

Around the World by Telephone

THE first two-way telephone conversations completely encircling the earth took place at New York City, during April, 1935. The two telephone instruments used were located in separate rooms on the 26th floor of the Long Distance Building at 32 Sixth Avenue, New York. In connection with these tests, Mr. Gifford, President of the American Telephone and Telegraph Company, spoke with Vice-President Miller, and a number of other persons conversed over this around-the-world circuit for some thirty minutes on April 25th.

These world-encircling conversations were made possible by the very close cooperation of the several communication interests involved, including the British Post Office, the Netherlands Telephone Administration, the Netherlands Indies Telephone Administration, and the Bell System.

The circuit used was completely four-wire and was made up of a cable and open wire carrier telephone circuit from New York to San Francisco, a radio link from San Francisco to Bandoeng, Java, a radio link from Bandoeng to Amsterdam, the Netherlands, a land and submarine cable link from Amsterdam to London, England, and another radio link back to New York.

The approximate lengths of each type of facility and the radio frequencies used in each radio link are indicated in the table below:

Circuit Sections	Type of Facilities	Length	Radio Frequencies Used
New York-San Francisco	Cable and Open Wire Carrier	3500 Mi.	—
San Francisco-Bandoeng	Radio	8700 Mi.	E.-W. 10840 Kc. W.-E. 9415 Kc.
Bandoeng-Amsterdam...	Radio	7300 Mi.	E.-W. 19355 Kc. W.-E. 18535 Kc.
Amsterdam-London.....	Cable	300 Mi.	—
London-New York.....	Radio	3500 Mi.	E.-W. 12150 Kc. W.-E. 18340 Kc.
Total.....		23300 Mi.	

In completing this around-the-world connection the operating personnel at the various points involved were working at vastly differ-

ent times of the day. At New York the time was 9:30 in the morning and at San Francisco 6:30 in the morning. Between San Francisco and Java the voice went from April 25th into April 26th and back reaching Java at 10:00 o'clock at night on April 25. At Amsterdam the time was 2:50 in the afternoon and at London 2:30 in the afternoon.

A total of about 980 vacuum tubes were used and of this number 515 were in the United States. In all, the above vacuum tubes produced a gain of about 2000 decibels in each direction of transmission. The total delay in the transmission of speech over this circuit was about one quarter of a second. While this was not particularly noticeable to the talkers at the two ends of the circuit, at one time during the conversations telephone receivers located near one of the talkers were connected to the opposite end of the circuit. With this arrangement the delay between the speech from the talker as heard by the short cut and that as heard over the circuit was very marked. It is of interest to note that while the land line links accounted for only about 15 per cent of the total distance traversed by the voice, they were responsible for about 55 per cent of the delay.