Far-reaching Effects of Two-way Telephony

ONE by one the great stretches of continent and ocean are being conquered and regular reliable services on telephony are being established. Only a short while ago regular two-way communication was established between England and America. Now another expanse of ocean has been traversed and Australia talks to America and Java.

Recent Experiments.

LOCAL listeners have for some time been reporting the increasing perfection of the tests between 2ME (Amalgamated Wireless, Sydney) and W2XAF (Schenectady, New York). Remarkable tests have been carried out. About a week ago the officials of the Sydney station carried on a conversation with the announcer at Scheuectady, nearly 10,000 miles away. The signals remained perfectly steady for an hour, and the men spoke to one another as over a telephone line connecting two neighbours.

This was one of the first successful sustained conversations held over that vast expanse of water—the Pacific.

"HULLO, Mr. Farmer," called the American. "This is station W2XAF of the General Electric Company, Schenectady, U.S.A., testing with 2ME, Sydney, Australia."

"Hullo, W2XAF. Hullo, Mr. Hitt. This is 2ME here. Just give me a few moments until I tune you in," was Sydney's reply.

"I say," called the announcer in New York, "it certainly is a thrill to talk to another country like this. Your signals are coming in here beautifully now. You seem to stay consistent. Your wave does not go up and down at all."

"Hullo, Mr. Hitt. You are coming in here in tremendous strength; so loud that I will give you a reading on the micro-voltmeter," Sydney replied.

"That's good. I must be giving you enough juice to charge your A batteries with," was the American's humorous reply.

Greetings from various other people in Sydney followed, and then a long technical discussion between the operators.

After an hour the signals began to waver, and finally became indistinct and faded out. This, it is suggested, was due to the heavy rain that fell in Sydney at the time.

Successful Conversations.

FOLLOWING this, a further series of conversations has taken place. To create general interest, for those conversing have a huge unseen, unheard audience, the talk has to be carefully chosen. The American elections proved quite popular, and enlightening.

The conversations are creating general attention and excitement. Folk are travelling hundreds of miles to talk across the Pacific. In America the conversations are being rebroadcast on long wave by WGY.

FOR the purposes of a check-up, the following are the names of the speakers heard from 2XAF:—Hitt, wireless operator; Rowland, General Electric Company; Dow, Australian Trade Office; South, of the Associated Press; Geber, of the United Press; Stokes, of the "New York Times"; Rochester, manager, of Vancouver; Shaw, of the Keene, New Hampshire "Sentinel"; Hawkins, "New York Tribune," and Rothman, Australian Press Association.

The 10-Meter Band.

THE ultra-short waves, which are receiving more and more attention, are to be called into operation in the near future, and tests on 10 meters are being conducted. The principal difficulties on this wavelength are the direction of the beam and the time. However, a new transmitter is being erected in Chicago by which experiments are to be conducted.

New Zealander Takes Interest.

AS in every other aspect, New Zealand was not for long "left out of the picture," for a Gisborne man, Mr. Ivan M. O'Meara, carried out tests on 10 metres and succeeded in establishing two-way code communication with a Californian station. This amateur is conducting a series of important tests on this low wave and their result is keenly awaited.

For some considerable time ten meters has been considered too low to be of any commercial value, but in Mr. O'Meara's opinion the time is not far remote before there will be a regular ten-meter wave service.

Mr. O'Meara has maintained a two-way communication with an Adelaide amateur, which is a feat by no means common among amateurs in these two countries.

Communication with Java.

TWO-WAY communication has not been confined to the States, and the latest cable message states that Sydney people have been enabled to talk to Schenectady and Java. The reception, it is stated, was clear, and items of news exchanged as if talking from one town to another near-by town.

Great Results to be Expected.

THERE is no doubt that these experiments have a definite bearing on the future. Now in the experimental stage, they will, ere long, be placed on a commercial footing which will mean a great deal to the relationship of the countries concerned.

For long Australia and New Zealand have been considered as important islands only, but now that we can talk with our great neighbours it will be realised that we have, as well as they, a live existence—a nationality.

Items of every day occurrence of which the interest is mainly dependent on the factor of recent occurrence will be passed over the sea as though from one backyard to another.

IT is a common saying of people meeting for the first time someone whom they have heard much about and perhaps had dealings with to say, "How different from what I pictured." On conversing an entirely new opinion is received. One sees and appreciates the other's point of view.

So it is with this new communication. Through talking with our cousins we are going to learn much that we had not dreamed of before. American history, geography, civics and ideals will hold a charm for us. Likewise, it is to be hoped, ours for them!

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be put into the circuit. Perhaps the easiest way to do this is to incorporate another variable rheostat in the receiver. This can be done in the following manner:—

Trace out the filament wiring to the last valve and break the negative lead close to the point where it joins the valve socket. A baseboard mounting rheostat of 20 ohms can be screwed to the baseboard, and the two terminals connected between the spare wire and the valve socket. In this way a variable resistance is in series with the last valve and can be adjusted to take the 4-volt pentode.

With half the rheostat turned on a resistance of 10 ohms is obtained. Turned one-quarter on a resistance of 15 ohms is in circuit. A point just above this should be chosen and this rheostat can be left permanently in that position. By inserting the resistance in the negative lead an additional two volts grid bias is obtained, and this should be allowed for when adjusting the C battery. Instead of 15 volts C battery at 150 volts B battery, only 13 should be used.

As this is a power valve with a large amplification factor, care should be taken not to overload the input. Under correct working conditions, one pentode is equal in volume to two stage using ordinary valves. Using a gramophone pick-up plugged into the detector socket of a receiver with two audio stages, reproduction was given far louder and of better tone than when the same pick-up was connected to a three-stage amplifier using a power valve of the ordinary type.

Just as the screened grid is superior to the general-purpose valve for high frequency work, so is this new pentode better for power amplification.

Research is giving new discoveries every month, and, who knows, perhaps we will have the cold or filamentless valve one of these days.

BELOW is given the characteristics of the B443 Pentode as supplied by the makers:—

Fil. Voltage	4 volts.
Fil. Current	.15 amp.
Anode Voltage	50-150 volts.
Screen Grid Voltage ...	50-150 volts.
Total Emission	50 m.a.
Impedance	55,000 ohms.
Amplification Factor ...	100.
Mutual Conductance ...	1.8 m.a./volts.
Normal Anode Current	12 m.a.
Grid bias at 150v. on anode	15 volts.

A POCKET radio set without batteries, aerial or valves has been designed by an American constructor. It can be used effectively up to a distance of ten miles from any broadcasting station.