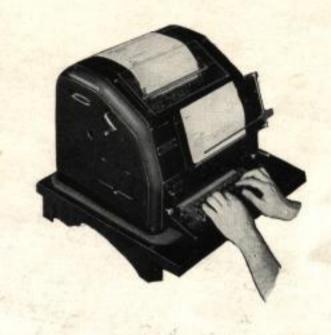
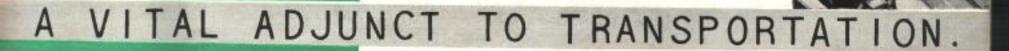


Communication





TELETYPE - A VITAL FACTOR IN KEEPING YOUR LINES "CLEAR"

RAILROADS ARE BUYING NEW MOTIVE POWER AND

NEW ROLLING STOCK TO SPEED UP BOTH PASSENGER AND

FREIGHT SCHEDULES. THE FULL VALUE OF FASTER SCHED-

ULES IS REALIZED ONLY WITH FAST CAR AND TRAIN HAN-

DLING AT TERMINALS AND PROMPTNESS IN ADVISING SHIPPERS

OF THE MOVEMENT AND ARRIVAL OF THEIR GOODS. TELETYPE

SPEEDS RAILROAD COMMUNICATIONS. ITS USE SAVES IN-

CALCULABLE TIME, GIVES COMPLETE, ACCURATE, IMMEDI-

ATE INFORMATION WHERE NEEDED. TELETYPE IS A VITAL

FACTOR IN KEEPING YOUR LINES "CLEAR."



"TELETYPE"

COMMUNICATION AS A VITAL ADJUNCT TO TRANSPORTATION

Communication on a railroad is second only in importance to motive power. Realization of this was evidenced in the early days of railroading by the introduction of the Morse telegraph, while later the telephone came into use and proved its value on dispatching and message circuits. It broadened the field of railroad communication and helped to simplify transportation and management problems.

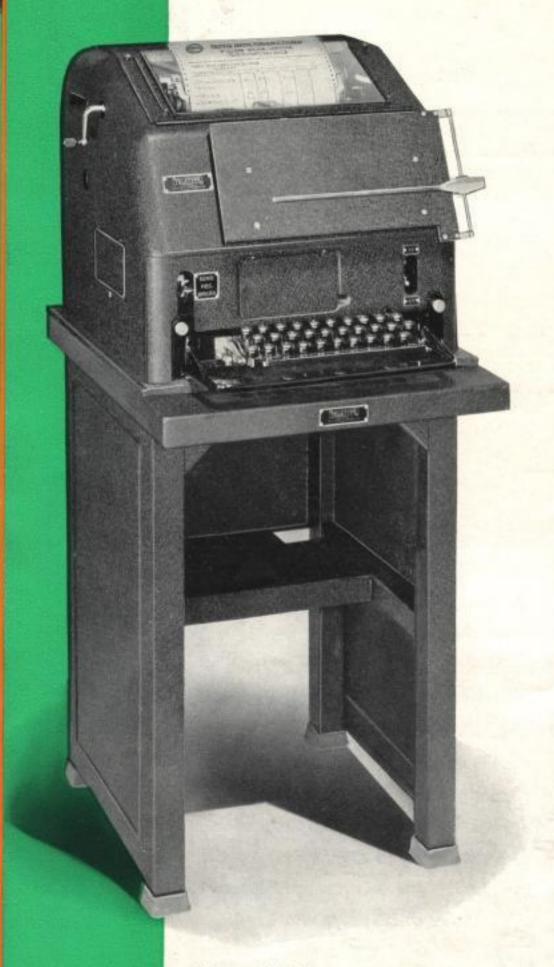
About 1910, Teletype came into the picture. At first it was considered merely a substitute for the Morse telegraph; a means of getting greater carrying capacity out of telegraph message traffic circuits. For this it was used chiefly on the long-haul circuits, where it car-

ried double, treble, and quadruple the load that could be handled on these same circuits by Morse methods. Teletype increased the speed of service and made possible the handling by wire of messages and reports which had previously been handled by mail. In many cases it did away with or postponed the necessity of building new circuits. In short, it was the answer to the question of what to do about speeding up the increased volume of message traffic.

The ability of Teletype to handle a larger volume of traffic with the same wire facilities is due not only to its greater speed, but to its unique ability to receive a message in typewritten form without human intervention or assist-



"All Clear"



Teletype Model 15

ance. One of the handicaps of message transmission by either Morse telegraph or telephone is the necessity for having a receiving operator available to receive a message when the sending operator desires to send it. This requirement is an especially severe handicap during periods when the telegraph office is manned by a reduced force, as may be the case during the evening or late at night. With Teletype operation, the sending operator transmits his messages when he wishes, and the receiving operator removes them from the machine at his earliest convenience.

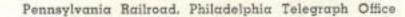
As this peculiar advantage of Teletype began to be realized, the use of the equipment spread outside the telegraph offices. The machines began to be utilized for delivering messages rapidly and cheaply to places where the employees were not Morse telegraphers and where they had numerous other duties which frequently prevented them from answering the telephone. Teletypes appeared in switch towers, freight offices, yard offices, passenger terminals, coach

yards, and almost every place where it was necessary to receive and transmit information regarding arrival and departure of freight cars and trains, passenger car movements, switch lists, and many other railroad routines.

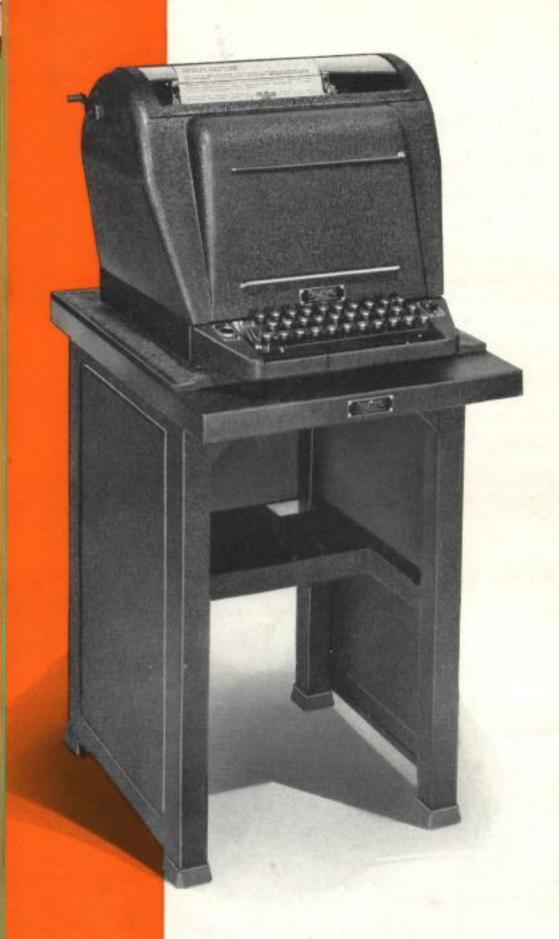
Teletype — Diversion Orders at Terminals

One well-informed railroad telegraph official made the following statement as to the use of Teletype in local service around terminals: "I think that one of the toughest problems we ever had has been almost completely solved by Teletype. I am talking about the diversion order proposition around terminals. All of us, I think, have grappled with that problem and we have been forced to tell the freight claim agent, 'Yes, that is our fault; pay the claim.' We have all been confronted with the question of accuracy when diversion orders were handled by telephone. Teletype handles that problem one hundred per cent correctly.









Teletype Model 24

He goes on to say, regarding another application of Teletype in terminal work:

"You have certain scheduled fast freight trains that are due to leave the terminal, we will say, at 6 P.M. and your freight house is closed at 5:30. The switch engine goes down to the freight house, pulls these merchandise cars out, rushes them out to the yard, puts them in a train, and the train departs immediately. It has always been a problem to get the billing completed and in the hands of the yard office people in time to go with that train, and we are running merchandise trains so fast now that we cannot do as formerly and send the waybills on a passenger train a few hours later. We are using Teletype machines between the freight house and the yard office to transmit the billing to the yard office as fast as it is billed at the freight house, so the clerk at the yard office, where the train is going to be made up, can make out a waybill to go with the train.

"This is particularly useful when you have several freight houses in a large city and the stuff is coming from each one of them to the concentration yard. It is also useful when grain is being loaded at outlying elevators and the elevators are close to the train yard but the billing force may be ten miles away. The switch engine gets the cars from the elevator, and we get the billing over the Teletype by the time the cars arrive at the yard."

Teletype — Classification Yards and Automatic Car Retarders

The Superintendent of Telegraph on a western railroad has said: "It is an axiom of railroading that the capacity of a railroad is limited by the capacity of its terminal facilities, which is another way of saying that it does no good to move freight trains at high speed unless they can be sent into and out of terminals as fast as they arrive."

Tracing the development of a particularly interesting application in connection with classification yards equipped with automatic car retarders shows the value of Teletype. The use of automatic car retarders speeds up classification yard operations so greatly it becomes obvious that sending switch lists to the towers by messenger boys delays cutting the trains and to some extent nullifies the advantages of the automatic yard equipment.

The answer, of course, is a receiving Teletype at each tower, with the sending machine in the yard office. As the train pulls into the yard, the bills are handed into the office. As the cars are classified, the operator at the Teletype transmits the list of cars in the order they would arrive at the hump. As fast as this information appears in each tower the train can be switched.

Teletype — Consist and Wheel Reports

The Teletype is now used to prepare a consist of the train when it leaves the distant terminal so that upon arrival the switch list is waiting for it; arrival notices are sent out in advance, and everything is ready for switching the train without delay.

This use results in transmitting a combined consist and wheel report. The clerk at the yard office where the train is being made up is given the waybill of each car as it is shunted into the train, and, using a Teletype machine, the information from the waybills is typed on a form which is a consolidation of the consist, conductor's wheel report, and other records. As fast as this informa-



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The Atchison, Topeka & Santa Fe Railway, Topeka Telegraph Office

office clerk's machine, a duplicate is typed on the receiving Teletype at the distant terminal where the train is to be switched, and at the same time may be typed on several other machines located in the car accountant's office, traffic department offices, and anywhere else that the information is needed.

A typical report of this character provides for the following information; Redball symbol and number; car initial and number; kind of car; contents; date; station number from which car is taken; gross and net weight; and destination with junction and routing. In addition to the carbon copies that are provided by the Teletype, it is the custom to run off a large number of copies on the duplicator, these being sent out to freight agents to enable them to keep in touch with the movement of cars with which they are concerned.

The receipt of this report at the distant terminal, hours in advance of the arrival of the train, permits the yard force at the terminal to make up switch lists or cards so that the yard master at the terminal is in a position to plan for the switching of the train far in advance of its arrival and to have the switch engine waiting and ready to permit switching operations the instant the train arrives. It also gives the yard clerk an opportunity to check the list of cars against his diversion orders, so that action can be taken on these without loss of time.

Teletype — Waybill Abstracts Received Hours Ahead of Train Arrival

A well known railroad man comments on this procedure as follows:

"One of the advantages of this method of wheeling trains is that it has smoothed out the peaks of the clerical work in the receiving yard office. Under the old system, when a train came in, it took about six yard clerks to work that train if they expected to start switching it within an hour. Sometimes a train would be delayed three hours waiting for yard clerks to handle the bills when there was a peak of work. The fact that the yard office at the receiving terminal has all of this information, which is practically a complete abstract of each waybill, anywhere from eight to twelve hours in advance of the arrival of the train, enables the yard office force to do the work smoothly and continuously, so that clerks are not idle half the time and overworked the other half.

"Incidentally, this system of operation has the effect of increasing receiving yard capacity, because tracks are not filled with trains waiting to be switched. This is actually the equivalent of shortening the running time of trains, i.e., the over-all running time, since cars are delivered to connecting lines or connecting divisions or placed on team tracks much more promptly than under the old system."

Hours saved in terminals by Teletype cut down transit time for your shippers quite as effectively as fast running time between terminals.



Teletype — Speeding Freight Through Railroad Marine Departments

Numerous other Teletype uses have suggested themselves, and the resultant installations have improved service and effected greater savings in the cost of doing business. One outstanding accomplishment has been the speeding up of the movement of freight handled by marine departments of railroads terminating in the port of New York. It had always been a serious problem to get arrival information across the river into the marine department offices in lower Manhattan and to get back from those offices the disposition orders which are necessary to permit distribution of the freight. With the use of Teletype circuits between the terminals and the marine department offices, the interchange of this information speeds the movement of cars so that far better service is given to the shippers. At the same time the railroads save thousands of dollars by moving their cars more quickly; doing away with per diem charges; time of lighters, and avoiding unloading and rehandling the freight on the docks, which previously was necessary in many cases.

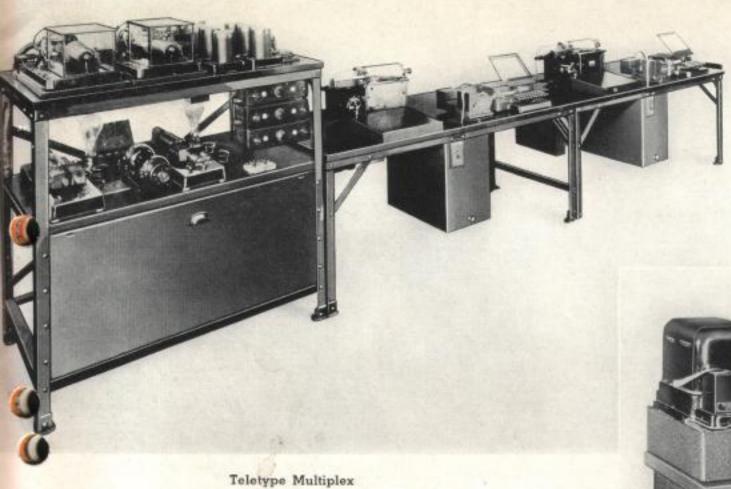
Teletype is the ideal means by which to transmit information from any one point to a number of other points simultaneously without the necessity for calling and waiting for someone to answer. An example of this kind of service in terminals is coach yard order service where the orders for equipment for passenger trains are transmitted simultaneously to all concerned. The only alternatives are messenger service, which is slow, or telephone service, which entails calling each individual concerned and often results in delays because of the inability of employees to answer the telephone, when momentarily absent or engaged in other duties.

Teletype — Information Services in Terminals

Teletype is also used for various kinds of information services in terminals, such as the distribution of train arrival information; track assignments for incoming trains, etc.

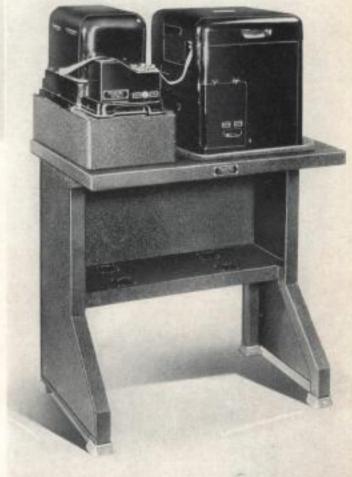
An important recent application of Teletype is the transmission of expense







Teletype Perforator— Distributor Set



Teletype Reperforator — Distributor Set





waybills for fast freight trains where truck delivery is given at destination. In the first use of this service all of the waybills for a train leaving in the evening were transmitted to the destination by midnight, thus allowing several hours, prior to the arrival of the train, for the planning of the delivery service and the assignment of the trucks to handle delivery. When the train arrived, the freight could be transferred directly from the cars to the trucks, with consequent speeding up of delivery and quicker release of the cars for subsequent use. Now all of the necessary copies of the waybills are produced by the use of multi-copy forms with interleaved carbons, or, in some cases, the waybill is printed in hectograph ink and copies are run off on the duplicator.

An interesting development in Teletype design is the sprocket feed device which permits reproduction of information on forms with exact registration in the location of the printing at the sending station and at the receiving stations. The platen of the Teletype is equipped with sprockets, which engage holes in the edges of the printed forms and so insure accurate alignment. By the use of interleaved carbon paper, as many as seven copies can be printed at one time.

This device opens up the possibility of filling out any type of form over a telegraph wire, within the space limitations of the Teletype, and has made it possible for large shippers to fill in waybill forms as cars are loaded and have these reproduced at the freight office some distance away, so that there will be no delay when the freight is picked up at the shipper's plant and taken to the freight yard.

Teletype Centralized Trace Bureaus

Teletype has come into wide use in connection with centralized trace bureau operation. With the speeding up of freight handling it has been found necessary to improve methods so that shippers can be promptly advised of the movement of their cars, and it is, of course, desirable to do this work in the most economical manner. The older method was to await an inquiry by the shipper and then telegraph or telephone the various yards, inquiring as to the location or movement of the particular



"All Clear"



Southern Pacific, San Francisco Telegraph Office

car in question. This was slow and wasteful car tracing, not at all in keeping with modern railroad operation and the faster movement of freight.

Here, Teletype again steps into the picture. As each train leaves the terminal or an intermediate yard, a complete list of all of the cars in that train is transmitted by Teletype to the central tracing bureau, where the movement of all these cars is entered on the tracing form. The trace bureau has then a complete record

of every movement of every car on the railroad. An inquiry can be answered quickly by referring to the record sheet, eliminating the necessity for a great deal of telegraphing and telephoning, and most important of all, giving the shipper an immediate answer to his inquiry.

Teletype — Diversion Orders for Perishable Freight

Those railroads handling a large volume of perishable freight find it impera-



Teletype Model 14



Teletype Model 19

vice for the handling of diversion telegrams. Delays and errors in diversion messages mean loss of business and costly claims. It is astonishing how quickly diversion messages are handled over the thousands of miles of telegraph circuits and delivered to many addresses by those railroads using the Teletype. The resultant satisfaction of the shippers means a permanent friendly feeling towards the railroad and makes it easier for the freight solicitor to induce shippers to specify routing over his lines.

Teletype — Passenger Reservation Telegrams

Railroads having complete and widespread Teletype facilities find it possible to handle passenger reservation telegrams in amazingly fast time, thereby increasing revenues and building up good-will for the railroad.

Teletype — Increases Traffic — Aids in Every Department

On some railroads telegraph traffic over the last ten years has increased four-fold; yet this traffic is handled without the addition of expensive telegraph circuits, and in many cases without increased personnel. There is no doubt that the speeding up of standard telegraph services and the addition of specialized Teletype communication services has resulted in improved relations between railroads and shippers, with consequent increase in traffic for the railroads using Teletype.

From this it can readily be seen that there is scarcely a phase of railroad operation which cannot be speeded up or improved by the use of Teletype communication. It is interesting to note that the most progressive railroads are the largest users of Teletype equipment, and that on many of these railroads practically all telegraph traffic, both long haul and short haul, is handled by Teletype machines.

Teletype — For Your Railroad

Only a few of the many types of Teletype equipment suitable for railroad communication service are shown in this bulletin. Teletype engineers will be glad to study your specific requirements and suggest the proper equipment for your railroad's communication needs.





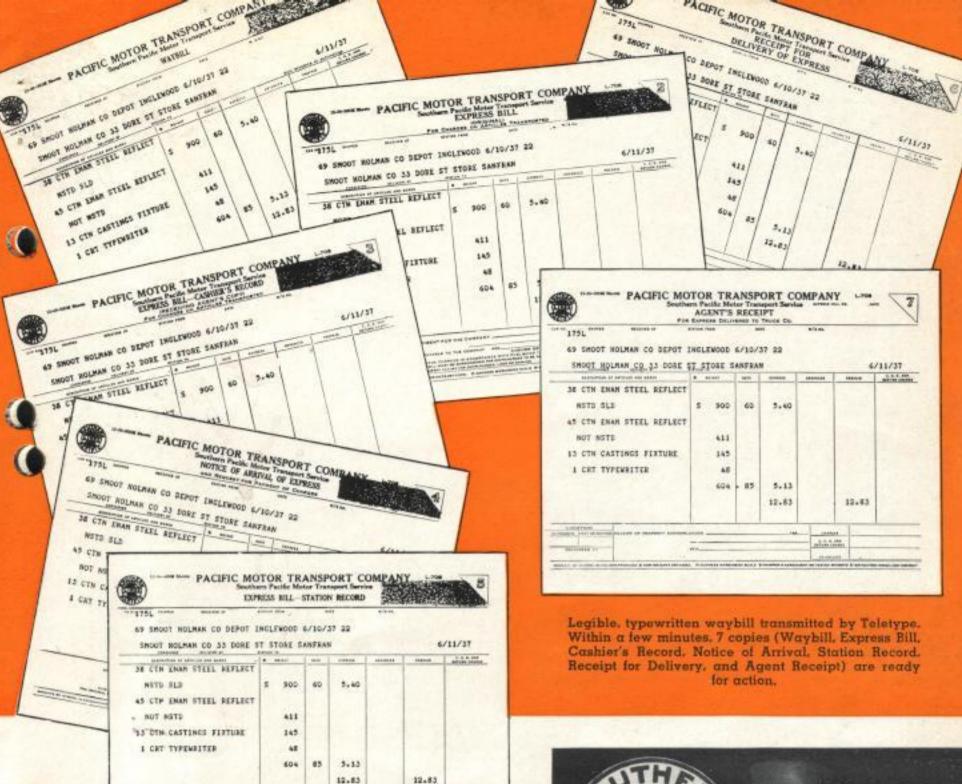
tion yard before train leaves makeup track.

Missouri Pacific Railroad, St. Louis Office

Into and Out of Yards Faster

Fast freight calls for speed in terminals as well as between them. Too often, more hours are spent in terminal operations than in line haul movement. But not when Teletype is on the job! On the Missouri Pacific, for example, Teletype gets freight into and out of yards faster. With direct Teletype service between yards at St. Louis, Kansas City and Ossawatomie, the wheel and consist report is received in the destination yard before the train leaves the make-up track.

Switch lists, arrival notices, accounting information, all are available before the train arrives. This Teletype service speeds up switching and unloading, increases yard capacity, saves switch engine hours, gives faster service to shippers. Faster service means more business.

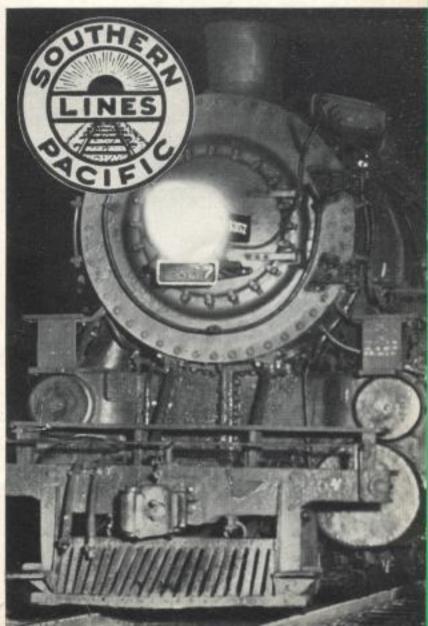


A Tight Schedule Made Possible by Teletype

Southern Pacific's "Overnight" fast freights pick up merchandise in San Francisco or Los Angeles late every afternoon deliver it in the other city early next morning. A tight schedule —made possible by Teletype.

Handling waybills in the old-fashioned way would add 3 or 4 hours to this door-to-door service. Teletype saves those hours by transmitting typewritten waybills by wire. All detail work is completed long before the "Overnight" pulls in. Pacific Motor Transport—which handles pick-up and delivery—rushes freight to its destination immediately.

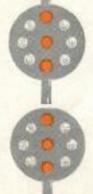
This is but one of many ways in which Teletype is speeding up routine work on leading roads.



PFE 71666 SEVEN SIXTEEN DOUBLE SIX DAVENPORT 19 COUNCIL BLUFFS D 176 UK AGT COBLUFFS CHECK CLOSE RV 189 OMAHA JUL 22 36 DIVERT OPEN JACK STEELE PRODUCE CO CHICAGO ILL CGW

One of hundreds of Union Pacific diversions handled daily by Teletype without loss or delay of a single shipment. Teletype gets the information to destination ahead of the train.

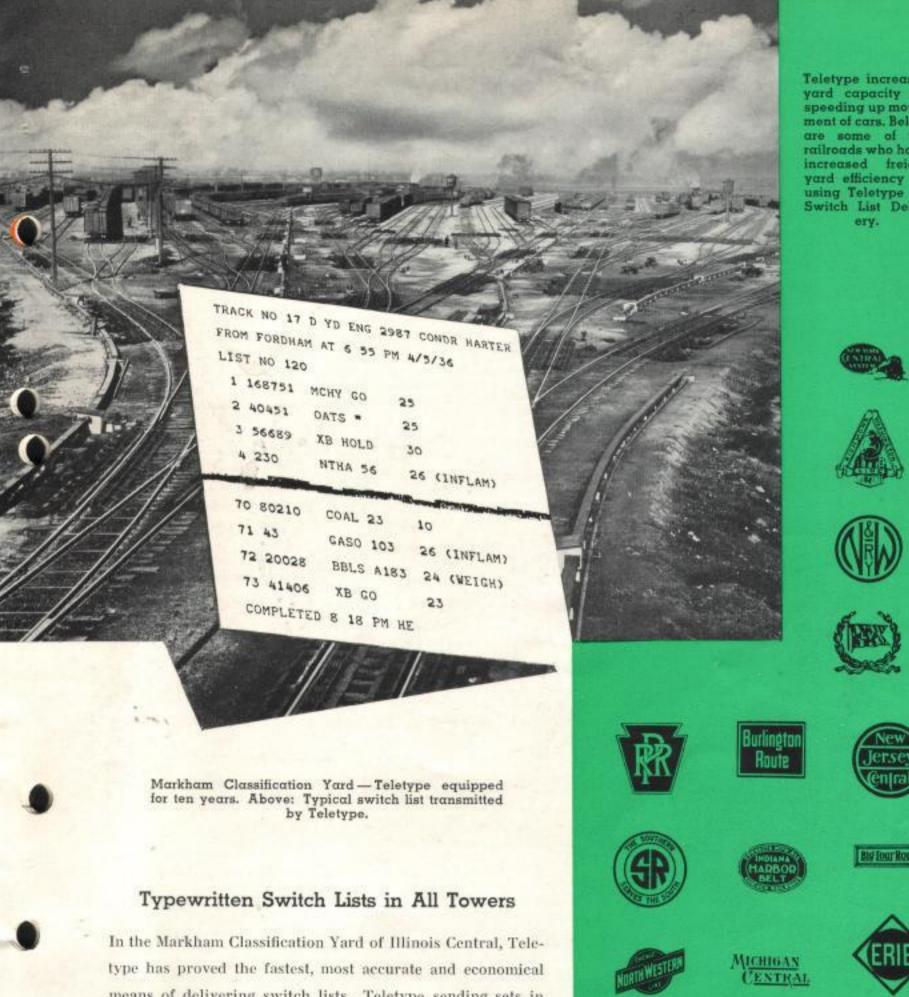
Handled by Teletype Without Failure or Delay



"All Clear"

"In the diversion of perishable freight, speed and accuracy are essential," says Union Pacific. "Between Omaha and Council Bluffs (for example) more than 2,000 diversions each month—as many as 270 in a single day—are handled by Teletype without failure or delay to the shipment. And in a fraction of the time required under old methods. Individual written confirmations and acknowledgments are no longer necessary,"

Union Pacific-like other leading roads-has found Teletype most efficient and most economical for general message traffic, reporting car arrivals to trace bureaus, transmitting consists and other reports.



means of delivering switch lists. Teletype sending sets in the yard office are connected by wire with receiving sets in all the switch towers. As fast as the waybills of incoming trains are checked, car numbers, load information and routing are typed on a sending machine. Typewritten switch lists appear simultaneously in all towers concerned. If you operate a classification yard, you need Teletype-it speeds up movement of cars and eliminates hazards to messengers. It also handles many other communication services efficiently.

Teletype increases yard capacity by speeding up movement of cars. Below are some of the railroads who have increased freight yard efficiency by using Teletype for Switch List Deliv-









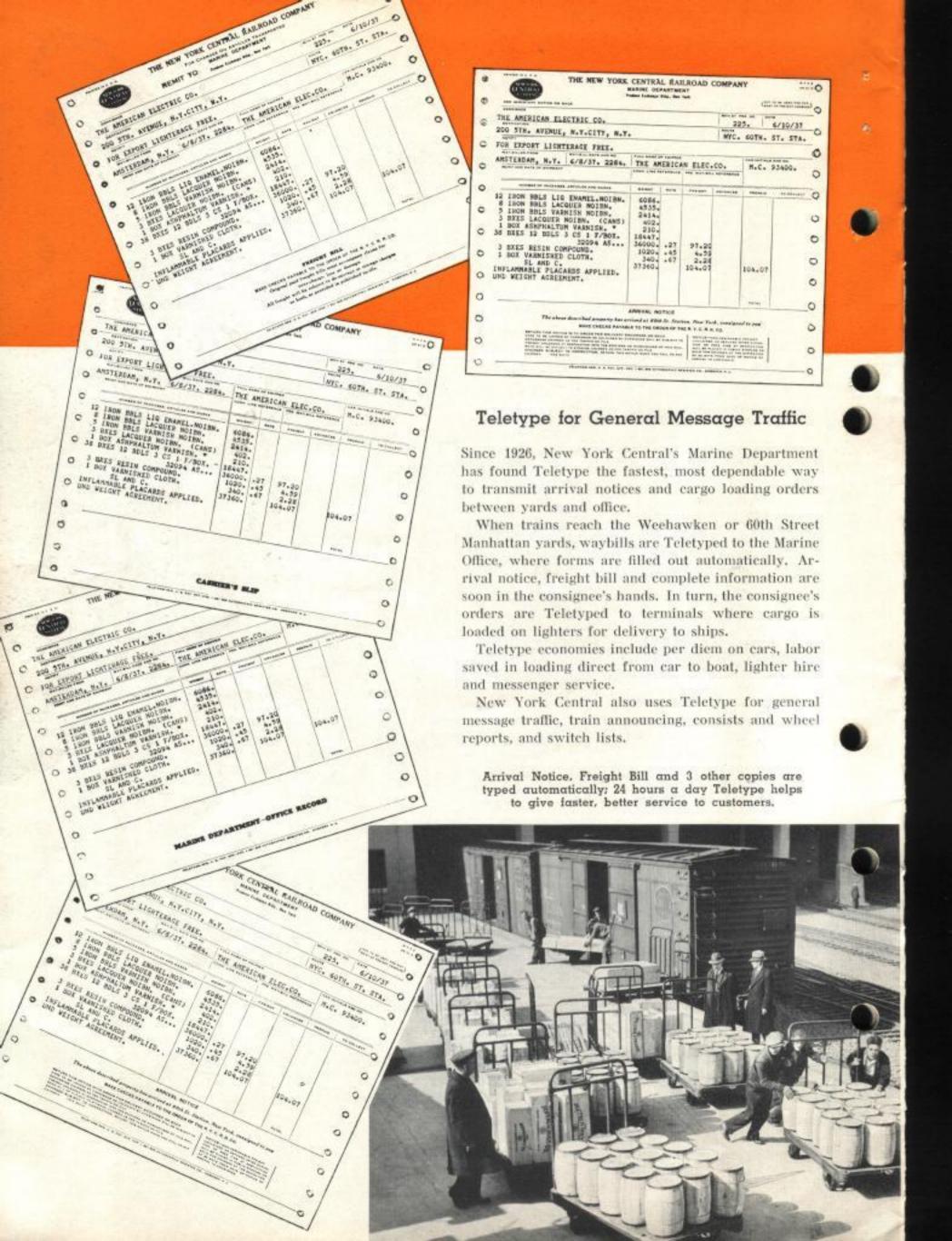


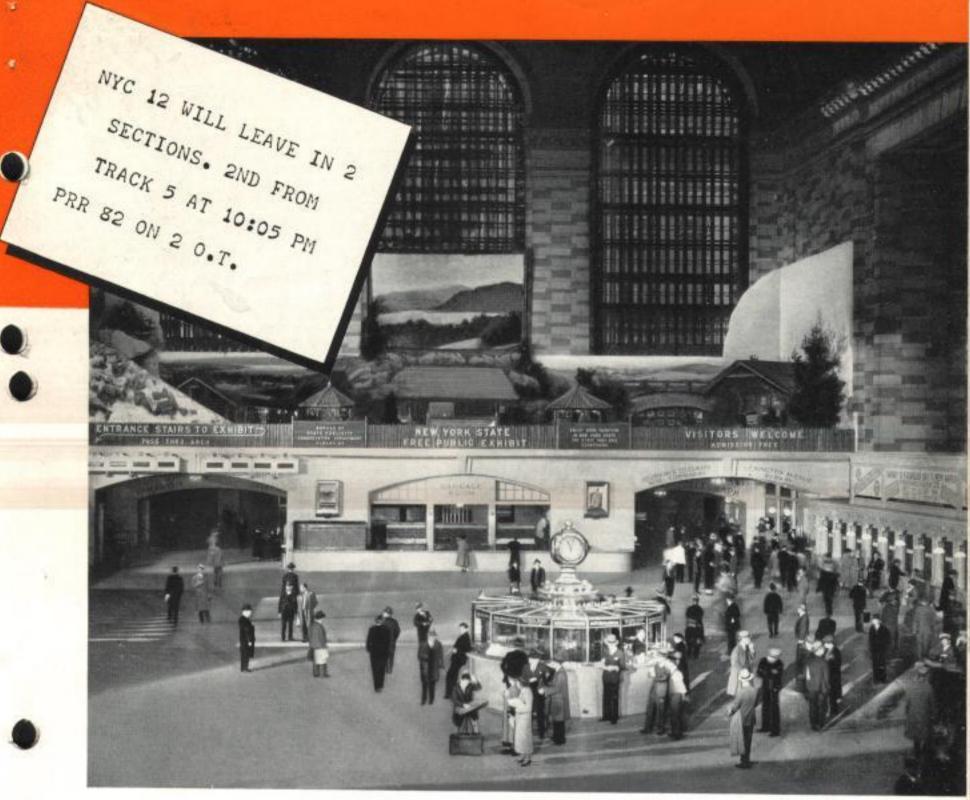












Typical train movement report as transmitted by Teletype

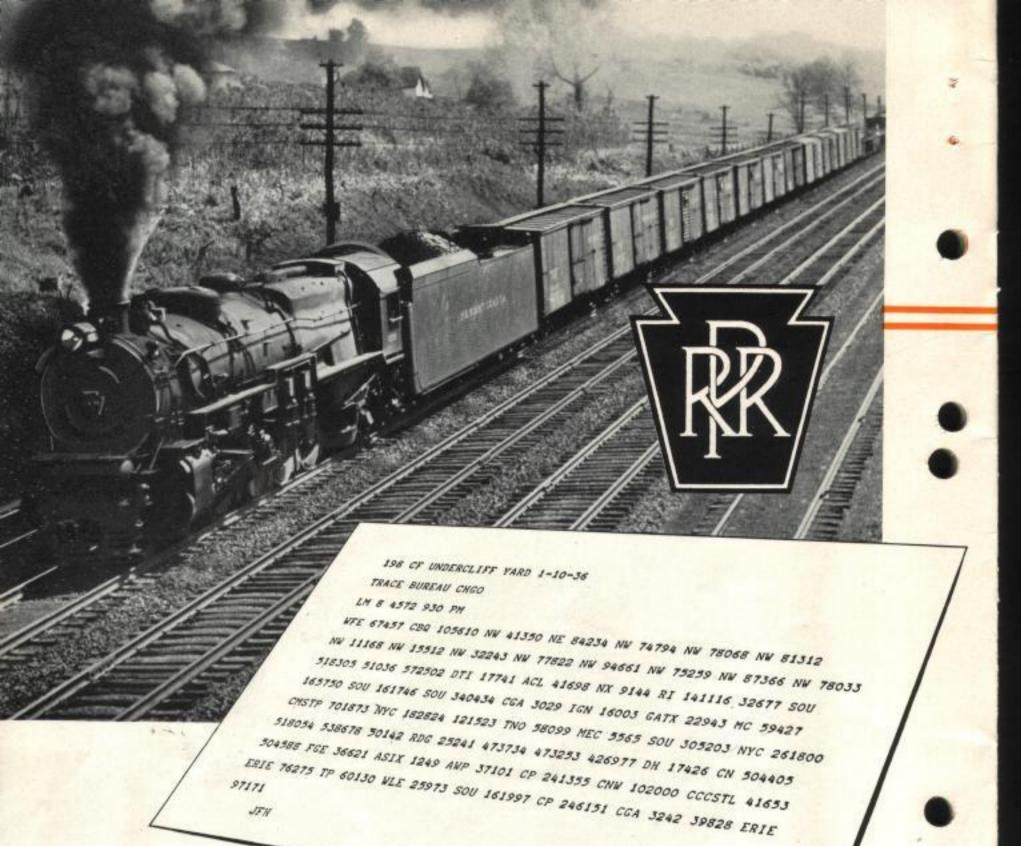
Up-to-the-Minute Train Information

Teletype quickly transmits accurate typewritten information regarding train arrivals and departures—gives faster, more dependable service to patrons—makes for more efficient operation of terminals.

To give all interested departments up-to-the-minute train movement information simultaneously, Teletype sets may be installed in dispatcher's office, yard switch towers, telegraph office, terminal superintendent's office, yard master's office, information booths, baggage rooms, at bulletin boards.

With Teletype, the terminal superintendent is always in touch with all train movements in his terminal—can issue or change orders promptly—get further information quickly.





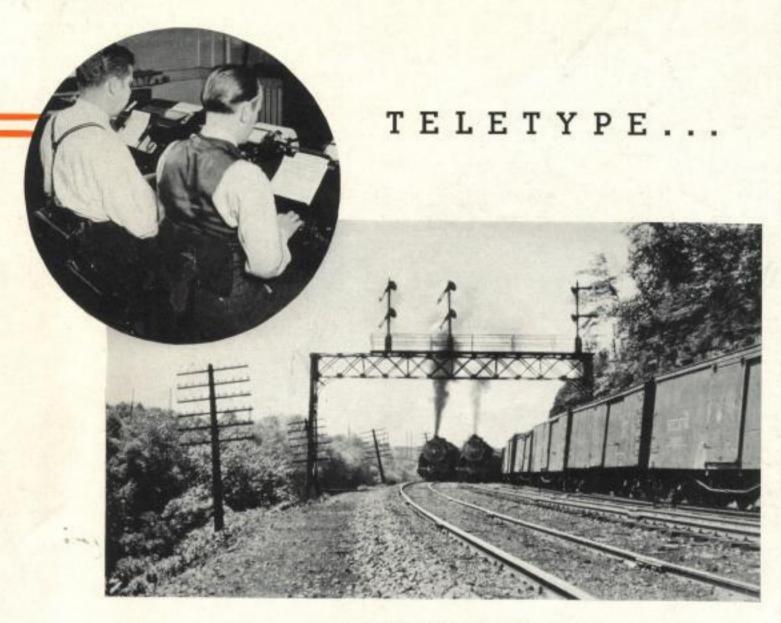
Teletype Gives Location and Arrival of Cars Immediately

More than 20 Teletype circuits in the Western Region of the Pennsylvania Railroad deliver up-to-the-minute train movement reports to the Chicago Central Trace Bureau; delivered not hours after the train leaves—but immediately after the engineer opens the throttle.

With complete typewritten reports by Teletype—the electrical communication messenger—this bureau answers inquiries about the movement, location and arrival of cars immediately.

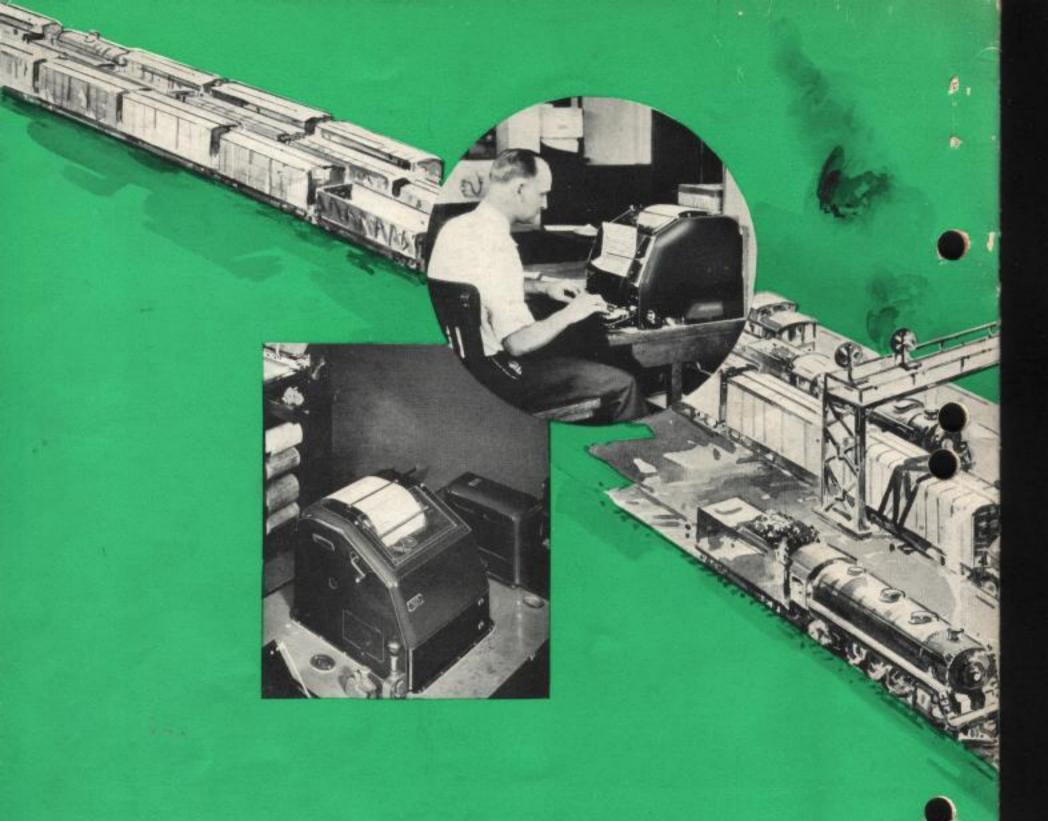
Teletype handles trace bureau reports so fast that plenty of time is left for other reports and the regular telegraph message file over the same circuits.

"All Clear"



"CLEAR"

Inset above: Teletype in operation, Los Angeles Office, Southern Pacific Frant cover: Teletype in operation, Philadelphia Office, Pennsylvania Back outside cover: Transmitting Teletype, Milwaukee Office, Chicago and Northwestern. Receiving Teletype in operation, St. Louis Office, Missouri Pacific



TELETYPE

CORPORATION

1400 WRIGHTWOOD AVE., CHICAGO