

IN THE FIELD OF ELECTRICITY

Telegraph Versus Telephone.
IS THE telegraph doomed? This somewhat surprising question is raised by some suggestive figures which appear in a recent issue of the Electrical Review regarding the comparative growth of the telegraph service of the world and the use of the telephone. The telegraph is much older than the telephone, yet in this country the latter is used fifty times where the telegraph is used once, and statistics show that the use of the telegraph is not extending. Figures for the telegraph service show that in 1903 nearly 35,000,000 messages were sent in all countries, an average of about 1,000,000 messages a day. Great Britain is credited with the sending of 2,471,100 messages, and the United States comes second with 2,311,000 messages. In 1902, for which the telephone statistics are available, the number of messages transmitted in the United States alone was more than 1,000,000,000. The business has increased tremendously since then, while British postal statistics show that in 1903 there was a falling off in the number of telegrams sent in the United Kingdom of 2.7 per cent from the previous year.

There can be no question that the diminution of the use of the telegraph is almost wholly due to the increasing competition of the telephone. The Review attributes it in part to the great industrial combinations. The greater convenience of the telephone, however, would make it a formidable competitor of the telegraph under any conditions. The installation of private and house telephone systems in every large business establishment, the increasing number of telephone companies and the building of lines into the rural sections, have contributed to make the telephone almost universal, and there is very little increased building of telegraph lines, these generally following the direct lines of communication between business centers. In the development of wireless telegraphy and with wireless telephony expected in the near future it seems not unreasonable to expect that the telegraph will suffer from a still greater competition, and that its use will be more and more restricted. It will be a long time, however, before the telegraph lines of the country will be given up. The telegraph serves an important use, and has some advantages over other methods of communication which will continue to give it a long life.

The history of development in the telephone service has been the history of all large inventions. It started with the few who could afford luxuries in their business and now in the fullness of time it is getting down to those of more moderate resources, not as a luxury, but as one of the up-to-date conveniences of life. When the mowing machine was first put on the market only fancy farmers used it, but now it is as common as the wagon that hauls the crop to the barn. Now that the telephone has come within reach of the farmer it meets needs that were formerly hardly suspected. No class can find a more general use for it. It breaks the isolation that has been so deadening an influence in scattered communities. It is a great industrial convenience and a stimulator of social intercourse. It makes men more intelligent and public spirited citizens.—Boston Transcript.

An Economical Motor.

A veritable speed, single phase motor is a new electrical invention. The aim of it is to provide a motor which shall be simple and economical in operation, to obtain means for giving to it gradual acceleration and efficient speed control and to enable a plurality of motors to be governed from a single point at a distance from them. In order to do this the inventor contrived a special form of induced compensated motor, which is of the commutator type, being provided with two sets of brushes, one set placed in mechan-

ical line. The brushes of the former set are connected, thus forming a short circuit, while to the latter set of brushes is connected a source of electro motor force variable at will by means of a suitable controller. The function of the controller is to supply to the latter set of brushes an electro motor force decreasing with the increase of speed and to the stator terminals an electro motor force having minimum value when the rotor is stationary, and increasing as the speed increases. The active electro motor forces for both the rotors and the stator are obtained through the controller from taps on an auto-transformer connected across the supply line. The rotor and stator windings form virtually a series circuit, but by reason of the presence of the transformer the electro motor force impressed upon the rotor must be in time phase with that impressed upon the stator.—Chicago Tribune.

Diners on Trolley Line.

Installation of a buffet car service was made last week on the line of the Aurora, Elgin & Chicago railway, and is an innovation in electric railway travel. A buffet and chair car is to be added to the trains running from Fifty-second avenue to Wheaton, Elgin, Aurora and Batavia. "We are confident that persons going to Wheaton or any of our other terminals will find it convenient to have supper on board the train on the way home," said Leon F. Reinard of the traffic department.

The Electric Engine.

Although it has been one of the greatest factors in the development of this country, the steam locomotive is doomed. That panting, puffing, screeching monster, belching clouds of smoke and showering cinders, must give way to the electric motor, without noise or dirt, for the transportation of both freight and passenger trains.

Years ago it was demonstrated that for passenger traffic on short lines in densely populated districts electricity was in every way superior to steam as motive power.

While reluctantly admitting that fact, managers of steam railways declared that for long-distance passenger trains and freight trains electric power would be inadequate, excessive in cost and therefore impracticable. It was claimed that until electricity could be generated without the use of steam it would be more economical and efficient to use steam direct in engines.

Actual tests made recently have demonstrated that the cost of transportation is greater by the steam engine than by the electric engine. A steam train of five cars and a standard engine weighs 330 tons and will accommodate 168 passengers. It uses at full speed 1,400 horse-power. The electric motor and four trailer cars weigh 250 tons, seat 180 passengers and use 1,000 horse-power. The electric train weighs less, uses less horse-power, carries more passengers and goes faster.

Some half-dozen railways in this country have followed the lead of the New York Central and arranged to use electric power on portions of their lines now being operated at a loss with steam power. Practical tests made on the Lackawanna and Wyoming Valley roads, owned by the Westinghouse company, show an economy of 30 per cent as compared with the steam system.

Steam railway managers everywhere are exceedingly interested in results being secured on the Ballston extension of the Schenectady railway, where cars are run with alternating current equipment, just perfected. The motors used can be run either from a 2,600-volt alternating current, stepped down in the car to 400 volts, or from a 600-volt direct current. The electric railway motors in general use are operated, as is well known, by a direct current with a trolley voltage of about 600 volts.

It is claimed that the new motor, which can use direct or alternating currents of

widely varying voltage, has cleared the way for the adoption of electric power for light or heavy trains, freight or passenger, on lines of any length.—Chicago Inter Ocean.

Trolley and Train in Rivalry.

An interesting duel of methods is to be fought in the Bronx between the New Haven and the Huckleberry railroads. The steam road is to be widened to six tracks and swift and frequent service will be given to the suburbs. Grade crossings will be abolished and ample provision will be made for the comfort and safety of the passengers. To meet this great and needed improvement, the like of which will be installed on Long Island, some day, the Huckleberry road will begin an express service of trolley cars from New Rochelle to the Bronx Park station of the Manhattan Elevated road, which will make but four stops enroute, and will insure a seat for every passenger for the present.

Both of these enterprises illustrate the effect upon one another of the old and newer methods of transit, and show what changes may be expected in the suburban service of all the cities of the world within the next half century. The steam road has the best of it, at present. It runs on its own tracks instead of through the street, thereby securing speed and safety and avoiding the occasions for public discontent which come of the ceaseless upstartings and downbeatings of the highways, incident to the maintenance of electric railways. Its rates are higher than those of the trolley, but those who use it systematically are able to secure commutations that make them even lower, for some cars are to be avoided at any price. The train is spacious, well furnished and comfortable. The trolley car in the city often stands as a symbol of discomfort. The train reaches its destination at a given time. Nobody knows when a trolley car will start or arrive. Passengers by train wait for it in a clean and well warmed station. The trolley passenger stands on the open road in rain, dust, wind and snow. A train may break down and other trains can be switched around it. A breakdown on a trolley system stalls dozens of cars and forbids progress for hours.

If trolley traffic is greatly to increase, however, if it is to include freight as well as passenger service, there must be a radical change in method, and that will affect its present prime advantage, namely, cheapness in operation. For up to this time the trolley companies have held a childlike trust in their ability to convert to their own use streets and highways of the nation. Up to a certain limit this was natural. So long as they followed in the lines of the old horse railroads there was no objection. But on branching into the country they still maintained the "right" to use, and in some cases monopolize the roads, chopping shade trees, tearing up macadam paving, planting unsightly poles and destroying the peace of formerly attractive neighborhoods. They have pushed the public off from bridges that the public had built. They have invaded parks and village greens and changed their gongs at the doors of hospitals, schools and churches. This is wrong. The trolley line of the future must parallel the highways, not fill them. It must be remembered that the trolley creates suburban population, and in that very fact creates the need of ampler room for the carriages, drays and automobiles of that population. Hence it must buy its own right-of-way across fields and through woods, touching the roads at intervals. To rival the steam road it must partially accept its methods.—Brooklyn Eagle.

Street Telephones.

The telephones at street corners, either on the telephone pole or on the same post with the mailbox, may be a future convenience of many cities and towns, is asserted in Popular Mechanics. Says this

paper: "Already they are in use to a limited extent, key-ess stations opened by merely tarring the handle and which contain the pay station and a directory, being the equipment. Hollow iron posts allow the necessary ground wires. In some places the agreement with the company insures that, for the privilege of placing the telephones, all emergency calls, such as police, fire departments and hospitals may be free of charge. This makes the system a public benediction, saving time in case of fire or accident, and to an extent protecting the citizen. These stations are paying investments to telephone companies, as they require little extra wiring and cost little to maintain. George A. Long in the American Telephone Journal, says there is no reason why these stations should not supersede the so-called police telephone systems now in use. Police could send in their reports to headquarters over the public stations, and the blue police box would be no longer needed. Certain it is that such a system in residential sections of cities would be of great public benefit, as it would in parks and along boulevards and roads frequented by pleasure seekers. How often the automobilist would find it of use! How often it would save some person's going four or five blocks to the drug store or grocery!"

New System of Telegraphy.

Interest has just been allowed to Mr. Glara, an Italian civil engineer and electrician now residing in Boston, for a new system of telegraphy. This system consists of two identical disks, one for each station; on these disks there are distributed a number of electric contacts connected with the keys of a number of type writing machines; each disk has a revolving contact which connects the contacts of the disk successively to the line, the revolving contacts at the two stations moving in perfect synchronism. When a key is pressed an electrical impulse is sent to the corresponding contact of the disk; this impulse is taken by the revolving contact and sent over the line to the revolving contact of the receiving disk and then to the contact of the disk and to the key of the receiving typewriting machine, which prints a letter. There are special devices for the synchronism; for strengthening the arriving impulse; for neutralizing the line after each impulse; for arranging the position of the two disks so that the contacts of the same letter are connected when an impulse is sent over the line; for keeping closed the keyboard of each sending typewriting machine when the others are working; for starting and stopping the revolving contacts, etc. The electrical impulse can be an electrical oscillation, and for this the Glara system, it is claimed, can be used in wireless telegraphy, sending many hundred words per minute instead of the twenty-two now sent.

Kissing the Barney Stone.

"Last year, while in the south of Ireland," writes a traveler, "I paid a visit to Barney castle and while there had the queer experience of kissing the Barney stone, famous in song and story.

"One of our party, having gone through the ordeal before, volunteered to kiss the stone first and show us how it is done. When it is understood that you are attempting to kiss a stone set in the outside wall, and you on the inside, one can guess that it is no easy task. It is best to take off your coat and watch and chain and empty your pockets. There is an opening, as it were, in the floor. You sit on the edge of this, catch hold of two bars in the wall and lower yourself backward down the opening till you are able to stretch out and reach the stone. As you do this the rest of the party hang on to your legs.

"The precaution of taking off the watch and chain and removing money from your pockets is a very wise one, as you have to hang head downward to get at the stone."

