arrange signals accordingly.

To annul a section for which signals have been displayed over a division or any part thereof, when no train is to follow the signals, form K must be used.

FORM G. EXTRA TRAINS.

(1.) Eng. ——— run extra ——— to ———

(2.) Eng. ——— run extra ——— to ——— and return to ———

EXAMPLES.

(1.) Eng. 99 run extra "A" to "F."

(2.) Eng. 99 run extra "A" to "F" and return to "C."

Under (2) the extra must go to "F" before returning to "C."

(3.) Eng. ——— run extra leaving ——— on ——— as follows with right over all trains:

Leave ———.
" ———.
Arrive ———.

EXAMPLE.

(3) Eng. 77 run extra leaving "A" on Thursday, Feb. 17th, as follows, with right over all trains:

Leave "A" 11:30 p. m.
Leave "C" 12:25 a. m.
Leave "E" 1:47 a. m.
Arrive "F" 2:22 a. m.

This order may be varied by specifying the kind of extra and the particular trains over which the extra shall or shall not have right. Trains over which the extra is thus given right must clear the time of the extra ——— minutes.

FORM H. WORK EXTRA.

(1.) ——— works ——— until ——— between ——— and ———.

EXAMPLE.

(1.) *Eng. 292 works 7 a. m. to 6 p. m. between D and E.*

Under (1) the work extra must, whether standing or moving, protect itself against extras within the working limits in both directions, as prescribed by rule. The time of regular trains must be cleared.

This may be modified by adding:

(2.) *Not protecting against (eastward) extras.*

(3.) *Not protecting against extras.*

Under (2) the work extra will protect only against (westward) extras. The time of regular trains must be cleared.

Under (3) protection against extras is not required. The time of regular trains must be cleared.

When a work extra has been instructed by order to not protect against extra trains, and afterward it is desired to have it clear the track for (or protect itself after a certain hour against) a designated extra, an order may be given in the following form:

(5.) *Work extra 292 protects against No. 55 or (— class trains) between D and E.*

Under (5) the work extra may work upon the time of the train or trains mentioned in the order, and must protect itself against such train or trains as prescribed by rule 99. The regular train or trains receiving the order will run expecting to find the work extra protecting itself.

When a work extra is to be given exclusive right over all trains, the following form will be used:

(6.) *Work extra 292 has right over all trains between D and E 7 p. m. to 12 night.*

This gives the work extra the exclusive right between the points designated between the times named.

Work extras must give way to all trains as promptly as practicable.

Whenever extra trains are run over working limits, they must be given a copy of the order sent to the work extra. Should the working order instruct a work extra to not protect against extra trains in one or both directions, extra trains must protect, as prescribed by rule 99, against the work extra; if the order indicates that the work extra is protecting itself against other trains, they will run expecting to find the work extra protecting itself.

The working limits should be as short as practicable, to be changed as the progress of the work may require.

FORM J. HOLDING ORDER.

Hold ———

EXAMPLES.

Hold No. 2.

Hold all (or ———ward) trains.

When a train has been so held, it must not proceed until the order to hold is annulled or an order given to the operator in the form:

"———. *may go.*"

These orders will be addressed to the operator and acknowledged in the usual manner, and will be delivered to conductors and enginemen of all trains affected.

Form J will only be used when necessary to hold trains until orders can be given, or in case of emergency.

FORM K. ANNULLING A SCHEDULE OR A SECTION.

(1.) ——— of ——— is annulled ——— to ———.

EXAMPLES.

No. 1 of Feb. 29 is annulled "A" to "Z."

2d No. 5 of Feb. 29th is annulled "E" to "G."

The schedule or section annulled becomes void between the points named and cannot be restored.

FORM L. ANNULLING AN ORDER.

"Order No. ——— is annulled."

EXAMPLE.

"Order No. 10 is annulled."

If an order which is to be annulled has not been delivered to a train, the annulling order will be addressed to the operator, who will destroy all copies of the order annulled but his own, and write on that:

"Annulled by Order No. ———."

An order that has been annulled must not be reissued under its original number.

FORM M. ANNULLING PART OF AN ORDER.

That part of Order No. ——— reading ———, is annulled.

EXAMPLE.

That part of Order No. 10 reading No. 1 meet No. 2 at "S," is annulled.

FORM P. SUSPENDING AN ORDER OR PART OF AN ORDER.

This order will be given by adding to prescribed forms the words "instead of ———."

(1.) ——— meet ——— at ——— instead of ———.

(2.) ——— has right over ——— ——— to ——— instead of ———.

(3.) ——— display signals for ——— ——— to ——— instead of ———.

EXAMPLES.

(1) No. 1 meet No. 2 at "C" instead of "B."

(2) No. 1 has right over No. 2 "G" to "R" instead of "X."

(3) No. 1 display signals for Eng. 85 "A" to "Z" instead of "G."

An order that has been superseded must not be reissued under its original number.

RULES FOR DOUBLE TRACK.

NOTE—The rules which are marked "No Change," are the same as the rules of corresponding number for single track, and to save room they have not been repeated here.

STANDARD TIME.

Rules 1, 2 and 3 same as for single track.

TIME-TABLES.

Rule 4 same as for single track.

D—5. Not more than two times are given for a train at any station, where one is given, it is, unless otherwise indicated, the leaving time; where two, they are the arriving and leaving time.

Unless otherwise indicated, the time applies to the switch where an inferior train enters the siding; where there is no siding it applies to the place from which fixed signals are operated; where there is neither siding nor fixed signal, it applies to the place where traffic is received or discharged.

Schedule passing stations are indicated by figures in full-faced type.

Both the arriving and leaving time of a train are in full-faced type when both are passing times, or when one or more trains are to pass it between those times.

When trains are to be passed at a siding extending between two adjoining stations, the time at each end of the siding will be shown in full-faced type.

Where there are one or more trains to pass a train between two times, attention is called to it by ———.

Rule 6. Same as single track.

SIGNAL RULES.

Rules 7, 8, 9, 10, 11, 12 and 13. Same as for single track.

The indication for D—14 (k) is changed to read to call the attention of yard engines of trains moving in the same direction to signals displayed for a following section.

Rules 15 and 16. Same as for single track.

TRAIN SIGNALS.

D—17. The headlight will be displayed to the front of every train by night, but must be concealed when a train is standing to meet trains at the end of double track or at junction points.

Rule 18. Same as for single track.

D—19. The following signals will be displayed, one on each side of the rear of every train, as markers, to indicate the rear of the train: By day, green flags; by night, green lights to the front and side and red lights to the rear, except when the train is clear of the main track, when green lights must be displayed to the front, side and rear, and except when a train is turned out against the current of traffic, when green lights must be displayed to the front and side and, to the rear, a green light toward the inside and a red light to the opposite side.

Rules 20, 21, 22, 23, 24, 25 and 26. Same as for single track.

USE OF SIGNALS.

Rules 27, 28, 29, 30, 31, 32 and 33. Same as for single track.

SUPERIORITY OF TRAINS.

D—71. A train is superior to another train by right, class or direction.

Right is conferred by train order; class and direction by time-table.

Right is superior to class or direction.

D—72. Trains of the first classes are superior to those of the second; trains of the second class are superior to those of the third; and so on.

Rule 73. Same as for single track.

MOVEMENT OF TRAINS.

Rule 82. Same as for single track.

D—83. A train must not leave its initial station on any division (or sub-division) or a junction, until it has been ascertained whether all superior trains due have left.

Rule 84. Same as for single track.

D—85. When a train of one schedule is on the time of another schedule of the same class it will proceed on its own schedule.

Trains of one schedule may pass trains of another schedule of the same class.

A section may pass and run ahead of another section of the same schedule, first exchanging orders, signals and numbers with the section to be passed. Extras may pass and run ahead of extras.

D—86. An inferior train must clear the time of a superior train not less than five minutes; but must be clear at the time a first-class train in the same direction is due to leave the next station in the rear where time is shown. Extra trains must clear the time of regular trains ——— minutes unless otherwise provided.

Rules 87, 88, 89 and 90 omitted. Not applicable to double track.

D—91. Unless some form of block signals is used, trains must keep at least five minutes apart, except in closing up at stations.

NOTE to Rule D—91. The Committee recommends that where greater clearance is necessary, Rule D—91 should allow for a clearance of ten minutes or more.

Rule 92. Same as for single track.

D—93. Within yard limits the main tracks may be used, protecting against ——— class trains, ——— class

and extra trains must move within yard limits prepared to stop unless the main track is seen or known to be clear.

D—94. A train which overtakes a superior train so disabled that it cannot proceed, will pass it, if practicable, and, if necessary, will assume the schedule and take the train orders of the disabled train, proceed to the next open telegraph office, and there report to the ———. The disabled train will assume the schedule and take the train orders of the last train with which it has exchanged, and will, when able, proceed to and report from the next open telegraph office.

D—95. Two or more sections may be run on the same schedule.

Each section has equal time-table authority. A train must not display signals for a following section, except as prescribed by Rule D—85, without orders from the ———.

Rule 96 omitted. Not applicable to double track.

D—97. Extra trains must not be run without orders from the ———.

Work extras must move with the current of traffic unless otherwise directed.

Rules 98, 99 and 100. Same as for single track.

D—101. If a train should part while in motion, trainmen must, if possible, prevent damage to the detached portions. The signals prescribed in Rules 12—D and 14—F must be given.

The detached portion must not be moved or passed until the front portion comes back.

The enginemen and trainmen of the front portion must give the train-parted signal to trains running on the opposite track. A train receiving this signal, or

being otherwise notified that a train on the opposite track has parted, must immediately reduce speed and proceed with caution until the separated train is passed.

When a train is disabled so it may obstruct the opposite track, trains on that track must be stopped.

Rules 102, 103, 104, 105 and 106. Same as for single track.

D—151. Trains must keep to the ———, unless otherwise provided.

D—152. When a train crosses over to, or obstructs, the other track, unless otherwise provided, it must first be protected as prescribed by Rule 99 in both directions on that track.

D—153. Trains must use caution in passing a train receiving or discharging passengers at a station, and must not pass between it and the platform at which the passengers are being received or discharged.

RULES FOR MOVEMENT BY TRAIN ORDERS.

Rules 201, 202, 203, 204, 205, 206 and 207. Same as for single track.

D—208. A train order to be sent to two or more offices must be transmitted simultaneously to as many of them as practicable. The several addresses must be in the order of superiority of trains, each office taking its proper address. When not sent simultaneously to all, the order must be sent first to the superior train.

Rules 209 to 223 inclusive. Same as for single track.

FORMS OF TRAIN ORDERS.

Form A—Omitted. Not applicable.

Form B—Same as for single track.

Form C—Omitted. Not applicable.

D—FORM E.

This form is the same as for single track, except that example 3 and the note to example 3 are omitted.

D—FORM F.

This form is the same as for single track, except that example 9 and note are omitted.

Form G. Same as for single track.

D—FORM H.—WORK EXTRA.

Eng. ——— works on ——— track ——— to ——— between ——— and ———.

EXAMPLE.

Eng. 292 works on eastward track (or on both tracks) 7 a. m. to 6 p. m. between "D" and "E."

Under (1) the work extra must, whether standing or moving, protect itself within the working limits against extras moving with the current of traffic on the track or tracks named, as prescribed by Rule 99. The time of regular trains must be cleared.

This form may be modified by adding:

(2.) Not protecting against extras.

Under (2) protection against extra trains is not required. The time of regular trains must be cleared.

To enable a work train to work upon the time of a regular train, the following form may be used:

(3.) Work extra 292 protects against No. 55 (or ——— class trains) between "D" and "E."

Under (3) the work extra may work upon the time of the train (or trains) mentioned in the order, and must protect against such train (or trains) as prescribed by Rule 99.

The regular train or trains receiving the order will run expecting to find the work extra protecting itself.

When it is desired to move a train against the current of traffic over the working limits, provision must be made for the protection of such movement.

When a work extra is to be given exclusive right over all trains, the following form will be used:

(4.) Work extra ——— has right over all trains on ——— track between ——— and ——— ——— m to ——— m.

EXAMPLE.

(4.) Work extra 275 has right over all trains on eastward and westward tracks between "G" and "H" 7 p. m. to 12 night.

This gives the work extra the exclusive right to the track (or tracks) mentioned, between the points designated, between the times named.

Work extras must give way to all trains as promptly as practicable. Working limits should be as short as practicable; to be changed as the progress of the work may require.

Forms J, K, and L. Same as for single track.

D—FORM M—ANNULLING PART OF AN ORDER.

That part of order No. ——— reading ——— is annulled.

EXAMPLE.

That part of order No. 10 reading Extra 263 West pass No. 1 at "S" is annulled.

D—FORM P. SUPERSEDING AN ORDER OR PART OF AN ORDER.

This order will be given by adding to the prescribed forms the words "instead of ———."

(1.) ——— pass ——— at ——— instead of ———.
(2.) ——— display signals for ——— ——— to ——— instead of ———.

EXAMPLES.

(1.) No. 1 pass No. 3 at "C" instead of "B."
(2.) No. 1 display signals for Eng. 85 "A" to "Z" instead of "G."

An order which has been superseded must not be reissued under its original number.

D—FORM R. PROVIDING FOR A MOVEMENT AGAINST THE CURRENT OF TRAFFIC.

(1.) ——— has right over ——— on ——— track ——— to ———.

(1.) No. 1 has right over opposing trains on No. 2 (or eastward) track "C" to "F."

A train must not be moved against the current of traffic until the track on which it is to run has been cleared of opposing trains.

Under this order the designated train must use the track specified between the points named, and has right over opposing trains on that track between those points. Opposing trains must not leave the point last named until the designated train arrives.

An inferior train between the points named moving with the current of traffic in the same direction as the designated train must receive a copy of the order, and may then proceed on its schedule, or right.

This order may be modified as follows:

(2.) After ——— arrives at ———, ——— has right over opposing trains on ——— track ——— to ———.

EXAMPLE.

After No. 4 arrives at "C" No. 1 has right over op-

posing trains on No. 2 (or eastward) track "C" to "F."

Under (2) the train to be moved against the current of traffic must not leave the first named point until the arrival of the first-named train.

D—FORMS PROVIDING FOR THE USE OF A SECTION OF DOUBLE TRACK AS SINGLE TRACK.

——— track will be used as single track between ——— and ———.

If it is desired to limit the time for such use, add (from ——— until ———.)

EXAMPLE.

No. 1 (or westward) track will be used as single track between "F" and "G."

Adding if desired:

From 1:00 p. m. until 3:00 p. m.

Under this order, all trains must use the track specified between the points named, and will be governed by rules for single track.

Trains running against the current of traffic on the track named must be clear of the track at the expiration of the time named, or protected as prescribed by Rule 99.

RULES REGULATING MOVEMENT OF TRAINS AGAINST THE CURRENT OF TRAFFIC ON DOUBLE TRACK BY MEANS OF BLOCK SIGNALS.

NOTE.—Roads operating under these Rules must provide proper signals to control the approach and movement of trains.

1. On portions of the road so specified on the time-table, trains will run against the current of traffic by

block signals, whose indications will supersede time-table superiority and will take the place of train orders.

2. The movement of trains will be supervised by the ———* who will issue instructions to signalmen.

3. A train must not cross over, except provided in Rule 1, without authority from the ———†.

4. Except as affected by these rules, all block signal and train rules remain in force.

*Superintendent or train dispatcher.

†Train dispatcher or signalman.

RULES GOVERNING THE MOVEMENT OF TRAINS WITH THE CURRENT OF TRAFFIC ON DOUBLE TRACK BY MEANS OF BLOCK SIGNALS.

ADOPTED OCT. 28, 1903.

1. On portions of the road so specified on the time-table, trains will run with the current of traffic by block signals whose indications will supersede time-table superiority.

2. The movement of trains will be supervised by the ———*, who will issue instructions to signalmen when required.

3. A train having work to do which may detain it more than ——— minutes, must obtain permission from the signalman at the last station at which there is a siding, before entering the block in which work is to be done. The signalman must obtain authority to give this permission from ———.*

4. Except as affected by these rules, all block signal and train rules remain in force.

*Superintendent or Train Dispatcher.

TRAINMENS' EXAMINATION

A COMPLETE SERIES OF

QUESTIONS AND ANSWERS

COVERING THE

STANDARD CODE OF RULES

NOTE TO STUDENTS—The letter or number (in parenthesis) at the end of each question, refers to the particular Standard Code rule on which the question and answer is based.

GENERAL RULES.

Question 1.—Have you studied the book of rules of this company? (based on the Standard Code)? (A).

Answer.—Yes, I have.

Question 2.—Do you clearly understand the rules and instructions in so far as they apply to your own duties? (B).

Answer.—I do.

Question 3.—In case you are in doubt as to the exact meaning of any rule or special instruction, what are you to do? (B).

Answer.—Ask superior officer to explain it.

Question 4.—Are you aware that all trainmen must pass the prescribed examinations? (C).

Answer.—I am.

Question 5.—Are there any employees on a train who are not governed by the rules and special instructions? (D).

Answer.—No. All employees on trains, no matter what kind of service they are engaged in, are subject to the rules and special instructions.

Question 6.—What is it your duty to do in carrying out the rules and special instructions? (E).

Answer.—To render every assistance in my power by carrying them out faithfully, and thus promoting the efficiency of the service.

Question 7.—In case you know of any violation of a rule or special instruction by a fellow employee, what are you expected to do? (F).

Answer.—Report it to proper officer.

Question 8.—Do you understand that employees are absolutely forbidden to use intoxicants while on duty? (G).

Answer.—Yes.

Question 8 A.—Do you understand that to use intoxicants, or to frequent places where they are sold, may be considered sufficient cause for dismissal? (G).

Answer.—Yes.

Question 9.—Are employees allowed to use tobacco while on duty in or about passenger stations or on passenger cars? (H).

Answer.—No.

Question 10.—Are employees allowed on duty without badges or uniforms? (J).

Answer.—No.

Question 10 A.—Do you understand that employees on duty must keep themselves neat in personal appearance? (J).

Answer.—Yes.

Question 11.—Is disorderly conduct, or conduct that may give annoyance to patrons, allowed on the part of anyone at stations or on trains? (K).

Answer.—No.

Question 12.—What are employees expected to do in case of danger to any property of the company? (L).

Answer.—They should make a united effort to protect it.

Note:—Students should be thoroughly informed concerning the proper use of technical terms and definitions as explained in the Standard Code, before attempting to pass an examination on train rules.

RULES FOR SINGLE TRACK.
STANDARD TIME.

Note.—Under the Standard Code as amended, April, 1906, not only conductors and enginemen, but also such other classes of employees as the company may wish to specify, are required to have their watches inspected, and to keep standard time.

Question 13.—Where is standard time obtained from? (1).

In answering this question the student will designate the particular office which sends the telegraphic time signal daily over the portion of the system on which he is employed.

Question 14.—At what time each day is the time signal received? (1).

Student will here state the exact hour at which the time signal is sent each day over the company's telegraph lines.

Question 15.—What conditions are laid down as to

the watches used by conductors, enginemen, etc.? (2).

Answer.—Only watches that have been examined and certified to by a designated inspector, shall be used.

Question 16.—How often must a watch certificate be renewed, and with whom must it be filed? (2).

Answer.—How long certificates hold good, and the officer who keeps them on file, are discretionary with the company, and are covered in special instructions to employees. The usual term is six months, and files are kept in the superintendent's office. Student will answer according to his special instructions.

Question 17.—How great a variation is allowed in watches? (2).

Answer.—They must not run ahead or behind, more than 30 seconds a week.

Question 18.—What clocks may be used in comparing time? (3).

Answer.—Only those designated as "Standard Clocks."

Question 19.—How often must watches be compared with standard time? (3).

Answer.—Before starting on each trip.

Question 19a.—After comparing watch with standard timepiece, what should at once be done? (3).

Answer.—Enter time when comparison was made, on registry form prescribed for the purpose.

Question 20.—In case no standard clock is accessible, how are conductors and enginemen to obtain the time? (3).

Answer.—From other conductors or enginemen who have registered; from the superintendent; or in some other way specified by the company.

+ FAST — SLOW R. D. RAN DOWN
St. STOPPED S. SET R. REGULATED

Date 190	Sec. Fast or Slow.	Set or Regu'd	Inspector fill out and sign with ink.

This card must be presented to some one of the Company's Watch-Inspectors each week, who will note the running of the watch. Preserve this card, as it will be taken up and a new one issued at the next inspection.

A. L. HAMAN, Supt. Time Service. A. W. TRENHOLM, Gen. Supt.

BACK OF CERTIFICATE.

TIME TABLES.

Question 21.—When does a new time table supercede an old one? (4).

Answer.—From the moment it become effective.

Question 22.—How should a train of the old time table which has a corresponding number on the new time table proceed? (4).

Answer.—When it corresponds in number, class, day of leaving, direction initial and terminal stations, it will retain the corresponding number on the new time table.

Question 23.—In the case of a train, the number of which does not correspond in number, class, day of leaving, direction, initial and terminal station, how should it proceed? (4).

Answer.—Only by train order.

Question 24.—In the case of a new schedule in a time table, when do they take effect? (4).

Answer.—At the time for leaving the initial station on that division or subdivision.

Answer.—In what way is the date of a schedule arrived at? (4).

Answer.—By the time of leaving its initial station on that division or subdivision.

Question 26.—Is it permissable for more than one schedule of the same number and date to be in force on any division or subdivision? (4).

Answer.—It is not.

NOTE.—The foregoing answers based on the Standard Code, Rule 4, have been framed in accordance with the sense of the ruling rather than in exact accordance with its wording. By carefully reading the rule, it will be clearly seen that without exception the schedules of a new time table take effect on any division or sub-division at their initial station and leaving time.

Question 27.—How many times are specified on the time table at any station? (5).

Answer.—Never more than two.

Question 28.—When only one time is shown, what is it? (5).

Answer.—Always the leaving time.

Question 29.—When two are shown what do they indicate? (5).

Answer.—The arriving and the leaving time.

Question 30.—At what particular place does the time at a station apply? (5).

Answer.—It applies to a switch where an inferior

train takes the siding unless otherwise indicated. If there is no siding it applies to the point from which fixed signals are operated. Should there be neither siding or signals, it will then apply where traffic is received and discharged.

Question 31.—In what manner are the meeting or passing points shown in the schedule? (5).

Answer.—The figures are usually printed in full face black type.

Question 32.—If the arriving and leaving of a train are both shown in full face black type, what does it mean? (5).

Answer.—That it is a meeting or passing point or that one or more trains are to be met between those times.

Question 33.—If a train takes a siding between two adjoining telegraph offices, to be passed by one or more trains, how will the schedule show this? (5).

Answer.—In full face black type and showing the time at each end of the siding.

Question 34.—If one or more trains are to meet or pass a train between two times, how is attention called to it? (5).

Answer.—

Question (b).—If more than one train is to meet a train at any station, in what manner is attention called to it? (5).

Answer.—

NOTE.—With reference to the answers to the two questions immediately above, the Standard Code leaves the sign to the discretion of the respective Railway Companies.

Question 35.—In what manner are meal stops, flag stops and regular stops shown on the schedule? (6).

Answer.—By a paragraph sign for meal stops; by the letter "F" for flag stops and by the letter "S" for regular stops.

Question 36.—When the letters **"L" or "A"** are shown in the schedule, what does it mean? (6).

Answer.—"L" means Leave and "A" means Arrive.

SIGNAL RULES.

Question 37.—In the case of employees whose duty it is to give signals, state what appliances must be provided and when should they be ready for use? (7).

Answer.—They should be provided with the proper appliances, placed so as to be ready for immediate use when necessary.

Question 38.—State what signals are used by day and what signals are used at night? (8).

Answer.—By day, flags of the prescribed color must be used and at night lamps of the prescribed color must be used.

Question 39.—What is considered the length of time that night signals should be shown? (9).

Answer.—From sunset to sunrise.

Question 40.—In case of foggy weather or other unusual conditions which obscure day signals, what should be done? (9).

Answer.—In addition to the day signals, night signals should also be used.

VISIBLE SIGNALS.

Question 41.—What does it signify when red is shown? (10).

Answer.—Danger; Stop.

Question 42.—If white is shown what does it signify? (10).

Answer.—Line clear; proceed; and other uses indicated in the rules.

Question 43.—What does it signify when green is shown? (10).

Answer.—Use caution; proceed carefully; and for other uses indicated in the rules.

NOTE.—It should always be remembered that green is used for markers, for fusees, and is also carried in the front of an engine to indicate when a section of the same numbered train is following. The color of the signal indicating "Proceed" and "Caution" has been left to the discretion of each road by the Standard Code Committee. Sometimes green is used for proceed and on some roads green and red for caution, while others use yellow for caution and green for proceed. The original recommendation by the Committee on Train Rules of the American Railway Association specify white for proceed and green for caution, as indicated by the above two questions immediately preceding this note.

Question 44.—What does it signify when green and white are shown together? (10).

Answer.—Not a regular stop but one known as a flag stop for passengers or freight.

Question 45.—If blue is shown, what does it signify? (10).

Answer.—That cars must not be moved when thus protected.

Question 46.—When may a red fusee be passed when one is found burning? (11).

Answer.—When it is completely burned out.

Question 47.—What does it signify when a green fusee is shown burning? (12).

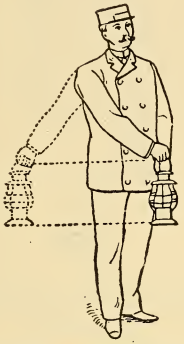
Answer.—It is a signal of caution.

NOTE.—To avoid the danger of fire care should be used when throwing fusees to see that they do not fall near wooden structures.

HAND, FLAG AND LAMP SIGNALS.

Question 48.—When the hand, flag or lamp signals are swung across the track, what does it indicate? (12).

Answer.—Stop!



Stop—Swung across the track.

Question 49.—When raised and lowered vertically what is indicated? (12).

Answer.—Proceed.

Question 50.—What signals should be given by hand, flag or lamp if a train is to back? (12).

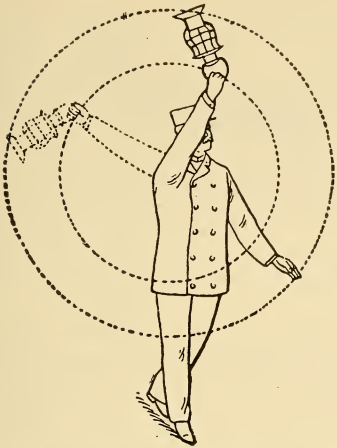
Answer.—They should be swung vertically in a circle at half arm's length across the track when train is standing.

Question 51.—What signals should be given if a train has parted? (12).

Answer.—Swung vertically in a circle at arm's length across the track while train is running.

Proceed—Raised and lowered vertically.

Back—Swung vertically in a circle across the track.



Train has Parted—Swung vertically in a circle at arm's length across the track.

Question 52.—What signal should be given to apply the air brake? (12).

Answer.—Swung horizontally in a circle while train is standing still.

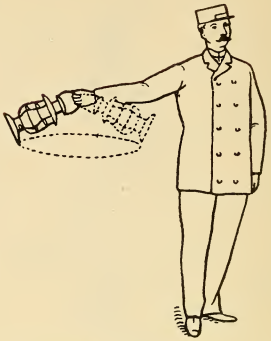
Question 53.—To release the air brake, what signal should be given? (12).

Answer.—At arm's length above grade while train is standing still.

Question 54.—When anyone on or near the track violently waves any object, what is it considered a signal for? (13).

Answer.—It is a signal to stop.

NOTE.—The manner in which a signal should be obeyed, is indicated by the speed at which it is given. When given rapidly, it indicates to move rapidly. When given slowly, it indicates to move slowly.



Apply Air Brakes—Swung horizontally in a circle.

Release Air Brakes—Held at arm's length above the head.

AUDIBLE SIGNALS.

Question 55.—To apply the brakes what signal is given? (14 A).

Answer.—One short blast of the whistle.

Question 56.—To release the brakes, what signal is given? (14 B).

Answer.—Two long blasts of the whistle.

Question 57.—When the engineer desires the flagman to go back and protect the rear of the train, what signal does he give? (14 C).

Answer.—One long and three short blasts of the whistle.

Question 58.—When a flagman is called in from the south and west, what signal is given? (14 D).

Answer.—Four long blasts of the whistle.

Question 59.—When the flagman is called in from the north and east, what signal is given? (14 E).

Answer.—Five long blasts of the whistle.

Question 60.—When the engineman signals that the train is parted, what signal does he give? (14 F).

Answer.—Three long blasts of the whistle.

Question 61.—How often is the signal repeated? (14 F).

Answer.—Until answered.

Question 62.—When a signal is given that the train is parted, what signal does the engineman give in answer? (14 F).

Answer.—Three long blasts of the whistle.

Question 63.—What signal should trainmen give in answer to a signal from the engineman that train has parted? (14 F).

Answer.—Hand, flag or lamp swung vertically in a circle at arm's length across the track.

Question 64.—For answering signals not otherwise provided for, what signal does the engineman give? (14 G).

Answer.—Two short blasts of the whistle.

NOTE.—Enginemen are not required to answer fixed signals. All other signals given to stop a train either by hand, lamp, flag, fusees or torpedoes should be answered by two short blasts of the steam whistle. Three long blasts of the whistle should be used when answering a signal that the train has parted.

Question 65.—When a train is standing, what is the signal to back? (14 H).

Answer.—Three short blasts of the whistle.

Question 65 A.—When train is running what is indicated by three sharp blasts of the whistle? (14 H).

Answer.—It is an answer to the conductor's signal to stop at the next station.

Question 66.—When an engineman wants to call for signals from switchmen, watchmen, trainmen and others, what signal does he give? (14 J).

Answer.—Four short blasts of the whistle.

Question 67.—When crews of trains of the same or inferior class must have attention called to signals displayed for following sections what signal is used? (14k).

Answer.—One long and two short blasts of the whistle.

Question 67a.—Is the attention of crews, yard engines and extra trains called to signals displayed for following sections by the same signal: viz., one long and two short blasts of the whistle? (14k).

Answer.—Yes.

Question 68.—At public grade crossings, what signal is given? (14l).

Answer.—Two long and two short blasts of the whistle.

NOTE.—The American Railway Association failed to approve of a whistle signal for meeting point. Probably the middle order is the best way to protect the meeting point.

Question 69.—For approaching stations, railroad crossings and junctions what is the signal? (14m).

Answer.—One long blast of the whistle.

Question 70.—When several short blasts of the whistle are given, what does it indicate? (14).

Answer.—The warning or alarm for persons or cattle on the track and also for calling attention to danger ahead.

NOTE.—In giving these signals correctly every care should be taken and prompt attention given to any infraction of these rules. Extraordinary precautions in giving whistle signals in stormy weather should be used and care exercised to make signals clear and distinct.

Question 71.—What is indicated by the explosion of one torpedo? (15).

Answer.—Come to a dead stop.

Question 72.—What is indicated when two torpedoes explode not more than 200 feet apart? (15).

Answer.—Speed should be reduced and a sharp lookout kept for the stop signal.

NOTE.—Care should be taken not to place torpedoes at crossings or stations where people are likely to pass them. For various reasons torpedoes should not be wholly depended upon to stop trains.

AIR-WHISTLE OR BELL-CORD SIGNALS.

Question 73.—When train is standing what is indicated by two blasts of the air-whistle? (16a).

Answer.—Start.

Question 74.—What is indicated when two blasts of air-whistle are given when train is running? (16b).

Answer.—Stop.

Question 75.—When train is standing and three blasts of air-whistle are given what does it indicate? (16c).

Answer.—Back.

Question 76.—When train is running and three blasts of air-whistle are given what does it indicate? (16d)

Answer.—Come to a stop at next station.

Question 77.—When train is standing and four blasts of air-whistle are given what does it indicate? (16e).

Answer.—Apply or release the brakes.

Question 78.—When train is running and four blasts of air-whistle are given, what does it indicate? (16f).

Answer.—Reduce speed.

Question 79.—When train is at a standstill what does five blasts of the air-whistle indicate? (16g).

Answer.—Call for the flagman to come in.

Question 80.—When train is running and five blasts of the air-whistle are given, what does it indicate? (16h).

Answer.—Speed should be increased.

NOTE.—When a stop is to be made at the next station, signals should be given as soon as possible after leaving previous station, to avoid the possibility of mistaking the engineman's answer for an answer to a flagman's signal.

TRAIN SIGNALS.

Question 81.—After sunset what signals should be provided on front of a train? (17).

Answer.—A head-light.

Question 82.—When a train starts out to meet another and has stopped clear of main track, or is standing to meet train at the end of a double track or at

junctions, what should be done to the head light? (17).

Answer.—It should be covered.

Question 82a.—Should the head light be covered before the train is clear and the switch right? (17).

Answer.—No.

Question 82b.—Suppose there are two trains at a station for an opposing train and the second train is unable to clear on account of a too short siding, would they depend for protection on the head light on being streamed on the leading train. (17).

Answer.—They would not. In such a case a flagman should be immediately sent out by the second train to afford full protection.

Question 82c.—Then where is the necessity of leaving the head light on the leading train uncovered? (17).

Answer.—Because the train cannot properly be considered clear of the main track while the main track switch remains open for the second train. Not until the switch is properly closed, may the head light be covered.

Question 82d.—Would not the head light of the leading engine be likely to have a blinding effect upon the eye sight of the engineer of the approaching train to such an extent that he would be unable to see the flagman from the train following. (17).

ANSWER.—It would hardly interfere with his vision to the extent of preventing his seeing the flagman. The headlight is of itself an indication that the train is not clear, therefore the approaching train ought to be moving with caution, fully prepared to stop at the switch. If the leading train had its headlight covered the opposing train would approach at a much higher rate of speed so that the flags from the following train might be much less effectual than the headlight on the leading train.

NOTE.—At a meeting point where there are more trains than the siding will hold the headlight of the leading train should not be concealed.

Question 83.—After sunset, what signals must the out engine display? (18).

Answer.—Head light at front and rear or two white lights.

Question 84.—Should yard engines display markers? (18).

Answer.—No.

Question 85.—What are markers? (19).

Answer.—By day green flags: by night a green light to side and front and in the rear a red light.

Question 86.—Where are markers displayed? (19).

Answer.—The rear of a train.

Question 87.—What do markers indicate? (19).

Answer.—The rear end of a train.

Question 88.—Should a train meet or pass your train at a meeting or passing point without displaying markers, what would you do? (19).

Answer.—I would signal the passing train and remain in the clear until the rear portion of same train has passed because the absence of markers would indicate a train had parted.

Question 89.—What change must be made in the markers when a train is clear of the main track? (19).

Answer.—At the front, side and in the rear, green lights must be displayed.

Question 90.—When must the signals be displayed again? (19).

Answer.—After the train to be met has gone or passed.

Question 91.—What signal must all sections of a train, except the last, display on the front of the en-

gine when it is running in two or more sections. (20).

Answer.—Two green flags during the day and at night two green lights in addition.

Question 93.—When a train carries two white flags by day and at night two white lights in addition on the front of the engine what does it indicate? (21).

Answer.—An extra train.

Question 93a.—When should the white signals be removed from an extra train. (21).

Answer.—When it has reached the end of its run and is entirely clear of the main track.

Question 94.—When two or more engines are coupled together and carrying signals, how must they be displayed? (22).

Answer.—On the leading engine only.

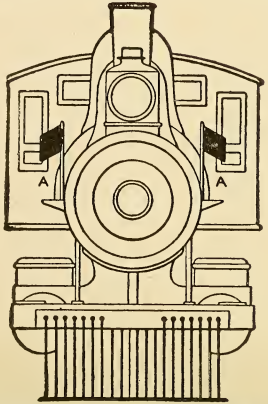
Question 94a.—When two or more engines coupled together are running backward as a section of a train carying signals for following section on which engine will the display markers be placed, and on which engine the classification signals be shown? (22).

Answer.—The classification signal must be displayed on the leading engine in the place provided for it near the head light. The display markers on the place provided for them on the pilot of the rear engine.

NOTE.—When two or more engines are coupled together the sounding of signals and operation of the air should be done by the engineer of the leading engine. When running as an extra, the number on the leading engine is applied to the extra and orders addressed to this train should be addressed to the leading train, because the train is identified by its number. Copies of all clearances and all train orders must be provided for the engineman of each engine.

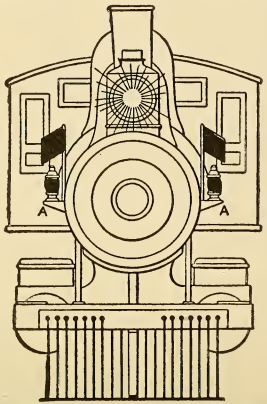
Question 95.—How must one flag the light up ahead when displayed as a classification signal? (23).

Answer.—In the same manner as if it were not displayed.



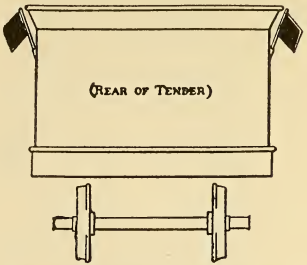
ENGINE RUNNING FORWARD BY DAY DISPLAYING SIGNALS FOR A FOLLOWING SECTION.

Green flags at A A.



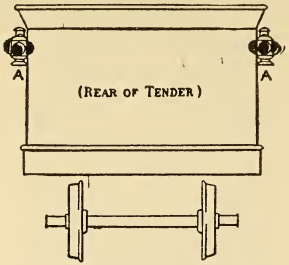
ENGINE RUNNING FORWARD AT NIGHT DISPLAYING SIGNALS FOR A FOLLOWING SECTION.

Green lights and green flags at A A.



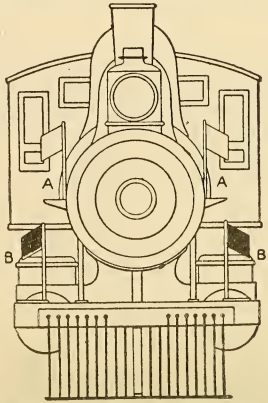
ENGINE RUNNING FORWARD BY DAY, WITHOUT CARS OR AT THE REAR OF A TRAIN PUSHING CARS.

Green flags, as markers.



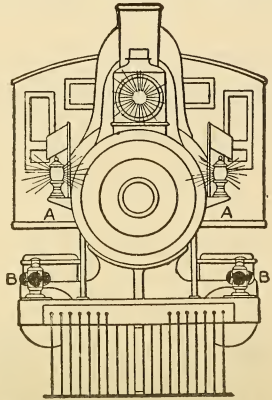
ENGINE RUNNING FORWARD BY NIGHT, WITHOUT CARS OR AT THE REAR OF A TRAIN PUSHING CARS.

Lights at A A, as markers, showing green to the front and side and red to rear.



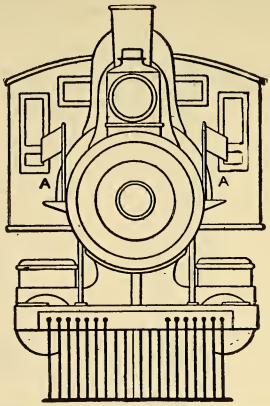
ENGINE RUNNING BACKWARD BY DAY AS AN EXTRA TRAIN, WITHOUT CARS OR AT THE REAR OF A TRAIN PUSHING CARS.

White flags at A A.
Green flags at B B, as markers.

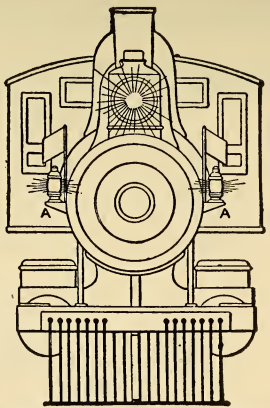


ENGINE RUNNING BACKWARD BY NIGHT AS AN EXTRA TRAIN, WITHOUT CARS OR AT THE REAR OF A TRAIN PUSHING CARS.

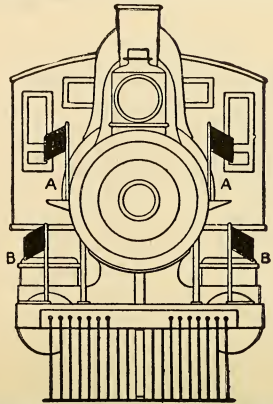
White lights and white flags at A A.
Lights at B B, as markers, showing green at side and in direction engine is moving and red in opposite direction.



ENGINE RUNNING FORWARD BY DAY AS AN EXTRA TRAIN.
White flags at A A.



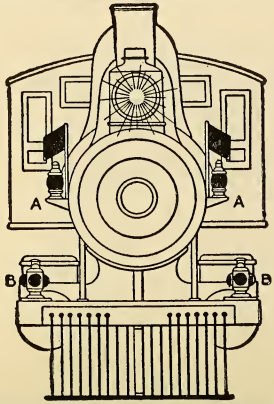
ENGINE RUNNING FORWARD BY NIGHT AS AN EXTRA TRAIN.
White lights and white flags at A A.



ENGINE RUNNING BACKWARD BY DAY, WITHOUT CARS OR AT THE REAR OF A TRAIN PUSHING CARS, AND DISPLAYING SIGNALS FOR A FOLLOWING SECTION.

Green flags at A A.

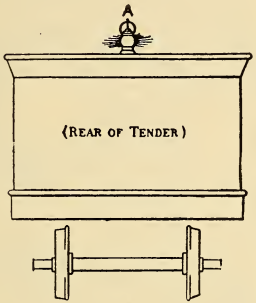
Green flags at B B, as markers.



ENGINE RUNNING BACKWARD BY NIGHT, WITHOUT CARS OR AT THE REAR OF A TRAIN PUSHING CARS, AND DISPLAYING SIGNALS FOR A FOLLOWING SECTION.

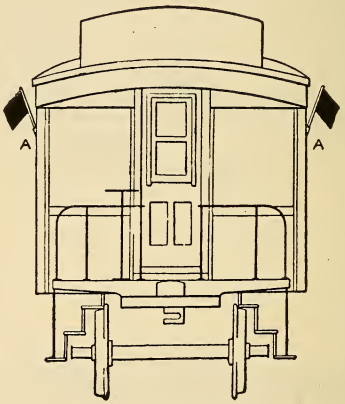
Green lights and green flags at A A.

Lights at B B, as markers, showing green at side and in direction engine is moving and red in opposite direction.



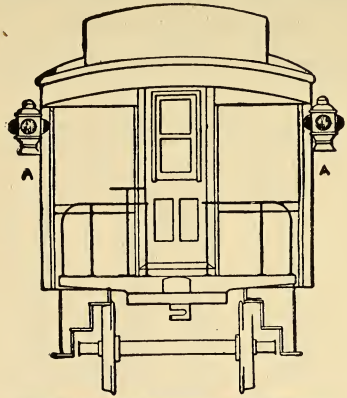
ENGINE RUNNING BACKWARD BY NIGHT WITHOUT CARS OR AT THE FRONT OF A TRAIN PULLING CARS.

White light at A.



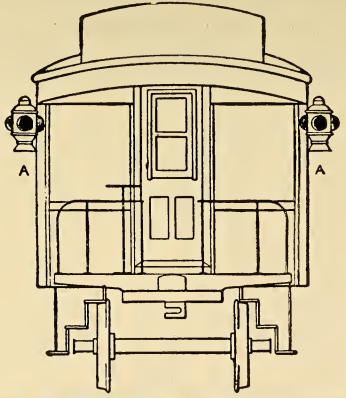
REAR OF TRAIN BY DAY

Green flags at A A, as markers



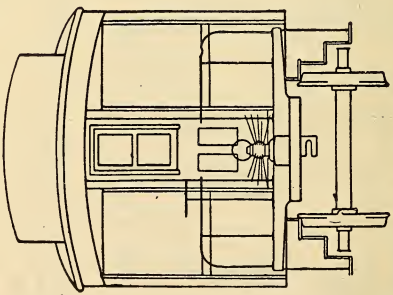
REAR OF TRAIN BY NIGHT WHILE RUNNING.

Lights at A A, as markers, showing green toward engine and side and red to rear.



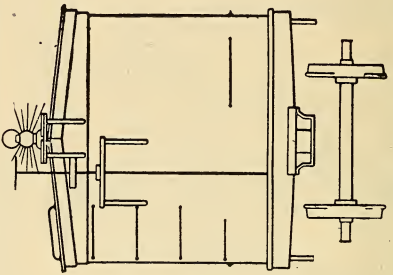
REAR OF TRAIN BY NIGHT WHEN ON SIDING TO BE PASSED BY ANOTHER TRAIN.

Lights at A A, as markers, showing green toward engine, side and to rear.



PASSENGER CARS BEING PUSHED BY AN ENGINE BY NIGHT.

White light on front of leading car.



FREIGHT CARS BEING PUSHED BY AN ENGINE BY NIGHT.

White light on front of leading car.

Question 96.—What must be displayed on the front of the leading car when cars are being pushed by an engine at night? (24).

Answer.—A white light.

Question 97.—Is there any exception to this rule? (24).

Answer.—There is. It need not be done when switching or making up trains in yards.

Question 98.—In the case of a passenger train must each car have communication with the engine? (25).

Answer.—Yes.

Question 99.—For this purpose what appliance is used? (25).

Answer.—Air whistle signals or gong and cord.

Question 100.—What must be done before coupling to, moving, or placing other cars in front of cars, engine, engine or train, when protected by a blue signal if shown on the end of the car, engine or train? (26).

Answer.—It must be removed by the person who placed it there.

Question 101.—Is it permissable to place other cars on the same track, thereby intercepting view of the blue signals. (26).

Answer.—It is, provided the railroad men have first been notified.

USE OF SIGNALS.

Question 102.—In the event of the absence of a customary signal or a signal imperfectly displayed, how should it be regarded and what is your duty in such cases. (27).

Answer.—It should be regarded as a signal to stop and your duty would be to report it to a superior officer.

NOTE.—All fixed signals which include white lights are referred to by Rule 27.

Question 103.—What are the purposes for which the colors green and white are used? (28).

Answer.—To stop trains at block stations.

Question 104.—May the colors green and white be used to stop a train at a point other than a block stop for that particular train? (28).

Answer.—No. In such a case a red signal must be used.

Question 105.—When a signal other than a fixed signal is given to stop a train how must it be acknowledged? (29).

Answer.—By two short blasts of the whistle.

Question 106.—At what times is it absolutely requisite that the engine bell be rung? (30 & 31).

Answer.—Always when the engine is about to move when approaching every public road crossing at grade.

Question 107.—At what other places must the whistle always be sounded? (31).

Answer.—At all whistling posts.

Question 108.—Is it prohibited to use the bell and whistle unnecessarily? (32).

Answer.—Yes.

Question 109.—At Public roads and street crossings when will the rights be used by switchmen? (33).

Answer.—Only when necessary to stop trains.

SUPERIORITY OF TRAINS.

NOTE.—Except in the case of extra trains moving in the same direction on which the time table confers superiority by permitting it to hold the main track at a meeting point with an opposing extra train, there is no superiority between extra trains.

Question 110.—In what manner is one train superior to another? (71).

Answer.—By right, class or direction.

Question 111.—In what manner does a train acquire its rights? (71).

Answer.—By a train order.

Question 112.—How does a train acquire its class and direction? (71).

Answer.—By the timetable.

Question 112a.—Explain which is superior, right, class or direction? (71).

Answer.—Right is superior to class or direction and direction is superior when governing trains of the same class.

Question 112b.—Explain relative superiority of trains to their respective classes. (72).

Answer.—First class trains are superior to trains of the second class and all successive classes. Second class trains are superior to third and all successive classes and so on. Trains in the direction as specified in the timetable are superior to the trains of the same class running in the opposite direction.

Question 112c.—In this division in which direction are trains superior to trains of the same class in an opposite direction. (72).

Answer.—

Question 112d.—Are extra trains inferior to regular trains? (73).

Answer.—They are.

MOVEMENT OF TRAINS.

NOTE.—No matter how late they may be all schedule trains should register on the page which corresponds with the date on which the train is due to arrive or leave a station. Extra trains register on the page corresponding with the date they actually do arrive.

Question 113.—How late must a regular train be, before it loses both right and class? (82).

Answer.—After regular trains have become twelve hours late from schedule arriving or leaving time at any station they lose both right and schedule and thereafter proceed only as authorized by train order.

Question 114.—Suppose No. 6 is due to arrive at —— at 9:30 a. m. and leave at 10:30 a. m., when will it have lost both its right and class? (82).

Answer.—If it fails to arrive at ——— before 9:30 p. m. or to leave ——— before 10:30 p. m., it will have lost its rights.

Question 115.—In such a case may No. 6 flag into ——— at 9:40 p m. and leave there as number No. 6 if it can get out before 10:30 p. m. and so retain its rights? (82).

Answer.—No, it cannot.

Question 116.—Would it be possible for it to leave as No. 6 before 10.30 p. m. providing the dispatcher authorizes it by train order? (82).

Answer.—Yes.

NOTE.—When trains are run in sections, any section which becomes twelve hours late on schedule, loses both its rights and class according to Rule 82, no allowance being made for sections running five minutes apart. A train which holds an order to run late will lose both right and class as soon as it is twelve hours behind its schedule time. The fact that it has an order permitting it to run late does not lengthen the life of a train. In every case the schedule time as shown upon the time table is referred to by Rule 82.

Question 116a.—Suppose an opposing train has an order to meet No. 6 at a certain station and No. 6 came twelve hours late in arriving at that particular station, should the opposing train proceed against No. 6? (82).

Answer.—Yes.

Question 117.—Before leaving a junction terminal or any other stopping point or before passing from a double to a single track what must be ascertained? (83).

Answer.—It must be positively ascertained that all trains of the same or superior class have gone.

NOTE.—Rule 83 has reference to trains of the same class, even though they may be moving in the inferior direction, for the reason that a train of superior direction must approach all sidings prepared to stop, until in accordance with Rule 99 such train is met.

Question 118.—Without a proper signal may a train start? (84).

Answer.—No.

Question 119.—May a train proceed in advance of a train of the same class in the same direction? (85).

Answer.—Yes.

Question 120.—May one extra train pass another extra or may one train of a certain class pass a train of the same class? (85).

Answer.—Yes.

Question 121.—How must the time of a superior train be cleared by an inferior train going in the same direction? (86).

Answer.—By not less than five minutes.

Question 121a.—How must a first class train be cleared by an inferior train going in the same direction? (86).

Answer.—The inferior train must be cleared at the time the first class train is due to leave the next station, in the rear where the time is shown.

Question 121b.—With respect to approaching superior trains what is required of an inferior train? (87).

Answer.—It must keep out of the way.

Question 121c.—How must a train be protected which fails to clear the main track as required by rules? (87).

Answer.—In accordance with rule 99, it must be protected by flag.

Question 121d.—By how many minutes must the time of regular trains be clear by extras? (87).

Answer.—By ———— minutes.

Question 121e.—With respect to opposing extras how should extras be governed? (87).

Answer.—By train order.

Question 122.—Between trains of the same class at meeting points, when must the inferior train clear the main track. (88).

Answer.—Before the leaving time of the train of superior class.

NOTE.—Trains should not wait on a siding an unreasonable length of time for another train. In such cases a communication should be opened with the telegraph office for further instructions. When holding the main track at the meeting point or passing point, care should be taken to adjust the switch for other trains.

Question 123.—What must be done should it become necessary to back in, in order to clear the main track. (88).

Answer.—In accordance with rule 99, a flagman must be sent out unless other provision has been made.

Question 123a.—Which extra should take the siding when two extras pass at a meeting point? (88).

Answer.—The extra in the inferior time table direction.

NOTE.—When Rule 88 was adopted in the Convention it was the sense of the Convention that at a meeting point should an inferior train have occasion to back, it must stop the superior train before passing the switch where the inferior train enters.

If the back-in provision is covered by a train order or special instruction it would be unnecessary to stop the superior train before backing in, although the flagman should be sent out in accordance with Rule 99 before the switch has been passed by the inferior train.

Question 124.—At meeting points between trains of unequal classes, by how many minutes must the inferior train clear? (89).

Answer.—The inferior train must take the siding and by at least five minutes, clear the time of the superior train.

Question 125.—What must be done in case the inferior train has to back in? (89).

Answer.—In accordance with rule 99, a flagman must be sent out to protect the train.

Question 126.—By how many minutes must an inferior train clear the time of a superior train going in the same direction? (89).

Answer.—Five minutes.

Question 127.—When are trains required to stop at scheduled meeting or passing points, although of the same class? (90).

Answer.—They are required to stop unless they can plainly see that the switch was right and the track clear.

Question 128.—At what point should the train be stopped? (90).

Answer.—It should be stopped clear of the switch in which the train to be met or passed uses when going on the siding.

Question 129.—Suppose a train to be met or passed is not at the schedule meeting or passing point, in what way would the train be governed which has the right of track? (90).

Answer.—It should proceed with caution, approach the sidings prepared to stop, under full control until the expected train is met or passed.

Question 130.—In the absence of block signals, by how many minutes must trains going in the same direction be kept apart? (91).

Answer.—They should be kept at least five minutes apart in closing up at stations.

Question 130a.—Suppose trains No. 2 and No. 4 to be of the same class and No. 2 is scheduled to pass No. 4 at ——. In the event No. 2 or No. 4 should be late would it affect its passing point? (91).

Answer.—It would not. If number 4 were late, No. 2 would proceed to ——— and wait there for No. 4 to pass.

Question 130b.—If it were desirable that No. 2 should proceed ahead of No. 4, what form of order should be issued? (90).

Answer.—An order issued to read No. 4 will pass No. 2 at ———." (See form B, example 1 Standard Code).

Question 131.—Is it permissible for train to leave at a station in advance of the schedule time shown for it to leave? (92).

Answer.—No.

Question 132.—May a train leave a station before its leaving time as shown in the schedule? (92).

Answer.—No.

Question 133.—What class of trains may hold the main track by protecting against other trains when within yard limits. (93).

Answer.— ——— Class.

Question 133a.—When moving within yard limits, how should —— class and extra trains proceed? (93).

Answer.—In full control, prepared to stop unless main track is seen or known to be clear.

Question 134.—Suppose a train overtakes another train of the same or superior class unable to move because of a breakdown, what should be done? (94).

Answer.—Assume the schedule and take the orders of the disabled train, if necessary, proceed to the next open telegraph office and report the particulars to the superintendent.

Question 135.—When a disabled train has surrendered its orders and rights to a following train that has passed it, on what rights does the disabled train then move? (94).

Answer.—On the rights of the train with which it exchanged orders.

NOTE.—If a disabled train has rights of its own to make the next telegraph office it is unnecessary for a passing train to assume its schedule and take its train orders. An exchange of orders and schedule would avail nothing in case the disabled train had been so long delayed that it had forfeited all rights to proceed. In that case the following train might have no rights and so both trains would be tied up. The exchange of orders and schedules should always be made complete. (See Rule 94.)

Question 135a.—If a train of inferior or the same class with rights or schedule to proceed should overtake a train between telegraph offices which is unable to proceed against the right of schedule of an opposing train, how should they be governed? (94).

Answer.—After proper consultation with the following train the delayed train precedes it to the next telegraph station, where it will report to ——.

Question 135b.—What should be done when opposing trains are met under these circumstances? (94).

Answer.—It must be fully explained by the leading train that the excepted train is following.

Question 136.—Is it allowable for more than one section of a train to be run on the same schedule? (95).

Answer.—Yes.

Question 137.—Where there are more than one section of a train, does each section have equal timetable authority? (95).

Answer.—Yes.

Question 137a.—When signals are displayed by whose authority is it done? (95).

Answer.— ——.

NOTE.—The practice varies on different railroads. Yardmasters are authorized to issue instructions to a train to display signals on some roads. Where the business is heavy, and the issuing of such orders by the Dispatcher would interfere with his other duties, it is customary for the yardmaster to issue such instructions. This practice is considered safe, because all sections must examine the register to ascertain before leaving that the section ahead of them has registered signals.

Question 139.—On a single track when signals displayed for following train are taken down at any point before the following train arrives, how should a conductor be governed under the respective conditions as follows: (96).

A. At a point where there is an agent, operator, switch tender or register book.

Answer.—Arrangements should be made by the Conductor with the agent, operator, or switch tender to notify opposing train of same or inferior class.

B. Where there is no agent, operator or switch tender, what should be done?

Answer.—In this case, a flagman must be left to notify opposing train of the same or inferior class.

Question 139a.—How should these arrangements be made, verbally or in writing? (96).

Answer.—In writing.

Question 140.—When extra trains are run, by whose authority do they move? (97).

Answer.— ——.

NOTE.—The displaying of signals or running of an extra train is left by the Standard Code to the discretion of the railroad. Usually for this purpose the Superintendent's initials are used.

Question 141.—When approaching the end of a double track, railroad crossings at grade, draw-bridges and junctions, how should trains proceed? (98).

Answer.—Under control prepared to stop unless switch and signals are right and track clear. In cases when it is required by law, trains must stop.

Question 142.—How must a train be protected which becomes delayed or stops under circumstances in which it may be overtaken by another train. (99).

Answer.—Flagman must immediately go back a sufficient distance to procure full protection provided with the usual stop signals.

Question 143.—Before returning, when the flagman is recalled to his train, what should he do? (99).

Answer.—Place two torpedoes on the rails.

Question 144.—When moving on a single track, how should front of the engine be protected? (99).

Answer.—It should be protected by flag which should be shown by the head brakeman and in case he is unable to go by the fireman.

NOTE.—In regard to Rule 99, it may be noted the flagman must immediately go back without waiting for the conductor to send for him or the engineman to whistle him back.

Question 145.—Who must take the place of the flagman after he has gone back to protect the rear of the train? (100).

Answer.—The ————, if it is a passenger train and in the case of other trains, the next brakeman.

Question 146.—If a train should part while in motion, what should be done? (101).

Answer.—The train parted signals should be given as prescribed by rules 12 (d) and 14 (f) and attempt made to prevent the detached portions from becoming damaged. The detached portion should not be moved or passed until the front portion (which has right of track to return) comes back. If the vision is obstructed, a flagman should be sent ahead to the foremost portion which must run with great caution.

Question 147.—How would you proceed in case you overtook a train that had parted? (101).

Answer.—Would neither move or pass around the rear portion.

Question 148.—What precaution must be taken to insure safety when train is being pushed by an engine? (102).

Answer.—In order to signal in case of necessity the flagman must ride on the head car.

Question 149.—In what form ought messages to be given respecting the movements of trains or condition of track and bridges? (103).

Answer.—In writing.

Question 150.—After using switches how should they be left? (104).

Answer.—In proper position.

Question 151.—What member of the train crew is responsible for the proper adjustment of switches. (104).

Answer.—Except in cases where switch tenders are stationed, the conductor.

Question 152.—If a section of a train is following, is it permissible to leave the switch open? (104).

Answer.—It is not, unless it is in charge of a trainman of the following train.

Question 153.—What members of the train crew are held responsible for the safety of their train? (105).

Answer.—The Conductor and the Engineman.

Question 154.—What must be done by Conductors and Enginemen when an emergency arises that is not covered by the rules. (105).

Answer.—Every precaution must be taken to prevent accident.

Question 155.—What should be done in case of doubt or uncertainty? (106).

Answer.—The safe course must always be taken and no risks run.

RULES FOR MOVEMENT BY TRAIN ORDERS.

Question 156.—Why are train orders used and in what form should they be issued? (201).

Answer.—To govern the movements of trains not provided for by timetable; they must be issued in the prescribed forms.

Question 156a.—What must train orders contain and how should they be worded? (201).

Answer.—They must contain only information and instruction governing the movements of trains; in their wording they must be brief and clear.

Question 156b.—Is it proper to accept train orders which show, erasures, and interlineations? (201).

Answer.—No.

Question 157.—When the same train orders are

issued to various persons or trains, must they be given in exact form and wording to each? (202).

Answer.—Yes.

Question 158.—When a new series of numbers for train orders is started, at what time each day will it begin and in what order are they numbered? (203).

Answer.—A new series begin at midnight and they are numbered in consecutive order.

Question 159.—When train orders are issued, to whom are they addressed? (204).

Answer.—When issued to a train, they must be addressed to the conductor, engineman and also to anyone who acts as pilot and in other cases to those, who are to carry them into execution.

Question 159a.—Should each engineman have copies of all orders affecting a train when two or more engines are attached to it? (204).

Answer.—Yes.

Question 159b.—May the train order issued to one train be applied to and used by any other train? (204).

Answer.—No.

Question 159c.—When train orders are addressed to operators, restricting movements of trains, how should they be respected by conductors and enginemen? (204).

Answer.—The same as if addressed to them.

Question 160.—Must train dispatchers keep a record of train orders, and if so, when must such records be made? (205).

Answer.—The train dispatcher must keep a full record of all train orders issued in a book provided for the purpose, must record the names of those who have signed for the orders, the time, signals and from what

office the order was repeated and the response transmitted. Must also have the train dispatcher's initials. Such record must be made immediately at time orders are given and completed and never from memory or memorandum.

Question 161.—In what manner are regular trains designated in train orders? (206).

Answer.—Always by their numbers. For example, "first No. 6 or second No. 6" and where desirable the engine number may also be added.

Question 161a.—How are extra trains designated in train orders? (206).

Answer.—Extra trains are designated by their engine numbers with the direction of the train added. For Example, "Extra 678 West."

Question 161b.—How should train numbers and time be stated on train orders? (206).

Answer.—Only in figures.

Question 162.—When dispatcher is transmitting an order what signal does he give to each office? (207).

Answer.—"31 or 19" followed by direction and by information that more or less than three copies are desired, the operator is informed. For example. "31 West copy 5" or "19 East copy 2."

NOTE.—These signals may be omitted where figures 31 and 19 are not both in use.

Question 163.—When a train order is to be sent to two or more offices, in what manner must it be sent? (208a).

Answer.—Simultaneously to as many as practicable.

Question 163a.—In what order must several addresses be given when a number of orders are sent simultaneously? (208a).

Answer.—In the order of superiority of trains, each office taking its proper numbers.

Question 164b.—When train orders are not sent simultaneously to all, how will the order be sent? (208a).

Answer—To the superior train first.

Question 164c.—What will the operator at the meeting or waiting point do with the train orders? (208b).

Answer.—Deliver copies of the order to all trains affected, until all have arrived from one direction.

Question 165.—When operators are transmitting train orders should they make copies of them on manifold blanks and in case he fails to make enough copies how may he supply them? (209).

Answer.—He must write copies in manifold and failing to make sufficient number must trace others from one of the copies first made.

Question 166.—When operators have a "31" order to repeat, how should they proceed? (210).

Answer.—They must repeat the order immediately from the manifold in the succession in which the several offices have been addressed and watch to see that others repeat it correctly unless otherwise directed.

Question 167.—Who is to sign for it after the order has been repeated? (210).

Answer.—The person to whom the order is addressed, except enginemen.

Question 168.—What must the operator do after the order has been signed? (210).

Answer.—Send the signature to the dispatcher who will then give the "complete" and time: also the initials of the —— after which the operator will write

on each copy the word "complete," the time and his last name in full and deliver a copy to each person addressed except the engineman. The copy to each engineman must be delivered to him personally by ——.

NOTE.—In regard to Rule 210, the blanks may be filed to suit the requirements of each road. On roads where the signature of the engineman is desired the words "except engineman" may be omitted. If preferred each person receiving an order may be required to read it aloud to the operator.

Question 169.—What must be done when a "No. 19" order is received? (211).

Answer.—Unless otherwise directed the operator must repeat it at once from the manifold copy in the succession in which the several offices have been addressed, care being taken by each operator to see that the others repeat it correctly. When the order has been correctly repeated the response "complete" and the time with the initials of the —— will be given by the train dispatcher. The operator will then write on each copy, the word complete, the time and his last name in full and personally deliver a copy to each person addressed without taking his signature. If in order to deliver a copy to the engineman, the operator must leave the immediate vicinity of the office, the engineman's copy will be delivered by ——.

Question 169a.—How will delivery be made when a "19" train order is issued for a train at a point where its superiority is restricted by such an order? (211).

Answer.—Train must be brought to a stop before delivery of an order.

Question 170.—When may "X" response be given in acknowledgement of a train order having been delivered? (212).

Answer.—A train order may, when so directed by the train dispatcher, be acknowledged without repeating by the operator and he will say "X" (order) No. —— to (train) No. —— giving also his initials and office signal. After having done this, he will write on the order his initials and the time.

Question 171.—In the case of an inferior train when may "complete" be given? (213).

Answer.—When the order has been repeated or "X" response has been sent by the operator who receives the order for the superior train.

Question 172.—Before "complete" has been given and after it has been repeated or "X" response sent, how is an order regarded? (214).

Answer.—As a holding order.

Question 172a.—When a train order has been repeated or "X" response sent and before "complete" has been given how then must the order be treated? (214).

Answer.—As a holding order for train addressed.

Question 172b.—In case the wire fails after a "31" order has been sent and repeated or "X" response sent and before "complete" has been received, has the train the right to proceed to which the order is addressed? (214).

Answer.—No.

Question 172c.—If before an office has repeated an order or "X" response has been sent the wire should fail, would the order be effective? (214).

Answer.—No.

Question 173.—Which of the copies of the train order should be kept by the operator? (215).

Answer.—The lowest copy.

Question 174.—When train orders are delivered by the train dispatcher what are the requirements as to record and delivery? (216).

Answer.—Same as at other points or offices.

Question 175.—In the case of a train order being delivered to a train at a point not a telegraph office or at a station at which the telegraph office is closed, how should it be addressed? (217).

Answer.—Conductor and Engineman at —— No. —— care ——.

Question 175a.—When form "31" is used, whose signature must be taken before "complete" is given and what copies should the person delivering the order have? (217).

Answer.—The person in whose care the order is sent, should sign it and should have one copy for the engineman, one for the conductor and one for the person who delivers the order.

Question 175b.—Whose signature must appear on the copy which he retains and what must he do with it? (217).

Answer.—The signature of the conductor and engineman of the train to which the order applies. It should be delivered to the telegraph office which he can first reach.

Question 175c.—Is the order to be regarded as if "complete" had been given in the usual manner by the train receiving it and so be governed accordingly? (217).

Answer.—Yes.

Question 175d.—May "complete" be given to an inferior train when orders are sent as above, before the signature of the conductor and engineman of the

superior whose rights are thereby restricted? (217).

Answer.—No.

Question 176.—When a train is running in more than one section, are all its sections included when it is named in an order unless particular sections are specified and should copies of the orders be furnished to each section? (218).

Answer.—Yes.

Question 177.—May the "X" response or repeat be given by an operator to a train order for a train, the engine of which has passed the train order signal before they ascertained that the conductor and engineman had been notified that he has orders for them? (219).

Answer.—No, not unless otherwise directed.

NOTE.—The "X" response is to be used to save time in getting an inferior train started. Quite a saving of time is effected when several orders are concerned. The Dispatcher, however, should require a repetition of the order as soon as he can get it when the "X" response has been used.

Question 178.—After train orders have once taken effect, how long do they continue in force? (220).

Answer.—Until fulfilled, superseded or annulled.

Question 179.—May a particular portion of an order which specifies a particular movement be annulled or superseded? (220).

Answer.—It may.

Question 179a.—Suppose a train has lost its rights as per rule 4 and 82, would orders held by or issued for it be effective? (220).

Answer.—No.

Question 179b.—Suppose a certain part of an order relating to a regular train should become void when such a train has lost both right and class in accordance

with rule 4 and 82 or is annulled, does that part of the order become void? (220).

Answer.—It does.

NOTE.—The annullment indication of the signal on some roads is "proceed." Where such is the case, the following five questions do not apply.

Question 180.—When the operator is on duty at train order office, what does the fixed signal indicate? (221a).

Answer.—Stop.

Question 180a.—When a stop signal is displayed may a train pass? (221a).

Answer.—No.

Question 180b.—When is this signal fastened at "Proceed?" (221a).

Answer.—When there is no operator on duty

Question 181c.—What is required of conductor and engineer if the train order signal is not displayed at a night office? (221a).

Answer.—Bring the train to a stop, learn the cause and report the facts from the next open telegraph office.

Question 181d.—In case fixed signals fail, what signals must operators keep on hand to use in their stead. (221a).

Answer.—Hand signals.

NOTE.—Where the annullment indication of the signal is "stop," as it is on some roads, the following seven questions will not apply.

Question 182.—At a train order office what is indicated when fixed signal is displayed and there are no orders. (221b).

Answer.—Proceed.

Question 182a.—When there are orders what will the fixed signals indicate? (221a).

Answer.—Stop.

Question 182b.—In case an operator receives the signal "31" or "19" what should he do? (221 b).

Answer.—Display the stop signal immediately and reply "Stop and Display."

Question 182c.—When the dispatcher gives the "31" or "19" signal must he give the direction also? (221b).

Answer.—Yes.

Question 182d.—Under what conditions may a train pass a train order stop signal? (221b).

Answer.—When a clearance card is issued.

NOTE.—No trains must pass while a train order signal remains at block, notwithstanding they may have received orders without first getting a clearance card.

Question 183e.—What must be done if signals are not displayed from a night office? (221b).

Answer.—Bring the train to a stop, learn the cause and report at the next open telegraph office.

Question 183f.—When the signal indicates stop, in what position is it? (221b).

Answer.— ——.

Question 183g.—In case these signals fail what must operators have on hand ready for use? (221b).

Answer.—Hand signals.

NOTE.—If an operator changes signal from stop to proceed after the train has stopped the conductor may signal it to leave, and it may proceed without orders or clearance card, provided that the engineman can see the signal is clear.

Question 184.—Should operator record the time of trains and report same? (222).

Answer.—Yes.

Question 185.—What abbreviations are customary? (223).

Answer.—

Signs for the signature of the ——.

Such offices and other signals as are arranged by the ——.

C. & E.—for Conductor and Engineman.

"X"—Train will be held until order is made "complete."

Com.—for Complete.

O. S.—for train report.

No.—for Number.

Eng.—for engine.

Sec.—for section.

Psgr.—for passenger.

Frt.—for freight.

Mins.—for minutes.

Jct.—for junctions.

Dispr.—for dispatcher.

Opr.—for operator.

"31" or "19" to clear the line for train orders and for operators to ask for train orders.

S. D.—for Stop and Display.

The usual abbreviations for the minutes and the stations.

FORMS OF TRAIN ORDERS.

After a train has been signed for by the conductor, he is held responsible for his train being safely moved or held in accordance with the order. After the engineman has received his copy of the order he is held equally responsible with the conductor. Unless he is positive that he has his train fully under his control the conductor has not the right to sign for an order.

When a train is running extra on a schedule it does not lose its rights when it is twelve hours late.

Question 186.—How would the conductor or engineman of train No. 4, be governed if holding an order which read: "No. 4 meet No. 3 at D." In case No. 3 arrived at D displaying signals?

Answer.—Should hold No. 4 at D for following sections because no particular section having been specified in the order, all sections are included and should be given copies of the order.

Question 187.—Suppose an order that train No. 4 would meet second No. 3 at D and then that second No. 3 arrived with signals. No. 4 being a train of superior class what should be done?

Answer.—A particular section being mentioned i: the order and therefore no other section being in cluded No. 4 would proceed.

Question 188.—In the event second No. 3 carried n markers and arrived without signals would train No 4 proceed?

Answer.—No. Until its markers have arrived a train is considered not to have been met.

NOTE.—Let us suppose the following orders have been issued: "No. 3 will meet No. 4 at D. No. 4 will sidetrack." "No. 3 will meet No. 4 at E. instead of D." Now which of these two trains will take the siding at E.? According to the rules No. 4 should go on the sidetrack at E., because the first was a two-movement order yet only one movement has been superseded. It is clearly to be seen that No. 4 has certain privileges, one or more of which it may have taken away by a train order. For instance, No. 4 being a train of superior direction may proceed against No. 3. But, if a meeting point is fixed with No. 3, the privilege to proceed against No. 3 beyond the specified meeting point is lost to No. 4, although No. 4 still has the privilege of holding main track at the meeting point indicated in the order, unless the privilege also has been taken away. Each of these privileges are distinctly separate and the superseding of the portion of the order relative to the meeting point does not operate to supersede the sidetracking provision. In the same manner and by the same principle superseding the sidetracking provision does not supersede the meeting point provision.

Question 189.—Suppose the Conductor or Engineman of train No. 4 held an order reading: "No. 4 meet 1st No. 3 at C and 2nd No. 3 at E," and if upon arrival at E another order were received reading: "No. 4 meet 2nd No. 3 at F" how should they be governed?

Answer.—They should stay at "E" until proper orders were received because as the order to meet at "F" did not say "instead of" it does not supersede the former order.

Question 190.—Suppose train No. 1 holds order No. 4 to meet No. 2 at B and first No. 2 should arrive at B, with signals and the dispatcher gave train No. 1 order No. 5 reading: "No. 1 will meet 2nd No. 2 at C" what would be the effect on the movement of train No. 2?

Answer.—It could not proceed. The words "instead of" not being in order No. 5 prevents it superseding the original order and besides it is not a proper form or order to give. It ought to read: "No. 1 will meet 2nd No. 2 at C instead of B." If thus worded No. 1 could proceed to C.

Question 192.—What should train No. 1 do supposing it held orders No. 4 and No. 6 in case 2nd No. 2 should arrive at C with signals?

Answer.—Expecting 3rd No. 2 to be on the way to B by reason of the right of order No. 4, train No. 1 must immediately get clear, as in that case only that part of order No. 4 was superseded which had reference to No. 2.

FORM B.

Question 193.—Suppose an order reading: "No. 5 pass No. 7 at H" how should the Conductor or Engineman of No. 5 be governed thereby?

Answer.—They should approach H under control prepared to stop unless it should be clearly seen that No. 7 was in the clear and the switches set right.

Question 194.—Suppose an order reads: "Extra 690 East run ahead of No. 8 D to E" how should the Conductor or engineer be governed thereby?

Answer.—Would neither pass the extra specified in the order nor exceed their speed between the points named, and should approach E prepared to stop unless Extra 690 East was clear and the switches right.

Question 195.—If extra 24 received an order reading: "Extra 24 pass No. 4 at E" would the order be sufficient authority for the extra to pass and proceed ahead of No. 4?

Answer.—It would. An order for an inferior to pass a superior train is proper authority for the inferior train to proceed ahead of the superior one.

Question 196.—Must trains of any one class have orders to pass trains of the same class in the same direction?

Answer.—No.

Question 197.—Do extra trains require orders to pass extras?

Answer.—They do not.

FORM C.

Question 198.—Suppose the Conductor or Engineer of train No. 4 held an order reading: "No. 3 has right over No. 4, A—to B—," should No. 4 pass B before arrival of No. 3?

Answer.—Yes, in case the running time and clearance of No. 4 would enable it to make an intermediate point for No. 3.

Question 199.—If an order reads: "Extra East, 769— has right over No. 5, G to K" would No. 5 go beyond K before the arrival of the extra, if not, why?

Answer.—It would not, because the time of Extra 769 would not be restricted by the time-card.

Question 200.—How should the Conductor or Engineer of Extra 769 be governed?

Answer.—Proceed against No. 5 G— to K— and at K— take the siding.

Question 201.—Suppose the order to the Conductor or Engineer of the extra extended beyond K and No. 5 had failed to arrive on arrival of Extra 769 at K would the extra proceed against No. 5 and under what circumstances?

Answer.—In case of sufficient time for the Extra to make a point beyond K and to clear the time of No. 5 would proceed and clear the time of No. 5 as provided by the rule.

Question 202.—Suppose the Conductor of No. 4 a superior train, held an order which read: "No. 3 has right over No. 4 B—to G—" and he received another order reading: "No. 4 will meet No. 3 at ——" should he pass by?

Answer.—Yes; he would have the right to proceed to D— and go on side-track for No. 3. The right of a track order merely operates to reverse the rights of the trains only between the points mentioned in the order.

Question 203.—Suppose the Conductor of No. 4 held the same orders excepting that the meeting point were B, would he then go on the side-track?

Answer.—He would not. If the trains met between the designated points No. 4 must sidetrack. If, however, they meet at one of the points specified No. 3 must go on the sidetrack.

Question 204.—If an order giving right of track is issued to a train of an inferior class against a train of a superior class to a certain named point which of the two trains must go on the sidetrack?

Answer.—If they meet between the points named in the order the train of the superior class will take the siding.

Question 205.—If, under the conditions indicated in the foregoing questions, a train of superior class should reach the second point indicated in the order before the train of the inferior class arrived there, could it proceed and if so under what circumstances?

Answer.—It may proceed by keeping clear of the opposing train's time by as many minutes as such train was, under the rules, before required to clear it.

Question 206.—If an extra train gets a right of track order against a train of superior class to a specified point, may the superior train proceed beyond the point named in case the extra fails to arrive?

Answer.—No.

Question 207.—We will suppose that No. 4 of superior direction, receives an order that 2nd No. 3 a train of the same class, has right over No. 4—B to E the regular schedule meeting point for No. 3 and 4. It is expected that 1st No. 3 will make E on time, but because of a hot-box No. 3 takes the sidetrack for No. 4 at D a blind siding. In that case, what should No. 4 and 2nd No. 3 do?

Answer.—No. 4 should go on to D against 1st and 2nd No. 3 because the form C order merely reversed the rights of the trains. No. 4 possessing rights over 1st No. 3 would proceed against 2nd No. 3 until meeting 1st No. 3. In such a case 2nd No. 3 would have no authority to use the schedule time of No. 3 ahead of the signals carried by the latter. Before 2nd No. 3 gets authority to pass a given point the signals carried by 1st No. 3 must have passed that point.

FORM E.

Question 208.—How should the conductor of No. 4 be governed if he held an order reading: "No. 4 wait at Hinsdale till 11:00 a. m. for No. 1?"

Answer.—He should not pass Hinsdale before 11:00 a. m. unless No. 4 had previously arrived.

NOTE.—Trains using the same time must clear such time the same as before required to clear the regular schedule time when moving under direction of a Form E. order.

Question 209.—How should the conductor of No. 3 be governed seeing that both are trains of the first class?

Answer.—He should proceed to Hinsdale and go on side track to clear the main track by 11:00 a. m.

Qusetion 210.—Suppose the conductor or engineer of a train of inferior right received an order reading: "No. 3 will run 20 minutes late Hinsdale to Aurora" how should he be governed thereby?

Answer.—He should consider the schedule time of No. 3 to be 20 minutes later than its time as indicated on time-card between Hinsdale and Aurora.

Question 211.—Suppose the conductor of an inferior imposing train received an order reading: "No. 3 run two hours late Galesburg to Chicago," how much time would he have in which to make Galesburg?

Answer.—One hour.

NOTE.—Under Form E. only may the trains use the time, and then only between the points named in the order, and never from an intermediate point beyond the point named to make either of the points specified in the order.

FORM F.

Question 212.—Suppose an order were issued which read: "No. 3 display signals Galesburg to Chicago for engine 52" would that give authority to engine 52 to proceed and if so, as what?

Answer.—Yes. It should proceed as second No. 3. (See example (3) under Form F Standard Code).

Question 213.—How should engine 60 run under the following order? "Engine 52, 60 and 75 run as 1st., 2nd., and 3rd. No. 3. Aurora to Hinsdale."

Answer.—Engine 60 would run as 2nd. No. 3 with signals.

Question 214.—What form must be used when it becomes necessary to annul a section for which signals have been displayed over a division or any part thereof, when no train is to follow the signals?

Answer.—Form K.

Question 215.—Suppose 2nd No. 3 received an order at Downer's Grove an intermediate station reading: "Engine 60 is withdrawn at Downer's Grove following section change numbers accordingly." What should be done?

Answer.—Get into the clear on the side-track and remove signals as rights would then have been lost.

Question 216.—As what would engine 75 run from Downer's Grove?

Answer.—As 2nd No. 3 without signals.

FORM G (EXTRA TRAINS.)

Question 217.—If an order reads: "Engine 99 run extra A to D," how would it proceed?

Answer.—It would run to D, taking care to keep clear of all regular trains.

NOTE.—Upon reaching the last station specified in their orders extra train must take the sidetrack at switches where inferior trains going in that direction clear for superior trains. The main track must not be held by extras at their originating or terminating points.

Question 218.—Under the order immediately preceding the above note must opposing trains be protected against?

Answer.—No.

Question 219.—Under this order is the right given to occupy the main track at D?

Answer.—No The siding at D must be taken.

Question 220.—What trains and by how much time must extra trains clear?

Answer.—All regular trains and by five minutes

Question 220a.—Suppose engine 85 had an order to run extra A to F—and return, would it have to go to F as extra 85 before making the return trip?

Answer.—Yes. Because failing so to do the order would not have been fulfilled.

Question 220b.—If according to examples 3, under Form G, Standard Code, engine 65 held an order to run extra would it lose its right when it became twelve hours late?

Answer.—No.

Question 220c. If engine 69 held order No. 1 to run extra A to F and meet No. 36 at F and should be given order No. 2 upon arrival at F to run extra F to G and meet No. 36 at G, should it be regarded as a proper order?

Answer.—Yes; because when engine 69 arrived at F its order was fulfilled and it ceased to be an extra, therefore it possessed no further rights; but upon receiving order No. 2 it again became an extra.

Question 220d.—Suppose engine 69 arrived at F under order No. 1 and was given order No. 3 to run extra to G instead of F and was given also order No. 4 to meet No. 36 at G, could it run to G for No. 36?

Answer.—No. Order No. 3 would not make engine 69 a new extra from F, therefore order No. 4 would be improper by not stating "instead of."

NOTE.—The dispatcher should in each and every case, when originating an extra, fix a meeting point for them with all opposing extras, that one extra would wait for another extra until a certain time at a designated station. Such an order is an improper one for the protection of extra trains, as it fails to restrict the rights of opposing extras.

FORM H. (WORK EXTRA).

Question 221.—Suppose an order were issued to the engineman on engine 292 reading: "Engine 292 works 7:00 A. M. to 6:00 P. M. between D & E," how should he be governed thereby?

Answer.—He should clear the time of regular trains and protect against extras in both directions.

Question 222.—Suppose the order specified, "Not protecting against extras," then how should he be governed?

Answer.—He should clear the time of regular trains, but should not protect against extras.

Question 223.—What governs in case extra 292 should receive an order reading: "Work extra 292 clears (or protects against) extra 64 east between D and E after 2:10 P. M.?

Answer.—Extra 292 would have to either clear at 2:10 P. M. or protect as directed.

Question 224.—How would the order affect extra 64 east, and in what way would it proceed?

Answer.—It would not enter the prescribed limits before 2:10 P. M. After that time it would proceed in expectation of finding a clear main track or the work extra protecting as directed by the order.

Question 225.—What should be done if a work extra received an order reading: "Work extra 292 protects against No. 35 between D & E?"

Answer.—It should work on the time of No. 35 protecting in accordance with rule 99.

(See examples under "Form H." Standard Code.)

FORM J.

Question 226.—If an operator held an order reading: ing: "Hold No. 2," how should it be respected by the conductor or engineer of No. 2?

Answer.—Exactly the same as though addressed to them. They should not leave until an order was received annulling the order, or until an order was received by the operator reading: "No. 2 may go." (See examples in Standard Code.)

Question 227.—In what manner should the operator handle this form of orders?

Answer.—He should acknowledge them in the usual manner and deliver them to the conductors and enginemen of all trains affected by them.

Question 228.—What is a form J order called?

Answer.—An holding order.

Question 228a.—When should a form J order be used?

Answer.—Only to hold trains until orders can be delivered or in cases of emergency.

Question 229.—May a train proceed after having been held by a form J order if it receives an order reading: "———— may go," and yet the signal remains at "Stop?"

Answer.—No. The order permitting it to go merely clears the train on the "Hold" order, not, however, clearing it on the stop signal; therefore, without first receiving a clearance card, in addition to the "may go" order, it cannot proceed while the signal remains at stop. In accordance with Rule 221, a clearance card is positively necessary.

FORM K.

Question 230.—How would the rights of train No. 1 be affected, if under form K an order were issued reading: "No. 1 of Feb. 29th is omitted A— to Z—"?

Answer.—It would lose all rights between the points designated.

Question 231.—When a train is annulled to a given point, are its rights beyond that point affected by the annulling order?

Answer.—No.

Question 232.—May a train thus annulled between given points be restored by special order?

Answer.—No.

Question 233.—Suppose an order were held by a conductor reading to meet No. 1 at Hinsdale and later he received an order to the effect that No. 1 had been annulled, how should he proceed?

Answer.—The order reading to meet No. 1 should be considered void according to Rule 220.

Question 234.—How would the rights of No. 1 be affected by an order reading: "2nd No. 1 of Feb. 29th is annulled E to G."?

Answer.—It would have no rights or schedule between the points designated. (See examples given in Standard Code under Form K).

FORM L.

Question 235.—How should an order read which is to annul an order previously issued?

Answer.—"Order No.———— is annulled."

Question 236.—Should it be numbered, transmitted and signed for the same as other orders.

Answer.—Yes.

Question 237.—When an order has been annulled or superseded, may it be restored under its original number?

Answer.—No.

FORM M.

Question 238.—May a part of an order be annulled when it provided for two or more movements, and if so, how?

Answer.—It may. By an order reading: "That part of order No. ——— reading ——— is annulled."

Question 239.—Would a form M order so issued affect either of the other movements not so annulled?

Answer.—No.

FORM P.

Question 240.—When it is necessary to supersede an order or a part thereof how should it be done?

Answer.—By adding to the prescribed forms the words, "instead of ———."

Question 241.—May an order when once superseded be again issued under its original number?

Answer.—No.

RULINGS OF THE AMERICAN RAILWAY ASSOCIATION.

Question.—Who fills out the "Train Number" on bottom of 31 orders?

Answer.—It is the opinion of the committee on Train Rules that the conductor when he signs the order, should indicate the train he is running in the space provided for the purpose.

Question.—At the last change of time, on one of our divisions, the time-table went into effect at 12:30 a. m., Sunday, Sept. 25th. On the old card train No. 1 left "A" at 6:30 p. m., arriving at "B"—the end of the run—at 10:00 p. m. On the new card this train (No. 1) was scheduled to leave "A" at 6:20 p. m., and run through to "D," leaving "B" at 9:50 p. m., and arriving at "D" at 11:40 p. m. No. 1 was daily except Sunday, on both cards. The question is, would No. 1, leaving "A" Saturday, the 24th, have a right to proceed north of "B" after 12:30 a. m. of the 25th?

Answer.—In answer to the question: "Would No. 1, leaving "A" Saturday, the 24th, have a right to proceed north of "B" after 12:30 a. m. of the 25th?" It is the opinion of the committee that it would not.

Question.—Under the Standard Code of Train Rules, can a light engine running as 1st section of regular train No. 2 (a mixed train) be given an order by the dispatcher to run ahead of time?

Answer.—The Standard Code does not provide for the running of a regular train ahead of time. In the opinion of the committee, the practice should not be permitted.

RIGHTS OF TRAINS IN YARD LIMITS.

Where yard limits are defined by yard limit boards, does it authorize yard engine, or in fact any train within those limits, to occupy main line on the time of same of superior class trains without protection. For example: Extra arrives at station where yard limits are defined by yard limit boards. Can it proceed with its work in yard limits without protection on the time of regular trains?

Answer.—No.

Ruling Sept. 24, 1900.

YARD ENGINES.

Is it supposed to be understood that yard engines will conceal their headlights when they are working on tracks in yards adjacent to the main track? I do not find where this question has been discussed and will thank you for any information you can give me on the subject. We have discussed the question several times at our local meetings but are undecided whether headlights of switch engines in yards should be concealed or not.

Answer.—Yard engines under the rules are not required to conceal the headlights in yards.

Ruling Sept. 24, 1900.

RULE 82.

Under Rule 82. A train scheduled to arrive at B at, say 10:00 a. m., leave B at 10:30 a. m. and to arrive

at C at 11:00 a. m., fails to reach B before 10:00 p. m. and flags itself to B. Has it a right under the rules to proceed to C provided it can leave B before 10:30 p. m. and arrive at C at or before 11:00 p. m.?

Answer.—No; unless authorized by train order.

Ruling Sept. 24, 1900.

REGULAR TRAINS PASSING.

Say a local freight, No. 1, was scheduled at B to arrive at say 9:00 o'clock and leave at 9:30. A through freight, No. 3, of the same class and running in the same direction, scheduled to pass B at 10:00 o'clock. If No. 3 finds No. 1 at B at 10:00 o'clock, or at any time thereafter, and not ready to leave, can No. 3 run ahead of No. 1 without train orders?

Answer.—No; unless No. 1 is disabled.

Ruling Sept., 1900.

EXTRA TRAINS PASSING.

When an extra overtakes another extra, has it a right to pass the first extra without orders?

Answer.—One extra has no right to run around another extra moving in the same direction without special orders.

Rusing Sept., 1900.

RULE 17 (NEW RULE 3).

We have seven branches on which one or more of the crews start in the morning from the end of the road, come to the junction point with the main line and return to the end of the road in the afternoon. It is our intention to have standard clocks at junction points, and I would be pleased to know if we would be conforming to the rule by having the men regulate

their watches when they arrive at the junction point, or whether we should have a standard clock at the end of each of these branches.

* * *

Answer.—The committee decides that it would be entirely in conformity with the spirit of the rule to put standard clocks at the junction points, covering the same by special instruction.

Ruling March 19, 1902.

19 ORDER.

Can a 19 form of train order be used in moving trains whose rights might thereby be restricted. It is not considered good practice to use this form of order, will you kindly advise the purpose for showing "X" response on the Standard train order blank for this form of order? Heretofore, our company has not used a 19 order for a train whose rights would be restricted thereby.

Answer.—Yes; but the restriction of the use of the 19 order by any road so desiring, is permissible under the standard code.

RULE 210 AS TO OK.

Under Rule 210, should train dispatcher acknowledge repetition of a train order by the operator by giving OK?

Answer.—In reply to this question, the committee is of the opinion that while there is no objection to the use of the OK as suggested, the rules do not require it. It was considered by the committee not to be necessary for the safety of operation and was, therefore, omitted.

Ruling 1902.

31 ORDER.

Order No. 50, sent June 30th, at 10:15 p. m., for engine 15 to run extra A to Z OK given at 10:20 p. m. I will ask if this order given June 30th and OK at 10:20 p. m. signed and made complete July 1st 12:15 a. m., was sufficient orders for the train to move? Or, in other words, does the fact that this order was placed on June 30th and OK'd on that date and not signed for three hours, which put it in another month (July) and complete given at 12:15 a. m., made it of no value?

Answer.—A train order is in effect when it has been repeated or "X" response sent as provided in Rule 214. Train orders once in effect continue so until fulfilled, superseded or annulled as per Rule 220.

RULE 3.

1. The schedule leaving time of train 800 at Dover, a terminal station, is 1:10 p. m. The schedule arriving time of train 801 at Dover is 1:10 p. m. Is Dover a regular meeting or passing point for those two trains and is it to be indicated on the time-table in full faced type? Trains 800 and 801 are first-class trains, No. 800 being the train of superior right.

2. The schedule leaving time of train 800 being 1:11 p. m. and the schedule arriving time of train 801 being 1:10 p. m., is Dover still to be regarded as a regular meeting or passing point and full-faced type used? If the response to the second query be "yes," then what difference in the leaving and arriving times will warrant us in regarding Dover as no longer the regular meeting or passing point?

Answer.—In response to the first question, the committee's answer is "yes," and to the second question, "no."

NEW TIME TABLE.

"A" contends that under Standard Rule 4 (b) a train on the old time table due at a division terminal prior to the time new time table takes effect and failing to make such division terminal by the time new card becomes effective loses its right and class and cannot assume the rights of corresponding number on new time table.

"B" contends that its time at division terminal has no bearing on the rule and that such train can assume the rights and time of corresponding number on new card.

A ruling on the above would be appreciated.

Answer.—Under Rule 4 (b) the train in question would retain its train orders and take the schedule of the train of the same number on the new time table.

NEW TIME-TABLE.

No. 1 runs daily, except Sunday, on both the old and the new time-table. The new card takes effect 12:01 a. m. Sunday. No. 1 leaves A 7:00 a. m., arrives at terminal F 7:00 p. m. At 12 o'clock Saturday night No. 1 is at D, has No. 1 any right to complete their schedule on Sunday—they not being represented to run until Monday—or is it your opinion train should be given orders to proceed as an extra?

Answer.—Yes. Rule 4-B authorizes a train to retain its train orders, and take the schedule of the train of the same number on the new time-table. Rule 82 permits No. 1 to be on the road until it is 12 hours behind its schedule time.

Ruling March 19, '02.

NEW TIME-TABLE.

Train No. 1, under the old time table, leaves B at 10:00 a. m. The new time table takes effect at 10:00 a. m., June 1st. On the new time table No. 1 leaves B at 9:00 a. m. and C at 10:00 a. m. Does the new time table provide for No. 1 between B and C on June 1st, or is the train annulled? If annulled, is it annulled only between B and C or is it annulled from B to the end of the division? If not annulled, should No. 1 consider itself one hour late and govern itself accordingly?

Answer.—In reply to this question, the committee would say that, should an instance occur as stated, the plain duty of the superintendent is to conform to Rule 2, and issue special instructions to provide for such a contingency, as it can only affect the train for one day.

RULE 4-B.

I am not satisfied with the American Railway Association timetable Rule 4-B; at least, I have some misgivings as to whether it reads the way it should in order to convey the meaning that I believe it is intended of the committee to convey. The first instance completely eliminates the preceding timetable. The next sentence states that "a train of the preceding timetable (which has been suspended as per the first sentence) shall retain its train orders," etc. I am preparing a new book of train rules and I wish to submit to the committee my substitute for their Rule 4-B, and expect to change standard Rule 4-B to read as below, unless the committee can give me some good reason why my wording of the Rule is not better, or at least as good, as the committee's Rule 4-B. In my opinion,

my substitute covers the ground more fully. Our suggestion is that this rule should read as follows: "Each time-table from the moment it takes effect, supersedes the preceding time-table; but each train on the new time-table shall retain the train orders and take the schedule of the train of the same number on the old time-table. A train running in accordance with the schedule of the new time-table which had not the same number on the preceding time-table shall not run on any division until it is due to start from its initial point on that division after the time-table takes effect."

Answer.—It is undesirable to change Rule 4-B in the Standard Code, since the language clearly defines the action necessary.

Ruling March 19, 1902.

RULE 14 (K).

To call the attention of trains of the same or inferior class to signals displayed for a following section.

Engine steam whistle 14 (k) is to call the attention of the **same or inferior class (only)** to signals displayed for a following section.

If, therefore, No. 23, a second class train, which is displaying signals for a following section, receives an order as per Train Order Form A, in which order no particular sections of No. 23 are specified, and, therefore, as per rule 218, all sections are included, to meet No. 4, a first class train at B, No. 23 is not required, as No. 4 is a train of superior class, to give whistle signal 14 (K) to it at B.

Is it not as important in such a case that whistle signal 14 (k) be given to a train of superior class as to a train of the same or inferior class?

Answer.—Whistle signal 14 (k) is merely an auxiliary requirement and the identity of trains is not dependent thereon; therefore it is non-essential and might be dispensed with altogether; without jeopardizing safety of operation.

In the opinion of the committee it would be objectionable to extend its application to superior trains for the reason that the great increase of whistling that would result therefrom would be seriously annoying to passengers, particularly at night.

In framing Rule 14 (k) the committee relied upon the provisions of Rule 218, which in the case referred to would require the conductor of No. 4 to find out and meet all the sections of No. 23.

RULE 206.

When there are two or more engines coupled to an extra train, which engine number should be used to designate the extra train under Rule 206? Rule 22 prescribes that the leading engine shall display the green or white signals, but the question is whether the number of the leading engine should be used to designate the extra train.

Answer.—The recommendation of the committee is that the number of the leading engine should be used.

Ruling Sept. 24, 1900.

ARRIVING TIME.

Referring to Rule 92, second clause. A train must not leave a station in advance of its schedule leaving time. In consideration of this rule by the committee on Train Rules, kindly advise if it was understood that a train would have the right to go to a station in advance of schedule leaving time or in advance of time

shown in time table when it was understood that such time was leaving time. Under this rule it is possible for a freight train to leave a station on time at schedule leaving time and reach the next station in advance of schedule leaving time. Some of our division superintendents want to make the rule that where only one time is shown at a station that it should be both arriving and leaving ime, in order to prevent train from coming to station ahead of schedule leaving time.

Answer.—Unless the arriving time is shown there is nothing in the Standard Code to restrict a train from arriving at a station ahead of its leaving time.

Ruling Sept. 24, 1900.

CLEARANCE CARD.

It is suggested that the Standard Code clearance card be changed so as to show the numbers of train orders delivered to the trains receiving the card. So that if any question should arise as to whether or not an order, possibly an 19 order which was not signed for, was delivered, the clearance can be produced as an actual record of the delivery or non-delivery.

Answer.—The clearance card as printed in the Standard Code, gives all the information necessary. The requirement of further information might lead to error on the part of the operator.

PILOT.

The responsibilities of a pilot are the same as the responsibilities of the engineman or conductor, or both, whom he pilots.

DIRECTION.

The American Railway Association recommends that odd numbers shall be given west and south bound

trains and even numbers to east and north bound trains.

COLOR.

Recommend that no cross-arm or telegraph poles be painted red or green.

BLUE SIGNAL.

A question has been asked in regard to Rule 38 (present Rule 26), as to whether or not it is intended to cover the case where a fireman or some one else is underneath an engine, cleaning out the ashpan, etc.

Answer.—The committee would state that the rule is only intended to protect car inspectors at work under or about the car or train, and, while admitting the force of the suggestion to protect the fireman or other persons under the engine cleaning out the ashpan, etc., the committee finds so many other cases where it is dangerous to move the car or train that it will be impossible to modify the rule to cover all the cases, and thinks it is a proper matter for each superintendent to formulate special rules to cover the particular exigencies on his division.

SWITCH LIGHTS.

A letter was submitted in regard to the proper color to be used for switch lights. It is the unanimous opinion of the committee that red and white are the proper colors, but it has purposely omitted any mention of the same in the Rules, believing that the signification of the colors determines same, there being no question about the use of red for open switches. If white is used, it means that there is no restriction as to speed unless otherwise ordered. If green is used, it means that caution is to be used and it is a signal to go slow.

FORM A.

Assuming that a road is working under Standard Rule for single track, and is double track between A and B, single track between B and C, and double track between C and D.

In case order is issued: "Engine 1 will run extra A to D and meet No. 2 at C." Will it be necessary for extra 1 to wait at C until No. 2 arrives, in the absence of any orders regarding No. 2 using the track which extra 1 would use under time table rules C to D, both B and C being register points so that No. 2 would know that extra 1 had arrived at C?

Answer.—In answering, attention is called to the fact that the inquiry is based on the use of a wrong form of order, and therefore is not one which the committee can rule on. An order as per Form C should have been used, reading: "Extra 1 has right over No. 2 B to C."

Ruling Sept. 11, 1901.

FORM A AND C.

I would be pleased to have a ruling as to the proper interpretation of the following train orders: At A extra 375 receives order No. 50 to meet No. 25 at B. Upon arrival of extra 375, at B, conductor was proffered order No. 51, giving him right over No. 25 to C. Conductor refused to accept order No. 51 until order No. 50 had been annulled. The dispatcher proceeded to annul order No. 50, completing order No. 51, then extra 375 proceeded towards C. Previous to annulment of order No. 50 to extra 375 at B, No. 25 had received and accepted both orders. Nos. 50 and 51, at B, and had departed. Having in their possession two orders, neither of which had been annulled to them, and with no intervening telegraph station between

D and C, upon their arrival at C they proceeded towards B and met extra 375 on main line. The mistake of the dispatcher is unquestioned. What I desire to have your ruling on is as to the manner in which No. 25, with two orders, should have observed them. In other words, should No. 25 have attempted to pass C before the arrival of extra 375, and if so, in what manner?

Answer.—In the opinion of the committee No. 25 should not have passed C before the arrival of extra 375.

Ruling Sept. 21, 1904.

FORM B.

The question has been asked me whether train order Form B (3) gives the first-named train the right to run on time of the second-named train, and if so, under what regulations?

Answer.—Yes; under the restrictions as given in the last paragraph of Form B.

Ruling Sept. 24, 1900.

FORM C.

There has recently been considerable discussion among transportation men in this locality embracing several of the larger railroads, in regard to Form C, and by a number it is stated that this Rule is not clearly understood, although embodied generally in all Books of Rules.

We think we understand all but the last paragraph, wherein it specifies, that if the second named train, "before meeting," reaches a point within or beyond the limits named in the order, the conductor must stop the other train where it is met and inform it of his arrival,

We do not see how the second train can get beyond the limits without a second order making a meeting point or in some similar manner advising the first named train of the identity of the second train. If so this necessity for stopping and advising what train it is appears to us to be superfluous.

The special point in this paragraph is the words "before meeting," which causes difference of opinion.

Answer.—Form C was formulated for the purpose of reversing the superiority of trains, the inferior train becoming superior within the limits named in the order.

The intention is that the second named train may continue until it meets the first named train, clearing it properly within the limits named in he order.

Ruling March 11, 1903.

The paragraph to which reference is made is intended to insure the identification by the first named train of the second-named train wherever they may meet, so that the first-named train may continue beyond the limit named in the order.

SUPERSEDING AN ORDER. .....

What is the general practice where rights are extended as well as shortened? For example: Order No. 1. No. 1 has right over No. 2 A to D. Order No. 2. No. 1 has right over No. 2 to G, would you say No. 1 has the right over No. 2 to G instead of D?

Answer.—The examples here given are not in accord with the Standard Code practice. The question may be answered by simply quoting from the Standard Code the forms therein provided, and which should be used:

Form C, Order No. 1. No. 1 has right over No. 2 A to D. Form P, Order No. 2. No. 1 has right over No. 2 A to G instead of D.

Ruling Sept. 21, 1904.

MEETING POINT.

We have recently had a bad accident that occurred through an engine man overlooking his meeting orders and inability of the conductor to stop the train. * * * Feeling the necessity for a rule requiring communications between conductors and engine men of passenger trains, I have prescribed the following for use on our lines. * * * , and I would bring to the attention of the Association the necessity of incorporating some such signal in the Code Rules: "Conductors of passenger trains when approaching meeting points, whether by schedule or train order, must in all cases give two long and one short blast of the air whistle, as notice, to the engine man that the train is approaching a meeting point, and the engine man must promptly acknowledge his understanding of the same as provided in Rule 14-G.

Answer.—Rule supplementary to the Code may be formulated by railways upon which the conditions of the service are not fully met by the Code Rules, when such supplementary rules are in accordance with the principles of the Code. The committee does not deem it wise to incorporate in the Code rules which are of special application to the requirements of particular railways, and objectionable for use on other railways, upon which it may be advisable and proper to provide for conditions in a different manner.

Ruling March 19, 1902.

FORM E.

No. 1 is instructed to run 10 min. late New York to Rochester; they pass Syracuse 10 min. late, which is the last station they are timed at east of Rochester, which is the leaving time and, consequently, there is no time for them to arrive 10 min. late by. Their running time from Syracuse is slow enough to enable them to make up this 10 min. and be ready to leave Rochester on time, or within one or two minutes of it, and as their order expired as soon as they arrived at Rochester, what prevents them from leaving Syracuse 10 min. late and arriving at Rochester at their leaving time, they have no arriving time and its being generally understood that train is due to reach next station (if no arriving is given) as soon as they can get there after leaving the last station as ordered or required by schedule.

Answer.—No. 1 with an order to run 10 min. late New York to Rochester, should leave all intermediate stations 10 min. late, and arrive at Rochester (as no arriving time is shown there) as much ahead of its leaving time as it would be permitted to do when running without an order, that is to say, the only difference this order makes is that the figures on the time-table are changed 10 min. later between the points specified in the order, and, as there is only one time given at Rochester, which is the leaving time, the order practically expired when the train left Syracuse.

FORM E.

Under example 1, Form E, special East leaves Omaha with an order reading that No. 1 will run 30 min. late New York to Chicago. Will this give the

special until 3:25 to reach Chicago, or must they reach there at 2:55? If they must reach there by 2:55 of course they are not aided any against No. 1 by the order, as they have a right to go there at 2:55, 3 o'clock being the leaving time of No. 1. It is argued that No. 1's order has expired on her arrival at Chicago 30 min. late, at 3 o'clock, and has nothing to do with her leaving at 3 K or 3:01 provided her work is done, or she has none to do, and of course, in this event the special would not be helped any by the order. A great many conductors have said they would run against No. 1 until 3:25 to make Chicago.

Answer.—Inasmuch as the order delivered to the special at Omaha did not control the movement of No. 1 west of Chicago, the order could not have been used by the special until after its arrival at Chicago. It was therefore an improper order to issue to move the special from Omaha to Chicago. If it was the purpose to move the special to Chicago against No. 1 the order perscribed in No. 2, (now No. 3), Form E, should have been used. In the opinion of the committee the issuing of this order as stated, gave rise to the difficulty which the gentleman mentions.

FORM E.

The question has been raised whether, under "Form E, example 2," of the rule governing forms of train orders, a train can properly be held at more than one point in one order for the same opposing train.

For instance. No. 1 will wait at A until 2:40 p. m. for No. 2, and will wait at B until 3:01 p. m. for No. 2.

Form E does not specifically authorize such an order.

Answer.—The reply of the committee is that under the Revised Code, Form E, example 3, a train can properly be held at more than one point in one order for the same opposing train.

Ruling Sept. 24, 1900.

FORM F.

Please refer to Form F, Standard Code, which reads as follows: Engines 70, 85 and 90 will run as 1st, 2d and 3d No. 1, London to Dover.

In the event that it is desired to cut out the second section of No. 1 at Chatham, would it be necessary under the rule to give notice of such change to engine 70, representing first section of that schedule?

The above proposition has brought out considerable discussion among our local people here, and I am desirous of having the committee on Train Rules pass upon the question.

Answer.—When this form of the order is used the first section should have a copy of the order annulling the second section.

Ruling Sept. 24, 1900.

FORM G.

Will you kindly say if special trains should carry a white signal? There is a wide difference of opinion on the subject and I respectfully refer the matter to you.

Answer.—A train running under example 1, Form G, would carry the white classification signals, because it is a train not represented on the time-table, and is therefore an extra train. A train running under example 2. (This is the form used for running a train

on a schedule and making it a supplement to the time-table. It is no longer a Standard Code example.) Form G, would not carry the white classification signals, because the order expressly states that its schedule is a supplement to the current time-table, and therefore makes it a regular train.—Ruling Sept. 24, 1900.

FORM G.

I beg to submit to the committee on Train Rules the following inquiry, in regard to Form G, Extra Trains, under example (1): Engine 99 will run extra, Berber to Gaza.

Supposing Gaza to be a way station, to which point within the somewhat indefinite limits of Gaza, does the order give the extra the right to run?

A definite ruling on this point seems important, especially when we consider that it is perfectly competent for the train dispatcher to give an extra running in the opposite direction a similar order from some other point to Gaza, and that, so far as the rules provide neither extra would have any information as to the destination or existence of the other.

Answer.—Presuming that Gaza is an intermediate station on a division, the order gives the extra the right to run to the entrance switch of the siding and clear the main track.—Ruling Sept. 24, 1900.

FORM H.

Under Form H, paragraph f, is a work train authorized to flag against all regular trains? (The Form H, paragraph d, of the new rules).

Answer.—The form does not permit a work train to occupy the main line until the arrival of regular

trains, but it does permit a work train to occupy the main track until the arrival of an extra from either direction by properly protecting itself.

ANNULLING A SECTION.

After a section of a train has been run over one portion of a road, and that annulment of the section issued, would it be competent to run the same section of the same train over a different portion of the road? That is, if three sections of No. 23 are started out from A and at C the order is issued 3rd 23 is annulled from C, could there be a 3rd No. 23 run from D to E? An intermediate section can be annulled and following section take that section's number from where the change is made, but in that case the conductor or engine number is mentioned as being annulled as 3rd section.

Answer.—Assuming the points named are all in the same despatching division the answer is No. Under the last paragraph of form K, which reads, "When a train has been annulled it must not be again restored under its original number by special order."

I am in receipt of the report of the committee on train rules of the American Railway Association, New York, October 6th. I find an inquiry submitted in regard to annulling a section of a train to which the committee replied, "No." While I admit that the inquiry was probably not put as it should have been, I do think that the committee should have made itself plain, as that ruling is going to confuse almost all roads which are endeavoring to follow out the ruling of the Train Rule Committee. I would like to ask, for instance, if engine 214 was 3rd No. 23 and from some

cause was disabled at B, what is to hinder the dispatcher from annulling engine 14 as 3rd No. 23 at B, and when he gets a relief engine, 216, to that point, giving it an order to run as 3rd No. 23 from B to the point to which signals are carried by the leading section? Of course the committee had in mind that if 3rd No. 23 was annulled from B the train could not be represented, but as long as the signals were carried beyond that point and intermediate train not notified, I would like to ask as information, why 3rd No. 23 could not be represented by another engine?

Answer.—There is nothing to hinder the dispatcher from annulling 3rd No. 23, but the change of an engine does not necessarily involve such annulment.

DOES NOT SUPERSEDE.

Suppose an order is issued to No. 1 at A and No. 2 at C, reading: "No. 1 will wait at B until 5:00 p. m. for No. 2." No. 1 being the superior train. Subsequently an order is issued to No. 1 at B and No. 2 at C, reading: "No. 1 and No. 2 will meet at C." Does the latter order cancel the previous time order?

Answer.—The committee refers to the first paragraph of Rule 473. (Now Rule 220.) "Train orders once in effect continue so until fulfilled, superseded or annulled." Therefore, if the train order had not expired at B, then that order must be annulled before the meeting order would be effective. Under the conditions named the second order should preferably read, "Order No. — is annulled. No. 1 and No. 2 will meet at C."

RULE 210.

An operator repeating a train order to the dispatcher, which was sent by him and, while repeating it

the conductor and engineman both sign the order, and after the order is repeated and without stopping to receive "O. K." from dispatcher, the operator sends in signature of conductor and engineman. Is such an action in accordance with the ruling of your committee or should the operator stop, after repeating the order and wait for O. K. from dispatcher before sending the signatures of the conductor and engineman? If there is no objection to the operator repeating the signatures, should the dispatcher give "O. K. and complete" at the same time? The point I wish to make clear is whether or not the blank on the bottom of standard "31" order, reading, "Time received," "O. K.," "given at" should be filled in each case.

Answer.—The committee ruled that the conditions mentioned in the letter are plainly in violation of Rule 459, (this rule has been modified and is now rule 210,) and the operator should wait for the O. K. from dispatcher before sending the signatures of conductor and engineman.

WORK TRAIN.

"No. 40 and work extra 237 will meet at Rome." At 8 p. m. on the expiration of the work limits, work extra has not reached Rome. How are both trains to be governed after this hour?

Answer.—No. 40 could not pass Rome without orders, and if work extra 237 had orders to work only to 8 p. m., it has no right to the track after that hour. Under the circumstances, the Form E should have been used.

REVERSE MOVEMENT.

In running a train over opposite track is it necessary or customary to state the cause as "north-bound

track obstructed," etc., or simply give 19 order to trains to use that track, and when they receive orders to use the opposite track do they understand that they are governed by single track rules? That is they are superior to trains which, under the time-table rules, they would be superior to on single track and inferior to trains which they would be inferior to under single track rules while running on that track?

Answer.—The committee does not consider it necessary to state the cause.—Ruling Sept. 11, 1901.

SIZE OF BLANK.

Is there any objection to using form of train order book size 7½x10¾ in. beyond the perforated line at top, and 7½x11⅛ in. over all?

Answer.—The committee believes that the form recommended in the Standard Code is best suited for the use of railroads generally. Larger blanks are permissible, but in the opinion of the committee, are undesirable.

RULE 92.

It has been suggested to me that Rule 92, of the Code, is incomplete without the addition of an explanatory clause, such as follows: "Under this rule it will be understood that where the inferior train is shown to arrive on the leaving time of the superior train, or where a train is shown to arrive on the leaving time of a train of the same class, the inferior train has the right to arrive five minutes before the time shown."

I should be glad to have the benefit of the expression of the opinion of the committee on train rules on this matter.

Answer.—Where the arriving time of a train is the same as the leaving time of an opposing superior train, the inferior train has not the right to arrive before the arriving time shown. (See Rule 92.) The arriving time, when shown, should provide for the clearance required by the rules.—Ruling March 11, 1903.

RULE 18.

Our suggestion is that Rule 18 should read as follows: "Yard engines will display a reflecting light to the front and rear by night. When not provided with a reflecting light at the rear, two white lights must be displayed. Yard engines will not display markers." We think this suggestion is better than to say, "Display a head-light to the rear." At least this is the way we propose to publish it in our new book of rules.

Answer.—The term "head-light" as used in rule 18 is simply employed in its technical sense and is intended to describe a pattern of lamps, and not the special direction in which the light may be displayed. —Ruling March 19, 1902.

FORM E.

No. 2 is due at A 1 p. m., C 1:15 p. m., D 1:30 p. m. No. 2 is given an order to run 30 min. late A to D. Can No. 2 arrive at C or D ahead of this time?

Answer.—The train receiving this order will run with respect to this latter time, as before required to run with respect to the regular schedule.
—Ruling March 19, 1902.

The interpretation of the definition of "yard" as set forth in the standard rules, and the matter of proper regulations concerning movements within defined

yard limits are questions now being fiercely discussed and agitated on railroad lines of this vicinity.

It is contended that the definition of "yard" provides, broadly speaking, that the Time-Table, Rules Governing Movement of Trains and Rules for Movement by Train Orders have no jurisdiction or authority in yards. In other words, a yard is a fenced-up baseball park, and all movements made within the same by trains, yard engines, light engines, etc., shall be made subject to the regulations governing this particular yard, and that the Time-Table, Rules Governing Movement of Trains, and Rules for Movement of Trains by Train Orders shall absolutely cease the instant a train arrives at the "baseball park" fence—or rather, the "main line" ceases at this point.

On the other hand, it is contended that the Time-Table, Rules for Movement of Trains, and Rules for Movement by Train Order govern in yards as well as at other stations, except to the extent that they might be modified, restricted, superseded or annulled by special instructions relating to all or individual yards.

The circumstances in question are as follows: Our special instructions governing Movements in Yards provide that all trains, yard engines, etc., must proceed under control within yards.

Another special instruction defines "Under Control" as being able to stop within the distance the track is seen to be clear. Under these instructions yardmen maintain they have as much right within this Mystic Circle as a passenger train, or any other train or engine, and without flag protection, etc., notwithstanding the rules for Movement of Trains provide that inferior trains, etc., shall clear the time of superior trains, etc.

The yard crew also object to be referred to as a "train" in any shape, manner or form, and give this as another reason why rules for movement of trains and for movements by train orders are not applicable to yard engines—and for no other reason than that a yard engine is not a train. The crew state, however, that they expect to keep out of the way of all important trains as much as possible, and endeavor to give them a clear track at all times, avoiding delay, etc., on the other hand, they expect all these trains to be under control, thus avoiding the necessity of flag protection on the part of yard crews, and also as a matter of protection to the trains themselves in case they should find their progress obstructed by switch engines, cars or otherwise in yards.

Another question is put up about as follows: The Time-Table, Rules for Movement of Trains, and Rules for Movement by Train Orders, have authority in any yard, and in this particular yard we find the customary regulation, providing that all trains shall proceed under control within the same, etc. Now, we will assume that this yard is located in Buffalo, and we find a special train running from Chicago to New York, through Buffalo, and with it a train order giving it right over all trains.

Does this order give it right to proceed through Buffalo yard regardless of other trains, yard engines, etc.? If so, then it necessarily follows that the train dispatcher must receive an acknowledgement from all yard engines, etc., at Buffalo, before he can permit the special train to pass through that place.

Of course you understand I am referring to single track yards, because we have practically no double

track. Personally, I am decidedly of the opinion that a "yard" should be operated entirely independent of the "Main Track," and there should be rules for this independent operation in the same manner that we have independent rules for operating double track, block signals, etc. I am also of the opinion that under the definition "Yard" it is intended that the Time-Table, Rules for Movement of Trains and Rules for Movement by Train Orders should not govern, and that each railroad company is to provide its own regulations for movements within yards, however, it is not exactly plain in this respect, and on this account there is room for much good argument pro and con.

Of course you understand in this country it is not always possible to lay out yards to the best advantage in the way of obscured views, etc.

On the other hand, nearly all our yards contain many curves, and view is often obstructed by rock bluffs, mountain sides, etc.

Will you kindly set us right in the premises?

Answer.—The Standard Code definition of a yard is:

"Yard. A system of tracks within defined limits provided for the making up of trains, storing of cars and other purposes, over which movements not authorized by time-table, or by train orders, may be made, subject to prescribed signals and regulations."

Nothing in this definition contemplates the abrogation of the authority of trains to move on the main track.

Special instructions authorized by or in force on any railroad are matters of detail for that railroad, and are not intended to be covered by Standard Code

rules. The difficulty here appears to be caused by incomplete special instructions governing movement in yards. The definition for a yard being interpreted to include a main track—

A yard engine is not a train within the meaning of the Standard Code, it having no authority to move upon a main track unless specially authorized—

The hypothetical case of a special train running from Chicago to New York passing through Buffalo yard and holding a train order giving it right over all trains, can best be answered by quoting a new rule which the committee on train rules has recommended to the association for adoption as follows:

"**93.** Within yard limits the main track may be used, protecting against ——— class trains ——— class and extra trains must move within yard limits prepared to stop unless the main track is seen or known to be clear."

With this rule in force there can be no question about the movement of a special train through Buffalo yard.

The adoption of new rule 93, in connection with definition of a yard will answer the various questions and clear the situation.—Ruling March 21, 1906.

STANDARD CODE OF THE AMERICAN RAILWAY ASSOCIATION

INTERLOCKING RULES

Adopted October 24, 1900

DEFINITIONS.

Interlocking.—An arrangement of switch, lock and signal appliances so interconnected that their movements must succeed each other in a pre-determined order.

Interlocking Plant.—An assemblage of switch, lock and signal appliances, interlocked.

Interlocking Station.—A place from which an interlocking plant is operated.

Interlocking Signals.—The fixed signals of an interlocking plant.

Home Signal.—A fixed signal at the point at which trains are required to stop when the route is not clear.

Distant Signal.—A fixed signal used in connection with a home signal to regulate the approach thereto.

Dwarf Signal.—A low fixed signal.

RULES.

Signal	Occasion for Use	Indication	Name
Color	The signal will be displayed when	For enginemen and trainmen	As used in rules
(*a*) Red	Route is not clear	Stop	Stop-signal
(*b*) ———	Route is clear	Proceed	Clear-signal

Where the semaphore is used, the governing arm is displayed to the right of the signal mast as seen from an approaching train, and the indications are given by positions:

Horizontal as the equivalent of **(a)**.

Vertical or Diagonal ———* as the equivalent of **(b)**.

NOTE TO RULE 601.—*Angle above or below the horizontal.

602. Interlocking signals, unless otherwise provided, do not affect the movements of trains under the time-table or train rules; nor dispense with the use or the observance of other signals whenever and wherever they may be required.

SIGNALMEN.

611. The normal indication of Home Signals is Stop.

612. Levers, or other operating appliances, must be used only by those charged with the duty and as directed by the rules.

613. Signal levers must be kept in the position giving the normal indication, except when signals are to be cleared for an immediate train or engine movement.

614. When the route is clear the signals must be cleared sufficiently in advance of approaching trains to avoid delay.

615. Signals must be restored so as to give the normal indication as soon as the train or engine for which they were clear has passed ——.

GENERAL NOTE.—The Committee has found it desirable to leave blanks (———) in certain rules to be filled by each company adopting them, as may best suit its own requirements.

616. If necessary to change any route for which the signals have been cleared for an approaching train or engine, switches must not be changed or signals cleared for any conflicting route until the train or engine, for which the signals were first cleared, has stopped.

617. A switch or facing point lock must not be moved when any portion of a train or an engine is standing on, or closely approaching, the switch or detector bar.

618. Levers must be operated carefully and with a uniform movement. If any irregularity, indicating disarranged connections, is detected in their working, the signals must be restored so as to give the normal indication and the connections examined.

619. During cold weather the levers must be moved as often as may be necessary to keep connections from freezing.

620. If a signal fails to work properly its operation must be discontinued and the signal secured so as to give the normal indication until repaired.

621. Signalmen must observe, as far as practicable, whether the indication of the signals corresponds with the position of the levers.

622. Signalmen must not make nor permit any unauthorized alterations or additions to the plant.

623. If there is a derailment or if a switch is run through, or if any damage occurs to the track or interlocking plant, the signals must be restored so as to give the normal indication, and no train or switching movement permitted until all parts of the interlocking plant and track liable to consequent injury have been examined and are known to be in a safe condition.

624. If necessary to disconnect a switch from the interlocking apparatus the switch must be securely fastened.

625. During storms or drifting snow special care must be used in operating switches. If the force whose duty it is to keep the switches clear is not on hand promptly when required, the fact must be reported to ——.

626. If any electrical or mechanical appliance fails to work properly —— must be notified and only duly authorized persons permitted to make repairs.

627. When switches or signals are undergoing repairs, signals must not be given for any movements which may be affected by such repairs, until it has been ascertained from the repairmen that the switches are properly set for such movements.

628. Signalmen must observe all passing trains and note whether they are complete and in order; should there be any indication of conditions endangering the train, or any other train, the signalmen must take such measures for the protection of trains as may be practicable.

629. If a signalman has information that an approaching train has parted he must, if possible, stop trains or engines on conflicting routes, clear the route for the parted train, and give the Train-parted signal to the engineman.

630. Signalmen must have the proper appliances for hand signaling* ready for immediate use. Had signals must not be used when the proper indication can be displayed by the fixed signals. When hand signals are necessary they must be given from such a point and in such a way that there can be no misunderstand-

ing on the part of enginemen or trainmen as to the signals, or as to the train or engine for which they are given.

NOTE TO RULE 630—*Hand signaling includes the use of lamp, flag, torpedo and fusee signals.

631. If necessary to discontinue the use of any fixed signal, hand signals must be used and —— notified.

632. Signalmen will be held responsible for the care of the interlocking station, lamps and supplies; and of the interlocking plant, unless provided for otherwise.

633. Lights in interlocking stations must be so placed that they cannot be seen from approaching trains.

634. Lights must be used upon all fixed signals from sunset to sunrise, and whenever the signal indications cannot be clearly seen without them.

635. If a train or engine over runs a Stop-signal, the fact, with the number of train or engine, must be reported to ——.

636. Only those whose duties require it shall be permitted in the interlocking station.

ENGINEMEN AND TRAINMEN.

661. Trains or engines must be run to but not beyond a signal indicating stop.

662. If a clear signal, after being accepted, is changed to a stop signal before it is reached, the stop must be made at once. Such occurrence must be reported to ——.

663. Enginemen and trainmen must not accept clear hand signals as against fixed signals until they are fully informed of the situation and know that they

are protected. Where fixed signals are in operation trainmen must not give clear hand signals against them.

664. The engineman of a train which has parted must sound the whistle signal for Train-parted on approaching an interlocking station.

665. An engineman receiving a Train-parted signal from a signalman must answer by the whistle signal for Train-parted.

666. When a parted train has been re-coupled the signalman must be notified.

667. Sand must not be used over movable parts of an interlocking plant.

668. Conductors* must report to —— any unusual detention at interlocking plants.

NOTE TO RULE 668.—*Or enginemen of yard engines.

699. Trains or engines stopped in making a movement through an interlocking plant, must not move in either direction until they have received the proper signal from the signalman.

REPAIRMEN.

681. Repairmen are responsible for the inspection, adjustment and proper maintenance of all the interlocking plants assigned to their care.

682. Where the condition of switches or track does not admit of the proper operation or maintenance of the interlocking plant, the fact must be reported to ——.

683. When any part of an interlocking plant is to be repaired a thorough understanding must be had with the signalman, in order to secure the safe movement of trains and engines during repairs. The sig-

nalman must be notified when the repairs are completed.

684. If necessary to disconnect any switch it must be securely fastened before any train or engine is permitted to pass over it.

685. Alterations or additions to an interlocking plant must not be made unless authorized by ——.

686. Repairmen when on duty, or subject to call, must keep —— advised as to where they can be found, and respond promptly when called.

BLOCK SIGNAL RULES

DEFINITIONS.

Block.—A length of track of defined limits, the use of which by trains is controlled by block signals.

Block Station.—A place from which block signals are operated.

Block Signal.—A fixed signal controlling the use of a block.

Home Block Signal.—A fixed signal at the entrance of a block to control trains in entering and using said block.

Distant Block Signal.—A fixed signal used in connection with a home block signal to regulate the approach thereto.

Advance Block Signal.—A fixed signal used in connection with a home block signal to sub-divide the block in advance.

Block System.—A series of consecutive blocks.

Telegraph Block System.—A block system in which the signals are operated manually, upon information by telegraph.

Controlled Manual Block System.—A block system in which the signals are operated manually, and so constructed as to require the co-operation of the signalmen at both ends of the block to display a clear signal.

Automatic Block System.—A block system in which

the signals are operated by electric, pneumatic or other agency actuated by a train, or by certain conditions affecting the use of a block.

RULES.

301. HOME SIGNALS.

SIGNAL	OCCASION FOR USE	INDICATION	NAME
Color	The signal will be displayed when	For enginemen and trainmen	As used in rules
(*a*) Red	Block is not clear	Stop	Stop-signal
(*b*) ———	Block is clear	Proceed	Clear-signal
(*c*) ———	Block is not clear	Proceed with caution	Caution-signal

Where the semaphore is used, the governing arm is displayed to the right of the signal mast as seen from an approaching train, and the indications are given by positions:

Horizontal as the equivalent of (a).

Vertical or Diagonal ——* as the equivalent of (b).

Diagonal ——* as the equivalent of (c).

NOTE TO RULE 301.—*Angle above or below the horizontal.

302. Block signals controls the use of the blocks, but, unless otherwise provided, do not affect the movements of trains under the time-table or train rules; nor dispense with the use or the observance of other signals whenever and wherever they may be required.

SIGNALMEN.

311. The normal indication of Home Block Signals is Stop.

312. Signals must be operated carefully and with a uniform movement. If a signal fails to work properly its operation must be discontinued and the signal secured so as to give the normal indication until repaired.

313. Signalmen must observe, as far as practicable, whether the indication of the signals correspond with the position of the levers.

314. Signalmen must not make nor permit any unauthorized alterations or additions to the apparatus.

315. A block record must be kept at each block station.

NOTE TO RULE 315.—The different times to be entered on the block record have not been prescribed in this rule, but it has been left to each road to complete the rule by adding such items as may be necessary to meet the conditions governing its traffic.

316. The prescribed telegraph signals are as follows:

1—Display Stop-signal. Answer by S D or 5.

2—Block clear. Answer by 13.

3—Block wanted. Answer by 2 or 5.

4—Train has entered block. Answer by 13.

5—Block is not clear.

7—Train following.

8—Opening block station. Answer by Nos. of trains in the extended block with time each train entered the block.

9—Closing block station. Answer by "13" after receiving transfer of the records of trains which are in the extended block.

13—I understand.

71—Train following display Stop-signal. Answer by S D.

NOTE TO RULE 316.—Additional signals may be used if desired. The signals prescribed under the Controlled Manual Block Signal System should be used for such additional signals wherever applicable.

GENERAL NOTE.—The Committee has found it desirable to leave blanks (———) in certain rules to be filled by each company adopting them, as may best suit its own requirements.

317 (a). To admit a train to a block the signal is clear, will give "1 for ——" to the next block station in advance. The signalman receiving this signal, if the block is clear, must display the Stop-signal to opposing trains, and reply "S D for ——." If the block is not clear, he must reply "5 of ——." The signalman at the entrance of the block must then display the proper signal indication of the train to be admitted.

A train must not be admitted to a block unless it is clear, except as provided in Rule 331 or by special order.

NOTE TO RULE 317 (A).—317 (A) is for absolute block for following and opposing movements on the same track.

317 (b). To admit a train to a block the signalman must examine the block record, and if the block is clear, will give "1 for ——" to the next block station in advance. The signalman receiving this signal, if the block is clear, must display the Stop-signal to opposing trains and reply "S D for ——." If the block is not clear, he must reply "5 of ——." The signalman at the entrance of the block must then display the proper signal indication to the train to be admitted.

A train must not be admitted to a block which is occupied by a passenger train, except as provided in Rule 331 or by special order.

To permit a train to follow a freight train into a block, the signalman must give "71 for ——" to the next block station in advance, to which the reply "5 of —— S D for ——" must be made. The approaching train will then be admitted to the block ——.*

NOTES TO RULE 317 (B).—

*Under Caution-signal or with Caution Card.

Rule 317 (B) is for absolute block for opposing movements and permissive block for following movements on the same track.

318 (a). To admit a train to a block the signalman must examine the block record, and if the block is clear, will display the proper signal indication to the train to be admitted, reporting its movement as per Rule 319.

A train must not be admitted to a block unless it is clear, except as provided in Rule 331 or by special order.

318 (b). To admit a train to a block the signalman must examine the block record, and if the block is clear, will display the proper signal indication to the train to be admitted, reporting its movement as per Rule 319.

A train must not be admitted to a block which is occupied by a passenger train, except as provided in Rule 331 or by special order.

A train may be permitted to follow a freight train into a block ——.*

NOTES TO RULE 318 (B)—

*Under Caution-signal or with Caution Card.

Rule 318 (B) is for permissive block for following movements only.

NOTE TO RULE 317 (A), 317 (B), 318 (A) AND 318 (B).—Where it is desired that train dispatchers shall control the display of block signals, roads may modify Rules 317 (A), 317 (B), 318 (A) and 318 (B) so as to provide for such practice.

319. When a train enters a block the signalman must give "4 ——" and the time, to the next block station in advance and when the train has passed the home block signal and the signalman has seen the markers he must display the Stop-signal, and when the rear of the train has passed —— feet beyond the home block signal he must give "2 of ——" and the time to the next block station in the rear.

This information must be entered on the block records.

320. Unless otherwise provided, signalmen must not give "1" or "3" until they have received "4" from the block station in the rear.

321. Signalmen must observe all passing trains and note whether they are complete and in order, and the markers properly displayed. Should there be any indication of conditions endangering the train, or a train on another track, the signalman must notify the signalman at the next block station in advance. A signalman having received this notice must display Stop-signals in both directions and answer "S D." "Should a train going in the opposite direction be stopped it may be permitted to proceed when it is known that the track on which it is running is not obstructed.

322. Should a train pass a block station without markers, the signalman must notify the signalman at the next block station in each direction, and must not report that train clear of the block until he has ascertained that the train is complete.

323. Should a train pass a block station in two or more parts, the signalman must notify the signalman at the next block station in advance. A signalman having received this notice must stop any train running in the opposite direction. The Stop-signal must not be displayed to the engineman of the divided train if the block in advance is clear, but the Train-parted signal must be given. Should a train going in the opposite direction be stopped, it may be permitted to proceed when it is known that its track is not obstructed.

324. A signalman informed of any obstruction in a block must display the Stop-signal and notify the signalman at the other end of that block. The signalman

at the other end of the block must immediately display the Stop-signal. The Clear-signal for that block must not be displayed until the obstruction is removed.

325. When a train takes a siding the signalman must know that it is clear of the block before giving "2" or displaying a Clear-signal for that block.

The signalman must obtain control of the block before permitting a train on a siding to re-enter the block.

326. To permit a train to cross-over or return the signalman must examine the block record, and if all the blocks affected are clear of approaching trains he will arrange with the signalmen at the next block station on either side to protect the movement, and when the proper signals have been displayed permission may be given. Until the block is clear no train must be admitted in the direction of the cross-over switches except under Caution-signal or with Caution Card. All cross-over movements must be entered on the block records.

327. When, as provided for in Rule 364, coupled trains have been separted, the signalman must regard each portion as an independent train.

328. If necessary to stop a train for which a Clear-signal (or a Caution-signal) has been displayed and accepted, the signalman will give hand signals in addition to displaying the Stop-signal.

329. A signalman having orders for a train must display the block signal at "Stop." He may permit trains so stopped to proceed under block signal rules after complying with Rules for Movement by Train Orders.

330. If from the failure of block signal apparatus the block signal cannot be changed from the normal indication, a signal-man having information from the signalman at the next block station in advance, that the block is clear, may admit a train to the block by the use of Clearance Card.

331. If from the failure of telegraph line or other cause, a signalman be unable to communicate with the next block station in advance, he must stop every train approaching in that direction. Should no cause for detaining the train be known, it may then be permitted to proceed, provided —— minutes have elapsed since the passage of the last preceding train, using Caution Card.

332. Signalmen must have the proper appliances for hand signaling* ready for immediate use. Hand signals must not be used when the proper indication can be displayed by the fixed signals. When hand signals are necessary they must be given from such a point and in such a way that there can be no misunderstanding on the part of enginemen or trainmen as to the signals, or as to the train or engine for which they are given.

NOTE TO RULE 332.—*Hand signaling includes the use of lamp, flag, torpedo and fusee signals.

333. Signalmen will be held responsible for the care of the block station, lamps and supplies; and of the signal apparatus unless provided for otherwise.

334. Lights in block stations must be so placed that they cannot be seen from approaching trains.

335. Lights must be used upon all block signals from sunset to sunrise and whenever the signal indications cannot be clearly seen without them.

366. If a train over runs a Stop-signal, the fact, with the number of train, must be reported to ——.

337. If a Stop-signal is disregarded, the fact with the number of train, must be reported to the next block station in advance and then to ——.

338. To open a block station the signalman must given "8" to the next block station in each direction and record the trains that are in the extended block. He must then display the normal signal indication and notify the block station in each direction that the station is open.

When trains, which were in the extended block when the station was open and which had passed his station before it was opened, clear the block in advance he must repeat the record to the block station in the rear.

He must not display the Clear-signal until all trains are clear of the block in advance.

339. A block station must not be closed except upon authority of ——; nor when trains are approaching which are to meet or pass at that block station.

340. To close a block station the signalman must first obtain "2" for trains which he has admitted to the blocks in each direction.

He must give "9" to the next block station in each direction and transfer the records of the trains in the extended block. He must then enter on his block record "13" with the time it is received from each block station.

The block signals must then be ——, all lights extinguished and the block wires arranged to work through the closed station.

(*See note to Rule 340 foot of next page.)

ENGINEMEN AND TRAINMEN.

361. Block signals apply only to trains running in the established direction.

362. Trains must not pass a Stop-signal without receiving a Caution Card, a Clearance Card or a special order.

363. An engineman holding a Caution Card must deliver it to the signalman at the next block station and personally ascertain from him that the block in advance is clear before proceeding.

364. Unless directed by special instructions, when two or more trains have been coupled and so run past any block station, they must be uncoupled only at a block station and the signalman notified.

365. When a train takes a siding it must not again enter the block without the permission of the signalman.

366. When it is necessary for a train to cross-over, the conductor before crossing or returning, must notify the signalman and obtain permission to do so.

367. Enginemen and trainmen must not accept clear hand signals as against block signals.

368. The engineman of a train which has parted must sound the whistle signal for Train-parted on approaching a block station.

369. An engineman receiving a Train-parted signal from a signalman must answer by the whistle signal for Train-parted.

370. When a parted train has been recoupled the signalman must be notified.

NOTE TO RULE 340.—The arrangement of the block signal under the third paragraph of Rule 340 is left for each road to determine in accordance with its local requirements.

371. At a block station where the signalman is absent or incapacitated, so that instructions cannot be obtained, trains must wait —— minutes and then proceed with caution to the next block station, where the conductor must report accordingly to the ——.

372. If the track is obstructed between block stations notice must be given to the nearest block signalman.

373. If a train is held by a block signal to exceed —— minutes, the conductor must ascertain the cause.

374. Conductors must report to —— any unusual detention at block stations.

375. A block station must not be considered as closed, except as provided on time-table or by special instructions.

NOTE.—Rules 301 to 375, inclusive, apply to this system without any of the "adjuncts."

CONTROLLED MANUAL BLOCK SYSTEM.

A series of consecutive blocks controlled by block signals operated manually, and so constructed as to require the co-operation of the signalmen at both ends of the block to display a clear signal.

CONSISTING OF:

1. Signals of prescribed form, the indications given by two positions; and, in addition, at night, by lights of prescribed color.

2. The apparatus so constructed that the failure of any part directly controlling a signal will cause it to give the normal indication

3. Signals, if practicable, either over or upon the right of and adjoining the track upon which trains are

governed by them. For less than three tracks signals for trains in each direction may be on the same signal mast.*

*The word "mast" refers to the upright to which the signals are directly attached.

4. Semaphore arms that govern, displayed to the right of the signal mast as seen from an approaching train.

5. The normal indication of Home Block Signals—Stop.

6. The apparatus so constructed that the failure of the block signal instruments or electric circuits will prevent the display of the clear signal.

7. The relative position of the home signal, and track instrument or releasing circuit, such as to make it necessary that the rear of a train shall have passed —— feet beyond the Home Block Signal before the signal at the preceding block station can be released.

ADJUNCTS.

The following may be used:

(A) Distant Block Signals* interlocked with Home Block Signals; normal indication—Caution.

(B) Advance Block Signals† interlocked with Home Block Signals, and with Distant Block Signals, if used; normal indication—Stop.

(C) Track circuits.

(D) Repeaters or audible signals to indicate the position of signals to the signalman operating them.

(E) The automatic release of signals to give the normal indication.

(F) The interlocking of switches with block signals.

(G) Bell circuits* for signaling between a block station and outlying switches.

(H) Unlocking circuits between a block station and outlying switches.

*When Distant Block Signals are used the following should be added to Rule 401:

Signal	Occasion for Use	Indication	Name
c)———	Home (or advance) signal at (*a*)	Proceed with caution to the home (or advance signal	Caution-signal
(*d*)———	Home (and advance) signal at (*b*)	Proceed	Clear-signal

Where the semaphore is used, the governing arm is displayed to the right of the signal mast as seen from an approaching train, and the indications are given by positions:

Horizontal as the equivalent of (*c*).

Vertical or Diagonal —— (angle above or below the horizontal) as the equivalent of (*d*).

†When Advance Block Signals are used that name should be added to the caption of Rule 401 so as to read "Home and Advance Signals," and Rule 411 should be changed to read "The normal indication of Home and Advance Block Signals is Stop."

RULES.

401. HOME SIGNALS.

Signal.	Occasion for Use.	Indication.	Name.
Color.	The signal will be displayed when	For enginemen and trainmen,	As used in rules.
(*b*) Red. (*a*)——	Block is not clear. Block is clear.	Stop. Proceed.	Stop signal. Clear signal.

Where the semaphore is used, the governing arm is displayed to the right of the signal mast as seen from an approaching train, and the indications are given by positions:

*See note on following page.

Horizontal as the equivalent of (a).

Vertical or Diagonal ——* as the equivalent of (b).

NOTE TO RULE 401.—*Angle above or below the horizontal.

402. Block signals control the use of the blocks, but, unless otherwise provided, do not affect the movements of trains under the time-table or train rules; nor dispense with the use or the observance of other signals whenever and wherever they may be required.

SIGNALMEN.

411. The normal indication of Home Block Signals is Stop.

412. Signals must be operated carefully and with a uniform movement. If a signal fails to work properly its operation must be discontinued and the signal secured so as to give the normal indication until repaired.

413. Signalmen must observe, as far as practicable, whether the indication of the signals corresponds with the position of the levers.

414. Signalmen must not make nor permit any unauthorized alterations or additions to the apparatus.

415. If any electrical or mechanical appliance fails to work properly —— must be notified, and only duly authorized persons permitted to make repairs.

*When bell circuits for signaling between a block station and outlying switches are used, Rule 420 will be amended to include the following signals, which will be given and observed by signalmen and conductors:

1-2-3—Train has gone on siding. All clear. Switch closed. Answer by 1-2-3.

3-4—Train is ready to leave siding. Answer by 3-4, or 5. Conductor when ready to go will give 3-4, and will not start his train until 3-4 has been given in reply, and this must not be given by the signalman unless the block is clear.

GENERAL NOTE.—The Committee has found it desirable to leave blanks (———) in certain rules to be filled by each company adopting them, as may best suit its own requirements.

416. A block record must be kept at each block station.

NOTE TO RULE 416.—The different items to be entered on the block record have not been prescribed in this rule, but it has been left to each road to complete the rule by adding such items as may be necessary to meet the conditions governing its traffic.

417. Block signal instruments and bells must be used only by signalmen and as directed by the rules.

418. Bells must not be used for any purpose other than to give the prescribed signals.

419. Bell signals must be given deliberately and distinctly, and answered promptly. All signals must be repeated until answered.

420. The prescribed **Bell Signals** are as follows:

1—(Long stroke.) Answer telegraph call.

2—All right. Yes.

3—Unlock my lever. Answer by unlocking, or 5, or 3-1.

4—Train has entered block.

5—Block is not clear.

6—Has a train entered this block? Answer by 2, or 2-1.

1-2—Clear. Train has cleared block.

1-4—1-4—Stop train approaching and have it examined. Answer by 1-4—1-4.

2-1—No.

2-2-2—Previous signals given in error. Answer by 2.

2-3-2—Train has passed without markers. This signal to be given to station in advance. Answer by 2-3-2.

2-4—Has train cleared block? Answer by 1-2, or 5.

2-4-2—Repeat previous signal.

3-1—Have unlocked. If levers are not released, instrument must be out of order. Block is clear. This

signal must be answered by 3-1 and the answer acknowledged by 2. It must not be used unless the block is known to be clear. A signalman having received 3-1 and answered it by 3-1 and received 2 in acknowledgement, may allow train to proceed under Rule 434, announcing it by 4.

3-3—Train in block will take intermediate siding. Answer by 3-3.

3-3-3—3-3-3—Train in block has broken apart. Answer by 3-3-3—3-3-3.

4-3-4—Train from intermediate siding is proceeding toward you. Answer by 4-3-4.

4-4-4—Cars running away in the wrong direction and proceeding toward you. Answer by 4-4-4.

4-6-4—Cars running away in the right direction and proceeding toward you. Answer by 4-6-4.

5-2-5—Train has passed without markers. This signal to be given to station in rear. Answer by 5-2-5.

5-5-5—Obstruction in block. Stop all trains approaching this station. Answer by 5-5-5.

6-6-6—Testing. Answer by 6-6-6.

NOTES TO RULE 420.—

(-) signifies pause between beats.

Additional bell signal may be used if desired. The telegraph or other equivalent may be used instead of the bell for transmitting signals.

421. To receive and forward a train, the block being clear, and signals giving the normal indication:

In answer to 3 from the next block station in the rear, the signalman must unlock by closing the circuit, and unless otherwise provided hold it closed until acknowledged.

In answer to 4 from the next block station in the rear, he must give 2, then give the block station in ad-

vance 3. If released, he must give 2 in acknowledgment, then clear the signals. When the train enters the block in advance, he must give 4 to the next block station in advance. When the rear of the train has passed —— feet beyond the home block signal and he has seen the markers he must give 1-2 to the station in the rear.

422. Block signals must be restored to the normal indication as soon as the train for which they were cleared has passed ——.

423. Unless otherwise provided, signalmen must not give 3 until they have received 4 from the next block station in the rear, nor unlock the next block station in the rear before receiving 3

424. Signalmen must observe all passing trains and note whether they are complete and in order and the markers properly displayed. Should there be any indication of conditions endangering the train, or a train on another track, the signal 1-4—1-4 must be given to the next block station in advance and the signalman must display Stop-signals, in both directions, and then answer 1-4—1-4. Should a train going in the opposite direction be stopped, it may be permitted to proceed when it is known that the track on which it is running is not obstructed. When practicable, the signalman giving 1-4—1-4 must inform the signalman at the other end of the block why the signal was given.

425. Should a train pass a block station without markers, the signalman must give 2-3-2 to the next block station in advance and 5-2-5 to the next block station in the rear, and must not report the block clear nor unlock the next block station in the rear until he has ascertained that the train is complete.

426. Should a train pass a block station in two or more parts, the signalman must give 3-3-3—3-3-3 to the signalman at the next block station in advance. A signalman having received this signal must stop any train running in the opposite direction. The Stop-signal must not be displayed to the engineman of the divided train if the block in advance is clear, but the Train-parted signal must be given. Should a train going in the opposite direction be stopped, it may be permitted to proceed when it is known that its track is not obstructed.

427. Should cars run away in the wrong direction, the signal 4-4-4 must be given to the next block station in the rear. Should cars run away in the right direction, the signal 4-6-4 must be given to the next block station in advance. Signalmen receiving either of these signals must take such measures for the protection of trains as may be practicable.

428. A signalman informed of any obstruction in a block must display the Stop-signal and give 5-5-5 to the signalman at the other end of that block. A signalman receiving 5-5-5 must immediately display the Stop-signal and then answer by 5-5-5. The Clear-signal for that block must not be displayed until the obstruction is removed.

429. When a train takes a siding the signalman must know that it is clear of the block before giving 1-2 or displaying a Clear-signal for that block.

A signalman, after having unlocked the next block station in the rear or given 3-1, must not permit train or switching movements that will endanger an approaching train.

430. A train must not be admitted to a block unless it is clear, except as provided in Rule 436, or by special order.

431. When, as provided for in Rule 464, coupled trains have been separated, the signalman must regard each portion as an independent train.

432. If necessary to stop a train for which a Clear-signal has been displayed and accepted the signalman must give hand signals in addition to displaying the Stop-signal.

433. A signalman having orders for a train must display the block signal at "Stop." He may permit trains so stopped to proceed under block signal rules after complying with Rules for Movement by Train Orders.

434. If from the failure of block signal apparatus the block signal cannot be changed from the normal indication, a signalman having information from the signalman at the next block station in advance, that the block is clear, may admit a train to the block by the use of Clearance Card.

435. When a train is admitted to a block as provided in Rule 436, both signalmen must use every precaution to prevent a second train from entering the block until it is clear.

436. If from the failure of bell circuits, telegraph line or other cause a signalman be unable to communicate with the next block station in advance he must stop every train approaching in that direction. Should no cause for detaining the train be known, it may then be permitted to proceed, provided —— minutes have elapsed since the passage of the last preceding train, using Caution Card.

437. Signalmen must have the proper appliances for hand signaling* ready for immediate use. Hand signals must not be used when the proper indication can be displayed by the fixed signals. When hand signals are necessary they must be given from such a point and in such a way that there can be no misunderstanding on the part of enginemen or trainmen as to the signals, or as to the train or engine for which they are given.

NOTE TO RULE 437.—*Hand signaling includes the use of lamp, flag, torpedo and fusee signals.

438. Signalmen will be held responsible for the care of the block station, lamps and supplies; and of the signal apparatus unless provided for otherwise.

439. Lights in block stations must be so placed that they cannot be seen from approaching trains.

440. Lights must be used upon all block signals from sunset to sunrise and whenever the signal indications cannot be clearly seen without them.

441. If a train over runs a Stop-signal, the fact, with the number of train, must be reported to ——.

442. If a Stop-signal is disregarded, the fact, with the number of train, must be reported to the block station in advance and then to ——.

ENGINEMEN AND TRAINMEN.

461. Block signals apply only to trains running in the established direction.

462. Trains must not pass a Stop-signal without receiving a Caution Card, a Clearance Card or a special order.

463. An engineman holding a Caution Card must deliver it to the signalman at the next block station

and personally ascertain from him that the block in advance is clear before proceeding.

464. Unless directed by special instructions, when two or more trains have been coupled and so run past any block station, they must be uncoupled only at a block station and the signalman notified.

465. When a train takes a siding it must not again enter the block without the permission of the signalman.

466. When it is necessary for a train to cross-over, the conductor before crossing or returning, must notify the signalman and obtain permission to do so.

467. Enginemen and trainmen must not accept clear hand signals as against block signals.

468. The engineman of a train which has parted must sound the whistle signal for Train-parted on approaching a block station.

469. An engineman receiving a Train-parted signal from a signalman must answer by the whistle signal for Train-parted.

470. When a parted train has been recoupled the signalman must be notified.

471. At a block station where the signalman is absent or incapacitated, so that instructions cannot be obtained, trains must wait —— minutes and then proceed with caution to the next block station, where the conductor must report accordingly to the ——.

472. If the track is obstructed between block stations notice must be given to the nearest block signalman.

473. If a train is held by a block signal to exceed —— minutes, the conductor must ascertain the cause.

474. Conductors must report to —— any unusual detention at block stations.

475. A block station must not be considered as closed, except as provided on time-table or by special instructions.

NOTE.—Rules 401 to 475, inclusive, apply to this system without any of the "adjuncts."

AUTOMATIC BLOCK SYSTEM.

A series of consecutive blocks controlled by block signals operated by electric, pneumatic or other agency, actuated by a train or by certain conditions affecting the use of a block.

CONSISTS OF:

1. Signals of prescribed form, the indications given by not more than three positions; and, in addition, at night by lights of prescribed color.

2. An apparatus so constructed that the failure of any part controlling the Home Block Signal will cause it to indicate—Stop.

3. Signals, if practicable, either over or upon the right of and adjoining the track upon which trains are governed by them. For less than three tracks, signals for trains in each direction may be on the same signal mast.*

*The word "mast" refers to the upright to which the signals are directly attached.

4. Semaphore arms that govern, displayed to the right of the signal mast as seen from an approaching train.

5. Switches in the main track so counected with the block signals that the Home Block Signal in the direction of approaching trains will indicate Stop when the switch is not set for the main track.

6. Signal connections and operating mechanism so arranged that a Home Block Signal will indicate Stop after the ——† of a train shall have passed it.

†The head, or rear.

ADJUNCTS.

The following may be used:

(A) Distant Block Signals* connected with corresponding Home Block Signals and so constructed that the failure of any part controlling the signal shall cause it to indicate—Caution.

(B) Track Circuits.

(C) Indicators at main track switches.

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*When Distant Block Signals are used the following should be added to Rule 501:

DISTANT SIGNALS.

Signal.	Occasion for Use.	Indication.	Name.
Color.	The Signal will appear when	For enginemen and trainmen.	As used in rules.
(*d*) ——	Home signal is at (*a*) or track obstructed between distant and home signal.	Proceed with caution to the home signal.	Caution-signal.
(*e*) ——	Home signal is at (*b*)	Proceed.	Clear-signal.

Where the semaphore is used, the governing arm is displayed to the right of the signal mast as seen from an approaching train, and the indications are given by positions:

Horizontal as the equivalent of (*d*).

Vertical or Diagonal —— (angle above or below the horizontal) as the equivalent of (*e*).

Where a single disc is used for two indications these are given by position of a —— (color) disc as seen from an approaching train:

Disc displayed as the equivalent of (*d*).

Disc withdrawn as the equivalent of (*e*).

RULES.

501. HOME SIGNALS.

SIGNAL	OCCASION FOR USE	INDICATION	NAME
Color	The signal will appear when	For enginemen and trainmen	As used in rules
(*a*) Red	Block is not clear	Stop	Stop-signal
(*b*) ———	Block is clear	Proceed	Clear-signal
(*c*) ———	Block is clear Second block in advance is not clear	Approach next home signal prepared to stop.	Caution-signal

Where the semaphore is used the governing arm is displayed to the right of the signal mast as seen from an approaching train, and the indications are given by positions:

Horizontal as the equivalent of **(a).**

Vertical or Diagonal ——* as the equivalent of **(b).**

Diagonal——* as the equivalent of **(c).**

Where a single disc is used for two indications these are given by position of a ——† disc as seen from an approaching train:

Disc displayed as the equivalent of **(a).**

Disc withdrawn as the equivalent of **(b).**

NOTES TO RULE 501.—

*Angle above or below the horizontal.

†Color.

502. Block signals control the use of the blocks, but, unless otherwise provided, do not affect the movements of trains under the time-table or train rules; nor dispense with the use or the observance of other signals whenever and wherever they may be required.

503. Block signals apply only to trains running in the established direction.

504. When a train is stopped by a block signal it may proceed when the signal is cleared.

Or it may proceed—

(A) After waiting —— minutes and then running under caution;

Or—

(B) Preceded by a flagman to the next clear signal.

NOTE TO RULE 504.—The Committee has provided for alternatives in Rule 504, considering either to be safe practice.

505. When a signal is out of service the fact will be indicated by ——.

Trains finding a signal out of service must, unless otherwise directed, proceed with caution to the next signal.

506. When a train is stopped by a signal which is evidently out of order, and not so indicated, the fact must be reported to ——.

NOTE.—Rules 501 to 506, inclusive, apply to this system without any of the "adjuncts."

GENERAL NOTE.—The Committee has found it desirable to leave blanks (———) in certain rules to be filled by each company adopting them, as may best suit its own requirements.

BLOCK SIGNAL EXAMINATION.

QUESTIONS WITH ANSWERS.

Q. What is a block signal? A. A Telegraph station with all the necessary signals for blocking trains.

Q. What is a block? A. The distance between the outer approaching switches of two block stations.

Q. What is a positive block? A. A Block where there is only one train allowed at a time.

Q. What is a cautionary or permissive block? A. A block where two trains are allowed by the use of a cautionary card or signal.

Q. Are block signals used for any other purpose than blocking trains? A. They may be used for stopping trains for telegraphic orders.

Q. What rules besides block signal rules apply to them? A. Train order rules.

Q. What is a block signal? A. A semaphore where arms govern by day, and red, green and white lights by night.

Q. Which arm and light of the block signal govern trains approaching such signal? A. The right arm and the light facing the train.

Q. What does the horizontal positon of the arm or red light signify? A. Danger.

Q. What does the diagonal position of the arm or green light signify? A. Caution; another train is in the block.

Q. What does the vertical position of the arm or the white light signify? A. Clear; no train in the block.

Q. When a clear signal is given how far does it indicate that block is clear? A. To outer approaching switch of the block station ahead.

Q. What switch is meant by the outer approaching switch of the block station ahead? A. The one farthest out from that station.

Q. At what position must signals always be kept except when changed to permit a train to pass? A. Horizontal or danger.

Q. While you have train orders on hand, at what position must block signals be left? A. Horizontal or danger.

Q. What must be done before issuing clearance cards to trains to which you have delivered orders? A. Ascertain that there are no more orders and that the block is clear.

Q. If you have no orders for a train, which is approaching, and block ahead is clear, when should you give clear signal to that train? A. As early as possible in order that they will not reduce speed.

Q. When is the proper time to report a train clear of a block? A. One hundred yards past the block station.

Q. When is a proper time to replace danger signals after a train has passed? A. Immediately after the markers have passed the block station.

Q. How are you to know when an entire train has passed your station? A. By the markers.

Q. What are the markers? A. Red and green lights by night and green flags by day.

Q. If a train passes with no markers displayed what would you infer, and what action would you take? A. Notify block stations on each side and report to train dispatcher that train has parted.

Q. If you are notified by next block station in either direction that a train which had entered block has parted what would you do? A. Give "train parted" signal to engineer as front portion approached.

Q. What is a "train parted" signal? A. A lamp or flag swung vertically at arm's length across the track.

Q. For what purpose is a cautionary block signal or card used? A. To allow a train to enter a block which is not clear.

Q. Suppose that two or more sections of a train were to meet an opposing train at your station; would you give the opposing train a clear signal before all the sections had passed and all orders had been completed and delivered or cancelled or while there was another train in the block? A. No.

Q. What record of movements of train is to be kept and at what time must the record commence. A. A record of train movements should be kept on a train register sheet and should be commenced at midnight daily.

Q. How are trains to be reported? A. To offices both in advance and rear.

Q. What does signal B signify? A. Block.

Q. What must be done with regard to an approaching train if a train from an opposite direction upon single track has entered the block? A. Leave danger signal displayed to hold the approaching train.

Q. What should be done upon the approach of a train? A. If block is clear, and if you hold no orders for the train, display white or clear signal allowing it to proceed.

Q. What would be done in case you could not raise the next block station to get him to block trains and you could not raise train dispatcher for instructions? A. Issue a caution card stating the facts of the case. The

train could then proceed only as in accordance with the time schedule.

Q. Under what conditions may a train be permitted to enter a block before a preceding train has cleared that block? A. Under a cautionary signal or card.

Q. How must your signals be displayed when trains are to meet at your station? A. They should be held at danger until one train is clear on the side track.

Q. What must be done in case a train is to use a cross-over switch or enter the opposite or wrong-going track? A. The conductor must notify the operator, at the block station to be last passed, of his intentions, who will notify the operator in the block station in advance, to use the danger or cautionary signals for all opposing trains until informed that the train which crossed over has reached his or another block. Station on the right track.

Q. If a train enters a siding at your station to be met and passed by another train what must you know before reporting the block clear? A. That the markers on the rear of the train are clear on siding and that the switch is closed.

Q. If it should be necessary to stop a train while it is passing your station for which you have given a clear or caution which signal would you use?

A. The danger signal, also hand signal.

Q. After an engine or train has passed your office and you are offered an order for that train, or you are ordered to block it, what would you do? A. Refuse by stating the circumstances and then endeavor to stop the train.

Q. What must be done before closing a block signal station? A. Get relief from the train dispatcher and notify the offices on each side.

Q. When block offices are closed what must be done with the signals? A. Leave them at white.

Q. What must be done when an office is reopened? A. Report to the train dispatcher for duty and notify the stations on each side.

Q. What must be done before allowing the first train to pass? A. Ascertain if block is clear.

Q. When should hand signals be used? A. At any time when the proper indications cannot be given by the fixed signal.

General Rules Covering the Operation of Trains and Handling of Freight and Passengers.

Not to go to Meals Without Permission. Conductors and enginemen should not go to meals nor delay their trains from any cause after receiving an order allowing them to proceed without asking for and obtaining special permission to do so from the train dispatcher. In case a train has work to do they should immediately notify the train dispatcher of the probable length of time before they would be ready to leave. After receiving permission, the conductor should report when he is ready to go, and ask if there are any further orders. All communications from conductors, enginemen and others concerning train orders should be addressed to the train dispatcher in writing.

Changing Off. When enginemen or conductors change off before the completion of their trips, they should carefully change any orders they may have and should see that they are perfectly understood by those to whom transferred. Changes of this kind should not be made without the consent of the train dispatcher.

Train Baggage-men and Freight Men. Train baggage men and freight men are under the immediate charge of the conductor of the train and when not in conflict with the Company's rules must obey his orders

Train baggage men ought to provide themselves with a copy of the rules and regulations issued by the Company's general baggage agent and observe them.

Riding Cars and Switching. None but train men or switch men should be allowed to ride cars, or in any way assist in switching trains on the road or at terminals.

Riding on Locomotive Pilots. No person should be allowed to ride upon the pilot of a locomotive either in dispatch of duty or otherwise.

Track Scales. Switches should be set for dead rails over track scales when they are not being used for weighing purposes.

Turn-tables Locked. Turn-tables should be locked with a switch lock, by enginemen immediately after use unless in charge of employees. When turn-tables are found unlocked or locks are discovered to be out of order the fact should be immediately reported to the Superintendent by wire.

Taking Coal and Water. When it is necessary to take coal or water, freight trains of more than 20 cars in length should be stopped 100 feet from coal or water stations and engine uncoupled. Before starting again the engineman should know that the aprons and spouts have been properly placed to clear passing trains.

Engines Standing in Highway Crossings. Engines should not be permitted to stand nearer than 100 feet to street or highway crossings, nor under a bridge if it can be avoided, neither in the vicinity of waiting rooms, offices or cars occupied by passengers where the noise or smoke is likely to disturb the occupants.

Dead Engines in Transit. When more than one engine is to be hauled as freight in a train at least three box or stock cars should be placed between them unless otherwise instructed. Dead engines should not be hauled without side-rods unless by permission of the superintendent and then their speed should not exceed that prescribed under such circumstances.

Closed Doors. The door of freight cars ought to be kept closed when not in use.

Flagging. The utmost care should be observed by brakemen in watching train to see it does not part. In case a train should part in two they are required to protect their train with the utmost promptness. As required by the rules they should not wait for instructions from the conductor to protect train by flagging and to this end brakemen should be fully acquainted with the Standard Code of Rules on this point and the rules of the company by which they are employed.

Trains Parting. Should trains part from any cause, the facts should be reported to the Superintendent on the prescribed form. Full information should also be given by the conductor in person to the car inspector or his representative at the first terminal.

Use of Cars. Economy in the use of cars should be practiced as much as possible. Cars ought never to be forwarded with less than 2,000 pounds, small lots being loaded into passing trains. At junction points if cars contain less than 2,000 pounds they should be unloaded and consolidated with other lots and forwarded without unreasonable delay.

Transportation of a Corpse. A corpse should not be received for transportation unless accompanied by a physician's certificate or certificate of inquest from the

coroner or by a permit for transportation from the clerk of the Board of Health of the county or city through which trains happen to be passing. There should likewise be a certificate from the undertaker, showing that the person did not die of a contagious disease. In no case should it be received for transportation if perceptibly offensive, no matter whether accompanied by a physician's certificate or not.

Unchecked Baggage, Etc. Unchecked articles or baggage should not be received for transportation unless authorized by the general baggage agent, general superintendent or superintendent. The Company's business always excepted.

Money Packages. Letters or packages containing money whether registered or not should not be forwarded in the baggage cars, train baggage men should refuse to receive from any employee packages of this description marked "Railway Business." If a baggage-man should discover after leaving a station that a money-letter or package has been given him with other mail for transportation, he should retain it in his possession until his return trip and then deliver it at the station from which he received it, sending a full report of the transaction to the general baggage agent of the Company by whom he is employed.

Mail Matter. Under no circumstances ought mail to be received for transportation (as Railway business) unless it is known to actually pertain to the service of the Railway Company. All other mail matter must be sent by United States mail.

Freight to and From Prepaid Stations. Agents receiving freight for shipment to stations at which there is no agent should require pre-payment of the charges

and should note on the receipt given that it is received upon conditions that the Company is not to be held responsible for it after it has been unloaded at destination. Freight so received should be way-billed by the Forwarding Agent to the first station at which there is an agent beyond its destination, but at rates current to the station to which consigned. Instructions to the conductor should be noted in ink on the face of the way-bill to unload the shipment at its proper destination. Conductors when unloading consignments of this sort, should, when practicable, take receipt for it on the way-bill from the consignee, leaving the way-bill at the first station at which there is an agent beyond the point of delivery. Should the consignee not be on hand to receive the shipment, and in case it is of much value or likely to suffer from exposure to the weather, conductors should take it and deliver it, together with the way-bill, at the first station at which there is an agent beyond the designated point.

Handling Special Shipments. Shipments consigned "to order" or "to notify" or "to be delivered only on surrender of bill of lading" should be taken by the conductor to the first station at which there is an agent. When shipments are offered to conductors for transportation at stations where there is no agent they should refuse to accept it unless accompanied by full shipping directions in writing, giving name of consignor and consignee, destination, and number and mark on packages. Conductors should hand such shipping directions to the agent at the first regular station beyond the point where he received the shipment and that agent should immediately make a way-bill covering the shipment from his station but at rates

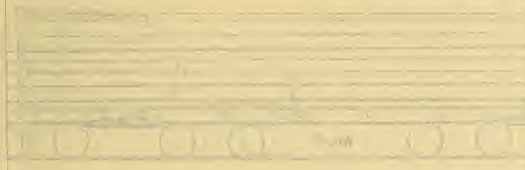
current from the station at which the shipment was received, noting on the face of the way-bill the name of station, from which the shipment was loaded.

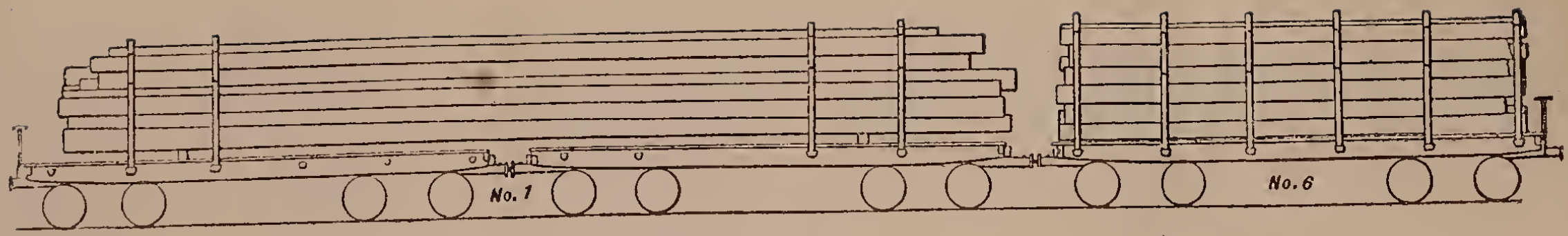
Cars Unsafely Loaded. Conductors should refuse to accept cars which in their judgment appear to be unsafely loaded and should report the facts to the train dispatcher.

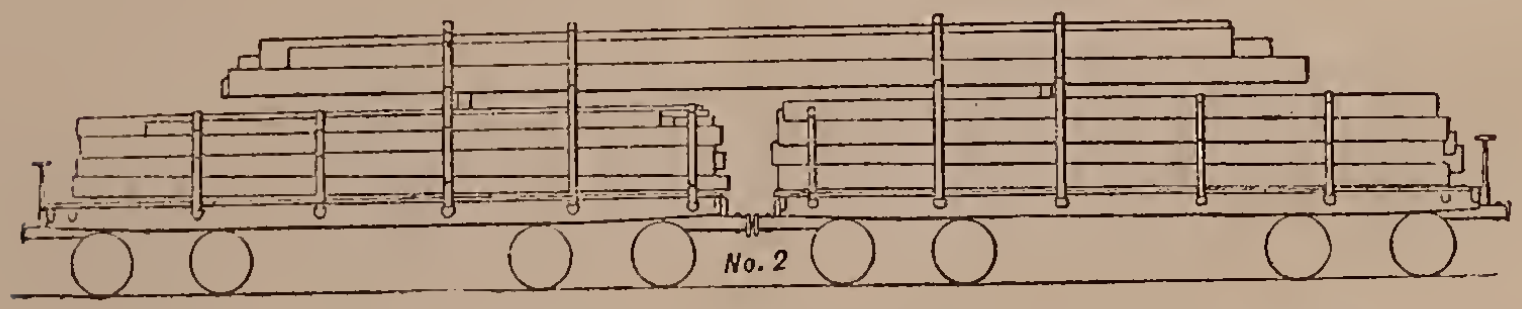
Refrigerator Cars. When refrigerator cars are not in a train for its regular run in accordance with the schedule the train dispatcher should be immediately notified by telegraph. Conductors ought to examine the bunkers in refrigerator cars to ascertain whether sufficient ice has been provided to carry car to its destination. Should the car have any need of re-icing, the conductor should notify the train dispatcher and agent at the first terminal.

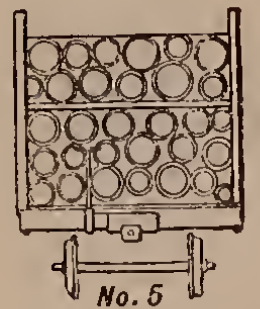
Loading Merchandise. Merchandise such as flour, sugar, butter or commodities of a similar nature or class should not be loaded in cars formerly used for oil, lime, coal and other freight of the same class. Agents should be careful to see that floors of cars are clean for such merchandise. When cars are not loaded with bulk grain, agents should see that grain doors are properly raised.

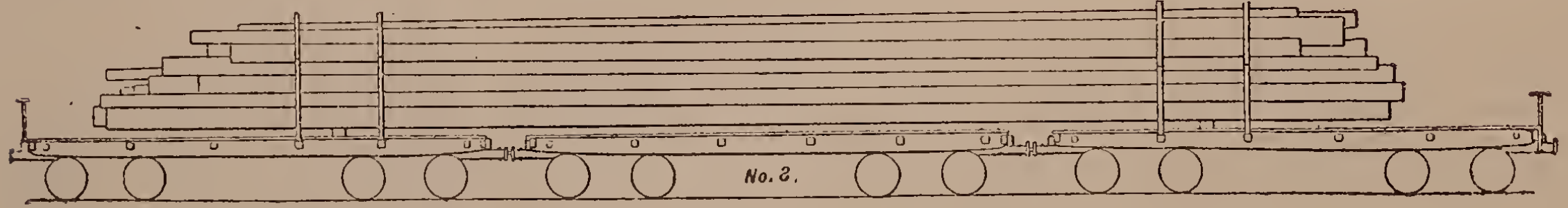
Load in Station Order. Goods should not be mixed in loading. Whenever practicable each lot should be kept separate. If goods are loaded into a car from more than one station, the freight to be unloaded first, ought to be loaded into the car last. Goods for each station should be kept together and each lot of goods by itself. Conductors should report to the superintendent any neglect of agents in this matter. Agents and conductors should see that all goods in their

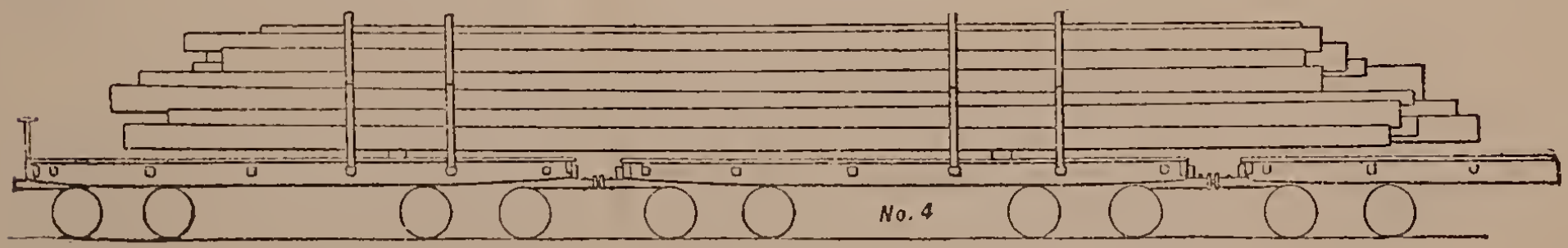












METHODS OF LOADING WHEN LOADS EXTEND OVER AND OFF CARS.

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charge are carefully handled and loaded in such a manner that no damage will result in transit by leakage of liquids, chafing of bales, etc. After freight has been unloaded from a car which contains other freight for other stations, conductors ought to see that the merchandise left in the car is properly secured by leveling down the piles of goods and blocking them with other freight so damage may be prevented. Casks, barrels, and other packages containing oil, turpentine, fish, tar, molasses and other goods of similar character should be safely blocked, and not loaded in cars containing merchandise liable to damage by leakage or by being scented by odors.

Checking Freight. Way freight loaded into passing trains should be checked into the car by the conductor and any discrepancy or damage should be noted upon the way-bill.

Loads Extending Over and Off Cars. It is exceedingly important that all cars loaded with lumber, timber, iron pipe, posts, etc., or other freight liable to project beyond the ends of a car should be carefully examined before being moved. Agents should exercise the utmost care in examining all such goods before forwarding, they should see that no part of the load extends beyond the end of the car, should see that it does not interfere in any way with free access to and working of the brakes, except in cases of very long timber requiring two cars, in which case the brake-head and stem may be removed if necessary, but it should be carefully attached to the car and forwarded with a notification to that effect on outside of way-bill. Whenever possible, flat cars to be loaded double should be switched with brakes on the outer end.

Conductors should examine all cars before placing them in their trains and should refuse to accept any not properly and safely loaded, reporting the same by wire with number of car to the superintendent or any other proper official.

How to Load. (a). "Telegraph poles and piles should be loaded with tips and butts alternating."

On One Car. (b). "When telegraph poles are loaded on one car, six good hardwood stakes may be placed on each side of same as shown in Fig. 6 and four strands of new telegraph wire Standard size (8) to each pair of stakes should be tied across the car when one third loaded and four strands tied over top of the load when the loading is completed, the stakes being notched to prevent the wire from slipping."

On Two Cars. (c). "Telegraph poles, etc., which require the use of two cars for loading, should be kept clear of car floors throughout by placing one good sound bearing piece of saddle (10″ x 10″) of sufficient length to reach across the car, on each car, as shown in Fig. 1 and six bearing pieces or saddles may be brought to any point between and sufficiently near each other to prevent the shortest timber from working out from between the stakes. In addition to this there should be fixed to each side of the car over all, two good hardwood stakes, tied across with new telegraph wire of Standard size (8)."

Loading Long and Short Poles, Etc. (d). "When necessary to load a few long poles or timber, on top of two cars containing short ones, in order to keep the long timber clear from the short ones, beneath, as shown in Fig. 2, a bearing piece must be securely fastened on the top of each car, on the short timbers

in order to allow the car to curve freely, and two stakes on each side of both cars near the end where the cars are coupled together must be run to the top of the long timbers and securely fastened with wire as already explained."

On Three Cars. (e). "When the timber or poles are too long to be safely carried on two cars and three cars must be used, bearing pieces are placed on each of the end cars, so as to keep the load entirely free from the center car(see Fig. 3)."

Two Shipments. (f). "When two shipments similar to that referred to in the preceding clause are to be handled, each having timbers to be safely carried on two cars but not requiring more than one half the length of another car, they ought to be placed so that the projecting ends rest on the additional car, placed in the center with bearing pieces of sufficient thickness to keep the load clear from the car floor throughout, at a point between the trucks of each car and near to those next to the end of load, the load to be placed, tied and staked as described above. (See Fig. 4)."

Stakes. (g). "Stakes ought to be placed in a perpendicular position and in no case should it exceed the width of the car (see Fig. 5). Poles and timber must not extend beyond the end of the car."

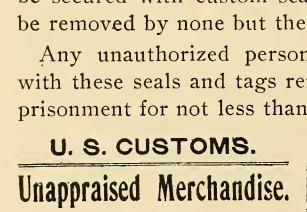
Overloading. (h) "In order to prevent overloading (when load necessitates the use of more than one car) the weight to be carried should not exceed the capacity of one car provided the load rests on only one pair of trucks of each car. If the the load is distributed between both pairs of trucks of each car, the combined capacity of both cars, may be allowed as a maximum weight."

Inspection. (i). At stations where telegraph poles, ties, etc., are to be loaded, agents should note personally that the cars are loaded in accordance with the foregoing instructions. In case there is no agent, conductor should see that the cars are loaded in accordance with the foregoing, before accepting them for their trains. Inspectors at division points should carefully examine all such freight and if cars are improperly loaded the fact should be immediately reported to the agent.

Bonded Merchandise. Agents and conductors should refuse to accept cars loaded with bonded merchandise unless the following rules regulating the transportation of the same have been fully complied with:

(1). Cars containing bonded goods should always be secured with custom seals and tags which should be removed by none but the customs officer.

Any unauthorized person removing or tampering with these seals and tags renders himself liable to imprisonment for not less than six months.


U. S. CUSTOMS.

Unappraised Merchandise.

IN BOND.

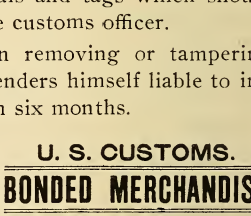
From _____

Forwarded _____ 190_

To _____

Arrived _____ 190_

NOTICE Seals attached to this car are to be removed by Customs Officers only. Unauthorized persons who wilfully break, cut or remove Customs Seals are liable to a fine of $1,000, or imprisonment not exceeding Five years, or both.


U. S. CUSTOMS.

BONDED MERCHANDISE

From. _____

(Departure.) Date _____ 190_

To _____

(Arrival) Date _____ 190_

NOTICE Seals attached to this car are to be removed by Customs Officers only. Unauthorized persons who wilfully break, cut or remove Customs Seals are liable to a fine of $1,000, or imprisonment not exceeding Five years, or both.

Cards on Side of Car. (2). Every car which con-

tains appraised bonded goods must have on its side a red card 3½" x 4½" in size, and every car containing unappraised bonded goods must have on its side a yellow card 6" x 6" in size with the words in black letters as shown in figures. These cards to be furnished and pasted on the car by the agent at the time of shipment.

Conductors to Examine Seals, Etc. (3). When receiving cars and manifests, conductors should carefully examine custom seals to determine whether or not such seals are intact. If they find them broken or that they show signs of having been tampered with en route, the matter should be immediately reported to the superintendent.

Tran-Shipment. (4). In case of accident necessitating the tran-shipment of the contents of the car or in case of tran-shipment for any cause it must be made under the supervision of a customs officer.

Packages Corded and Sealed. (5). Bales and packages "corded and sealed" need not be transported in cars sealed with customs seals and may be transferred without the supervision of the customs officer. Such shipments must in all cases be accompanied by a manifest.

Freight Goods with Bonded. (6). Freight goods may be conveyed in the same car with bonded goods but in that case the car must be sealed, etc., as indicated in the foregoing sections 1 and 2. Care should be taken not to accompany bonded goods with freight goods destined for intermediate stations where there is no customs officer to open and re-seal the car.

Sealing Cars. Agents should securely fasten the end doors and seal the side doors of all cars loaded by

them immediately upon completion of the loading, except in those which contain, rough stone, common bricks, sand, railroad ties, poles, posts, firewood, iron ore, iron or steel rails for railroad tracks and coal. When a shipper has especially requested it and is willing to have a notation made on the contract, bill of lading or shipping receipt and also on the way-bill that it is done at his risk car doors may be left open.

Breaking Seals. Agents should keep a complete seal record in their seal book (when one has been provided) showing all cars left at and taken from their stations, or which were sealed or unsealed by them, including seals removed from or placed on passing way freight cars at their station. They should invariably note on the face of each way-bill receipted by them over their own signature, the number of all seals broken by them on cars mentioned in the way-bill. In the case of cars containing freight for stations at which there are no Agents, conductors may break the seal, recording the number of same and reason for breaking them on the face of the way-bill and should have the car resealed upon its arrival at the first regular station.

Seals Placed so Doors Cannot be Opened. Seals should be so placed on car doors by agents, to prevent doors being opened without seals being broken. They should be so placed that the numbers can be readily taken. Agents and conductors should report to the superintendent or other proper official the initials and numbers of cars which they discover to have been improperly sealed.

Sealing Material. Seals and seal presses ought to be under lock and key when not in use. None but

the station agent or his authorized employee should be allowed to seal and unseal cars.

Foreign Seals. Agents at junction stations who receive loaded cars from connecting lines (which the rules of the Company by which they are employed do not require to be sealed) need not attach seals providing those of connecting lines are found on car and in good order in every respect. Otherwise it is good practice to attach the Company's seal and notify the proper agent of the connecting line in writing. Where foreign seals are intact they are usually treated the same as if they were the Company's seals with the exception that any initials or other peculiarities should be observed and recorded in addition to the numbers shown.

Examining Seals. Conductors should carefully examine seals before leaving their trains at end of run, when cars are set out en route and at all points where their train remains a sufficient time to permit an examination and they should ascertain whether the seals have been broken and in case any are found to have been broken the facts should be noted in the train book and if it cannot be accounted for by the conductor, an immediate report should be made to the train dispatcher, superintendent or other official.

Responsibility of Conductors. Conductors are deemed responsible for all freight in their charge. They are expected to see to the loading and unloading of way freight and to note that all freight billed that is loaded or unloaded by them as the case may be and also required to see that all way-bills are properly checked and that no discrepancy or damage which they may discover to any property whether loaded or un-

loaded by them or otherwise, is noted on the way-bill. They are required to cause the marks and contents of the packages to be called out as they are taken from the car. When they find freight in a car for which they have no freight-bill they should unload it at the station marked on package, if they discover it in time, otherwise they should unload it at the next regular station, and call the attention of the agent at that station to the package. Agents are expected to tally freight as it is unloaded from cars and advise the conductor at the time of unloading of any "short," "over" or "damaged freight."

Delivering Freight at Stations. When unloading way freight at stations, conductors are usually expected to place it in the ware-house or such other place as the agent may designate.

Care in Handling Freight. Conductors ought to see that trainmen are careful in handling freight.

Work Trains Carrying Laborers. Cars in which workmen are riding ought never to be pushed in front of an engine. They should be handled at the rear end of a train following the engine regardless of the direction in which the engine may be moving.

Perishable Property. Cars containing perishable property should have precedent over other freight and ought never to be left at any station short of its destination unless for repairs. If repairs cannot be made tination unless for repairs. If repairs cannot be made within twelve hours, attention ought to be called to the fact and instructions obtained.

Property Wrecked. In case property is wrecked in transit, but is afterward forwarded to its destination, the original way-bill should accompany it, bearing notation therein, showing where damage occurred.

When property is not forwarded to its original destination, the way-bill should be turned over to the superintendent or other proper official in charge of clearing up the wreck.

Disabled Cars. When a car disabled is left at a station at which there is no agent, or is left at such station for any other cause the conductor should deliver the bill to the agent at the next regular station, and endorse on way-bill when, where, and why the car was left, and report the same to the train dispatcher or other proper official. The same action should be taken by the conductor in case he leaves a disabled car at a regular station except that way-bills may be delivered to the agent at the station where the car is left. When it becomes necessary to transfer freight from one car to another, while en route, the fact should be noted on the way-bill and the numbers and initials of the cars into which the property was transferred, together with the date and station where the transfer was made, should be shown thereon. The goods should be carefully checked from the way-bill and the condition of same at time of such transfer noted thereon at the same time, and a record of the transaction made in the conductor's train book.

Leaving Cars on Sidings. Cars should not be left on sidings unless by authority of a train dispatcher.

Station Grounds and Sidings. Station and track employees should see that material stored along the track and at stations is neatly piled and that the "right-of-way" and station grounds are kept in an orderly condition, the material should not be piled within six feet of the nearest rail of any main track, siding or yard track.

Duties of Agents, Operators and Watchmen. Sta-

tion agents, telegraph operators and watchmen, should immediately report to the superintendent or other official any severe rainstorm, high wind, or sudden rise of streams in their vicinity and in case of emergency should see that the section foreman and his men are on hand to protect the track from damage. They should see that cars have not been moved by the wind so as to endanger the passage of trains, and in such circumstances should remain on duty unless excused. If for any cause the superintendent's office cannot be reached by wire, the road-master should be notified, if possible, and all trains in the vicinity of the storm should be provided with notices.

Caution During Storms, Etc. When overtaken between stations by severe storms or indications of high water which threaten danger, conductors and enginemen should proceed with the utmost caution, keeping the train under complete control, and proceeding at a speed which will permit it to be stopped any time to prevent accident. They ought always to examine bridges and culverts or other places liable to be damaged by high water, and if they find any indications of danger should, on arrival at the first telegraph station notify the agent or operator and report the fact by wire to the superintendent, asking if necessary for instructions and ought not to proceed until instructions have been received.

Caution. Trains running upon or near the "time of a train" in the same direction, scheduled to carry passengers should exercise extreme caution in approaching or passing through stations where such trains are scheduled to stop, expecting to find persons crossing the tracks.

TRAIN-MEN HANDLING BRAKES.

When making up trains always begin at the rear end of train; closing angle cocks and hanging the hose properly in the dummies at rear end of last car; coupling hose and opening all angle cocks wide open and seeing that brakes are cut in until arriving at the engine; after coupling hose between tender and train, always open the angle cocks on the tender first. In coupling to cars after cutting crossings, always open the angle cock nearest the engine first.

Always give the engineer time to charge the train pipe and auxiliaries before signalling to test brakes; always give the signal to apply them from the front end of first car and signal to release from rear end of last car, examining on your return to the front end to see that all brakes are off.

If any defect is discovered it must be remedied and the brakes tested again—the operation being repeated until it is ascertained that everything is right. The conductor and engineer must then be notified that the brakes are all right. This examination must be made every time any change is made in the make-up of the train. **Read Rule for Testing Brakes.** At points where there are no inspectors, trainmen must carry out these instructions. No passenger train must be started out from an inspection point with the brakes upon any car out or in a defective condition without special orders from the proper officers. In freight trains, when hand

brakes are used in conjunction with the air brake, they must be applied upon those cars next behind the air braked cars.

DETACHING ENGINE OR CARS.

First close the cocks in the train pipes at the point of separation, and then part the couplings, always by hand. If the brakes have been applied do not close the cocks until the engineer has released the brakes upon the whole train.

COUPLINGS FROZEN.

If the couplings are found to be frozen together or covered with an accumulation of ice, the ice must first be removed and then the couplings thawed out by a torch to prevent injury to the gaskets.

TRAIN BREAKING INTO TWO OR MORE PARTS.

First close the cock in the train pipe at the rear of the first section and signal the engineer to release the brakes. Having coupled to the second section, observe the rule for making up trains—first being sure that the cock in the train pipe at the rear of the second section has been closed, if the train has broken into more than two sections. When the engineer has released the brakes on the second section the same method must be employed with reference to the third section, and so on. When the train has been once more entirely united the brakes must be inspected on each car to see that each is released before proceeding.

CUTTING OUT THE BRAKE ON A CAR.

If, through any defect of the brake apparatus while on the road, it becomes necessary to cut out the brake

upon any car, it may be done by closing the cock in the cross-over pipe near the center of the car where the quick acting brake is used, or by turning the handle of the cock in the triple valve to a position midway between a horizontal and vertical where the plain automatic brake is used. When the brake has been thus cut out, the cock in the auxiliary reservoir must be opened and left open upon passenger cars, or held open until all the air has escaped from the reservoir upon freight cars. **The brake must never be cut out upon any car unless the apparatus is defective,** and when it is necessary to cut out a brake the conductor must notify the engineer and also send in a report stating the reasons for so doing.

CONDUCTOR'S VALVE.

Should it become necessary to apply the brakes from the train, it may be done by opening the conductor's valve, placed in each passenger equipment car. **The valve must be held open until the train comes to a full stop, and then must be closed again.**

This method of stopping the train must not be used except in case of absolute emergency.

BURST HOSE.

In the event of the bursting of a brake hose, it must be replaced and the brakes tested before proceeding, provided the train be in a safe place. If it is not, the train pipe cock immediately in front of the burst hose must be closed, and the engineer signaled to release. All the brakes to the rear of the burst hose must then be released by hand, and the train must then proceed to a safe place where the

burst hose must be replaced and the brakes again connected and tested as in making up a train.

BRAKES NOT IN USE.

When the air brakes are not in use, either upon the road or in switching, the hose must be kept coupled between the cars or properly hung up in the dummies.

RETAINING VALVE.

The retaining valve is used for keeping brakes partially set on trains on heavy down grades equal to good hand brakes, controlling the speed of the train while auxiliaries are being recharged, and for no other purpose.

At top of grades designated by special rules, the trainmen will turn the handles horizontal on as many valves as will be required to control the train, and at the foot of the grade will turn the handle downward again. This valve must be tested before leaving terminals at same time brakes are tested.

TRAIN AIR SIGNAL.

In making up trains, all couplings and car discharge valves on the cars must be examined to see if they are tight. Should the car discharge valve upon any car be found to be defective while on the road, it may be cut out of use upon that car by closing the cock in the branch pipe leading to the valve. The conductor must always be immediately notified when the signal has been cut out upon any car, and he must report the same for repairs.

In using the signal, pull directly down upon the cord during one full second, for each intended blast of the signal whistle, and allow two seconds to elapse between the pulls.

REPORTING DEFECTS TO INSPECTORS.

Any defects in either the air brake or air signal apparatus discovered upon the road must be reported to the inspector at the end of the run; or, if the defect be a serious one in passenger service, it must be reported to the nearest inspector, and it must be remedied before the car is again placed in service.

STARTING TRAINS.

When ready to start, the starting signal must be given to the engineer by the air signal whistle. Trains equipped with the air signal must not be started by hand or lantern signal when air signal is in working order.

The division time card or special rules of different companies specify the smallest proportion of freight cars, with the air brakes in good condition, which may be used in operating the train as an air brake train.

THE AIR BRAKE ASSOCIATION'S QUESTIONS AND ANSWERS FOR TRAINMEN.

Question.—How should the conductor's valve be operated when necessary?

Answer.—It should be pulled wide open and held open until the train stops, and then before leaving it, the valve should be closed.

Question.—Why is it necessary to hold the conductor's valve open until the train is stopped?

Answer.—Because if it is closed and the engineer has not placed the brake valve on lap position, the brakes will release.

Question.—What does this valve do when it is opened?

Answer.—It simply makes an opening from the train pipe to the atmosphere, very much the same as would be done if an angle cock is opened, or a hose coupling parted.

Question.—Can brakes be released by the conductor's valve?

Answer.—No; it must be remembered that to release brakes it is necessary to either put air into the train pipe or take it out of the auxiliary reservoirs. The conductor's valve will not do either of these.

BURSTED HOSE AND BROKEN TRAIN PIPES.

Question.—Should the brakes apply suddenly, without the aid of the engineer or train crew, what should be looked for?

Answer.—Either a bursted hose or the train parted.

Question.—In the event of a bursted hose on a passenger train, and there was no extra hose in the supply box, what could be done?

Answer.—Remove the hose from the rear end of the last car and use it.

Question.—Should the cross-over pipe be broken, is it necessary to shift this car to the rear of the train?

Answer.—No; if the break is between the stop cock and the triple valve, the stop cock should be closed and the release valve opened. If the pipe is broken between the stop cock and the main train pipe, it may be plugged.

Question.—In passenger service, if the train pipe should burst or be broken, should the car be shifted to the rear of the train?

Answer.—Not necessarily; a section of freight hose can be telescoped over the broken pipe and wrapped

with a cord. Again, air may be made to pass to the rear through the signal pipe on the disabled car by the use of combination signal and train pipe couplings, which will allow of the signal pipe of the disabled car being attached to the train pipe of its adjoining cars. It is the general practice, however, to switch such cars to the rear on account of the lack of the material to make the changes mentioned.

Question.—When such a car is put on the rear end of a passenger train, what precautions should be taken?

Answer.—The hose should be coupled between it and the car ahead of it, and the angle cock opened on the car ahead, but the angle cock on the disabled car closed. This keeps air pressure in the hose couplings, and if the train should part there, the brakes would apply on the head section. It is also good practice to have a man remain on the disabled car all the time if practicable.

BREAK-IN-TWOS.

Question.—In case of a train parting between air-braked cars on the head end, the train being partially equipped, say 5 air-braked and 25 non-air braked cars, what should the engineer do?

Answer.—Close the engine throttle immediately and place the brake valve handle on lap position.

Question.—Why not try to pull away from the rear end of the train?

Answer.—He could not get away a safe distance, and a short distance would only increase the violence of running together. By shutting off steam immediately the distance of separation would be short and the shock of running together would be proportionately

slight, both sections of the train being in motion at the time.

Question.—Upon coupling up after parting a train of air-braked cars, should the rear brakes refuse to release in any number, would it be advisable to "bleed" them off?

Answer.—No; by so doing we have no assurance that the engine is cut in to the rear end of the train. They should in all cases be released by the engineer.

Question.—What should he do to release them?

Answer.—Place the brake valve handle on lap position and secure excess pressure. By throwing this into the train pipe quickly it should release them if they are all cut in.

Question.—Why is it not advisable to pump brakes off?

Answer.—Because the train pipe pressure would be raised so slowly it might cause brakes to stick on the rear end of the train.

Question.—Is it necessary to make a test of the brakes after the train has been parted?

Answer.—Yes; in all cases, to ascertain if the train pipe is open throughout the train.

USE OF HAND BRAKES.

Question.—In assisting the engineer with hand brakes, where the train is only partially equipped with air brakes, where should the hand brakes be set?

Answer.—Immediately behind the air-braked cars.

Question.—Why not near the rear end of the train?

Answer.—Because of the liability of breaking in two if the engineer releases when going slowly

Question.—Do the hand brakes work in unison with the air brake on passenger equipment cars?

Answer.—Not on all cars, although it is now becoming the general practice to have them do so.

Question.—In setting off cars what should be done?

Answer.—The stop cocks, or angle cocks, should be closed first and the hose parted by hand and hung up properly, the car set on the side track, the air brake released if applied, and the hand brake set before leaving it.

Question.—Why not set the hand brake before releasing the air brake?

Answer.—On some cars it would be set too tight and be liable to break the chain when the pressure on the piston of the brake cylinder was released; on others it would not be set at all.

Question.—Where cars are to be left alone for any length of time on a grade and have the air brakes applied, what should be done?

Answer.—The air brakes should be released and hand brakes set.

BLEEDING OFF BRAKES.

Question.—In cutting out a brake, why is it necessaary to always bleed the auxiliary reservoir?

Answer.—This is to insure that the brake will not creep on and give trouble, which it might do if leakage exists around the triple valve or branch pipe.

Question.—What is the proper way to release a brake with the release valve?

Answer.—The release valve should be held open only until the air commences to escape from the triple valve. It should then be closed, as, if it is held open longer, it has a tendency to set the other brakes.

Question.—In picking up cars, if they are found cut

out, is it an assurance that the brakes are in bad order on those cars?

Answer.—No; they should be cut in and tested, unless it is plainly seen that they are in bad order.

Question.—When is it permissible to cut out cars?

Answer.—Only when they are in such condition as to render it impossible to operate them.

Question.—Are small leaks sufficient cause for cutting out cars?

Answer.—No; only when they are of such size that the air pump cannot supply them.

Question.—Which is preferable, a few cars cut in and working at full pressure, or all cars cut in and operated at a comparatively low pressure?

Answer.—All cars at a lower pressure. The train will brake smoother, and in a case of a break-in-two there would be less likelihood of damage.

Question.—If the train line leaks, would it be best to cut out cars?

Answer.—No; fix the leak and keep all cars cut in.

Question.—If there are numerous small leaks throughout the train, and combined they make sufficient leakage to prevent the pump from making the required amount of air pressure, which cars should be cut out first?

Answer.—The worst leaks; if that is not sufficient or all leaks about the same size, then the poorest brakes, not more than three or four consecutive cars being cut out, however. If possible, the cut out cars should be distributed throughout the train.

RULES FOR GIVING FIRST AID TO THE INJURED.

When an accident happens there is usually not much time to decide what is best to be done. Help, to be effectual, must be prompt, and often delay implies farther injury or loss of life.

It is well to fix in the mind a few general principles of treatment in the more common accidents. When the emergency arises these are recalled instinctively and form the basis of action. The means by which they are to be carried into effect follow naturally and the necessity is met.

Shock.

A person who has sustained a railroad or machinery accident, a bad burn, or even a sudden fright, is liable to suffer from shock. He lies breathing feebly, the face pale, pinched and anxious, the pulse feeble and often absent at the wrist, the skin is cold and there may be shivering. In most cases reaction will take place in a few hours; in others no reaction takes place, and the person dies.

A great deal may be done to relieve a person suffering from shock. If there is severe bleeding it must be stopped, but no attempt to do more than this to the injury should be made until after attending to the shock.

Place the patient in a horizontal position, the head slightly raised; give a teaspoonful of whiskey or other alcohlic liquor in a tablespoonful of hot water every

ten minutes until five or six doses have been taken. Wring out flannels in hot water and lay them on the chest and abdomen, then cover the patient with a blanket to keep in the heat. To warm and stimulate the patient in every way is the object of the treatment.

If the injury is to the head follow out the above treatment as regards warmth, but do not give any alcoholic stimulant.

Crushed Limbs.

If a foot, or hand, or any other part is crushed, any displaced tissue is to be put back and the injured member made to assume as nearly as possible its original shape, by carefully molding it with the hands, without using much force or causing much pain.

Then, unless bleeding is profuse, when cold cloths must be used, wrap the part in cloths dipped in warm water, and cover the whole up warmly with cotton wool or a blanket. If a long bone is fractured in a crushed wound, a splint may be applied before moving the patient.

In all such wounds be careful to watch for symptoms of shock, as they require as careful attention as the wound itself.

Broken Limbs.

A broken bone need not be set immediately. This knowledge saves much unnecessary anxiety when the doctor cannot be procured at once.

The parts must be put in as comfortable a position as possible and most nearly corresponding to the natural one. It is necessary to give support above and below the break.

Handle the injured part very carefully not to force the rough ends of bone through the skin.

Improvise splints of some kind—two strips of wood, a couple of stout book covers, or pieces of pasteboard. Place one on each side when it is a limb that is injured, and bind them in place with handkerchiefs. A long pillow firmly tied will answer the purpose, or in case of injury to a leg it may be fastened to its fellow if nothing better can be done, remembering to tie it above and below the injury.

Broken bones are easily recognized by the grating of the ends on each other, by the unusual bending of the limb, and by the pain caused by motion at this point. A fracture is called compound when the end of the bone protrudes through the skin. Whenever such protrusion is seen the part should be cleansed and at once covered with adhesive plaster or a piece of linen saturated with white of an egg. All fractures should be attended to by a surgeon;; consequently the dressings suggested here are only temporary, and intended to protect the parts from further injury.

In fracture of the arm above the elbow, bandage the upper arm to the side of the chest, and place the hand in a sling.

In fracture of the arm below the elbow, bend the arm at the elbow at a right angle, place the thumb uppermost, and bandage the limb between two padded splints, reaching from elbow to ends of the fingers, one being placed on the back of the arm and the other on the front, and place the hand in a sling.

In fracture of the leg below the knee, extend the leg beside the sound one, giving it the same position, place a pillow beneath from the knee down, fold the sides of the pillow over the leg, and secure it in that position by bandages.

In fracture of the thigh bone, place the patient on the back in bed, relax the muscles of the leg by drawing the feet up toward the body sufficiently, bind splints to the outer and inner side of the broken thigh, then bind both legs together, and turn patient on the side with the injured limb uppermost.

In fracture of the knee-cap bind the whole limb to a splint on the back of it, being careful to place a sufficiently large pad beneath the bend of the knee.

In fracture of the collar bone, place the patient on his back on a hard bed without any pillow.

In fracture of the lower jaw, close the mouth and bandage so as to keep the two rows of teeth together.

In fracture of the skull, lay the patient down and apply cold, wet cloths to the head.

When the shoulder bone is broken place the arm on the injured side across the chest, the hand touching the opposite shoulder, and fasten it in place by passing a broad bandage around the body.

In fracture of the ribs pin a towel around the body until the doctor comes.

In other fractures, place the patient in the most comfortable position possible, keep him quiet and apply cold water to prevent swelling.

In a dislocation the bone is forced out of its socket at the joint. There is more or less deformity, and it is difficult to move the limb. The last point helps to distinguish it from a fracture. Time is of importance, as the swelling which supervenes increases the difficulty of reducing it or returning the bone to its proper place. Hot applications may be made if the surgeon cannot be had immediately.

A sprain occurs when a joint is twisted but not dislo-

cated. The ligaments which hold the bones together are stretched and sometimes torn. Immersing the part in very hot water for a time, and then keeping it surrounded with hot water bags, usually gives relief. The joint should be firmly, but not too tightly, bandaged from the fingers to toes upward. After a time gentle rubbing is useful.

Transportation of the Injured.

Make a soft and even bed for the injured part, and if possible obtain a stretcher, a door, shutter, settee or some firm support; lift steadily and don't keep step.

Bruises.

Lay over the bruise a cloth saturated with hot water, or with half water and half alcohol, or Pond's Extract, or any household remedy that contains alcohol.

Wounds or Cuts.

If the wound opens a vein the blood flows evenly and steadily and is dark red or purple. If an artery is divided the blood flows in jets or in an interrupted stream and is bright red. Owing to the fact that as a rule the arteries and veins run side by side, it generally happens that when an artery is divided a vein is also opened. The blood from the two vessels becoming mixed makes it impossible to determine whether both vessels have been opened or only an artery or a vein. For this reason it is better to learn the methods of controlling bleeding that will answer for every case.

Stop the hemorrhage by means of pressure, position, heat or cold, and, if necessary, styptics.

When a large vein or an artery has been severed it is sometimes a difficult matter to stop the flow of blood. If the cut is on a limb tie a hard knot in a towel, place

the knot inside the arm or leg as high as possible and twist the towel firmly round the limb. A stick can be thrust through it and used as a handle to twist by if necesary. This is called a tourniquet. This stops the circulation and cuts off the supply of blood. It should not be kept up more than one hour on the arm and rather longer on the leg.

Ice, or very hot water applied with a sponge, or cloth, will check the bleeding when it comes from a number of small points.

When possible the wounded part should be raised so the blood will flow away from it toward the heart.

Binding a bunch of cobwebs or a handful of flour on the wound, or bathing it in strong vinegar is sometimes effectual.

Bleeding stops from the blood coagulating or clotting. All our efforts should be directed toward helping it to accomplish this by every available means.

If the blood is bright and comes in jets, apply firm pressure upon the artery above the cut, nearer the heart. If bleeding is from the leg, the artery in the groin must be compressed very forcibly with three fingers, aided by the weight of the body.

If the blood comes in a steady stream, apply pressure just below the cut.

If ignorant of the location of vessels, press with the fingers or a wad of cloth directly into the wound.

After the bleeding is controlled, improvise a tourniquet as above directed, excepting for the artery in the groin.

For a slight cut let the blood flow for half a minute; then dip in cold water, or apply ice. Draw the edges together with sticking plaster, or unglazed paper. Paint

collodion over the paper. Bandage if necessary, and keep the part quiet and not dependent for a few days.

Burns and Scalds.

The pain from slight burns is very great. An excellent application is a thick paste of common baking soda moistened with water, spread on a piece of linen or cotton, and bound on the part. This can be kept wet by squeezing water on it from a sponge or cloth until the smarting is soothed.

A thick coating of starch can be used instead of the soda, or wheat flour if nothing better can be had, but neither should be applied if the skin is broken. In this case it is better to use vaseline, olive or linseed oil. The doctor will apply some preparation containing carbolic acid.

If the air can be effectually excluded from a burn the pain is relieved.

Blisters should be pricked and the fluid absorbed with a soft cloth before applying a dressing.

If the clothing adheres to the skin the loose part should be cut away and the patches of material soaked off with oil or warm water.

When the injury is extensive the sufferer will be prostrated and may die from the shock. Heat should be applied to the extremities and over the heart, and hot drinks given until the doctor comes.

In burns from a strong acid the part should be covered with dry baking soda or lime, as the alkali will neutralize the acid. No water should be used, but a dressing of cosmoline or oil applied after the alkali has been brushed off.

When the burn has been caused by an alkali an acid must be used. A person recovering from the effects of a burn requires very nourishing food.

Electric Shock Accidents

are liable to occur now that electric machinery is being introduced in many shops. In cases where a man has received a serious shock and life appears to be extinct, efforts similar to those employed in cases of drowning should be made to restore animation.

Lay the patient on his back in the open air. Remove his neck-cloth and unfasten his shirt. Make a roll of clothes, or anything at hand, and place it under his shoulders so as to support the spine and allow the head to fall downwards and backwards. Open his mouth, and taking hold of the front part of the tongue with your fingers —either bare or covered by a handkerchief—very slowly draw the tongue forward and as gently let it go back again 16 times to a minute. Be sure that the root of the tongue is acted upon and drawn forward. Continue this action until signs of re-animation are observable, which should be the case in from ten to twenty minutes. The motion thus imparted to the tongue should be regular and rythmical in both its tractions and relaxations.

Another treatment is as follows: Kneel behind the patient and grasp the elbows and draw them over his head so as to bring them together above it, and hold them so for some two seconds. Then carry them down to the sides and front of the chest, firmly compressing it. After two seconds repeat the action and continue it at the rate of 16 times per minute. This action expands the chest walls, causes air to rush into the lungs and finally expels it. The action must be regular and persisted in until respiration has become normal. It is possible that this may not be assured in less than an hour. If an assistant is at hand both systems may be employed, one man working the arms, the other the tongue, and both operating in unison.

APPENDICES

CLEARANCE CARDS AND OTHER BLANKS

RECEIPT GIVEN TO PASSENGERS FOR CASH FARES PAID TO CONDUCTORS

POINTS FROM AND TO WHICH PASSENGER PAYS FARE.

Train No._____ 189____

Date_____

From_____ to_____ Conductor.

NOTE

120

Passengers who pay fare on the train instead of purchasing tickets will receive this receipt from Conductors, which is good for TWENTY-FIVE CENTS, and will be redeemed at any ticket office of the Company.

Gen'l Tkt. Agent.

AMOUNT.												
$	1	2	3	4	5	6	7	8	9	0	East.
T	1	2	3	4	5	6	7	8	9	0	West.
U	1	2	3	4	5	6	7	8	9	0	North.
											South.
											Ht. Fare.

RECORD TO BE DETACHED BY THE CONDUCTOR AND SENT TO THE TICKET AUDITOR.

RECORD OF CASH FARE COLLECTED BY CONDUCTOR.

Train No._____

Date_____ 189____

From_____

To_____

Amount_____

120

_____ Conductor.

RECORD TO BE RETAINED BY THE CONDUCTOR.

CONDUCTOR'S RECORD.

From_____

To_____

_____ 189____ $_____

120

NOTE.—When a passenger pays fare on a train he is charged say twenty-five cents extra. The total amount paid is entered on the above receipt by the conductor (by cancellation of the proper amount,) and is then given to the passenger. Upon its presentation at any office of the company, the agent refunds the amount and remits this receipt to headquarters in lieu of cash.

N. B.—There are several other forms used by conductors in giving receipts.

PUNCH HERE.

RETURN OF CASH FARES COLLECTED.

I hereby certify that the following is a true statement of all money collected by me on the trips designated hereon, and that the rates, extensions and footings as stated are correct.

_____ Conductor.

STATEMENT OF AMOUNT COLLECTED.

From	To	No. Fares.	Rate.	Amount.	Remarks.

Statement of Receipts Issued For Fares Collected.	Commen'g No.	Closing No. (Lowest No. on hand.)	No. Issued

	Dollars.	Cents.
Amount Collected North or West,		
Amount Collected South or East,		
Total,		

Train run between _____ and _____

No. _____ Going North or West _____ 189__

No. _____ Going South or East _____ 189__

NOTE.—If no fares are collected, a blank form must be returned, except in the case of freight conductors.

CONDUCTOR'S BALANCE SHEET FOR THE MONTH OF _____ 18__

DR. _____ Conductor. _____ Division. CR.

To Balance of last month's return to my debit, $ ____

To Difference to my debit last month, as per statement received, - - - - - - $ ____

To amount of Cash Collections during the Month, as per Returns rendered to the Ticket Auditor, as follows, viz.:

Date of Return.	Train Nos.	Amt.	Date of Return.	Train Nos.	Amount.
	&	$		Bro't Forw'd,	$
	"			"	
	"			"	
	"			"	
	"			"	$
	"				

By Balance of last month's return to my credit, $ ____

By Difference to my credit last month, as per statement received, - - - - - - $ ____

By Remittances made to Bank, credited to me during the Month, described in detail below, viz.:

Date of Remittance.	Date Remittance was Credited.	Amount.
		$ —
		$

Standard Train Order Blank for 19. Order.

FORM 19 FORM 19

(NAME.) COMPANY.

TRAIN ORDER No. 10

March 27 19 02

To ..... At .....

X (INITIALS.) Opr.; 1 45 A M

.....

Conductor and Engineman must each have a copy of this order.

Made Complete time. 2 16 P M. Black Opr.

Standard Train Order Blank for 31 Order.

FORM 31 FORM 31

(NAME.) COMPANY.

TRAIN ORDER No. 10

March 27 19 02

To ..... At .....

X ..... (Initials.) ..... Opr.; ..... 1 45 A M

.....

Conductor and Engineman must each have a copy of this order.

Repeated at 2 20 A M.

Conductor	Engineman	Train	Made	Time	Opr.
Jones	Brown	45	Complete	2 20 a.m.	Black
	(Omit				
	this column				
	where				
	Engineman				
	is not				
	required				
	to sign.)				

Form 629.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA R'Y CO.

CROSS-OVER PERMIT.

..... *Block Station* ..... *190*.....

To Conductor and Engineman Train No.....

I have complied with the Rules. You may use.....*bound track at*.....

by protecting your train as provided in the General Rules.

.....

Signalman.

This permit does not relieve the train crew from any responsibility in connection with the Time-Table or Rules and Regulations.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA R'Y CO.

TRAIN ORDER NO. 10

To .....
..... *At*..... *Station.*
.....

Nov. 27, 1902.

X INITIALS *Opr.* 1.45 *M*

12 .....
Chief Train Dispatcher.

Repeated at 2.30 A *M.*

Conductor	Train	Made	Time	Dispr.	Opr.
13 JONES	45	O. K.	2.20 AM	A B C	BLACK
13					
13					
13					
13					
13					
13					

Conductor and Engineman must each have a copy of this order.

Train ahead left at 12.30 A M.

Form 547.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA R'Y CO.

CLEARANCE.

There are **NO ORDERS**

at ..... *Station*

for Train No......*due at said station at*.....*M.*

.....*190*..... ——

Stop signal is displayed for.....

Last train ahead, No......*left here at* ..... *M.*

Remarks.....

This does not interfere with or countermand any orders you may have received.

Time issued.....*M.*

Signed.....*Operator.*

NOTE.—Should any train have orders not to pass any station "WITHOUT ORDERS," the reception of this blank does not release it, but in such cases regular orders must be obtained.

In case "stop signal" is not displayed, operators will write "not displayed" after the words "Stop signal is displayed for....."

Operators are required to fill in blank in duplicate for trains for which they have no orders. Fill in exact time clearance is given.

Conductor must see that the number of his train is entered in above form correctly.

FORM — (A).

(NAME.) COMPANY.

CLEARANCE CARD.

Dover 9 15 A M March 25 19 02

Conductor and Engineman No 12

I have no (further) orders for your train.

Signal is out for Extra 452

This does not interfere with or countermand any orders you may have received

John Jones
Operator.

Conductor and Engineman must each have a copy, and see that their train is correctly designated in the above form.

INDEX—PART I.

TELEGRAPHY

Sam'l F. B. Morse.

INSTRUCTIONS FOR BEGINNERS.

No duties devolve upon the operator which persons with ordinary ability cannot perform, if they give careful thought and study to the work, which is no more than is expected of anyone who wishes to succeed in any profession of life.

No business or profession can be learned in a day; and telegraphy requires much careful thought and practice, together with untiring application. Do not expect to absorb telegraphy. Great results cannot be expected from little labor. If telegraphy is worth learning at all it is worth learning well. Do not aim to be as good an operator as some person you happen to know, but strive to be a little better; then you will never be looking for a job, as the profession of telegraphy recognizes only ability. Much depends upon getting started well and laying the proper foundation. Never leave a point or lesson until you have completely mastered it and have it thoroughly fixed in your mind; some elementary principles hurried over or neglected will debar one from making the progress anticipated.

There always has been and always will be a great demand for competent operators. Success in life depends upon being ready when the opportunity comes.

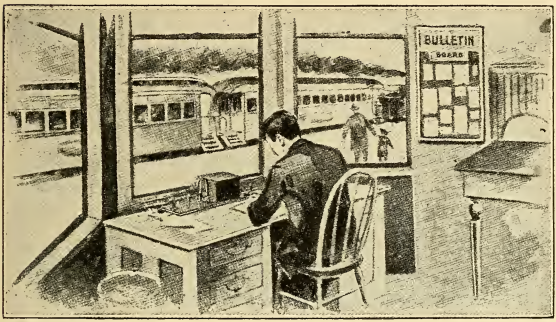
LEARNERS' INSTRUMENTS AND HOW TO CONNECT FOR PRACTICE.

The only instruments required for a person to begin the study, are the ordinary Morse Key and Sounder on

the same base or separate, and the battery for generating the electricity. The dry battery will be found very satisfactory for working one instrument for practice. When the instrument is not in use the circuit should be left open as a dry battery soon loses its strength when left on a closed circuit. The circuit closer is often removed from the key when a dry battery is used, as this will avoid any chance of the circuit being left closed when the instrument is not in use. For line work the gravity battery will be found to give better satisfaction because the circuit must be kept closed. The instrument arranged on the same base will be found to have two binding posts to receive the ends of the wires. To connect an instrument of this kind for practice, it should be securely fastened to the table at a position where it can be reached leaving room for the arm to rest upon the table while sending; small holes should be bored opposite the two binding posts for the wires; connect a wire to one of the binding posts of the instrument and the other end to one pole of the battery, from the other pole of the battery connect a wire to the other binding post of the instrument.

If two instruments of this kind are to be connected for line practice, connect a wire to the zinc pole of the first battery thence to one binding post of the first instrument, from the other binding post of the first instrument to one binding post of the second instrument, from the other binding post of the second instrument to the copper pole of the first battery; if more than two batteries are to be used the batteries should be connected running from copper to zinc and zinc to copper, zinc should never be connected to zinc or copper to copper as they will neutralize each other and no circuit be produced.

If the key be separate from the base of the sounder it is better to arrange the key a little to the right-hand side, in such a position that it can be reached while the arm rests on the table in sending; place the sounder at the left-hand side; to receive the wires small holes should be bored opposite the two binding posts of the sounder and for the legs of the key. Connect a wire to one binding post of the sounder, the other end to one pole of the battery, from the other pole of the battery connect a wire



with one leg of the key on the under side of the table between the two washers in order that good connections may be had; from the other leg of the key connect a wire to the other binding post of the sounder.

To connect two separate keys and sounders together for line practice begin by running a wire from one binding post of the first sounder to the copper pole of the first battery, from the zinc pole of the first battery to one leg of the first key, from the other leg of the first key to one binding post of the second sounder, from the other bind-

ing post of the second sounder to the copper pole of the second battery, from the zinc pole of the second battery to one leg of the second key, from the other leg of the second key return the wire to the remaining binding post of the first sounder, this last wire is known as the return wire and will work much better on a short circuit than the ground wire.

Ground wire may be used by connecting the last leg of the second key with the earth, also the remaining binding post of the first sounder with the earth. Explanation of how to fix a ground wire will be found under the heading of "Ground Wire."

THE MORSE ALPHABET.

Morse in the arrangement of his telegraphic alphabet took as a unit of space or length the shortest possible length of time, technically termed a dot. He then made his alphabet, formed from three elements: the dot, the space, and the dash arranged in various combinations representing the following relative values:

The dot .....One unit
The break between the elements of a letter....One unit
The space, employed in the "spaced letters"..Two units
The space, separating the letters of a word..Three units
The space separating words.....Six units
The short dash.....Three units
The long dash.....Six units

The student should commit the alphabet to memory without reference to position of other characters, so each can be called to mind at will without hesitation before commencing to practice them; when once the letters are

thoroughly memorized so that the mind has nothing to do but attend to the mechanical movement, learning at the instrument will be found much easier and more rapid.

LETTERS.

a	b	c	d	e	f
·–	–···	–·–·	–··	·	··–·
g	h	i	j	k	
––·	····	··	·–––	–·–	
l	m	n	o	p	q
·–··	––	–·	–––	·––·	––·–
r	s	t	u	v	
·–·	···	–	··–	···–	
w	x	y	z	&	
·––	–··–	–·––	––··	·–···	

NUMERALS.

1	2	3	4	5
·———·	··––·	···–·	····–	–––––
6	7	8	9	0
–····	––···	–––··	––––·	—————

PUNCTUATION, ETC.

period [.] ·–·–·–

comma [,] ––··––

interrogation [?] ··––··

exclamation [!] –·–·––

paragraph [drop a line] ––––

colon [:] –––···

colon dash [:—] –––···––··

colon quotation [:"] –––···–·––·

semi-colon [;] –·–·–·

hyphen [-] –····–

dash [—] ––··––

beginning quotation ["] ·–··–·

ending quotation ["] ·–··–·–·

apostrophe ['] or quotation within a quotation [" ' ' "] ·––––·

beginning parenthesis [(] –·––·

ending parenthesis [)] –·––·–

brackets ([]) –·––·–

capitalized letters ··––··

italics or underline ··––··

dollars [$] ···–··–

cents [c] –·–·

decimal point [.] ·–·–·–

pound sterling [£] ·–·––·–··

shilling mark [/] –··––·

pence [*d*] ·––··

TRANSMISSION.

Transmitting or "sending" is the first requirement necessary for the beginner, and is the art of forming telegraphic signals upon an instrument called a key which being connected with Relay, Sounder and Battery produces sound signals which are arranged in the form of an alphabet enabling us to send communications, one to another, at various distances.

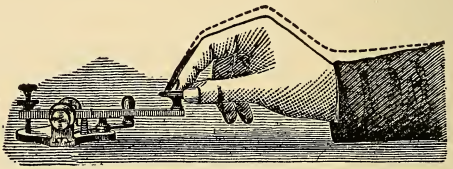
The student should bear in mind that in order to be accurate with his sending is of greater importance than his speed. Take great care that you send slowly at first, striving for a firm, even, smooth style of sending. Speed will come by practice; never to send more than one third faster than you receive is a splendid rule for any beginner, and if strictly adhered to will in time make you a more correct sender than any rule that can be laid down. The customary idea that sending is more easily and more readily learned than receiving is entirely wrong, because a person unless he or she be able to read ordinarily rapid work is unable to be a good judge of sending therefore will not be able to correct their own sending as it should be until after receiving be learned.

The custom of timing for the purpose of finding the rate of speed attained should be seldom indulged in except under the careful direction of his or her instructor, as it is apt to cause the student to become careless in the formation of characters.

POSITION.

Place the two first fingers on the farthest side of the key-button with the thumb under the edge; curve the first and second fingers so as to form a quarter section of

a circle; partially close the third and fourth but not enough to cramp them; never allow them to touch the table. Rest the arm on the table at the elbow; let the grasp upon the key-button be firm but not rigid; while sending never allow the fingers or thumb to leave the key or the elbow to leave the table. Learn to handle the key as easily as you would a pen.



POSITION OF HAND AND MOVEMENT.

Fig. 1

MOVEMENT.

The motion should be directly up and down; avoiding all side pressure; it should be made principally at the wrist although the fingers and hand should be perfectly limber; the fingers, hand and arm should move uniformly in the same direction.

Tapping upon the key should be carefully avoided and never try to write with the finger movement alone; the fingers are used merely as a leverage and to hold the key-button.

The downward movement produces the dots and dashes while the upward movement the breaks and spaces. A dot (.) is made by a single instantaneous

downward stroke of the key, while a dash (—) is made by holding the key down as long as it would take to make three dots; a long dash as in the letter L or the numeral cipher o should be made by holding the key down as long as it would take to make five and six dots respectively.

The space is produced by the upward movement of the key and consists of four different lengths which indicate the intervals between the elements of a letter, between the letters of a word, and between the words in a sentence. The first, or break is one unit in length and is the instantaneous interval between the dots and dashes of a letter and is found in every letter and character except E, T, L, O, and the numeral cipher. Second, the space in the space letters which are six in number O, C, R. Y, Z, and the character (&) is given two units in length or equivalent to one dot and break; great care should be given to the correct transmission of the space letters; the letter O should require the same time as the letter S, the letters C and R the same time as the letter H, the letters Y, Z and the character (&) the same time as the letter P. Third, the space between the letters of a word is three units in length or equal to two dots and breaks, an exception to this rule may be made in case of the double E which should be nearly the same as between words. Fourth, the space between words is six units in length or equal to three dots and break.

EXERCISES IN SENDING.

After the student has made careful study of the preceding subject and has a thorough knowledge of the arrangements of the alphabet spacing, correct position, how the wrist is to be used in the movement, the following

exercises should be practiced in their regular order. Much success in sending depends upon these exercises being thoroughly mastered in regular order, as each is the key which unlocks the exercises following, therefore each and every character should be repeated over and over until it can be made at will and without mistake before the next exercise is taken up.

FIRST EXERCISE.

Learn the movement first on dots, make one each second then two and three each second with as much regularity as possible and gradually increase until a speed of 360 per minute can be made with as uniform order as the tick of a watch.

. . . . . .

Separate the dots representing the letter E.

. . . . . .

SECOND EXERCISE.

Learn the movement on dashes by commencing at the rate of about one a second and gradually increase until a speed of about 115 per minute can be made uniform and with ease. Special care should be taken to make the breaks between the dashes as short as possible. If a good, free movement is used the dashes cannot be made too close together. The tendency is to space dashes and great care should be taken to overcome this; remember where there are no spaces, the characters must be made compactly together. Hold the key down the length of

three dots for the ordinary dash or long enough to pronounce the word "seat."

- - - - - - - - - - - - - - -

Separate the dashes representing the letters T, L and the numeral cipher 0.

- - - - - - - - - - - - - - - - -

— — — — — — — — — —

— — — — — — — — — —

THIRD EXERCISE.

Make a dash closely followed by a dot representing the letter N. This exercise will be found more difficult, be sure that the dash *is* a dash and the dot a dot and make them compactly together, it might be timed by pronouncing the word NINE-TY holding the dash while the first syllable is pronounced and making the dot when pronouncing the last.

—. —. —. —. —. —. —. —. —. —.

FOURTH EXERCISE.

Make a dot closely followed by a dash representing the letter A. There is a great tendency to space this character and make the dot too long and the dash too short; watch it closely. It might be timed by pronouncing the word AGAIN making the dot while saying A and the dash while saying GAIN.

.— .— .— .— .— .— .— .— .— .—

FIFTH EXERCISE.

e i s h p 6

o c r y z &

SIXTH EXERCISE.

t l m 5 0

a u v 4

n d b 8

SEVENTH EXERCISE.

f g j k q

w x 1 2 3

7 9

EIGHTH EXERCISE.

period [.] comma [,] interrogation [?]

exclamation [!] paragraph [drop a line]

dollars [$] cents [c] decimal point [.]

NINTH EXERCISE.

colon [:] — — · · colon dash [:—] — — · — · —

colon quotation [: "] — — · — · · — · semi-colon [;] · · · ·

hyphen [-] · · · · — · · — · dash [—] — — · · — · —

beginning quotation ["] · · — · — · ending quotation ["] · · — · — · — ·

apostrophe ['] or quotation within a quotation [" ' ' "] · · — · — · — ·

beginning parenthesis [(] · · · · · — · ending parenthesis [)] · · · · · — · — ·

brackets ([]) — · — · — · — · capitalized letters · · · — · — · —

italics or underline · · — · — · — ·

pound sterling [£] · · · · · — · — · shilling mark [/] · · — —

pence [*d*] — · — ·

FORMATION.

The letter j should be formed as tae, k as ta, q as ue, x as ai. The numeral 1 as we, 2 as ui, 3 as ve, 9 as tu. The period as ud, comma as aa, interrogation as tue, beginning quotation as qn, ending quotation as qj, beginning parenthesis as pn, ending parenthesis as pj, brackets

as bx, hyphen as hx, dash as dx, colon as ko, semi-colon as si, colon-dash as kx, colon-quotation as kq, capitalized letters as cx, dollar mark as sx, cents as c, decimal point as tw, italics or underline as ux, apostrophe, or quotation within a quotation, as qx, pound sterling as px, shilling mark as ut, pence as d.

TENTH EXERCISE.

Air, care, thanks, maple, use, keep, injuries, young, frequently, zinc, next, verily, cottage, error, erie, loop, little, practically.

ELEVENTH EXERCISE.

Use a good free movement in this exercise:

Every good student employs every moment of his time.

Be an honest and faithful worker, doing your best and never grumbling.

Firm and smooth sending goes hand in hand, speed comes from practice.

TWELFTH EXERCISE.

A comma or a space is used to divide numerals into hundreds, thousands, etc. The abbreviations hnd, tnd, mln or myn are used for transmitting ciphers; hnd, stands for two ciphers, tnd for three ciphers, and mln or myn for six ciphers. Example: 500 would be transmitted (5hnd); 4,000 (4tnd); 3,000,000 (3mln); 300,000,000 (3hnd mln).

79, 8,610, 23,100, 405,631,000, 900,000, 215,000,647.

THIRTEENTH EXERCISE.

In fractions the letter E or a dot is used for the dividing or fraction line. Example: the fraction ½ would be transmitted 1 e 2 3-32 as 3 e 32.

1-2, 1-3, 2-5, 7-8, 3-16, 11-12, 10-32, 2 1-2

FOURTEENTH EXERCISE.

The decimal point is transmitted by either using the decimal point character which is formed of the letters TW or by spelling out the word Dot. the word DOT is most commonly used. The dollar mark is SX. Example: $133.53 would be transmitted SX 133 dot 53.

3.5, 99.4, $1.23, $51.46, $826.98, $400.10½.

HINTS IN SENDING.

In telegraphy, the same as in penmanship a careful and thorough study of the movement should not be slighted; the more attention given the correct position and movement the better and faster will be the gain in sending. Firm, smooth sending should be attained at the expense of time and practice. The great idea among beginners, is that it is an easy matter to learn to send and that to be able to send and receive rapidly is all that is required; hence, they neglect the necessary careful practice which should be employed to gain proficiency in sending, but on the other hand acquire a habit of careless sending which is caused by sending too fast with no regard for uniform spacing or proportion of characters to each other. Some are inclined to put the characters in letters too closely together, which creates

jerky, uneven sending which is not only hard to copy but hard to read, thus we are unable to tell what they are going to make until the last letter of each word is received; on the other hand with good firm, even sending it is possible to tell when "press" is being sent some few words ahead what the sender is going to make.

Uniform spacing is of the greatest importance in making sending easy to read. This applies to the characters in letters, between letters in words and between words in sentences. Remember when there are no spaces in the letters, the dots and dashes should follow each other closely.

A very good rule for a beginner to observe in order to get good spacing between letters in words and words in sentences, is to pronounce each letter after it is made, then the word after you have pronounced the last letter of each word; you will note if you pronounce the last letter of a word after you make it and then the word, you will be giving about twice the space between the words that you do between the letters of the words, which is correct.

Due caution should be exercised in transmitting words which contain either all dot letters or a number of them together. The spaces should be longer than usual between the letters in the following words as well as a great number of similar ones. Be sure and make them slowly and distinctly, as: seen, choice, error, piece, price, voice, bicycle.

A decided distinction should also be made wherever the letter "t" follows the letter "l," or vice versa, as in the following words: title, altogether, little, altitude, battle, alternate.

If an error is made in sending, the interrogation mark

should be made as a "break." If an error is made on the first letter of a word, make the interrogation mark and repeat the word immediately preceding it; if on any other letter of the word, make the interrogation mark and repeat only the word in which the error was made. In case a different word than the one which appears on the copy has been sent make the interrogation mark followed by the abbreviation "msk."

PUNCTUATION.

Punctuation marks are not always sent as they would appear in print or as they should be used. The period is very seldom used except at the beginning of the body of a message or train order. The comma is perhaps most used, and often used in place of the period and conveys several meanings according to where it is placed; take for instance after the two or three lines of the address of a message, it is used and means the same as "Drop a line." The interrogation or question mark is many times used out of place, for instance if an operator miss what is being said to him he uses it meaning "What did you say?" or if he makes a mistake in transmission he uses it as a break, or if he be sending a message and wishes to explain something he uses it there. Punctuation marks should always be sent at nearly twice the rate of the other sending and should be made compactly together as one letter. Punctuation marks are not used after abbreviations or initials, example: Mrs. J. H. Brown, N. Y.

RECEIVING.

After all the letters and characters have been thoroughly memorized so that the student can send readily and correctly, receiving may be then taken up. It is necessary in receiving that another person manipulate the key which operates the sounder; the one receiving should not watch the hand of the sender or the lever of the sounder; let your receiving be done by sound from the very start. The person sending should send slowly and distinctly, the one receiving naming each letter as sent; this practice of calling each letter should be kept up until the speed is so fast that the receiver has not time to pronounce the letters; then the receiving of words may be taken up, pronouncing each word as sent until able to receive from twelve to fifteen words per minute, counting five letters to a word. Then commence the practice of sentences, press, train orders, messages, etc. The student should bear in mind that there is no change in the tone of the sounder, the letter being determined by the time or times the lever is up or down. The sound produced by the upward movement of the lever is as necessary in receiving as the sound produced by the downward movement of the lever, for without it the duration or length of dashes could not be determined. The sound made by the upward movement of the lever is dull and will not confuse the student when he puts his mind on the downward movement for the dots and dashes and the upward movement for the breaks and spaces. To become a good receiver of rapid sending it is necessary that the receiver be able to copy behind the sounder several words; this

will be found quite difficult for the beginner and much time should be employed in dividing attention between receiving and copying, only a letter at a time may be the starter but with unwearied application the student can advance from one letter to several words. The practice of copying five words to each line when copying with a pen or pencil should be commenced early in the work as it will be found very useful when the subject of messages is taken up.

Read the daily papers, markets, etc., and familiarize yourself with every line of business; study the names of different towns and work hard on the spelling of the same, and receiving will become easier.

PENMANSHIP.

The subject of penmanship is not given proper attention by the student of telegraphy. A good, legible business hand-writing is a very desirable accomplishment in any occupation, but nowhere is it more needed than in the telegraph business, because your hand-writing must be handed out to the general public to read, and so we would earnestly request that you waste no time beginning to carefully prepare for this all important part of the work. Upon applying for a position about the first thing asked is "let me see your hand-writing." We would not attempt to lay down any rules in regard to penmanship, only give a few suggestions.

Ornamental styles, and graceful and shaded curves are entirely out of place in the telegraph business. What is needed is to make the letters of the shortest length practicable, without curves where it is possible to retain the general outline of the letter without them.

Hold the pen as close to the paper as possible and use a full muscular movement. Adopt as a standard, one plain simple form for each letter and figure, and always use the same form. It is a customary idea with beginners in telegraphy that to have from three to five different forms for each letter will enable them to gain faster speed; this is wrong as you would have too many forms to learn, "a sort of jack of all trades and a master of none." A medium or small hand is written with more ease and rapidity than a large hand from the fact that the pen can be carried over short spaces in less time than over complicated ones. We sometimes think that good penmanship is a natural gift to some, but all can by patient and studious efforts and careful study of all letters and figures be able in time to write a plain, readable hand.

BATTERY.

The gravity or what is more commonly known as the crow-foot battery is one most generally used for the production of electric current for telegraph purposes; although during the last few years dynamos have been introduced into the production of electricity for the telegraph and to a certain extent have lessened the use of the gravity battery in the larger offices.

The gravity battery consists of a glass jar, a zinc, and a copper plate. The zinc is the positive plate and the copper is the negative plate. It must be remembered that the positive current always moves away from the battery and the negative returns toward it even if we have the circuit grounded. The current starts from the zinc plate (which dissolves or is eaten away) then through the solution to the copper plate and finds its

outlet through the wire which leads from the copper and we have the positive current to the line coming from the copper plate and the negative current returning to the zinc pole of the battery; hence positive means copper to the line and negative zinc.

Battery.

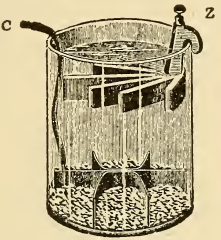


Fig. 2.

The arrangement of the battery is as follows: the leaves of copper are spread and placed at the bottom of the jar and should be nearly covered with blue vitriol; the zinc suspended from the top of the jar and the jar filled with soft water to within an inch from the top; it will require from three to four days for a battery of this nature to work up to full strength, the circuit of course being closed. When a battery is in good working order if the circuit can be left open when not in use, it will strengthen and greatly save the battery.

About every two to four months the zinc and the copper should be taken out and thoroughly washed and cleaned and the clean liquid poured into a clean vessel, and the dirt which has accumulated by the decomposition

of the zinc plate thrown out, and the jar cleaned. Arrange the battery as before, adding more vitriol, and pouring in the clean liquid and enough water to make the battery complete.

CONDUCTORS AND INSULATORS.

Those bodies are commonly called conductors which conduct electricity readily; metals, water, charcoal, and animal bodies. Among the metal conductors; silver, copper and gold are the best; the two former will conduct about five times as well as iron or platinum. The principal conductors used are copper, iron, brass and platinum.

Those bodies are insulators which conduct slowly; glass, sulphur, resin, ice, dry-air, dry-wood, varnish, porcelain, etc., any of these bodies will conduct under certain conditions or when covered with moisture.

MAGNETISM.

Magnetism is that form of electricity which exists in the magnet or load-stone. The electrical action is supposed to travel in circles or lines around bodies which it may traverse. Thus it was discovered if a piece of steel or hard iron be encircled by fine insulated wire and an electric current applied to the wire the iron would become magnetized and remain a magnet, as hard iron or steel when once magnetized will retain its magnetism for a long time; therefore soft cores of iron are always used for electro magnets as soft iron can be magnetized and demagnetized several thousand times a second.

ELECTRO-MAGNET.

The Electro-Magnet consists of two cores of soft iron about the size of an ordinary lead pencil, upon which is wound a great many feet of fine insulated copper wire, each core being wound in the same direction and covered with a casing of polished, vulcanized rubber having heads of the same material, thus making spools of each; and screwed to a flat connecting bar known as the heel piece; both inside ends of the wires are connected together, and the outside ends of the wire are

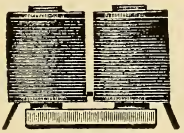


Fig. 3.

connected together and the outside ends connected to the instrument binding posts to receive the wires which conduct the current. When the circuit is closed, the current by passing through the turns of the wire called the "helix of the magnet" causes the soft cores of iron to become magnetized, possessing the power of attracting with considerable force any piece of iron brought near the ends and ceasing when the circuit is open.

THE KEY.

The principal use of the key is to open and close the circuit to produce the dots and dashes. It is a mechanical device manipulated by hand to transmit telegraph

signals. It consists principally of a metallic lever upon a trunnion supported by screws on the elevated sides of a metallic base. Beneath the base are two metallic legs which extend through the table; these legs hold the key firmly to the table and connect with the two ends of the main line wire. The front leg and lip is separated from the base of the key by a non-conducting material which insulates it from the frame, so the current cannot pass through, except when the lever is down or the circuit closer under the lip. On the top and in the

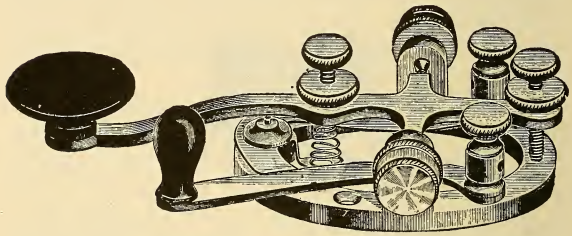


Fig. 4.

center of this is inserted a small piece of platinum; above this on the under side of the metallic lever is another piece of platinum. The spring is arranged to separate the two platinum points, thus opening the circuit. A metallic arm or circuit closer is attached to the base of the key near the second leg, so arranged that it can slide under the lip directly connected with the first leg thus closing the circuit when the key is not in use. To prevent the operator from receiving an electrical shock the finger pieces of both the level and the circuit closer are of non-conducting material.

THE RELAY.

The chief use of the relay is to resist all over-production of current. It has its connections with both main line and local circuits. It consists of an electro-magnet horizontally arranged upon wood and metallic base; the small magnet wires go through the base and connect directly with the main line binding posts. In front of the electro-magnet a metallic armature with a platinum

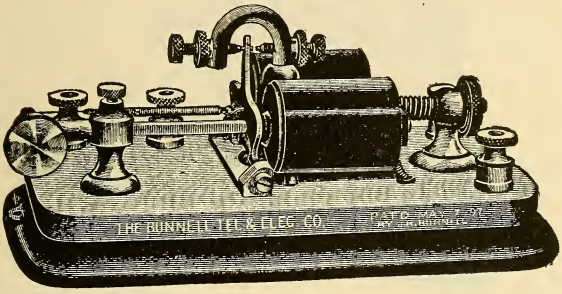


Fig. 5.

point in its lever (connected by a fine wire running through the base to one local binding post) is perpendicularly arranged to work freely by the action of the electric current produced in the magnets, which strikes against a platinum point arranged in the adjusting screw, in the yoke or frame (which is also connected by a fine wire running to the other local binding post) which closes the local circuit through the sounder, which also has its connection with the local binding posts and the battery. One other adjusting screw in the yoke or

frame with an insulated point, governs the play of the levers from the magnets. An adjusting spring is attached to the armature and its purpose is to draw the lever away from the magnets when the magnets are de-magnetized.

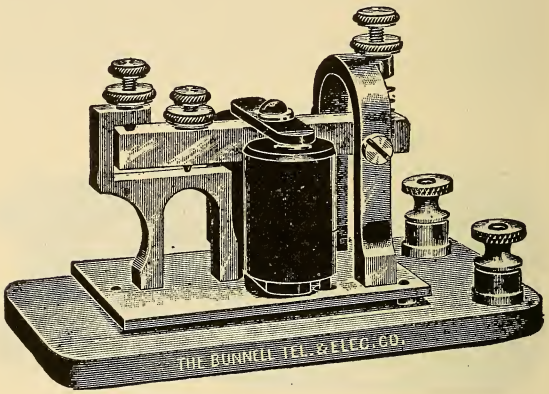


Fig. 6.

THE SOUNDER.

The chief use of the sounder is to aid the receiving operator. It consists of an electro-magnet perpendicularly arranged upon a metallic frame which is securely fastened to a wooden base. The fine wires of the electro-magnet are connected by running through the wood and metallic base to the two binding posts. Directly above the electro-magnet an armature is horizontally arranged upon a lever in a frame to work freely by the action

of the electric current. A spring is used to draw the lever away from the magnet when the circuit is open. There are two adjustable screws, one in the lever which governs the movement toward the magnet; the other in the frame which governs the reverse movement. The sounder is connected with the local circuit only; having its connections attached with the two local binding posts of the relay and the two poles of the local battery.

ADJUSTMENT OF INSTRUMENTS.

THE KEY.

The movement of the key should always be free; that is, do not have the side screws tight enough to bind the lever and not enough of the reverse movement to allow it to play with a side movement. See that the platinum point in the lever strikes the lower point in the front leg squarely on top and keep them free from rust and dirt. The distance between these two points should be equal to the thickness of three to five pieces of ordinary writing paper; this movement being changed by the adjusting screw in the end of the lever, the spring should be strong enough to separate the two platinum points readily but will vary with the person using the key.

THE RELAY.

The relay is the most difficult of the ordinary telegraph instruments to adjust. In most relays the magnet itself can be moved backward and forward thus adjusting its position in front of the armature according to the strength of the current. A strong current requires that the magnet be drawn farther away from the armature and a weak current the reverse. The magnet should never be brought close enough to the armature to prevent the two platinum points striking firmly. It is necessary that the armature be upright and that the two platinum points strike each other

squarely; these points should be kept free from dirt. The play between these points should be from one to three sixteenths of an inch. In wet or damp weather, especially in storms, variations in currents occur when the line is not perfectly insulated, the spring requiring very careful adjustment. It should be tightened enough to draw the armature away from the magnet when the magnet is de-magnetised. The spring adjustment is known as high or low adjustment. A strong current requires a tightening of the spring, or high adjustment, and a weak current the reverse.

THE SOUNDER.

The adjustment of the sounder is similar to that of the relay only the local circuit attached is not subject to change on account of weather and the armature always remains the same distance from the magnets; it should be as close to the magnet as possible without actually touching it. The play of the lever to and from the magnet depends upon the strength of the current attached, a strong current will admit of more play than a weak one, this play however can be too great to give clearness; the spring should be strong enough to draw the lever away from the magnet with all the force possible and still allow the lever to work freely.

THE SWITCH BOARD.

The switch board is a combination of switches adopted to form various combinations of several different circuits. By its use every possible change of circuit or connection can be quickly and easily made, instruments changed

from one wire to another; batteries connected or reversed; loops connected or disconnected and wire-testing operations carried on. It is used in nearly all telegraph offices where there is more than one wire. Probably the switch-board most generally used in this country is the pin plug switch-board. On the front of the pin plug

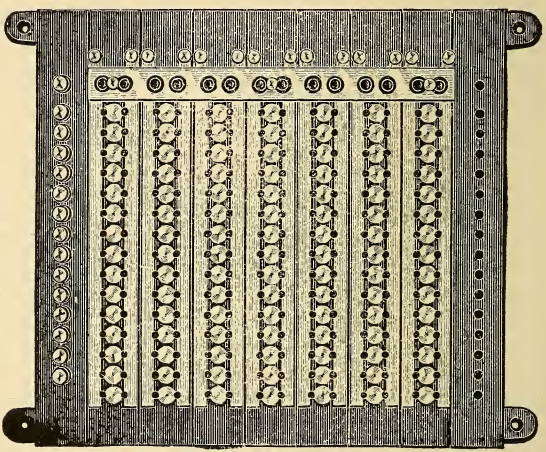


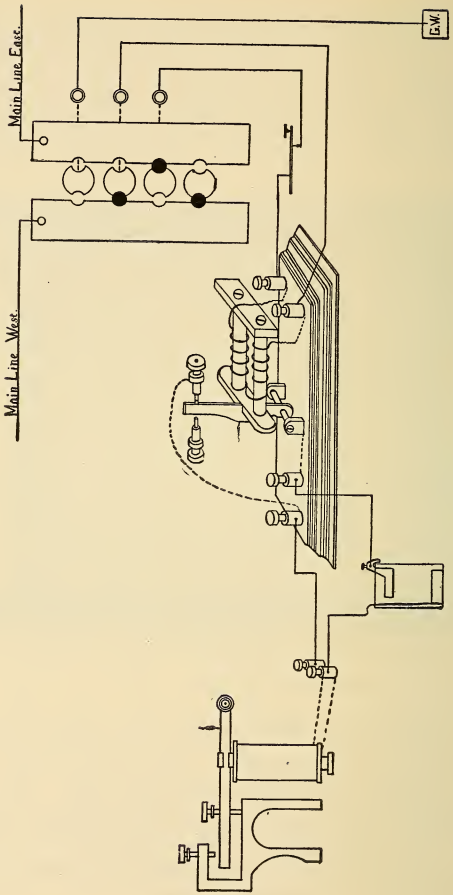
Fig. 7.

switch-board for intermediate offices are two perpendicular bars for each wire. If a wire which runs past our office is to be connected to our switch-board we cut it and bring each end into the office, therefore the need of the two bars for each end of the wire; at the top of these bars are binding posts to receive the ends of the main line wires. Between these bars is a row of discs

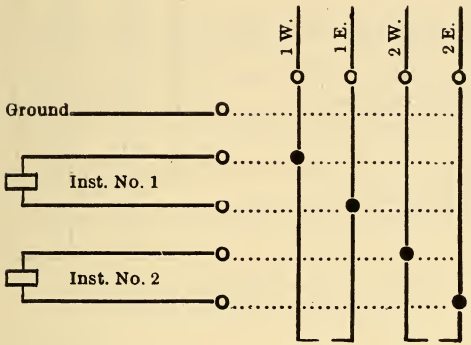
which are connected horizontally with each other on the rear of the board by a metallic strap with the exception of the bottom row, each horizontal strap is connected also with a binding post to which is connected the instrument wires. Each disc and each perpendicular bar has a semi-circular hole in its edge so that a metallic plug may be inserted which will connect the perpendicular bar and the horizontal strap on the rear of the board. The ground wire is connected with the top row of discs which are covered by a metallic plate known as the lightning arrester. The lightning arrester and the perpendicular bars have no connection, space enough is allowed for a sheet of writing paper to play freely between them.

GROUND WIRE.

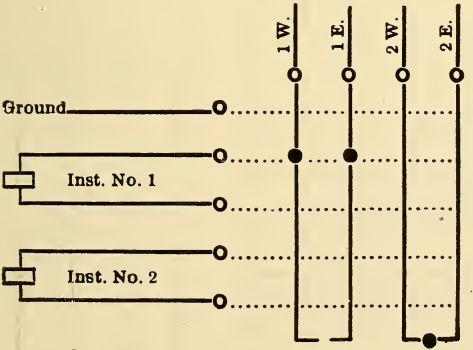
Every office is supplied with a ground wire which consists of a wire attached to a rod driven several feet in the ground, or to a gas or water pipe, the two latter being preferable. The rod of iron should be filed or scraped bright and clean for several inches, and insulated copper wire spliced to five or six feet of bare copper wire wrapped evenly around the brightened part of the rod, then tightly secured and soldered. Only the terminal ground wires are in use upon a line; their use at the intermediate offices is only for testing purposes and in case of interruption of the line to notify the testing operator and receive his instructions. The intermediate stations upon inserting a ground wire divide it into two independent circuits; there must be a main line battery at each terminus in order that the two circuits may work on either side of it.



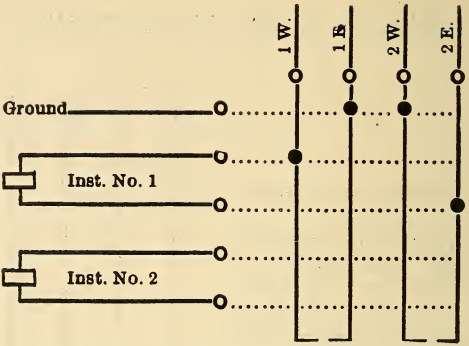
Ground Wire Diagram.



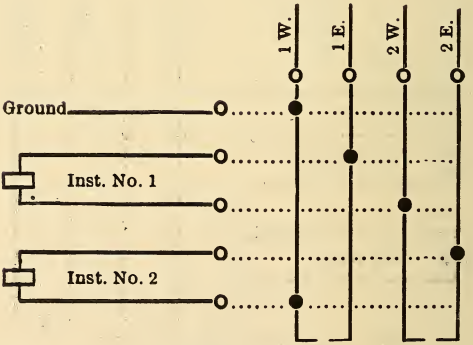
Inst. No. 1 on Line No. 1.
Inst. No. 2 on Line No. 2.



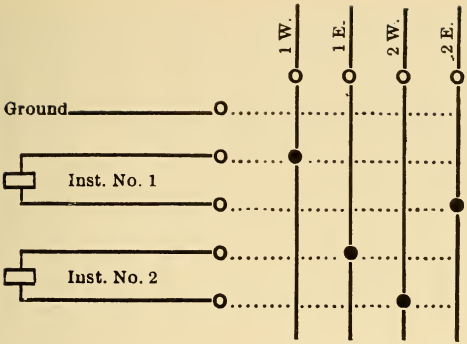
No. 1 cut out with inst. pins.
No. 2 cut out at the bottom.



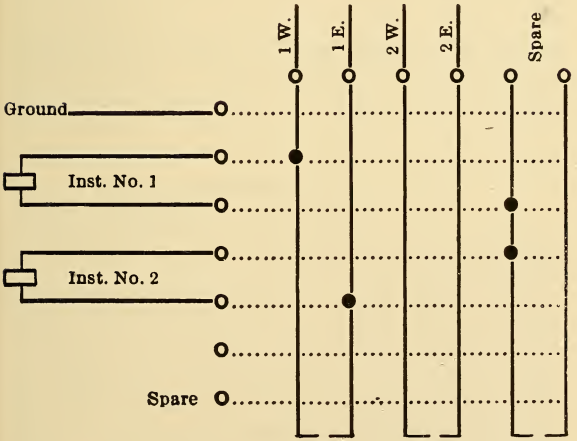
Inst. No. 1 on No. 1 W. to No. 2 E.
Ground on No. 1 E. and No. 2 W



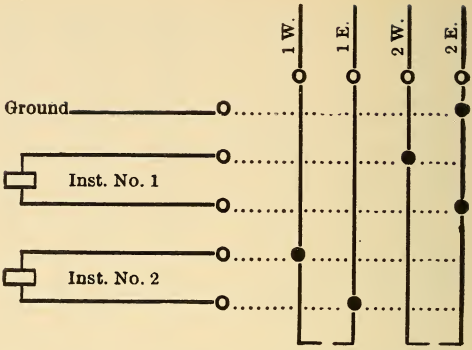
Inst. No. 1 on No. 1 E. to No. 2 W., Ground on No. 1 W.
Inst. No. 2 on No. 2 E. to Ground.



No. 1 W. to No. 2 E., No. 1 E. to No. 2 W.
Insts. on both circuits.



Both Insts. on Line No. 1. No. 2 open at the bottom.



Inst. No. 1 on Line No. 2, Ground on No. 2 E.
Inst. No. 2 on Line No. 1.

Study the preceding diagrams carefully and thoroughly understand them and you will have no trouble with the ordinary station board.

GENERAL INSTRUCTIONS FOR CIRCUIT.

Contention for circuit is strictly forbidden by all railway and telegraph companies.

Each office has a call consisting of not more than two letters, and in calling an office, call continually and sign your own office call after every third call. In answering your office call, say I I and your office call. Example of CH calling BN: BN BN BN CH BN BN BN CH. Example of BN answering call: I I BN. When asked to sign always give your office call.

Each operator will have a personal sign which may consist of one or two letters. Whenever you are asked "wo" always give your PERSONAL SIGN.

Upon hearing the call "OS" sent continually over the wire you will answer giving your office call; it will usually be a message addressed to all Agents, all Operators or some particular class of employees.

If you are receiving at the wire and your instrument fails to work properly you should ask the sending operator to "dot" which he will continue to do until you get adjusted, when you will break in and say "OK" and give the last word received.

If your instrument which is connected with a wire remains quiet for any great length of time, never open your key without first turning your relay adjusting spring high enough to break the local circuit in order to make sure no one else is working your line. If the circuit is found open apply the ground wire to ascertain in which direction from your office the trouble lies, if after careful adjustment no circuit be found, cut in the instrument on another line which is known to be working and if it also opens that line it would indicate the trouble was in your instrument and it should not be cut in on any line until repaired.

If it be found necessary when working on a wire to leave the circuit open for a moment, it is necessary that you make explanation of the matter; if to answer the telephone, say, "ex me fone," if to deliver orders say "ex me trn." The circuit should never be left open longer than a minute in cases of this kind. If you are busy on another wire, or otherwise, and for any reason you cannot answer a call which is given you, you should, if possible, take the time to answer the office

by giving the signal "25" and your office call; it is necessary that you first find out what office is calling you, in order that when you get time you may call it and find out what was wanted, using the signal "5" and your office call.

Whenever you are repeating a message or a train-order and you are told by the sender that a word is an error, you should first open your key, then change your copy and repeat the copy as corrected. If for any reason when you have copied a message you wish to read it over and count the check before giving the OK, you should first open your key and keep it open until you are satisfied it is correct so no one will think you are through and take the circuit from you.

Whenever you are receiving a message and are interrupted by someone breaking in on you who is inclined to be meddlesome or is not adjusted, take the circuit and say "tts nt me" or "tts nt hr ga," adding the last word received, if the trouble continues the sender should make the signal "8" until he believes the person interrupting is adjusted or knows that he is "breaking" someone.

If you are in doubt whether the receiving operator is copying what is being sent him, at the conclusion of some sentence say, "bk u tr?" or "u tr?" If he is receiving what you are sending he will answer by saying "I" and sometimes adding his office call.

In taking the circuit from others you should do so as far as possible between their messages; this will avoid much confusion and error. Offices using the wire when interrupted have the next right to the circuit.

WIRE SIGNALS USED IN TAKING THE CIRCUIT FROM OTHERS.

The word "wire" is used by the wire chief or by operators when given permission by the wire chief or lineman for locating wire trouble, and has preference over all other business on any circuit. The signal "grn" and "stx" may be used for speculative messages. The signal "corn" may be used to make a correction in any message which has already been sent out. The signal "govt" may be used for sending government messages which pertain strictly to the official business of the government. The signal "cable" will be used for sending messages. The last five signals have preference over all other business on any circuit exclusive or train-orders.

NUMERAL WIRE SIGNALS.

There are a few simple sentences which are used so often that figures have been substituted for them and they are used to abbreviate and save time. Some impart special information while others serve to furnish an answer. There is a difference to some extent in their meaning on different lines, but the following are more or less in common use.

1. Wait a minute.
2. Very important.
3. Train reports.
4. Where shall I go ahead?
5. Have you any business for me?
7. Are you ready for business?

8. Close your key; you are breaking.
9. To clear the line for orders and for operators to ask for orders.
12. Do you understand?
13. I, or we, understand.
18. What is the trouble?
19. Train-order.
23. Accident or death message.
25. Busy on another wire.
29. Train dispatcher. Train orders.
30. The end.
31. Train order.
33. Answer paid for.
34. Message for all offices.
55. Important business.
73. Accept my compliments.
92. Deliver quick.
134. Who is at the key?

ABBREVIATIONS.

Abbreviations are used chiefly for wire conversation and are generally made by leaving out the vowels. Some are entirely arbitrary while others are spelled simply by sound. One should not use too many of the arbitrary ones together. The following list will be found quite complete, the student should commit them to memory and practice them upon the wire as soon as possible as they are very important and no good operator can afford to be without them. The conversation on railroads especially is nearly all abbreviated.

A.

abandoned, abnded
about, abt
abbreviations, abbn
acknowledge, "x" (used in train orders only.)
account, acct
action, actn
address, ads
afternoon, P. M.
agent, agt
all right, art
always, alwas
amount, amt
and others, "et al"
annulled, annld.
another, ahr (or) anr
answer, ans
any, ay
anything, aytng (or) 5
April, Apl (or) Apr
are, r
arrive (or) arrived, "a"
ascertain, ascrtn
assist (or) assistant, asst
Assistant General Freight Agent, A G F A
Assistant General Passenger Agent, A G P A
attention, attn
attorney, atty
August, Aug
Avenue, ave

B.

"B" Block (used in block system only)
back, bk
baggage, bage
barrel, brl (or) bbl
battery, baty
be, b
become (or) became, becm
been, bn
before, b4
better, btr
between, betwn
bill-lading, "BL"
black, blk
blanks, blnx
block, blk
board, bd
body, bdy
book, bk (or) buk
bought, bot
boulevard, blvd
bound, bnd
break, brk
brakeman, brkmn
building, bldg
bushel, bu
business, biz
but, bt
by, bi

C.

can, cn
cancel former order, C F O
cannot, cnt
cashier, cashr
cent, ct
charge, chg
check, ck
chief, chf
circuit, ckt
clear, clr
coal and water, C & W
collect, coll
collect on delivery, C O D
combination, combn
come (or) came, cm
coming, cmg
commercial, coml
Commercial News Department, C N D
commission, comsn
company, co
complete, comp (or) "cm"
compliments, 73
conductor, condr
conductor and engineer, C & E
connection, conctn
copy, cy
correct, O. K.
correction, "corn" (used only as a wire signal).
cost, insurance and freight, "c if"
could, cld
creditor, cr
crossing, xng

D.

day, da
day press rate, d p r
dead head, D H
debtor, dr
December, Dec
decrease, dec
democrat, dem
deliver, 92
delivery, dely
delivery charges guaranteed, dely chgs gtd
difference, dif
dinner, dinr
disregard former service, D F S
district, dist
division, div (or) divn
don't, dnt

depart (or) departed, "d"
Dispatcher, despr
destroy, bust
did, dd
double deck, DD
doubt, dbt
down, dwn
dozen, doz
draft, dft
duplicate, dup

E.

east, e
election, electn
empty, em (or) mt
engine, eng
engineer, engr
enough, enuf
errors excepted, ee
errors and omissions excepted, "e & o e"
every, evy
excursion, excn
excuse, ex
express, ex
extra, exa (or) xtra

F.

favor, fvr
February, Feb
few, fu
for, r
foreign, forgn
forward, fwd
free on board, F O B
freight, frt
from, fm (or) fr
foreman, 4 man

G.

General Baggage Agent, G B A
General Freight Agent, G F A
General Passenger Agent, G P A
get, gt
give better address, G B A
give some address, G S A
go ahead, G A
go ahead arrival, G A A
go ahead departure, G A D

going, gg
gone, gn
good, gd
good afternoon, P M
good evening, G E
good morning, G M
good night, G N
gossip, "guff"
got, gt
government, govt
grain, grn
great, grt
ground, gnd
ground wire, g w
guaranteed, gtd
guess, gs

H.

half, hf
has, hs
have, hv
hear, (or) here, hr
high, hi
how, hw
hogshead, H H D
how is, hws
hundred, hnd
hundred weight, cwt

I.

immediately, immy
important, impt (or) 55
increase, inc
instrument, instmnt
invoice, inv

J.

January, Jan
junction, jct (or) junc.
junior, jr

K.

knew, nu
know, no
knows, nos

L.

last month, ult
laugh, ha ha
learn, lrn
leave, lv
letter, ltr
light, lite
loads, lds
local, loc
look, luk
loop, lup
low, lo
limited, ltd

M.

made, md
main, mn
majority, maj
make, mk
manager, mgr
manifold, mfld
manifest, mfst
manufacturer, mfr
manufacturing, mfg
many, mny
March, Mar
marked, mkd
market, mkt
matter, mtr
May, Ma
merchandise, mdse
message, msg
messenger, msgr
might, mite
mile, mi
(mill) typewriter
million, mln (or) myn
minute, min
mistake, msk (or) bull
mistaken, mskn
Misses, Mrs
Mister, Mr
months, mos
more, mo (or) mr
morning, mng (or) A M
much, mch

N.

namely, viz
near, nr
necessary, necy
never, nvr
new, nu
next month, prox

night, nite—(red)
night press rate, n p r
none between, n b
north, n
not, nt
nothing, ntg
November, Nov
now, nw
no more, nm
no such number, N S N
number, no

O.

obedient, obt
obtain, obtn
o'clock, k
October, Oct
of, o
office, ofs
one hundred, 1 hnd
one thousand, 1 tnd
O K, correct
on time, ot
opening, opg
operator, opr
opinion, opn
order, ord
O S, All offices take notice
other, otr
our, r
"out" (of no account)
out, ot
owners risk, "O R"

P.

package, pkg
paid, pd
pair, pr
passenger, pasgr
pay, pa
payment, payt
people, peo
pecks, pks
pink, (rush)
pint, pt
please, pls
pounds, lb
Post Office, P O
precinct, prct
preferred, pfd
present month, inst
president, prest (or) pt
principal, prin
prohibition, pro

Q.

quick, qk

quotation, qtn (or) tick

R.

railroad, R R
railway, Ry
ready, rdy
rebate, reb
receipts, rects
received, recd
receiving, recg
red, (nite)
refrigerator, refr
release, "rel"
relay, rela
relief, rj
repeat, rept
report, rept
report delivery charges, rept dely chgs
republican, repn
right, rite
roast, (a great number)
round, rnd
rush, (pink)

S.

said, sd
same, sm
say, sa
second, sec
section, secn
see, c
see former order S F O
see former service, S F S
seen, cn
see your service, S Y S
single deck, S D
sir, sr
slow, slo
some how, smhw
some one, sm 1
something, smtng
somewhat, smwt
somewhere, smwr
soon, sun
south, s
speak, spk
special, spl
special delivery guaranteed, spl dely gtd
sending, sendg
September, Sept

service, svc
several, svl
should, shld
siding, sdg
sight, site,
sign, sine
signature, sig
signed, sined (or) sgd
station, stn (or) sta
stay, sta
stock, stx (or) stk
stop for breakfast, sfb
stop for dinner, sfd
stop for night, sfn
stop for tea, sft
straight, strate
street, st
superintendent, supt
supper, supr
suppose, spose
switch, sw
system, sys

T.

take, tk
talk, tlk
tariff, tf
telegraph, tel
telephone, fone (or) phone
thanks, tnx
that, tt
that is, tts (or) "i. e."
the, t
their, tr
them, em
then, tn
there, tr
they, ty
thing, tng
think, tnk
this, ts
this morning, tsmng (or) ts A M
though, tho
thought, thot
thousand, tnd
through, thru (or) tru
tierce, tc
to-day, toda
together, togtr
tomorrow, tomw
tonight, tonite
took, tuk
tough, tuf
track, trk
train, trn
transfer, tfr
Traveling Passenger Agt., T P A
trouble, tbl
try, tri
typewriter, (mill)

U.

unchanged, unchgd
undelivered, undeld
understand, 13

V.

versus, "vs"
very, vy

W.

was, ws
water, wtr
way, wa
way bill, "W B"
weather, wtr
west, w
wharf, whf
what, wt (or) ?
when, wn
where, wr
while, wile
why, wi
who, wo
will, wi
with, wi
word, wd (or) w
worked, wkd
would, wld
write, rite
wrote, rote
wrong, wng

X.

"X" acknowledge (used in train orders only.)

Y.

yard, yd
yards, yds
yes, es
year, yr
years, yrs
yesterday, estrda
yet, et
you, u
young, ung
your, ur
yes sir, esr

GENERAL RULES AND INSTRUCTIONS FOR TELEGRAPH EMPLOYES.

The telegraph department is under the management of the Superintendent of Telegraph, who will have charge of the telegraph service and other electrical business of the company, including construction and maintenance. The appointment of telegraph operators will be made by the Chief Train Dispatcher, of each division, in his capacity of chief operator. Such appointment must be approved by the Division Superintendent.

The Superintendent of Telegraph will report to and receive his instructions from, the General Superintendent.

CHIEF OPERATOR.

Chief dispatchers acting as chief operators will be intrusted with the ordinary working of the line, testing and changing of circuits, and the direction of operators and repairers in the discharge of their duties. They will report to the Superintendent of Telegraph daily, the state of the weather and the condition of the circuits under their charge, the nature and location of interruptions to the circuits that have existed, or do exist, and what measures have been taken for repairs. They will also report when lines previously reported as in trouble are repaired.

Chief Operators will report any neglect on the part of operators or repairers that may come under their notice, and will at all times, manifest an interest in the successful operation of the wires, and will co-operate

with the Superintendent of Telegraph in securing good working lines.

The night train dispatchers will have charge of the wires on their respective divisions between the hours of 7:00 P. M. and 7:00 A. M., and will assume the duties of the chief operator during that time.

OPERATORS.

Telegraph operators report to and receive instructions pertaining to the business of the railway from the division superintendent or train master, and pertaining to the business of the Telegraph Department from the superintendent of telegraph, and will obey the instructions of the chief train dispatcher of the division.

They are required to be constantly on duty during the hours assigned to them, and must not leave their offices without permission from the Train Dispatcher on duty.

Office hours for operators at stations where there are no night offices are from 7:00 A. M. until relieved by the train dispatcher on duty. Office hours for operators at stations where there are night offices, day operator, from 7:00 A. M. until 7:00 P. M. Operators at such stations are required to come on duty promptly at the regular hour, and remain on duty until relieved by their colleague, or excused by the train dispatcher. At offices where more than one day or night operator are employed, there must be one person on duty at all hours. Day operators must keep the location of their residence posted up inside bill boxes, at stations where there are no night offices, so that trainmen may know where they are to be found.

Operators must not go beyond hearing of their call, nor leave the office without first notifying the train dispatcher and obtaining his permission.

Operators will assist and obey the instructions of the station agent, when it does not interfere with their duties as operators.

There must be no delay in obtaining answers to telegrams. If a reply cannot be had in reasonable time, the sending office must be promptly notified of the reason.

It will be the duty of the agent and operators to see that the train-order signals are kept in good working order and ready for use at all times, and when necessary oil them, using kerosene oil to make them work freely. Should the signal become disabled and out of order, and repairs needed, prompt notice must be sent to the train dispatcher by wire, giving cause of trouble, and stating what material is required for repairs.

Operators are expected to make suggestions and give such information from time to time, as is calculated to improve the service. Should anything occur which does, or is likely to impair the service in any way, it must be reported at once to the Superintendent of Telegraph. Operators will familiarize themselves with the Western Union Book of Rules and obey them.

Operators are required to devote themselves exclusively to the service of the company during business hours; those having other duties to perform in the freight department will not allow such duties to prevent proper attention being given to the telegraph. At offices where there is but one day and night operator, the day operator acts as agent or manager, and is held responsible for all the cash taken in.

Operators are required to be in their offices when trains are due or at their stations and not out on the platform unless the service requires their presence there; they will keep a register of all trains passing their station and the reports from such stations as the train dispatcher may require and report the same promptly to the dispatcher.

They must give public notice upon the bulletin board of the time trains carrying passengers are due, and whether on time or how much late.

All instruments necessary for the use of the telegraph department at each office, will be furnished by the Company, which together with the office furniture and fixtures must be kept clean and in good order. No private instruments will be allowed upon the wires, and no private lines must be connected with any office without the permission of the Superintendent of Telegraph.

Always try to be accommodating, treating all persons with respect, with whom you come in contact. Do not get out of patience if traveling men make what might seem unreasonable requests, or ask a small favor. Be ready at all times to aid feeble or old persons on and off trains, and make yourself of worth to the Company and your services will be rewarded. Remember a good word spoken of you from the traveling public, will soon reach the officials and greatly figure in your chances for promotion.

Do not depend upon any one to do your work for you; or meddle with other employees' business unless your help be requested.

In case of accident, no account or message respecting it, other than regular tariff business, must be sent un-

less to an officer of the Company, signed by an agent, conductor or other authorized person, nor must it be made the subject of conversation or remark over the wire or otherwise. Particulars for the public, or for publication will be furnished only by an officer of the Company, or upon his authority.

Contention for circuit will not be permitted. Any operator who follows this practice will be promptly dismissed. In case of doubt, or when unable to "raise" an office within a reasonable length of time, operators must promptly call upon the Chief Operator or Superintendent of Telegraph for assistance.

Operators must make themselves familiar with their switch-board and cut-outs, so they can connect wires as directed by the testing operator. Always be sure that the testing operator has finished his directions before commencing to connect wires, or to remove ground wire. When directed to cross-connect, open, close or ground a wire, follow directions carefully. When they have been carried out say "now" and always keep an instrument on the wire on which instructions are being given, until communication is restored. Never connect wires vice versa unless directed to do so. Operators must invariably sign their office call when using the line for any purpose whatever.

They will block all trains the required time apart, as provided in the rules, unless otherwise directed, and must keep a full set of signals in good order, and always ready for immediate use, and use them strictly in accordance with the rules and observe the rear of trains and report at once to the superintendent or train master if markers or red lights are not displayed as provided by the rules.

When fixed signals become soiled or faded, operators

will report their condition to the superintendent or train master.

Operators using positive block must not give a train that is blocked a clearance card, unless they are positively sure that the train can proceed.

The day operator will be held responsible for the working condition of the train order signal.

Operators will report the state of the weather in cases of rain, snow, fog or severe storm in their vicinity, day or night, to the train dispatcher.

Where two or more operators are employed, one must always be on duty. Operators going off duty must notify relieving operators of any undelivered orders, relieving operators receipting for them on the face of orders; also notifying relieving operator of any unfinished business.

Operators must not leave their offices before the arrival of an expected train that is due, without permission of the train dispatcher.

They must not leave their office while a train is at the station, unless required by business connected with the train.

When they are given leave of absence, they must before leaving, see that their substitutes are thoroughly acquainted with the duties of the office, the management of the switch-board, instruments, batteries, etc.

Before opening a key, they must adjust the relay, using special care in wet weather, to make sure that the circuit is not in use.

They must in transmitting, write firmly, space carefully and take every precaution to guard against mistakes.

They must use good judgment in working with inex-

perienced operators, and must regulate their speed of transmission to suit the capacity of the receiving operator, to avoid breaking, or possibility of error, and the consequent loss of time.

They must not receive messages to be transmitted free, unless such message pertain to the business of the company, and are signed by an officer, agent, or employe, except answers to such messengers.

They must promptly deliver messages received, consider all messages confidential, and not permit them to be read by any person except those to whom they are addressed, nor make their contents the subject of conversation or remark.

All messages not relating to the business of the company must be paid for, unless otherwise ordered by the proper authority.

They must record in the proper place upon the face of each message received and sent, the time, date, month and year, and the initials of the operator who received and sent it.

No alterations, additions or erasures will be allowed on original messages after transmission, and they will be retained in the files, unless they are called for by the Superintendent or general officer or by Superintendent of Telegraph. If originals are called for, a copy must be left in the files, with a memorandum attached showing the disposition of the original. Railroad messages, after being transmitted, must be carefully filed daily, and preserved for one year, unless otherwise directed.

All telegrams received for delivery to an officer of the company, who may be en route upon the road, must be enclosed in a proper envelope and sealed, and addressed to him before delivery.

Operators should require persons leaving messages at their offices for transmission, to read them aloud before they are accepted.

They must exhibit a courteous disposition at all times, in and about their offices, and over the wire, avoiding unnecessary conversation; be polite to all and prompt in furnishing proper information to those entitled to it. The use of profane, obscene or ungentlemanly language over the wires, or in and about the company's offices, is positively prohibited.

Students must not be allowed to enter or practice in an office without first obtaining permission from the Superintendent of Telegraph. The attention of students must be called to all rules of the company, and particularly to those relating to the privacy of telegrams.

The regular operators will be held responsible for any interruptions that may occur to the line, or delay to business, caused by incompetent or unauthorized persons using the instruments.

THE DOUBLE ORDER SYSTEM.

In the double order system, the dispatcher calls up all offices where orders can soonest be delivered to the train concerned, and sends the order to each at one transmission; the order being worded so that it serves for both trains. This system is considered the most reliable and less liable to error.

Note—Among the points in its favor might be stated that the mental strain upon the dispatcher arising in the single order system where he has to keep several different orders in his mind at the same time, lest he gives different meeting points to different trains, thereby causing

wrecks, is entirely absent in the double order system. In preparing this order the dispatcher cannot possibly give different meeting points, as there is but one message to each train and being sent to both at one sending, each must get the same as the other.

Thus we have several addresses; one for each train concerned which are transmitted in their respective order.

GENERAL INSTRUCTIONS IN TRAIN ORDER WIRE WORK.

Trains are addressed in train orders as follows: "Let HB" be the office call for Hannibal. In addressing an order to 2nd. No. 62 at Hannibal, the following form is used: "To HB C & E 2nd No. 62." For different trains at different stations, substitution is made for the different station office calls in the place of "HB" and the different trains in the place of "2nd. No. 62."

Train orders are numbered in transmitting in succession each day, No. 1 commencing at midnight.

ORDER OF TRANSMISSION.

Order No .....
Trains addressed to at each station.
Period.
Body.
Signature.

Example of a simple train order as sent on the wire. Letters in the parenthesis () are sent, but not copied by the receiving operator.

(31 copy 3) Order No. 1.
(to) HB C & E No 55
(to) I C & E No 6 (.)
No 55 Eng 286 and No 6 Eng 13 will meet at Callao instead of Shelbina. (sig) F. W. H.

ACKNOWLEDGMENT OF RECEIPT OF TRAIN ORDERS.

When it is desirable to have the train of inferior right receive its orders and act upon them before the order is completed and delivered to the train of superior right, it is necessary for the dispatcher to receive an acknowledgment (from the operator who has the orders for the train of superior rights) that he will hold the superior train until they get the order before he can allow the train of inferior right to proceed. Example:

No 65 No 66

A. B. C.

Let us suppose that No. 65, the inferior train, is now waiting at station "A" and that No. 66, the superior train has not yet arrived at station "C," and they are to meet at station "B." Now if the dispatcher is sure that No. 65, the inferior train, will get a copy of the order, he can allow operator at station "A" to repeat and complete his order first and No. 65 could leave station "A" and proceed to the meeting point, which in case No. 65 was a heavy train, would greatly lessen the cause of delaying No. 66 at the meeting point.

Thus for acknowledging receipt of a train order and assuring the dispatcher, the train addressed will be held until a copy is delivered the form of X ing is used as an abbreviated form.

ORDER OF "X ING."

Form and order No. .....
Your office call.
Train addressed at your station.
The letter "X."
Your personal sign.

Example of "Chillicothe" or "HI" office "X ing" Order No. 1. "31 No 1 HI C & E No. 6 X Go."

ORDER OF REPEATING.

Form and order No. .....
Your office call.
Train addressed at your station.
The letter "X."
Your personal sign.
Period.
Body of the order.
Conductor's signature and his train number.

Example of "Hannibal" or "HB" office repeating Order No. 1. "31 No 1 HB C & E No 55 X SN (.) No 55 Eng 286 and No 6 Eng 13 will meet at Callao instead of Shelbina."

Sig. Johnson condr trn No 55.

HOW TO COPY ORDERS ON THE FORMS.

Let us next make a careful study of the two following forms which are adopted as the standard for copying train orders. On the first "form 31," let us suppose that

Hannibal office is going to copy and using "HB" for his office call, "SN," for his personal sign. On the second "form 19," suppose that Chillicothe is going to copy and use "HL" for his office call, "Go" for his personal sign. The dispatcher after calling "HB" and receiving his reply, would say, "31 copy 3," meaning make three copies on form 31;" then after raising "HI" would say, "19 copy 3," meaning "make 3 copies on form 19." Then he would start out with Order No. ...., stating the number which we will suppose was 10; both operators would then put the number 10 on the blank space opposite the Order No. ..... The dispatcher would then address "HB" and give him his train address as follows: To HB C & E Exa 427 West. The operator at "HB" would then write after the word To ..... The train address, C & E Exa 427 West and his station name "Hannibal" after the word At ..... The dispatcher would then address "HI" and say, "To HI C & E 2nd No 46," and make a period, indicating that he was ready to begin the body of the order. Operator at "HI" would fill in the form the same as "HB," only it would read "To *C. & E. 2nd No 46 at Chillicothe.*" Commencing with the period, the dispatcher would send the body as follows:

"Exa 427 West has right of track against 2nd No 46 Eng 928 Hannibal to Callao." Sig F. W. H.

Both operators would copy the body as sent in the space provided; at the conclusion of the dispatcher's initials "F. W. H.," the dispatcher would address "HB" as follows: "To HBX." Operator at "HEB" would then take the wire and say, "31 No 10 HB C & C Exa 427 West X SN." The dispatcher would then give him OK and the time as follows: "31 No 10 OK 751 PM F. W. H." Operator at "HB" would then write his initials and the

time after the letter X..... Opr.....M. The dispatcher after giving him OK, would address "HI" as follows: "To HI ga," Operator at "HI" would take the circuit and say, "19 No 10 HI C & E 2nd No 46 X GO," make a period and repeat the body, giving his own name as signature. The dispatcher would then give him complete and the time as follows: "19 No 10 OK & complete 755 P M F. W. H." "To HB ga." Operator at "HI" would write the word complete after the word Made ..... and the time 7:55 PM after the word Time .....and his name Gregory, before the word .....Opr., and also fill in the spaces X..... Opr. .....M., with his initials and the time. Operator at "HV" would then give the circuit as follows: "31 No 10," make a period and repeat the body giving the conductor's name and signature. The dispatcher would them give him complete as follows: "31 No 10 complete 758 PM. F. W. H." Operator at "HB" would write the word Complete in the column headed "Made" and the time in the column headed "Time" and his name in the column headed "Operator." Each operator will fill in the blank places .....190...., without instructions from the dispatcher.

It must be remembered that No. 31 order cannot be completed until the signature of the conductor, or person addressed is signed to the order, and the same has been transmitted to the dispatcher. Upon repeating back an order, if you have not yet the conductor's signature to send to the dispatcher, you will only receive the OK response and the time, which time goes in the space provided—Repeated.....M. After you have received the conductor's signature to an order, which you have already repeated, you must then get the wire and repeat

MISSOURI CENTRAL ROUTE

FORM 19

TRAIN ORDER No. 10

Chicago, Ill., Aug 8th, 190 4

FORM 19

To C & E 2nd No 46 | At Chillicothe STATION.

X GO Opr. 7:55 P M.

Exa 427 West has right of track against
2nd No 46 Eng 928 Hannibal to Callao.

F. W. H.

CONDUCTOR AND ENGINEMAN MUST BOTH HAVE A COPY OF THIS ORDER.

Made Complete *time* 7:55 P *M.* Gregory, *Opr.*

MISSOURI CENTRAL ROUTE

FORM 31

TRAIN ORDER No. 10

Chicago, Ill. Aug, 8. 190 4.

FORM 31

To C & E Exa 427 West,

At Hannibal STATION.

X SN Opr. 7:51 P M.

Exa 427 West has right of track against
2nd No 46 Eng 928 Hannibal to Callao.

F. W. H.

CONDUCTOR AND ENGINEMAN MUST BOTH HAVE A COPY OF THIS ORDER.

Repeated at 7:58 P. M.

CONDUCTOR	TRAIN	MADE	TIME	OPERATOR
Jones	427 W	Complete	7:58 P. M.	Seaton

the same to the dispatcher in the following form: "31 Order No 10 sig Jones trn Exa 427 West." The train dispatcher will then give you complete as follows: "31 No 10 complete 758 PM F. W. H."

TRAIN ORDER WIRE WORK.

(As overheard on the wire from start to finish.)

Meaning of the abbreviations used in the following:

"HB"—Office call for Hannibal, "SN"—Operator's personal sign.

"HI"—Office call for Chillicothe. "GO"—Operator's personal sign.

"CU"—Dispatcher's office call. "F. W. H."—Dispatcher's initials.

"Hr—Here 29"—Train dispatcher, train orders. "31 and 19"—Forms of orders."

"Cy—Copy." "U—you." "&—and."

Example of what would be heard go over the wire in the "X" order system as used in the previous order:

(Dspr) Hr 29 HB HB HB 29 CU
(Opr HB) I I HB
(Dspr) 31 cy 3 u & HI 29 HI HI 29 CU HI
(Opr HI) I I HI
(Dspr) 19 cy 3 (.)
Order No 10
To HB C & E Exa 427 West
To HI C & E 2nd No 46 (.) (.)
Exa 427 West has right of track against 2nd No 46 Eng 928 Hannibal to Callao. Sig F. W. H.
To HB X CU
(Opr HB) 31 No 10 HB C & E Exa 427 West X SN
(Dispr) 31 No 10 OK 751 PM F. W. H. To HI ga

(Opr HI) 19 No 10 HI C & E 2nd No 46 X GO (.)

Exa 427 West has right of track against 2nd No 46 Eng 928 Hannibal to Callao. (.) Sig Gregory.

(Dspr) OK Hr msg CU FW

Fm Chicago 10

To condr 2nd No 46 (.)

Leave one large box for hay at Shelbina, and one spl stock car at Callao (.)

(Sig) F W H

19 No 10 complete 755 PM F. W. H. to HB ga (.)

(Opr HB) 31 No 10 (.)

Exa 427 West has right of track against 2nd No 46 Eng 928 Hannibal to Callao (.)

Sig Jones trn Exa 427 West

(Dspr) Hr Clip CU FW

Fr Chicago 10

To condr Exa 427 West (.)

Pick up 2 cars cattle at Palmyra Jct and take them through (.) Sig F. W. H.

31 No 10 complete 758 PM F. W. H. 29 CU HI HI 29 CU

(Opr HI) I I HI

(Dspr) OS

(Opr HI) OS OS HI 2nd No 46 by 801 HI

(Dspr) OK CU

BREAKING IN TRAIN ORDERS.

Breaking is to open the key and stop the sending operator when you miss a letter or word. In breaking in an order should you miss the order No, say "No"; in the address say, "To" ADDING YOUR OFFICE CALL; in the beginning of the body, say, "period (.)";

in the body give the last word received; in the signature, say, "sig."

(For other forms of Train orders, see Standard Code as revised by the American Railway Association, in another portion of this book.)

RAILROAD TELEGRAMS.

Railroad telegrams or messages are those which are sent and revised between officials, agents and other employees of a railroad company, and pertain strictly to business of the company. They have no checks, and no record is made of them, are brief and concise as possible and usually composed of many abbreviations, are addressed and signed with full names, except when limited to one division, in which case initials are generally used.

Each message received must show on its face from which office it was sent, the signatures of both sending and receiving operators and the time received.

Telegrams addressed to persons on trains (except those addressed to train men) must be enclosed in sealed envelopes. The contents of all telegrams must be held strictly confidential.

GENERAL INSTRUCTIONS IN RAILWAY MESSAGE WIRE WORK.

The signals "Hr," "Anr," or "Ahr," are used to announce the beginning of a message, and to the operator seem as plain as for some one to say, "Here" or "Here is another," sometimes they say, "Hr msg" or "Hr clip"; any of the above terms mean get your message blank, here is a message for you. Following this will be sent the office call, of the sending office, then the personal sign of the sending operator; following his sign will

come the signal "Fm" or "Fr," which announces that the place from which it is being sent and the date will follow, following the date the signal "To" announces that the address will follow; following the address the signal "period (.)" announces that the body will follow, at the conclusion of the body the signal "sig," announces that the signature will follow. The above signals are sent by the sending operator, but never copied by the receiving operator.

ORDER OF TRANSMISSION.

Office call of sending office.
The sending operator's personal sign.
Place from and date.
Address of the message.
Body.
Signature.

Example of how a Railway message is transmitted. The combinations of letters enclosed in the parenthesis ( ) are sent by the sending operator, but not copied by the receiving operator.

(Hr msg) HB SN
(Fm) Hannibal 12
(To) Bloomdahl, Sect 4 man, HI (.)
Go to Shelbina and help raise track next week work 5 men. (Sig) J. B. D., R. M.

HOW TO COPY MESSAGES ON THE FORMS.

Let us now make a study of the following form which will be found similar to that used on most roads. Let Hannibal be the sending office, "HB" the office call, and "SN" the operator's personal sign. Let Chillicothe be the receiving office, "HI" the office call, and "GO" his

personal sign. After calling "HI" and receiving his reply, "HB" would say, "Hr msg," meaning get your blank I have a message for you; following this he would give his office call "HB" which the operator at "HI" would place in the space under the words office call, next he would give his personal sign, "SN," which the operator at "HI" would place in the space under the words Sent By, and under the words Received By, he would put his own personal sign "GO," and the time received in the space under the word Time, then the operator at "HB" would say, "FM Hannibal 12," operator at "HI" would then write Hannibal 12 opposite the word From ..... and also the year in the place provided 19....; then operator at "HB" would say, "To Agt HI," the operator at "HI" would place the abbreviation "Agt" after the word To ..... and his office call, "HI" after the word At ....., the operator at "HB" would then make a "Period (.)," which announces the beginning of the body of the message and send the body and signature as follows:

Pls advise how many psngrs for the excn tomorrow

Sig. W. D. B.

The operator at "HI" would copy the body and signature on the blank space provided for that purpose, and would acknowledge receipt of the message by giving the signal OK, his personal sign and his office call as follows: OK GO HI. After receiving the OK and his personal sign, the operator at "HB" would time the message by placing on its face the receiving office call, the receiving operator's personal sign, his own personal sign and the time as follows: HI 132 PM SN GO.

In copying messages, you should always place your personal sign and the time received, in the proper places

MISSOURI CENTRAL ROUTE

MESSAGE.

ALL MESSAGES COPIED ON THIS BLANK MUST BE WRITTEN IN INK.

OFFICE CALL	SENT BY	RECEIVED BY	TIME
HB	SN	GO	1:32 PM.

From Hannibal 12 **19** 07.

To Agt **At** HI

Pls advise how many psngrs for the excn tomorrow.

W.D.B.

at the same time you are receiving it, then it will never be omitted. This will be found quite difficult at first, but by careful practice from the start it can soon be mastered.

BREAKING IN RAILWAY MESSAGES.

When breaking in railway messages, should you miss the "office call" of the sending office, say "sine"; the personal sign of the sending operator, say, "wo"; the name of the place from which it was sent, say "fm"; in the date say, "date"; in the name or initials of the address say, "to"; in the beginning of the body, say, "period (.)"; in the body, give the last word received; in the signature, say "sig."

TELEGRAPH REPORT CALLED "THE SOUP TICKET"

	Callao Station	8/16	1907.
Train No.	Exa 927 East	Engine No.	927
Arr.	3 10 A M.	Dep.	3 28 A M.
LOADS	EMPTIES	PASSENGER	
Stock 15	N.W.	Mail and baggage	
Time Freights 4	Foreigns 11	Coaches	
D Freight	807 Tons	Sleepers	
	Wilson	Conductor.	

The above report would be sent as follows:

(Hr soup tkt) CL AM "S" "4:08 PM."

(fm) Callao 16 (.)

Trn exa 927 East a 310 d 328 Lds 15 Time Frt 4 Mts Fgn 11 Total Tons 807. (sig) Wilson.

THE DETAIL TRAIN REPORT

To the Train Dispatcher:

Chillicothe 8/16 1906

Train 116 **Left** 4:10 PM. **Engine** 896

Engineer L S Morgan **Conductor** King

LOADS.

Give contents and destination of each load and state when carded, or Time Freight. Give route of Eastern Time Freight.

No. lbs.	Contents	Destination	Time	Route	Tonnage
17	Sheep	Kansas City			450
11	Hogs	"			330
1	Horse	Omaha Stk Yd		U P Trns	30

EMPTIES.

Give initials, Kind of Cars, Destination, and Size of Local Box and Stocks.

No. Mts.	Initials	Kind	Destination	Size	Tonnage
4	C & N W	Box	Home		48

King **Cond'r or Agt.**

Detail train reports are started the same as "soup tickets," and are sent directly across the page with period made at the end of each line; when through sending, the loads announce the Empties. Example:

(Hr. detail) HI BN "ON" ":25 PM."
(fm) Chillicothe 16
(to) Dspr (.)
Trn 116 d 4 10 PM Eng 896 Engr L S Morgan
Has Lds 17 Sheep Kansas City, Tons 450 (.)
11 Hogs do Tons 330 (.)
1 Horse Stk Yds Via U P Trains Tons 30 (.)
Mts 4 C & N W Bx Home Tons 48. Sig King.

CAR REPORT LOCAL.

These reports differ in form on different roads, but the principle is the same.

In sending this report, announce it as "cars," sign your office call and then send the letter over such part of the report as you have to fill out. Example: B 2 E 1 M 3 Q 4 R 12 U 3 V 8, and again sign your office call. The operator in the dispatcher's office has a similar form upon which he places the numbers under the letters as you name them.

CARS WANTED.				CARS WEST.				CARS EAST.			
Box	Stock	Gond	Flat	Box	Stock	Gond	Flat	Box	Stock	Gond	Flat
A	B	C	D	E	F	G	H	I	J	K	L
	2			1							

TO UNLOAD				EMPTY ON HAND				EMPTY TO SPARE			
Box	Stock	Gond	Flat	Box	Stock	Gond	Flat	Box	Stock	Gond	Flat
M	N	O	P	Q	R	S	T	U	V	W	X
3				4	12			3	8		

In sending this report the tonnage of all cars to be moved either empty or loaded must be included.

CAR REPORT FOREIGN.

Orders for foreign cars are addressed to the train dispatcher but must be on the foreign report. The dispatcher then turns the foreign report over to the Car Service Agent.

Received From	Time Received	Sent By	Received By
CN	3:25 PM.	G	AS

From West Chicago Ill 16

To F.W.H. Chgo

Order No. 4 **Time Filed** 3:15 PM

A. Cars Wanted (Number) One

B. Initials Mather

C. Class of Cars wanted Feed & Water

D. Size of Cars wanted 36 ft

E. Where Wanted West Chgo

F. Date wanted 19

G. To be loaded with Export Cattle

H. Destination New York City

J. How routed Via Chgo & M C Ry

Signed M Cannon

Agent.

In sending the above report, it should be announced by the Form Number, or as Foreign and send as follows:

(Hr 46) CN G "AS"
(fm) West Chicago 111 16
(to) F. W. H. Chgo
Order No 4 Filed 315 PM
A One
B Mather
C F & W
D 36 ft
E West Chgo
F 19
G Export Cattle
J Via Chgo & M C Ry
Sig M Cannon Agt.

An accident report will be sent similar to the above by cipher letter; they are used to save time; at the same time to give clear account of what is wanted.

GENERAL INSTRUCTIONS IN COMMERCIAL MESSAGE WORK.

In handling commercial messages in the ordinary telegraph office, two sets of message blanks are used; each set is composed of one sending, and one receiving message form, the sending and receiving forms in each set are exactly alike. One set, which is used for Day messages, is printed in black ink, and is called Black, or day message forms; the other, which is used for Night messages, is printed in red ink, and is called Red, or Night message forms.

A message addressed to a place to which it is being sent (one which is not to be relayed or transferred), is called a CITY.

A message addressed to some place other than the place

to which it is being sent, (one which is to be relayed or transferred), is called a THROUGH.

A message will be understood to be a Day, or on a black form, unless the word Red or Night, is made in the signals announcing the beginning of the message.

If we have a day message addressed to some person in Chicago, and we can by using our line or wire, communicate direct with Chicago office, as soon as the operator at Chicago would answer his call, we would give him the following signals, "Hr city." He would at once know that we have a Day message addressed to some person in Chicago, and would copy on the black form. In case it was a night message, we would say, "Hr city red," or "Hr city nite," in which case he would copy on the night message form.

If our message was a day and addressed to some person in Boston, Mass., and Chicago was our relay office, we would say, "Hr tru." The operator at Chicago would at once know we have a message to be copied on the day form which is to be relayed or sent on some other line from his office to destination. In case the message was a night, we would say, "Hr tru red," or "Hr tru nite." He would then copy on the night message form.

Thus we have the following signals which are used to announce the beginning of a message:

Hr city	Black form
Hr tru	Black form
Hr city red	Red form
Hr tru red	Red form
Hr city govt	Black form
Hr tru govt	Black form
Hr city red govt	Red form

Hr tru red govt .....Red form
Hr Cable .....Cable form

Any of the above signals mean get your message blanks, I have a message for you, and are sent by the sending operator but never copied by the receiving operator. Messages between the larger offices, which have considerable business, are numbered commencing with No. 1 at the opening. Sent messages to each office being numbered separately, received messages from each office being numbered separately.

After the signals announcing the beginning of a message, will be sent the number of the message and the office call of the sending office, then the sending operator's sign; following his sign "ck" indicates the check which gives the number of words subject to tariff, and tells whether a message is paid, to be collected, or free; (if free, explaining why) will follow; then the signal "fm" announces the place from and the date will follow, then the signal "to" announces that the address will follow; then the signal "period (.)" announces the beginning of the body will follow; then the "sig" announces that the signature will follow.

ORDER OF TRANSMISSION.

1. The number of the message and official call of the sending office.
2. The sending operator's personal sign.
3. The check of the message.
4. The place from and date of the message.
5. The address of the message.
6. The body of the message.

7. The signature of the message.

Example of transmitting a simple commercial message:

Hr city No 1 BN AH ch 5 Paid
fm Shelbina No 19
to Adams Bros. & Co.
Brookfield, Mo.
Will arrive five ten tomorrow. Sig James Parker.

THE SENDING FORM.

Let us now make a study of the following form, which being printed in black ink, and a sending form, indicates that it is a day sending blank.

RECEIVER'S NO. refers to whoever accepts or received the message from the customer. In the large commercial offices, the person who accepts the messages from the public is known as the receiving clerk, and he would place under the words, "Receiver's No." his personal sign and also number it. Operators at small stations would place only their personal sign under the words, "Receiver's No." The object being to have the sign of the person who receives the message from the customer, upon the blank, in case the message be not understood the same can be referred to him.

TIME FILED refers to the time the message was presented by the sender at the sending office for transmission, but has no reference to the time it is transmitted by wire.

Check refers to the number of words contained in the message which are to be counted and charged for, except in the case of collect message. The word "collect" is added in the check to assist in indicating that the tolls of the message are to be collected. The word collect in the check of the message is never charged for.

THE WESTERN UNION TELEGRAPH COMPANY.

INCORPORATED

23,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD.

NUMBER	SENT BY	REC'D BY	CHECK
1 HI	AH	VC	6 Paid

RECEIVED at Brookfield Mo 9:25 AM 7/19 **1904**

Dated Chillicothe Mo 19

To James Perkins,

931 Main St,

Brookfield, Mo.

Come home at once mother worse.

Walter Perkins.

Let us now presume that the above message has been presented at Chillicothe, Mo., office for transmission, and as it meets all the requirements of Rule 1, the operator will observe Rule 2 and see that the month, and the day, are correctly noted thereon; by referring to his time-piece he finds the time it was presented to him to be sent was 9:19 A. M., which he will place under the words, "Time Filed"; he will place his personal sign, which we will presume as "AH," under the words "Receiver's No." Now by carefully reading every word, he finds according to Rules 3 to 8 inclusive, there are six words to be counted and charged for, which makes the check 6 paid. If the sender had desired it sent collect, and met all the requirements of Rule 13, he would have made the check 7 collect, instead of 6 paid.

He should obtain and file the address of the sender, if not well known, in case any reply or service should be received pertaining to the message, the sender can be notified.

RECEIVING FORM AND HOW TO COPY ON THE SAME.

Let us presume that the operator at Chillicothe, who has the message for Brookfield, sends it over the wire while the operator at Brookfield makes a copy of the same on the receiving form below. Office call for Chillicothe, "HI;" Brookfield, "BF;" Operator's personal sign at Chillicothe, "H;" Brookfield, "VC."

RECEIVING FORM.

After calling "BF" and receiving his reply, operator at "HI" would say, "Hr city." The operator at "BF" would at once know that "HI" had a message for him,

THE WESTERN UNION TELEGRAPH COMPANY.

INCORPORATED

21,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD.

ROBERT C. CLOWRY, President and General Manager.

Receiver's No.	Time Filed	Check
AH	9:19 AM	6 Paid

SEND the following message subject to the terms on back hereof, which are hereby agreed to.

Chillicothe Mo 7/19 1904.

James Perkins

931 Main Street

Brookfield. Mo.

Come home at once mother worse.

Walter Perkins.

1 BF 9:25 AM AH VC.

☞ READ THE NOTICE AND AGREEMENT ON BACK. ☜

and it is a day message, and to be copied on a day message form. He would, therefore, get the above form and copy as follows: Operator at "HI" after giving him the signal "Hr city," would send the number of the message, and his office call which being the first message today would be "No 1 HI." Operator at "BF" would write "1 HI," under the word number, operator at "HI" would then send his personal sign "AH," which the operator at "BF" would write under words, "Sent By," and would write under his own personal sign "VC" under the words "Received By," operator at "HI"; would then say, "Ck 6 Paid." Operator at "BF" would write, "6 Paid" under the word "Check"; operator at "HI" would then say, "fm Chillicothe Mo 19." Operator at "BF" would write "Chillicothe Mo 19" on the same line after the word, "Dated ....."; operator at "HI" would then say, "to James Perkins." Operator at "BF" would write the name of "James Perkins" after the word "To"; operator at "HI" would then make a "comma (,)" which in this case means to the receiving operator, drop a line for the address, following the comma the operator at "HI" would say, "931 Main St." The operator at "BF" would write on the line below the name commencing about half way under the name, "931 Main St," operator at "HI" would make another "comma (,) Brookfield, Mo." Operator at "BF" would observe the comma this time also and commence about half way under the street address and write, "Brookfield, Mo."; operator at "HI" would then make a "period (.)" and send the body and signature as follows: "Come home at once mother worse sig Walter Perkins." Operator at "BF" would then copy the body and signature on the blank space provided for that purpose, omitting the ab-

breviation "sig." On the line, "Received at ..... 190.." the operator at "BF" will observe Rule 32 and place "Brookfield, Mo., 9.25 A. M., July 19, 1904," and will count the number of words in the body of the message, see that they agree with the check, and otherwise satisfy himself that the message is correct in every way, and then will acknowledge receipt of the same by giving the signal OK, his personal sign and office call as follows: "OK VC BF." The operator at "HI" will time his sent copy according to the following form.

TIMING OF SENT COPIES.

Copies of sent messages when transmitted should be timed in the following form: 1 BF 9.25 AM AH VC. "1" is the number of the message to Brookfield office on that day; "BF" the office call for Brookfield to which the message is being sent; "9:25 A. M." the time transmitted; "AH" the sending operator's personal sign; and "VC" the receiving operator's personal sign.

It is quite customary for the sending operator to place this form upon the sending blank with his left hand while transmitting the message with the right. It is found quite difficult for operators of considerable experience but with constant trials the beginner can soon master this important step.

BREAKING IN COMMERCIAL MESSAGES.

When breaking in commercial messages, should you miss in the message number, say—"No;" in the sending operator's personal signal say—"wo;" in the check, say—"ck;" in the name of the place from which it was sent, say—"fm;" in the state,—say "state;" in the date, say—"date;" in the name of the addressee, say—"to;" in the street number, or in the case of the party in whose care addressed, say—"comma (,);" in the beginning of the body or text, say ("period (.);" in the body or text give the last word received; in the signature, say "sig." If for any reason you should fail to receive a message after a part or all of it has been transmitted, or in case you make a "bull" in your copy which would make it necessary to have the message repeated, say—"ga anr" or "ga ahr."

MISTAKES IN CHECKS.

Suppose that in the following message either the sending operator had failed to send, or the receiving operator had failed to copy, the word "wire."

21 MD CR BP 10 Paid.
Madison Wis. 22
James Person,
Kankakee, Ill.

Can you meet me Great Northern Chicago Monday wire answer.

MILTON CLARK,
10:14 AM.

The receiving operator would at once discover that there was only nine words, in which case he would say, "9 w," meaning I have only "9 words." The sending operator would review his copy and find ten words, and would say "ck 10 Paid and make a period and repeat the first letter of each word as follows: c y m m g n c m w a." By following each letter closely the receiving operator would discover that he had no word which commenced with "w" after the word Monday and would say "ga monday;" the sending operator would repeat "monday wire answer" and the error would be corrected.

COMMERCIAL MESSAGES EXPLAINED.

In the following messages the combinations of letters inclosed in the parenthesis ( ) are sent by the sending operator, but not copied by the receiving operator; those in quotations " " are copied by the receiving operator, but not sent by the sending operator.

MORE THAN ONE ADDRESS.

When a message is addressed to two persons in the same place or town and delivery is to be made to each, it will be charged for as two messages.

Example:

(Sturges receives city.)
(Hr city mk 2 cys No) 1 BN AN "HW" (ck) 10 Paid.
(fm) Hannibal Mo 22
(to) C L Brown and Geo Clark,
Sturges, Mo.
(.) Meet me Kansas City Hudson House Eleven oclock Monday bring papers.
(sig) P D KITT
"11:15 AM"

The manner of transmitting the above message will be determined by the manager or chief operator of the sending office. It may be sent to both persons at one transmission, or to each one separately; if only one transmission is made the sending operator who makes the last transmission should tell the receiving operator to make 2 copies, as follows: (Hr city mk 2 cys) so he may at one writing with manifold make a copy for each address.

When a message is addressed to two persons in the same place or town and delivery is to be made to either, it will be charged as only one message, but the second address together with the connecting word "or" will be included in the count and charged for.

Example:

(Brookfield received city.)
(Hr city No) 4 MR ED "RD" (ck) 14 Paid 3 exa wds.
(fm) Palmyra Mo *22*
(to) J K Wheeler, or Ed Page,
Care Bacon Elevator,
Brookfield Mo
(.) Phone Ella I bought load mules waiting for car home tomorrow.
(sig) Wm Hopper
"12 K Noon"

In the above message we have 3 extra words which are the three extra words in the address, "or Ed Page" while there are only eleven body words. They are called extra words because they are not a part of the body, yet must be counted and charged for; therefore, they are mentioned in the check as extra words. All words in a message which according to the rules must be counted and charged for, and are not in the body, are mentioned in the check as so many extra words.

STREET ADDRESSES.

Great care should be taken to obtain from the sender a good, clear address for each message. The importance of the address cannot be over-estimated. When the address given seems insufficient a better one should be requested. Example:

(Moberley receives City.)
(Hr City No) 41 BF FS "JK" (ck) 8 Paid
(fm) Brookfield Mo *22*
(to) M L Quinn,

Traveling salesman for Hibbard Spencer Bartlett & Co.,
Try Hotels and 326 Wentworth Ave.,
Moberley, Mo.
(.) Go to St Louis first train meet George answer.
(sig) Mrs M L Quinn
"3:15 P M"

In the above address it might seem that extra words appear to be used, but whenever it is necessary to make a lengthy address, which will insure prompt delivery, do so rather than necessitate sending several service messages.

MORE THAN ONE SIGNATURE.

Whenever a message has two or more signatures and they are not in the nature of a firm, Mr & Mrs, or John Smith & Family, all will be counted and charged for except the last. Example:

(Shelbina receives City.)
(Hr city No) 16 GH OA "HX" (ck) 16 paid 3 exa wds.
(fm) Birmingham Mo *22*
(to) Rev A L Appleby,
Pastor M E Church
Shelbina, Mo
(.) Will you meet our Sunday School at picnic at Seven Oak Farm Friday.
(sig) S M McGee, Elmer Ford.
"4:25 PM"

In this message we also have 3 extra words, as we count and charge for all signatures when there are more than one except the last.

TITLE WORDS.

Whenever a signature has a title of more than two words or whenever there are words after the signature which are not title words, each word will be counted and charged for. Example:

(Hannibal received Relayed.)
(Hr tru No) 23 BN WR "GR" (ck) 12 Collect 3 exa wds
(fm) St Louis Mo 22
(to) Melvin Clarksdale,
On Train No 6, H & St J Ry,
Monroe Mo
(.) Work Shelbina Geo Thompson here have wired firm.
(Sig) Geo M. Holder,
Agent Deering Machine Co
"8:29 AM"

In the above message we have four words after the signature, only one of them being a title word, "Agent" (which is allowed free) therefore, we count and charge for "Deering Machine Co" as 3 extra words together with 8 body words and the word "collect" in the check which is counted but not charged for.

REPORTING DELIVERY.

Whenever the sender of a message wishes the company to notify him of its delivery.

Example.

(Kansas City receives Relayed.)
(Hr tru No) 8 CL CR "RG" (ck) 18 Paid 2 exa wds
Rept Dely

(fm) Chicago Ill *22*
(to) Dr J B Freeman,
68 Main St,
Macon, Mo
(.) Will send papers today Title will have to be made perfect before I can accept it.
(sig) Dr N J Moreland,
"12:27 PM"

In the above message there are two extra words in the check "Rept Dely" which are counted and charged for and placed there by the sending office to notify the receiving office, that a notice of delivery must be given.

Example:

(Kansas City receives Relayed.)
(Hr tru No) 3 CN RG "CR" (ck) 11 collect
(fm) Macon Mo *22*
(to) Dr N J Moreland
Chicago, Ill.
(.) Delivered your message to Dr J B Freeman nine AM.
(sig) L S McDonald,
Manager "2:10 PM"

REPEATED MESSAGE.

Whenever the sender wishes his message repeated or telegraphed back to the originating office for comparison.

Example:

(Kansas City receives City.)
(Hr city No) 9 GH NS "G" (ck) 11 Paid 2 exa wds Rept Bk
(fm) Birmingham Mo *22*

(to) Adams Bros & Co,
Kansas City Mo
(.) Send by express Range casting twenty nine fifty four,
(sig) Field Hdw Co.
"7:14 PM."

In the check of the above message there are two extra words "rept Back" which are counted and charged for. They are placed in the check by the sending office to notify the receiving office, that the message must be repeated for comparison, which should be done immediately before giving OK. A half rate will be charged for the repetition in addition to the charge for the message.

SPECIAL DELIVERY.

Delivery charges to be paid by the sender.

Whenever a message is to be especially delivered beyond the free delivery limits of the terminal office, and for which the delivery charges are not given in the tariff book and the charges are to be paid by the sender.

Example:

(Bucklin received City)
(Hr city No) 12 CD SR "B" (ck) 11 Paid exa wds
Rept Dely Chgs
(fm) Laclede Mo 22
(to) L A Martin,
3 1-2 miles southeast town,
Bucklin, Mo
(.) When can you meet me to arrange contract.
(sig) George Perdin.
"10:18 AM"

The above message is to be delivered by special messenger 3 1-2 miles southeast of Bucklin Mo and the

charges are to be paid by the sender. In which case the sending office inserts in the check the word "Rept Dely Chgs" which are counted and charged for. They are placed in the check to notify the receiving office to have the message delivered and notify them by Service of the amount of charges so they can be collected from the sender.

When the charges are to be paid by the addressee.

Whenever a message is to be specially delivered beyond the free delivery limits of the terminal office, and for which the delivery charges are not given in the tariff book, and the charges are to be paid by the addressee.

Example:

(Ottumwa receives relayed)
(Hr tru No) 5 CR MK "JF" (ck) 12 Paid 3 exa wds Dely Chgs Gtd.
(fm) Des Moines Ioa 22
(to) S O Warren,
Cattle Breeder 5 miles east, Chillicothe, Mo
(.) Offer twenty five good steers average four five twenty.
(sig) W A Drake,
"9:03 AM"

In this message we also have 3 extra words in the check "Dely Chgs Gtd" which are counted and charged for and placed there by the sending office to notify the receiving office, that the charges are guaranteed, but should be paid by the addressee.

EXTRA DATES.

Whenever a message is to be forwarded according to Rules. The name of the originating office and the date

will be counted and charged for as a part of the message. Example:

(As message appears when first received at Boston.)
25 BN FN WR 11 Collect
Buffalo N Y 22
John Brown,
Transient,
Boston, Mass.
Meet me next Monday at ten oclock in the forenoon.
H Smith,
8:19 AM

For example, if the above message had been sent by "this" line from Buffalo to Boston, and John Brown had left Boston before the message arrived and had left a request, that all messages received for him be forwarded care Hudson House, Fall River, Mass. Boston would mark out certain words and add others as per following example:

8:25 AM 15
~~25 BN FN WR 11~~ Collect 33 & 35 4 exa wds.

Buffalo, N.Y. 22, Via Boston Mass. 22

John Brown,

~~Transient~~ Care Hudson House,
~~Boston, Mass.~~ Fall River, Mass.

Meet me next Monday, at ten o'clock in the forenoon.

H. Smith,
~~8:19 AM~~

(As message appears marked ready to forward.)

You will notice in the above message four extra words appear which are the originating office and the date (Buffalo, N. Y. 22) which are to be counted and charged for. In the check, numbers appear which are the tolls to be collected. Suppose the rate from Buffalo to Boston to be 35 and 2 and from Boston to Fall River 25 and 2: then a 11 collect message from Buffalo to Boston would cost 35c and a 15 collect message from Boston to Fall River 33c. The message being a "received collect" message, in which case Boston would check it so the rate from Boston to Fall River which is 33c would appear in the check first, as the "this" line tolls, and the rate from Buffalo to Boston which is 35c would appear in the check second, as the "other" line tolls.

(As message appears when copied at Fall River.)
B FB P 15 Colect 33 & 35 4 exa wds.
Buffalo N Y. 22, Via Boston, Mass. 22,
John Brown,
Care Hudson House,
Fall River, Mass.
Meet me next Monday at ten oclock in the forenoon.
H Smith
8:39 AM.

Fall River would deliver and collect from Brown 33 & 35 or the total 68c.

OTHER LINE MESSAGES.

Whenever a message is to go over any "other" lines to reach the destination, the name of the transfer station should appear on the check from the originating office to the transfer office. Example:

(Kansas City receives Relayed.)
(Hr tru No) 7 HI MS "WF" (ck) 7 Paid Via St Louis
(fm) Chillicothe Mo 22
(to) Alvin Perryman,
Ballwin, Mo
(.) Meet George St Louis Friday important business answer.
(sig) M L Hardlin,
"8:28 AM"

In the check of the above message we have the words "Via St. Louis" which are not counted or charged for, only placed in the check to indicate that the message is paid Via St. Louis.

Whenever a message is received over "other" lines at the proper station indicated by the tariff book, the name of the transfer office and also the date should appear on the same line with the originating office. Example:

(Chillicothe receives City.)
(Hr city No) 12 KC WF "MS" (ck) 9 Collect an ans
(fm) Ballwin Mo 22 Via St Louis Mo 22
(to) M L Hardlin,
Chillicothe Mo
(.) Will meet George Union Station ticket office Friday.
(sig) Alvin Perryman,
"1:28 PM"

It might seem in the above message that there were extra dates, but by referring to the tariff book we find that St. Louis is one of the proper places for a message from Ballwin to reach this Company's lines, and it is placed there, so the office of destination may know both

the originating and the transfer office, in order that the tolls may be computed Via the transfer office.

You will note that the above message is an answer to the preceding message and it is customary to send the answer to a message, when such message makes some request of the addressee, collect. In the check we find the words "an answer" which are placed there to remind the receiving office that it is an answer to some message which has been sent from his office; in case a prepaid message requires an answer the addressee may send an answer collect and will not be required to make a deposit.

WHEN AN ANSWER IS PREPAID.

Whenever the sender of a message wishes to prepay for an answer to his message, the sending office will place in the check the wire signal "33" which will not be counted or charged for. Example:

(Cameron receives City.)
(Hr city No) 32 HB B "AS" (ck) 10 Paid & 33
(fm) Hannibal Mo 22
(to) Geo Thompson
Mgr Foot Ball Team,
Cameron, Mo
(.) Can you accept our offer for thirteenth others wanting date.

(sig) M L Stevens,
"8:10 AM"

Upon receipt of a message bearing the wire signal "33" in the check, the receiving offices will if possible obtain an answer and send the same "collect" without requiring any deposit from the sender.

NIGHT MESSAGES.

A night message will be written upon a night message form; they are sent at reduced rates and if presented any time during the day, and it is so requested, they will be accepted at night rates and held until 6 PM and sent as soon thereafter as possible. Example:

(Kansas City Receives Relayed.)
(Hr red tru No) 5 KG AN "SN" (ck) 12 Collect Night
(fm) Breckenridge Mo 22
(to) J L McCandlish
Indianapolis, Ind
(.) Offer ten cars good mill screenings seven ten immediate acceptance.
(sig) Breckenridge Elevator Co.
"9:45 AM"

In the above message the word "red" is found in the signals which announce that it is to be copied on Night Message Form, and also in the check the word "night" is placed, indicating that the message will be charged for at night rates. ALWAYS begin night messages with the word RED and also send the word NIGHT in the check. An office which is not kept open, will before closing, transmit its "night" messages; if any night messages are left over until morning they will be transmitted before new business is taken up.

CODE MESSAGES.

Code messages are composed of words found in the ordinary dictionaries but so arranged as to give no meaning without the use of a code book; such messages are transmitted at ordinary tariff rates. Example:

(Kansas City receives Relayed.)
(Hr code tru No) 3 GH ED "MA" (ck) 6 Paid
(fm) Birmingham Mo 22
(to) Warner & Wilbur,
Commission Merchants,
Chicago, Ill.
(.) Alert Anvil and abacus demand probable.
(sig) Robert Elliott
"8:16 AM"

A code message is usually preceded by the word "code" which puts the receiving operator on his guard. The above message, to an operator, has no meaning, but should be handled very carefully and every letter sent and copied unmistakably correct, and be very particular, crossing every "t" and dotting every "i," so they may be readily translated by the addressee. Translated the above message would read "Buy 10,000 bushels No 2 wheat for May delivery and buy 100 bales of January cotton margin twenty points." Much money is therefore saved in telegraphing by the use of codes. All leading branches of business have separate and different codes and it would be useless to try to decipher their messages without a copy of their code book.

CIPHER MESSAGES.

Cipher messages are in reality used for the same purpose as code messages. They are composed in whole, or part, of figures, letters, characters or words not contained in dictionaries or a combination of either or all of them, having no sense unless interpreted by means of a key in possession of the sender and receiver. Example:

(St. Joseph receives City.)
(Hr city No) 5 BN RK "TD" (ck) 29 Paid Cipher.
(fm) Hannibal Mo 22
(to) Keller Mfg Co.
1225 Madison St.
St. Joseph Mo
(.) Maeotis qr7ef 1740 aedeui zyrstf96 heavy qzrnm 9658. (sig) Johnson & Co.
"9:19 AM"

To count the above message study the rule covering such messages. The receiving operator should not OK a cable, code, or cipher message until he has repeated the body to the sending operator for comparison. This should be done to protect against possible errors, regardless of the requirements of the rules.

GOVERNMENT MESSAGES.

Government messages relate to the official business of the government and have preference over all other business. Example:

(Moberly receives City.)
(Hr pink govt No) 56 KC FL "Z" (ck) 13 Paid Govt.

(fm) Washington D C *22*
(to) Weatherman,
Moberly, Mo
(.) Generally fair tonight and Tuesday warmer west portion tonight.

(sig) Cox
"4:38 PM"

In all government messages you count the address, body words and the signature, or commence after the word "to" and count everything. ALWAYS begin a government message with the word GOVT, and also put the word GOVT in the check.

DEAD-HEAD MESSAGES.

Messages of employes of an urgent social or domestic character may be sent free and the check will show the reason for its acceptance without payment of the tolls. Example:

(Sturges receives City.)
(Hr City No) 5 MA RN "Q" 9 D H Opr
(fm) Ottumwa Ioa *22*
(to) Edgar P Walker,
Sturges, Mo
(.) Mother and Mollie leave tonight meet them seven oclock.

(sig) G L Walker
"7:33, PM"

A message of this sort must be approved by the manager or superintendent in accordance with the rules.

CABLES.

Cable messages sent or received should be written on cable blanks and must always be prepaid. Example:

(Form of Transmission)
(Hr Cable No) 8 CN MS
(fm) Liverpool 5
(to) Sherlock
St. Louis (Mo)
(.) Abhor 36-4
(sig) Ole

In cables the check is not sent, only the number of words which appear immediately after the originating point. No date is given in transmission, but is filled in by both sending and receiving operator. To count cables begin at the word "to" and count everything except where the state is in parentheses ( ). It is not to be counted. If it is not in the parentheses it is to be counted. Counting of cables will be found different from messages, and a thorough study of the cable rules is needed. ALWAYS repeat the cables, and time them on the face with both sending and receiving operator's signal.

A press message, or query, should be written upon a pink blank at a relay office, and should receive prompt service. The check of such message shall contain the words "Day Press rate" or "Night press rate" the same as press for publication.

They are sent by some newspaper correspondent to some newspaper stating some happening or occurrence

CABLE MESSAGE.
THE WESTERN UNION TELEGRAPH COMPANY.

INCORPORATED

All **CABLE MESSAGES** received for transmission must be written on the Message Blanks provided by this Company for that purpose under and subject to the conditions printed thereon, and on the back hereof which conditions have been agreed to by the sender of the following message

THOS. T. ECKERT, President and General Manager

TWO AMERICAN CABLES FROM NEW YORK TO GREAT BRITAIN.
CONNECTS ALSO WITH FIVE ANGLO-AMERICAN AND ONE DIRECT U. S. ATLANTIC CABLES.
DIRECT CABLE COMMUNICATION WITH GERMANY AND FRANCE.
CABLE CONNECTION WITH CUBA, WEST INDIES, MEXICO AND CENTRAL AND SOUTH AMERICA.
MESSAGES SENT TO, AND RECEIVED FROM, ALL PARTS OF THE WORLD.

OFFICES IN AMERICA:

All Offices (21,000) of the Western Union Telegraph Company and its Connections.

OFFICES IN GREAT BRITAIN:

LONDON: No. 21 Royal Exchange, E. C.
No. 109 Fenchurch Street, E. C.
LIVERPOOL: No. 8 Rumford Street.
GLASGOW: No. 29 Gordon St. and No. 4 Waterloo Street.
BRISTOL: Backhall Chambers.

(*Form as received and copied.)

RECEIVED at

8 CN MS ON

Liverpool 5

Sherlock,

St Louis (Mo)

Abhor 36/4. Ole.

OK MS & ON 8:54 AM.

and inquiring the amount of matter desired for publication; they are charged for at the same rate as press for publication. No message to be rated less than ten words. Example:

(Kansas City receives Relayed.)
(Hr tru pink No) 12 Hi Z "DA" (ck) 18 Collect N P R
(fm) Chillicothe Mo 22
(to) Chicago Record,
Chicago, Ill
(.) Nancy Bell takes three out of five best time 216 3-4 Good story how much.

(Sig) Morgan,
"7:55 PM"

PRESS SPECIAL.

A despatch addressed to some newspaper containing an account of some happening or occurrence for publication, is charged for at press rates. Example:

(Chillicothe receives press special.)
(Hr spl No) 29 KC AB "B" (ck) 70 Collect N P R
(fm) St Louis Mo 22
(to) Constitution,
Chillicothe Mo
(.) Tony Faust's restaurant on Broadway, opposite the Olympic, was the scene of a robbery some time during the early hours of this morning, in which $4,100 in cash was stolen. The police are looking for Henry Stetten, alias Henry Stegger, who was employed as a bartender at the catering establishment, and who is suspected of having some knowledge of the crime.

Filed 7:10 PM (sig) Hemmings
"7:25 PM"

In the foregoing press message we have 70 words, 64 of which are the body, 1 in the check, and 5 in the Filing Time, which when placed in the body of despatches will be transmitted, counted and charged for.

SERVICE MESSAGES.

A message, pertaining to messages, which have been sent, regarding their delivery, collection of charges, etc., is called a service message.

ABBREVIATIONS USED.

N S N—No such number.
B B A—Give better address.
G S A—Give some address.
S F S—See former service.
S Y S—See your service.
D F S—Disregard former service.
92—Deliver.
Deld (or 92d)—Delivered.
Undeld—Undelivered.
Dely—Delivery.
Dely chgs gtd—Delivery charges guaranteed.
Rept dely chgs—Report delivery charges.
Rept dely—Report delivery.
Spl dely—Special delivery.
Sgd (or) sined—Signed.
Gte—Guarantee.

FORMS USED IN TRANSMISSION.

(Hr tru No) 28 MO K "FQ" (ck) Svc (or) Ofs.
(to) Omaha Nebr
(.) S F S yours red date Williams sgd Harrison 92d OK.

(sig) Monroe Mo. 22
"5:46 PM"

You will note that the above service or office message has no "from" and the number of the words are not mentioned in the check; it is also addressed to the name of an office and signed by the name of an office; the signature also contains the date. Never address a service message to an operator, agent, or any other person, except in making an answer to some service from a large office which might be signed for example: "Clark Chicago Ill 22," in which case you would address your service message to "Clark Chicago Ill."

EXPLANATION AND DIFFERENT FORMS USED.

Whenever a message is received with a request in the check to "Rept dely chgd," the receiving office will have the message delivered, pay the special messenger and send a service. Example:

To Laclede, Mo.
Dely chgs yours date Martin sgd Perdin One dollar which we check you other lines.

Bucklin, Mo. 22.

Whenever a message is received with the words "Dely chgs gtd" in the check, and the addressee refuses to pay

for the special delivery, the receiving office will pay the special messenger and in accordance with the RULES, send a service. Example:

To Cameron, Mo.
We check you One Fifty other lines Dely yours date Warren sgd Drake.

Chillicothe, Mo. 22.

Whenever a message is received, and the addressee lives outside the free delivery limits, and the delivery charges have not been provided for, ask about the delivery charges by service. Example:

To Madison Wis.
John Benson lives four miles out do you gte One Twenty Five Dely yours date sgd Clark.

St. Louis Mo. 22.

When a service similar to the above is received and the delivery charges are guaranteed by the sender. Example:
To St. Louis, Mo.
SYS we gte One Twenty Five Dely chgs ours date Benson sgd Clark.

Madison Wis. 22

The above service must be charged for in accordance with the RULES.

WHEN CHARGES ARE NOT GUARANTEED.

To St. Louis, Mo.
S Y S ours date Benson sgd Clark chgs not gtd, pls drop in P. O.

Madison Wis. 22

WHERE THE STREET NUMBER MENTIONED IN THE ADDRESS OF A MESSAGE CANNOT BE FOUND.

Example:

To Battle Creek, Mich.
N S N as 324 East Lake St and Huffman & Son unknown at 324 West Lake St, G B A or cant 92 your date sgd Peterson.

Indianapolis, Ind. 22.

WRONG ADDRESS.

To Geneva, Ill.
M L Sacket unknown at 1262 Wentworth Ave, G B A or cant 92 yours date sgd Mitchell.

Clark, Chicago, Ill. 22.

CORRECTED ADDRESS.

To Clark Chicago, Ill.
Ours date Sacket sgd Mitchell is addressed to 1282 Wentworth Ave, Not 1262 we repeat 1282, S Y S and advise.

Geneva, Ill. 22.

WHEN MESSAGE IS DELAYED.

To St Joseph, Mo.
Can't 92 until 8 AM yours Meek & Co sgd Clayball, office closed for the night and residence unknown.

Boston, Mass. 22.

IF THE ADDRESSEE OF A COLLECT MESSAGE REFUSES TO PAY FOR THE SAME.

To New York, N. Y.
Collect there yours date Hutson sgd Reedy payment refused. Toledo, Ohio. 22.

WHEN A MESSAGE HAS BEEN LOST OR NOT UNDERSTOOD, ASK FOR DUPLICATE.

To Quincy, Ill.
Duplicate quick yours date Carlton sgd Manning, message not understood.
Galesburg, Ill. 22.

ASKING FOR DUPLICATE OF A CERTAIN WORD.

To Rawlins, Wyo.
Duplicate eighth body word yours Nelson sgd Henderson. Medicine Bow, Wyo. 22.

DUPLICATING A CERTAIN WORD.

To Medicine Bow, Wyo.
S Y S eighth body word ours date Nelson sgd Henderson is "waste" we repeat it "waste."
Rawlins, Wyo. 22.

WHEN NO STREET ADDRESS IS GIVEN.

To Adams, Nebr.
G S A or can't 92 your red 21st Parker sgd Ammerman. Englewood, Ill. 22.

Whenever the check in a message is anything else than "Day," it should be mentioned as in the above message.

WHEN A SERVICE HAS BEEN SENT AND ANOTHER FOLLOWS CHANGING THE FIRST.

To Adams, Nebr.
D F S have 92 OK your Red 21st Parker sgd Ammerman. Englewood, Ill. 22.

WHEN THE ADDRESSEE HAS CHANGED RESIDENCE.

To Pattensburg, Mo.
Clifton Pub Co. have moved from 936 West Clay St and present address unknown G B A or can't 92 yours yesterday sgd Adams Bros. Clark, Chicago, Ill. 22.

WHEN THE ADDRESSEE LEAVES TOWN BEFORE A COLLECT MESSAGE ARRIVES FOR HIM.

To South Bend, Ind.
Allen Thompson left city before yours date sgd Merdock arrived. Collect there. Warsaw, Ind. 22.

WHEN A MESSAGE IS SENT TO WRONG DESTINATION.

To St Joseph, Mo.
File but do not check ours red 21st Randall sgd Peterson should have been sent to St Louis, Mo. have resent it to St. Louis. Chillicothe, Mo. 22.

ASKING FOR QUICK ANSWER.

To Milwaukee, Wis.
Pls get quick answer or reason why ours yesterday Stockton sgd Clemons. Minneapolis, Minn. 22.

NUMBER SERVICE MESSAGES.

To Chicago, Ill.
Yesterday sent 97 received 210. Kansas City, Mo. 22.
To Kansas City, Mo.
No record your No 97 yesterday, Pls give skeleton.
Hitchcock, Chicago, Ill. 22.

GIVING SKELETON.

To Hitchcock, Chicago, Ill.
Ours yesterday No 97 to you ck 13 Paid fm Breckenridge, Mo. to James Armstrong Milwaukee, Wis. sgd Widley Bros. recd opr MA 2:25 PM, S Y S and advise. Kansas City, Mo. 22.

COMMERCIAL NEWS DEPARTMENT.

That department of commercial telegraph which gathers and furnishes by wire, quotations and other news of grain and provision market.

The grain and provision market opens at 9:30 A. M. on the board of trade, and the quotations are sent out at different times until 1:15 P. M., except on Saturdays, when the close is sent at twelve o'clock, noon.

ABBREVIATIONS.

GRAIN.		PROVISIONS.	
W	Wheat	P	Pork
C	Corn	L	Lard
O	Oats	S R (or) R	Short Ribs

OPTION MONTHS.

F	January	N	July
G	February	Q	August
H	March	U	September
J	April	V	October
K	May	X	November
M	June	Z	December

GRAIN C N D.

(Hr cnd No) 4 CH AC "GO" (ck) C N D
(fm) Chicago Ill 22
(to) Quincy Ill
(.) WZ 1.05¼, K 1.04¼
CZ 41⅜, K 40¾@40⅞
OZ 30, K 29½
(sig) 9:30 AM Opening.
"9:41 AM"

PROVISIONS C N D

(Hr cnd No) 5 CH AC "GO" (ck) C N D
(fm) Chicago Ill 22
(to) Quincy Ill
(.)PZ 13.00, K 12.50
LZ 7.65, K 7.85
SRZ 9.70, K 10.00
(sig) 9:30 AM Opening.
"9:43 AM"

ABBREVIATIONS USED IN LIVE STOCK C N D

A .....Exact Receipts	M ..... Heavy
B ..... Exports	N ..... Light
C ..... Sales	P ..... Premium
J ..... Left Over	X ..... Mixed
K....Receipts Day Before	

OPENING LIVE STOCK C N D.

(Hr cnd No) 2 KC NF "SR" (ck) C N D
(fm) Kansas City Mo 22
(to) Cameron Mo
(.)Hogs 20,000 prospects stronger.
Cattle 10.000 prospects steady.
Sheep 6,000 prospects unchanged.
(sig) 7:10 AM Opening.
"7:18 AM"

THE 8:40 AM C N D.

(Hr cnd No) 25 KC NF "SR" (ck) C N D
(fm) Kansas City Mo 22
(to) Cameron Mo
(.) A 20,000 B 11, 292 C 5,121 J 2,854 K 21,000 average higher. M 500@517½ N 460@505, P 500@517, X 460@505. Cattle 10,000 including 300 southerns. Native steers 400@625. Southern Steers 250@375. Native Cows and Heifers 150@450. Stocker and Feeders 225@425. Westerns 300@450. Sheep, 6,000. Muttons 325@380. Lambs 400@415. Range wethers 325@400. Ewes 275@360.
(sig) 4:40 AM
"8:48 AM"

GRAIN SPECIAL FOR PUBLICATION.

(Hr spl No) 56 KC J "AD" (ck) Collect D P R
(fm) Kansas City Mo 22
(to) The Gallatin Democrat,
Gallatin, Mo

(.) Wheat—198 cars—Dec. $1.05¼; May, $1.04¼; cash No. 2 hard, $1.07¼@1.10; No. 3, $1.04@1.08; No. 4, 96c@$1.04; rejected, 85@94c; No 2 red, $1.12; No. 3, $1.08@1.10; No. 4, 98c@$1.06.

Wheat—Higher.

Corn—Dec. 41¾; May 40¾@40⅞; cash; No. 2 mixed, 48c; No. 3, 47½ No. 2 white, 48½; No. 3, 48@48¼c.

Oats—No. 2 white, 30@32c; No 2 mixed, 29½c.

(sig) .Watkins

Filed 4:37 PM. "4:40 PM."

INDEX—PART II.

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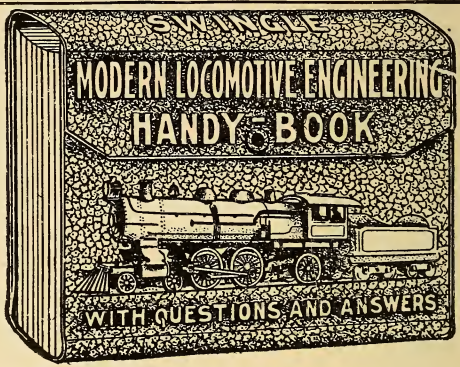
20th CENTURY EDITION

By C. F. SWINGLE, M. E.



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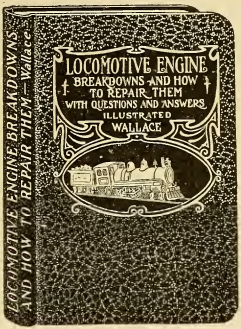

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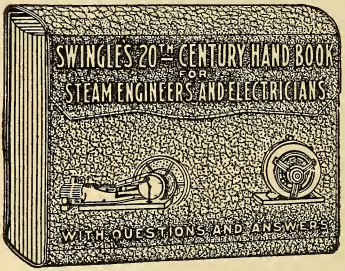

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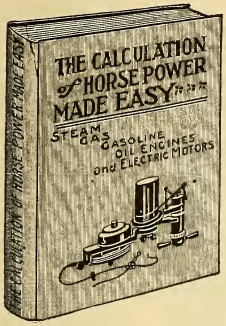

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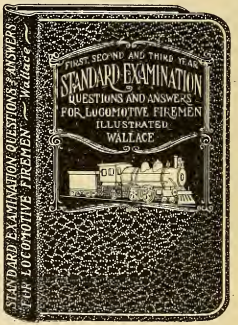

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