

## Thanksgiving Service

### Successful Rebroadcast of SSW

2YA and other New Zealand stations on Sunday evening gave listeners the unexpected treat of listening to the special thanksgiving service held in Westminster Abbey, London, to commemorate the recovery of His Majesty the King from his recent illness.

After the concert in the Opera House on behalf of the Earthquake Fund was concluded, 2YA gave listeners a surprise by announcing that they were about to switch over to SSW in order to pick up and rebroadcast that station's transmissions of the Westminster service.

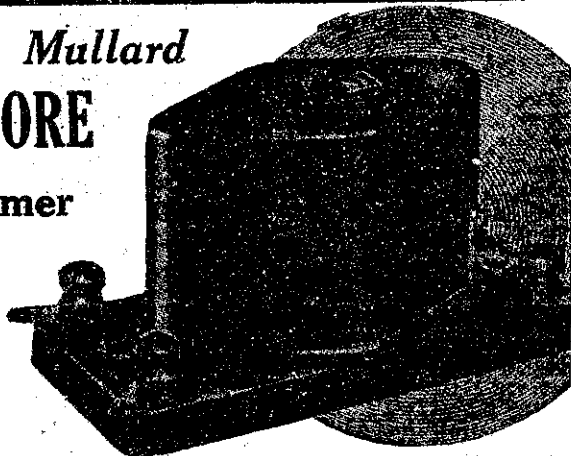
Reception proved to be particularly good, both voice and music coming through with exceptional volume. Surging was a little marked and extraneous noises were also somewhat unpleasant, but the actual volume of sound transmitted seemed to be superior to that of many broadcasts in the past. The incident was a novel demonstration of the increasing efficiency of radio, and was a treat that was greatly appreciated by all listeners.

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## MASTER · RADIO

## Education by Wireless The Mechanism of Evolution

THE following is a summary of the W.E.A. lecture to be given from 4YA on July 16, at 7.30 p.m.:

### (4) Evolution Independent of Environment.

The principle of Natural Selection and the mechanism of evolution suggested by Lamarck explain how new species may evolve by the reaction of an organism to its environment. Yet some changes of a similar nature appear to have taken place both among plants and animals, as a result of obscure processes the cause of which we do not yet know, but which we do know to be unconnected with the influence of environment.

The Dutch botanist Hugo de Vries was the first to observe that at certain times there may suddenly spring up new characters apparently arising from sudden changes in the germinal material, and that such characters once they are developed continue to be inherited according to the normal laws of heredity established by Mendel. Such new characters he termed mutations, and the theory of evolution which he put forward is called the mutation theory.

The work of De Vries was founded upon observations of a certain primrose. He noticed that in each generation, among thousands of individuals, there were a very small percentage of mutants, including, for example, types

with a smooth leaf, crinkly leaf, large flower or small flower, and that such types if segregated, bred true to type, thus perpetuating the new form.

In such mutants De Vries believed he had found the raw material for evolution. But even granting that mutants commonly occur in nature, there must still be some such process as natural selection in operation if some of the new forms are to be perpetuated and others eliminated, i.e., if evolution is to take place.

Evolution implies something more than the mere production of a new type in one generation: it involves also the perpetuation of the type through successive generations, and if this is to be effected other forms with which the new type might hybridise must be cut out.

It appears probable, however, that mutations are not nearly as frequent as De Vries supposed, and probably mutants constitute only a very small proportion of the innumerable variations upon which natural selection is working in the process of evolution.

It will be noticed that the changes which occur in the mutations of De Vries occur at random, in any direction. On the other hand, students of the fossil record cannot but be impressed with other changes which seem to have taken place independent of environment, and yet which have followed some particular direction.

It would appear that sometimes a group of organisms may have latent within them the tendency to evolve along some special line; and that once evolution of this sort starts it gathers, as it were, a momentum which may carry the process of structural change far beyond the limits of usefulness, until ultimately the extinction of the organism may be brought about by its own power to evolve along lines which have become harmful to its existence.

Evolution of this sort has been termed orthogenesis and its operation is one of the most discussed problems of modern palaeontology.

One of the commonest types of orthogenetic tendency is the potentiality possessed by many animals to secrete a heavier and heavier living skeleton. That such a tendency may be carried far beyond the limits of usefulness is clearly seen in the case of many of the reptiles of the later part of the Mesozoic Era, in which there was a most extraordinary development of external bony armour in the shape of horns, plates and spines, of enormous size and weight.

It is again exemplified in the great thickness and weight of the shells of many of our fossil oysters, which no sooner attained this great size than they became extinct.

In conclusion, it seems to the modern scientist and to the geologist especially, that evolution is an extremely complex process in which a number of factors of varying importance are all operating. While Natural Selection is undoubtedly the most important of these factors, it is nevertheless probably assisted to a considerable extent by La-

## Disseminating News

### Rapid Movement from Antarctica

STANDING on the ice of the great

Ross Sea Barrier, members of the Byrd Expedition recently watched the sun sink below the horizon for the long Antarctic night. A few hours later a description of that scene was available to newspaper readers all over America. The adventures of this hardy band of explorers are front page news in half a hundred papers. How that news leaps a 10,000-mile gap with the speed of light is a triumph of short-wave radio transmission.

Since the expedition left New York last September it has not missed a night's communication. More than 150,000 words in Press dispatches have travelled over the invisible bridge from the lonely Antarctic to New York. One night 8500 words were sent and received.

At ten o'clock each night a radio operator in the editorial rooms in the "New York Times" Annexe receives the day's dispatch from the reporter with the Byrd party. Simultaneously this message is picked up by a short-wave radio station at Woodside, Long Island, a few miles away. If, as occasionally happens, electrical interference in the city prevents clear reception in the "Times" Annexe building, the signals are relayed over telephone wires from the Long Island station to the newspaper radio room.

In an hour or so the whole story is on the presses in New York and is going by cable, telegraph, and wireless to newspapers in every part of the world.

From the New York station personal messages are sent to Commander Byrd and his men, and at one o'clock each morning there is radioed to them a summary of news to be published in the papers then on the presses.

The success of radio to the South Polar regions has exceeded all expectations. If members of the Byrd Expedition fly over the South Pole, the story of their success may reach America long before the plane returns from the flight! Already radio messages have been exchanged between the "Times" station and plane 3000 feet above Little America—a long distance record for radio from plane to ground.

Lamarck's principle of the direct action of environment. Mutation and hybridisation also have probably contributed to some extent in supplying some of the material upon which natural selection has worked, while impressed upon all these is the mysterious process of orthogenesis working changes independent of environment, the cause of which we have still to discover.

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