

IT IS BEING DONE!

asserts

W. M. DAWSON, A.M.I.R.E., M.I.W.T.

Replying to the statement that
Empire Broadcasting is Impossible

IN the daily Press of October 11 there appeared a cable item to the effect that the Imperial Conference Communications Committee had discussed the question (raised by the New Zealand delegation) of Britain establishing an Empire broadcasting station near London. Opinions were expressed that this was practically impossible at present, for financial and technical reasons, and it was stated that the cost of a station capable of broadcasting reliably over the whole Empire would be enormously expensive.

The colonies were quoted as having only three thousand listeners. This latter state-

ment is obviously far from accurate, even if intended to apply only to short-wave enthusiasts. The New Zealand license figures are nearly 60,000, Australia some 300,000, Canada some 350,000, India about 6000, and South Africa some 25,000. The number of present listeners, therefore, who would probably be interested in Empire broadcasts, either received direct or rebroadcast, runs into large figures. Technical and financial aspects are to some extent inter-dependent.

It is, of course, realised that a regular broadcast service must provide greater probability of successful reception than is necessary for transmissions of an experimental nature. Generally speaking, greater

In this article Mr. W. M. Dawson, chief technical engineer of the N.Z. branch of one of the world's largest radio organisations, questions the attitude adopted by the Imperial Conference in respect of Empire broadcasting.

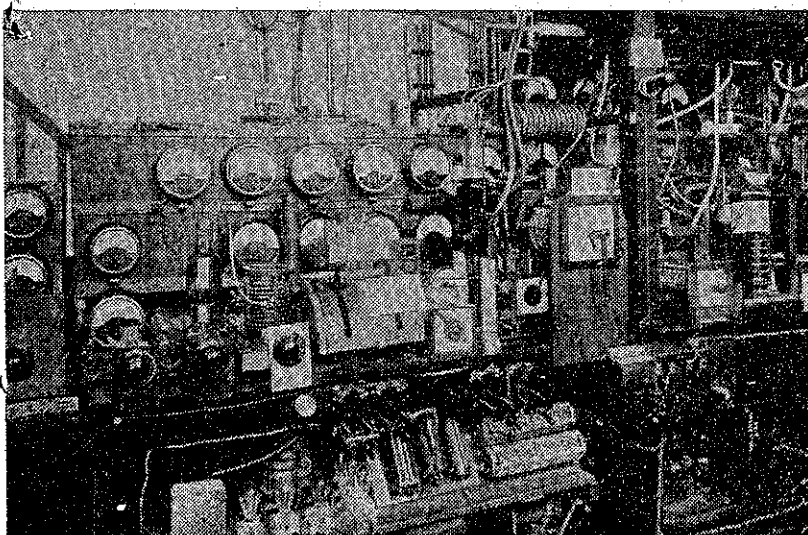
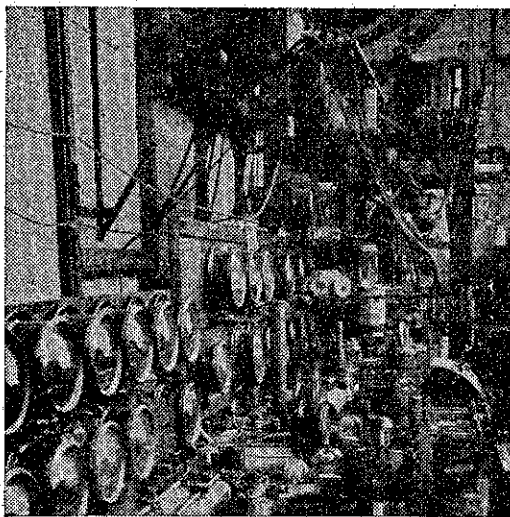
reliability is taken to indicate greater radiated energy with soaring capital outlay and upkeep expenses. This is not necessarily so. Also, readers may be prone to base their criticisms of short-wave telephony on the results obtained by the average short-wave listener with compara-

What a maze of meters! The top picture shows what one sees when he looks along from the crystal controlled oscillator end of PCJ—an Empire broadcasting station.

How would you like an amplifier like this one used by PCJ? And this is only part of it!



Many N.Z. short-wave listeners have heard this announcer. He speaks from PCJ in seven languages and is accredited as being the world's best-known announcer.



tively simple receiving apparatus, and listening to experimental broadcasting stations which radiate their energy more or less uniformly in all directions.

It is very unlikely that any attempt would be made to run an Empire broadcasting scheme on these lines.

A little study of a terrestrial globe reminds us of time differences existing between different parts of the British Empire, and it will be further apparent that these countries may be classed into two, or at the most three, groups as far as geographical great circle bearing from Britain is concerned. Canada lies away more or less due westward, and a direct line joining Britain with New Zealand conveniently passes through India and Australia on the way. Egypt and South Africa lie to the southward of this line, but a third line drawn to South Africa passes through Egypt.

Considered in conjunction with time differences, this at once suggests the use of directional beam transmitting antennas, one oriented to transmit directly toward Canada, the second directed at New Zealand, and possibly a third facing South Africa. Normally only one aerial would be energised at any one time. Such directive aerials are thoroughly practicable for the short wavelengths that would be used and result in very considerable conservation of energy. The magnitude of this saving is not generally realised among listeners.

A well-designed short-wave beam antenna will radiate practically all of its energy within a 15 degree angle, and has an efficiency multiplying factor of approximately 200 when measured in terms of field strength at a distant receiving point with constant output