

the Air Ministry, emphasized the fact that much fundamental meteorological research would be required to provide the information that would be necessary.

Mr. Corless, Superintendent of the Forecast Division of the London Meteorological Office, gave an account of the service provided for aviation in Great Britain. Delegates were subsequently given an opportunity of seeing this system in operation at the Croydon Aerodrome.

Amongst other subjects considered in this section were Ice Accretion on Aircraft and Meteorological Aids required for Blind Flying.

On the 14th August the subject was "Synoptic Meteorology." This relates to the collection of data for weather charts, the methods of plotting the data on the charts, of analysing it and of deducing the forecasts from it. Next comes the passing of the information to the various branches of the public, such as shipping, aviation, and agricultural interests, in the most convenient and concise form. It involves the devising of numerous codes and symbols, the interchange of data between nations, the choice of suitable scales and projections for charts, &c., as well as fundamental meteorological principles. Since synoptic meteorology in some form or other constitutes the major part of the work of meteorologists, the discussion at the Empire Conference was very valuable and a useful preparation for the International Conference.

On the 15th August the meteorological organizations for the Army and Navy were considered. These matters need not be discussed here, but meteorology plays an important part in modern warfare. Operations are influenced very greatly by the weather; the Naval and Air Services are engaged in both combating and exploiting it; the artillery require accurate data regarding winds and temperature in the upper air; and gas warfare depends on an extremely precise and detailed knowledge of atmospheric conditions.

The afternoon of the 15th was devoted to the consideration of meteorological instruments. The Conference was informed of recent improvements, given hints for specifying and ordering equipment, &c.

The next day was occupied with Marine Meteorology. Since so large a fraction of the earth's surface is covered by ocean, weather reports from ships are of great value to forecasters, and their value will increase with the extension of trans-ocean air services. An interchange of reports is extremely useful also to the vessels themselves, since it enables them to estimate their future speed, to take any necessary precautions against bad weather, and to take advantage of good. In order to avoid unnecessary duplication of work and to reduce wireless transmission to a minimum, it has been arranged internationally that ships should observe at certain fixed hours and broadcast the results in one code and according to a schedule determined by their position. This scheme has proved to be of great benefit to mariners and others, but some of us had experienced serious difficulties in connection with it. As a result of action taken at the Conference, it is expected that these difficulties will disappear. On Saturday, the 17th August, the subjects for discussion were (1) the Classification of Meteorological Literature; (2) Organized Research in Meteorology; and (3) the Responsibility of Meteorology for Geophysics. The classification of its literature is a question that is troubling most technical sciences to-day. In meteorology it looms especially large, because there is so much routine publication, such as of daily weather charts, tables of climatological data, &c., from all parts of the world. None of this material can be neglected, but it accumulates at an alarming rate. A classification based on the decimal classification adopted by the International Institute for Documentation was explained by Dr. Brooks. The proposals outlined had been drawn up by one of the Commissions of the International Meteorological Organization, and they were subsequently adopted at Warsaw. They will greatly simplify the work of those in charge of meteorological libraries.

The question of research in meteorology is a very important one and of far more than academic interest. Some valuable researches have been carried out by persons who are not and have never been associated with official meteorological services. They usually refer, however, to more or less isolated phenomena, and are generally concerned with the more purely physical aspects of the subject. As an instance, one might mention the work of Professor C. T. R. Wilson at Cambridge on atmospheric electricity, and particularly the electricity of thunderstorms. But even in this case, it is difficult for Professor Wilson to get sufficient thunderstorms to work on, and for most problems a great accumulation of data covering a considerable period of years is required. Generally this can only be obtained from an official service with its organized network of observatories and observing-stations where work is continually going on under close supervision. Furthermore, the problems are seldom isolated, but involve continuous lines of research in which many different types of physical process are concerned. Their solution, therefore, requires persistent effort extending over many years. One might refer, for example, to the work of Dr. H. U. Sverdrup, of Bergen. At first sight the papers published by him during the last quarter of a century may appear to cover a rather wide range of unrelated subjects, but a little consideration will show that he has throughout been concerned with the fundamental question of the heat economy of the earth and the processes by which it makes use of the heat given out by the sun. His attack on the subject is on a wide front, and he has made some very notable advances. Finally, the atmosphere is a most complex body, the calculation of whose behaviour has so far resisted the attempts of mathematicians. The meteorologists who have devoted many years to the observation of its characteristics and the watching of its movements will have accumulated a store of knowledge which it is very difficult to secure in any other way. Progress has, therefore, been due almost entirely to the researches of such persons. This is the case as regards not only pure meteorology but also the practical applications, as, for instance, in agriculture. The value of such research is illustrated by the revolution in the methods of preparing weather charts and of deducing future changes therefrom which have been developed as the result of prolonged investigations by the Norwegians. Their methods are gradually being adopted by all nations. Even in a small and isolated country such as New Zealand, a service is bound to stagnate and become inefficient unless the staff display a true interest in meteorology for its own sake and a desire to carry out original investigations.