

joined the staff of the Botany Department at the University of Leeds in 1919 and was appointed reader in 1922. Dr. Pearsall has taken an active part in many scientific societies; he acted as secretary to the Society for Experimental Biologists in 1928-33, and has just completed his term of office as president of the British Ecological Society; this year he has also taken over the editorship of the *Journal of Ecology* from Prof. A. G. Tansley. He acted as joint secretary of the Yorkshire Naturalists' Union with the late Mr. F. A. Mason in 1919-29 and since 1933 has been co-editor of *The Naturalist* with Mr. W. R. Grist; in 1937 he served as president of the Union. From 1931 until 1937 Dr. Pearsall acted as honorary director of the Freshwater Biological Station at Wray Castle, Windermere, where he has taken an active part in organizing most successful short courses in freshwater biology for senior university students; his guidance has also been of great value to a series of investigators, who have studied problems of freshwater biology at this centre.

DR. PEARSALL'S published scientific work has been mainly upon problems of ecology and upon various aspects of the physiology of growth in plants, with especial reference to problems of nitrogen nutrition. His work, with which his father was associated at its inception, upon the freshwater biology of the English Lakes, is very widely known. It has provided an admirable basis for many of the more intensive investigations that can now be attempted with the establishment of a permanent centre of investigation upon Lake Windermere. Dr. Pearsall's interests in ecology have ranged very widely; his recent presidential address to the British Ecological Society dealt especially with soil factors in relation to plant distribution. The importance of the oxidation-reduction potential is stressed, and Dr. Misra under his guidance has recently shown the significance of this factor in connexion with the mud deposits in the Lakes. Dr. Pearsall's studies upon plant metabolism have been linked up with his extensive studies of the growth of algæ, especially *Chlorella*, in pure cultures. This work has been extended recently with the aid of a grant from the Leverhulme Fund, but already many studies of plant metabolism have been published by Dr. Pearsall and his students in the last few years, including (with Dr. M. C. Billimoria) some very suggestive notes upon nitrogen loss from plants.

Atlantic Meteorology and Trans-Atlantic Flight

MR. F. ENTWISTLE, head of the Overseas Division of the Meteorological Office, Air Ministry, delivered the Symons Memorial Lecture before the Royal Meteorological Society on March 16, taking as his subject, "Atlantic Flight and its bearings on Meteorology". Mr. Entwistle stated that the success of the flights across the North Atlantic last year by Imperial Airways, Ltd., in conjunction with Pan American Airways, Inc., was due in very large measure to the thorough preparations which preceded them and to the ground organization, including radio

and meteorological services, which was provided. The preliminary investigations carried out by the Overseas Division of the Meteorological Office in order to provide essential operational data before the flights commenced were described. The first investigation, commenced early in 1936, had as its object the determination of the maximum average head wind component that would be experienced on an east to west track along the great circle route between Ireland and Newfoundland. The results, which were based on an examination of data covering a period of ten years, indicated that while the maximum wind speed likely to be encountered at any point was 95 m.p.h., the maximum average speed over the whole route was 60 m.p.h. This average speed, however, occurred only once in ten years, and if, in the operation of a trans-Atlantic aircraft, an allowance was made for a maximum head wind on the east-west track of 40 m.p.h., there would be very few occasions in any one year when it was necessary to cancel the flight. A more comprehensive investigation followed in which the times of flight of aircraft of different air speeds on alternative trans-Atlantic routes were compared.

LATER investigations were concerned with the meteorological conditions affecting the operation of aircraft in Newfoundland, the variation of wind with altitude over the North Atlantic and the frequency and minimum heights of low cloud. For one year from November 1936 a technical officer of the Overseas Division of the Meteorological Office was attached to the *Manchester Port*, a cargo ship operating between Manchester and Canada. He completed eight round voyages, in the course of which he made regular pilot balloon observations to determine the wind speed and direction at different altitudes, constructed daily weather charts from observations received by radio from Europe and North America as well as from ships at sea, and studied in detail the characteristics of the Atlantic disturbances through which the ship passed. These investigations, which are essential to the supply of accurate meteorological information for trans-Atlantic flying, will benefit meteorological science generally and, in particular, the weather forecasting services of the countries of western Europe, the greater part of the weather of these countries developing over, and moving from, the Atlantic. The development of long-distance air routes in various parts of the world is stimulating similar meteorological activity and is providing data for investigation on a scale hitherto unknown.

Air-Raids on Barcelona

LAST week in the House of Commons, Mr. Chamberlain expressed his own and indeed the general view of the recent air-raids on Barcelona when he said that no one could read the reports "without horror and disgust". This feeling must be aroused by the whole practice of bombing from aircraft, especially from great heights, for it is inevitable that there should be loss of many innocent