

# Western Union To Use RCA Relay

AUTOMATIC MICROWAVE RADIO SYSTEM DEVELOPED BY RCA ENGINEERS WILL REPLACE HUNDREDS OF THOUSANDS OF MILES OF WIRE LINES, TELEGRAPH COMPANY ANNOUNCES.

A NEW super-high-frequency radio relay system developed by engineers of the Radio Corporation of America will be used by the Western Union Telegraph Company to improve and speed its service between the major cities of the United States.

In announcing Western Union's plans for the new relay system on October 22, A. N. Williams, President, predicted that radio relay systems ultimately will replace many of the familiar pole lines and hundreds of thousands of miles of wire in the company's 2,300,000-mile telegraph network.

Development by RCA of the new system is one of the most significant advances in the communications field in modern times, according to Dr. C. B. Jolliffe, Vice President in Charge of RCA Laboratories. It climaxes more than twenty years of radio relay research and engineering by RCA.

An experimental radio relay circuit was established between New York and Philadelphia last spring by RCA and Western Union, with the sanction of the Federal Communications Commission. It has been successful in meeting all of the tests imposed on it, according to Western Union, and has provided the experience required for the proposed nationwide radio relay system.

Employing radio microwaves transmitted by towers spaced approximately 30 miles apart, the relay system will provide a larger number of channels than are now available for the handling of telegraph traffic, it was said, and also will provide circuits for new uses and for special leased networks required by large users of the telegraph.

With this type of radio relay, Dr. Jolliffe pointed out, it is possible not only to send telegraph messages in multiple numbers over one circuit simultaneously and with the speed of light, but to transmit telephone calls, commercial high-speed facsimile, radio-photos, and FM

(frequency modulation) broadcast programs. In addition, it can be used to operate automatic typewriters and business machines at widely separated terminal points.

"Tests conducted with RCA Victor apparatus in cooperation with Western Union over an experimental circuit between New York and Philadelphia," Dr. Jolliffe said, "have demonstrated that the radio relay system functions more efficiently than one using pole lines, without having the limitations or costly maintenance of wires. It is reasonable to believe that besides the wide use such systems will eventually have in communications services in this country, including those for transport vehicles and aircraft, they will be especially well adapted to rehabilitate and expand communication services in foreign lands."

### Credits Three Engineers

Dr. Jolliffe credited three engineers of the RCA Victor Division, Camden, N. J., with development of the microwave system to be used by Western Union. They are Donald S. Bond, head of the project; L. E. Thompson, contributor of original ideas for the circuit, and Gerald G. Gerlach, supervisor of field installations and tests.

The system, which was manufactured by the RCA Victor Division, has these marked advantages over conventional systems: virtual elimination of distortion due to interference; simpler, more reliable and easier maintained; less equipment required at relay towers and lower cost of operation.

Radio relay stations in the system are automatic, unattended towers so perfectly designed that, despite the fact that they participate in the transmission and reception of every signal set in motion, their presence in the circuit causes no delay or interference.

In its first major move to use radio relays, the telegraph company revealed that it has applied to the Federal Communications Commis-

sion for permission to establish experimental radio relay systems between New York and Washington, New York and Pittsburgh and Washington and Pittsburgh, and a secondary system between New York and Philadelphia.

This first step, a part of Western Union's extensive post-war improvement program, is known as "The New York-Washington-Pittsburgh Triangle." Its establishment in time will permit the removal of approximately 2,500 miles of pole lines, some 54,000 miles of wires and 180 miles of aerial and underground cable.

The system planned for the "Triangle" would provide radio beams in each direction. Each beam could be equipped to provide 270 multiplex circuits, so that 1,080 operators could transmit telegrams simultaneously over a beam in one direction, but there is no present likelihood that traffic between any two cities would require such a large capacity. The radio relay facilities, however, may be used for various kinds of circuits, including multiplex, facsimile and teleprinter.



AUTOMATIC, UNATTENDED RADIO RELAY TOWERS, LIKE THE ONE ABOVE, MAY ULTIMATELY REPLACE THOUSANDS OF MILES OF TELEGRAPH AND TELEPHONE LINES IN THE UNITED STATES.