It was shown, for example, that at or near the upper and lower boundaries of Atlantic currents reaching the north polar area, the micro-organism population was several times larger than in the average of higher or lower levels.

Dr. Kriss presents some graphs showing the relation between depth (in metres) and micro-population at different seasons (June and September) as indicated by the two methods: filters, and glass overgrowth or submerged slides. There are substantial 'peak' differences with the two methods; for example, at about 100–150 m. and between 750 and 1,200 m. A map of the north polar region is also shown, giving the distribution of about 15 points where samples were taken from surface layers down to 4,000 m.

Nearly all the 1955 stations were on pack ice, and only two on the continental dip at depths of 900 and 1,850 m. Holes of 1–1·5 m. were drilled in the ice, and sampling bottles of the Nansen type were lowered to the different depths. It was evident that organisms on the ocean floor can exist under pressures up to several hundred atmospheres. It was possible in many cases to determine approximate rates of propagation at various depths. W. G. Cass

BIBLIOGRAPHY OF THE BAUXITE DEPOSITS OF THE WORLD

ALUMINIUM now competes with copper for second place after iron as the most widely used metal in commerce, and virtually all the pure alumina used for the manufacture of the metal, upwards of five million tons a year, is obtained by processing bauxite. This material is therefore an ore of the first importance, both commercially and strategically. Deposits are widespread throughout the world, though their distribution is somewhat capricious, at least from a strategic point of view. All the bauxite used by the aluminium industry in Britain is imported, and the deposits within the United States and Canada are insufficient to provide for the enormous consumption by the aluminium industry in North America.

Since Dr. C. S. Fox published, more than twenty years ago[1], a monograph on the subject containing an extensive bibliography, the literature on the subject has grown steadily. It is, however, scattered through the scientific and technical journals of many countries, so that the United States Geological Survey has fulfilled a real need by publishing a new "Annotated Bibliography of the Bauxite Deposits of the World", by Elizabeth C. Fischer (Geol. Survey Bull. 99. Pp. 221 + 1 folding map. Washington, D.C.: Government Printing Office, 1955; n.p.). This bibliography, which contains more than a thousand entries, was commenced originally for the use of the staff of the Survey and enlarged to meet the demand for information arising out of the greatly increased use of aluminium during the Second World War. It covers various aspects of the subject, including the origin, geology, mineralogy, chemistry, reserves and production of bauxite. A selection of papers on 'laterite' and 'lateritization' has been included, because these terms have often been used as synonyms for bauxite (that is, aluminous laterite) and the processes leading to its formation. On the other hand, accounts of the technical aspects of the mining and processing of bauxite have largely been excluded.

The entries are arranged alphabetically under authors' names, and the index is sub-divided into subject and locality headings so that references to any particular subject or area can be found quickly. There is also a useful world map showing the distribution of the principal bauxite deposits. The bibliography includes publications issued up to the end of 1950, only. Even so, it will prove extremely welcome to all interested in the subject, and it may be hoped it will be followed by a supplement.

V. A. Eyles

[1] "Bauxite and Aluminous Laterite", 2nd ed. (Crosby Lockwood and Son, London, 1932).

STRUCTURE OF FRONTS IN METEOROLOGY

THE conception of a 'front', a roughly plane, sloping zone dividing air masses of different origin with the warmer air below the colder air, is a fundamental one in meteorology. The major areas of deep cloud and precipitation over the British Isles are associated with fronts, and the word has thus become a familiar one to all listeners to the weather forecasts broadcast on the radio. A front is a warm front if warmer air replaces cold air as the front passes over any point, and the converse for a cold front. Until recently, knowledge of the structure of fronts was obtained from surface observations of temperature, humidity and cloud forms, from rather isolated 'vertical' aircraft ascents, and from observations obtained by balloon-borne instruments.

During 1950–52 the Meteorological Research Flight of the Meteorological Office made twenty-three flights from its base at South Farnborough to observe the cloud structure and the temperature and humidity variations along fixed levels approximately perpendicular to the front. The flights were made following plans decided on the basis of the synoptic charts drawn at the Central Forecast Office.

The observations, in conjunction with those of the nearly simultaneous radio-sonde ascents, are analysed by J. S. Sawyer in Geophysical Memoir 96 of the Air Ministry—Meteorological Office, entitled "The Free Atmosphere in the Vicinity of Fronts: Analysis of the Observations by the Meteorological Research Flight, 1950–52" (M.O. 584*d*. Pp. 24. London: H.M.S.O., 1955; 5*s*. net). The observations show a great complexity of structure, indicating that no simple idealized structure can adequately represent an individual front, but clearly confirm the existence of sloping regions of change between two roughly homogeneous air masses. Mr. Sawyer finds that, in the region between about 6,000 and 20,000 ft. explored in the flights, there were (*a*) a frontal region, varying from 200 to 1,000 miles in width, with an average of 600 miles, across which there was a temperature difference of 5–29 deg. F., average 15 deg. F., at a fixed height, and (*b*) within the frontal region a relatively narrow frontal zone of up to 250 miles in width, average 130 miles, with a temperature contrast up to 21 deg. F., average 9 deg. F. Frontal zones of less than 50 miles wide were uncommon. The slopes of the frontal zones varied between 1 and 250 and 1 in 30, with an average of 1 in 55. This slope is much steeper than the value of 1 in 100 stated in some text-books.

A hitherto unknown feature of frontal structure revealed by the flights was the existence of a tongue