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Johnston Electric Company

G. W. Johnston, President

ELECTRICITY ON THE TRAIN

Many Uses to Which the Current Has Been Put.

SAFETY AND COMFORT SECURED

Devices for Signalling, Lighting and Otherwise Controlling Operation of Trains Are Many and Are Being Improved.

"Although the use of electricity in the operation of railroad trains has added immensely to the safety and efficiency with which trains are handled, the use of that great power in railroad is still in its infancy and undrained wonders will be worked out within the next few years," said Dr. Frederick Miller of the electrical department of the Union Pacific, who has been making advanced experiments in all lines to increase the use of electricity, both in handling trains and also in construction and repair shops.

date, a change is coming and the alternating current will come into its own and do an immense amount of work in far better shape than has been done by the direct current. The alternating current is the natural current, the mighty power walking on two legs, while the direct current is a cripple, which has to hobble along on one leg, and consequently is looking for a place to lay down and rest or to run to earth. The alternating current, on the other hand, is a strong giant, with two good legs, which can go twice as far. The alternating current was the first to be discovered and is the natural state, and the direct current was evolved from the alternating.

Better Block Signals.
"Before a great many years the block signals will be operated by alternating current, and they will then be much more efficient and less expensive. This will be done as soon as more power plants are available. It is impossible to estimate the future of the alternating current, for it is the current as it occurs in nature. The direct current is an alternating current from which one leg has been cut off. Researches began with batteries and when they found how to make the direct current they at once began to manufacture direct

current machinery and that is now the most used. For the last fifteen years the users of electricity have been satisfied with the direct current. All electricity existing in nature and even lightning is nothing but high frequency, high voltage, alternating current of great motive force and power.

"The electric locomotive will replace the steam monster in many localities, for it has many advantages over its steam brother. An electric locomotive can haul a heavier train up a steeper grade than can a steam locomotive of equal horsepower. This is seen daily on the streets of Omaha in the way the large cars of the Omaha & Council Bluffs Street Railway company are lifted up the steep grades of the city.

"With the harnessing of the mountain streams and the establishment of water power plants in the mountains, the heavy hauls of the mountains will in time be made by electric locomotives. I understand the Milwaukee is now building two immense power plants of 20,000-horse power each to use in crossing the mountains on its new line to the Pacific coast.

Telephoning from Trains.
"Communication between trains by varying frequencies is but a matter of a short time. Telephoning from moving trains

without wires is but a matter of a short time. Contrary to the general opinion, the distance to be covered by this contrivance is not necessarily great, as it will be simply the distance from the train to the ground.

"The use of electricity in the various railroad shops has worked wonders in the saving of expense and also in doing away with the danger to life and limb. The principal advantage is in doing away with the miles and miles of belting and shaft-



BERT LEBRON, LeBron Electrical Works.

ing which is at all times dangerous, and making use of the individual drive. By the use of electricity each machine is provided with a motor of sufficient power to operate it, and when the power is not needed to operate the machine no power is used, as was in the case of the old belting system, when the miles of belts had to be kept in operation all the time. The wires are consolidated into cables which are buried, and the shops present an entirely different appearance than in the olden days. Unsightly wires are done away with.

"A huge central power station now furnishes the power for the Union Pacific shops in Omaha, and where formerly



C. A. MANGUM, Head of the Firm of Mangum & Co., Operating One of the Most Complete Letter Factories West of Chicago.

dozens and dozens of unsightly smoke-stacks belched forth their black smoke and dirt, now but one stack is seen, and that is over the most modern of furnaces. The belts were also conveyors of dirt and this objectionable feature of the old system has been done away with.

"It will not be a long time until all trains are brought into large cities by electrical locomotives. Most trains will soon be lighted by electricity from dynamos situated in the baggage cars. The cooking in the dining cars will soon be done by electricity and the trains will be heated by electricity. The unevenness of temperature in the sleeping cars will be done away with, for a thermostat will keep an even temperature in every berth.

Advance in Signaling.
"The possibilities of wireless telegraphy as an adjunct to the block signal systems is still in the making, but great corporations are continuously experimenting with one device after another to secure the utmost safety for passengers and equipment. The trend of everything on the Harriman lines is toward smoothness, safety and

efficiency and everything is sacrificed to these achievements.

"One of the latest and most important work done is the effort to accurately and efficiently dispatch trains by telephone, and this is gradually meeting with considerable success. There are many difficulties and prejudices to be overcome before telephonic operation of trains will displace the telegraph, but these are being gradually overcome. The Illinois Central is fast putting into practical use the telephone in operating its trains and the Union Pacific is now operating the stretch between North Platte and Sidney by telephone. The success of these experiments is so great that plans are being laid to use the telephone more and more.

"Signal systems are now being made so efficient when operated by electricity that trains may be required to travel at a certain speed, this keeping the trains a certain distance apart and thus governing the speed of the trains. With the advance in the use of the alternating current much more can be done in the way of control of

(Continued on Page Five.)



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