

## REVIEWS

JAMES L. DYSON. *The world of ice*. New York, Alfred A. Knopf, 1962. xvii, 292, xiii p. \$6.74. *The world of ice* is a comprehensive résumé of the distribution, formation and results of the action of ice all over our planet. It is an extremely readable book and should do a great deal to bring one of the lesser-known sciences before a wider audience. The author deals with all types of glaciers, their characteristics, the resulting geomorphology and what scientific work is being carried out on ice. There are sections devoted to sea ice and permafrost and the last quarter of the book discusses the chronology and dating of the Pleistocene glaciation, describing in detail the work which has been done so far in North America on the identification of the various drifts.

It is one of the most difficult assignments to write on a scientific subject for the general reader and in doing so one is apt to resort to wordy descriptions and not present facts. The writer has not altogether avoided this pitfall. His desire to attract interest and be graphic may well result in some strange misconceptions. Such a phrase as “. . . the main snow cover beats a rapid retreat northward across Canada . . . before finally retiring into the Greenland icecap” tends to be journalistic rather than strictly correct.

It is a pity that not more than 24 pages of this book are devoted to sea ice and of these over half deal with the occupation of ice floes and ice islands in the Arctic. This seems an extremely small proportion of a book on the ice of the world when one considers that the area covered by permanent sea ice is almost as great as that covered by permanent land ice. On the other hand, a great number of pages are devoted to permafrost and the writer has given an extremely well-balanced description of the results, causes and properties of frozen ground.

There are a number of statements which may be challenged by experts. For example, the writer says that the snow cover in the Southern Hemisphere is lacking apart from the southern tip of South America and Tasmania. Surely parts of the South Island of New Zealand can be considered as having a permanent snow cover? In fact, many may think that Australia itself, in the south-east, has more permanent snow than Tasmania.

The book is extremely lavishly and well illustrated and the photographs have been chosen to amplify the text and illustrate all aspects of ice. Unfortunately, the method of reproduction has often resulted in over-dark prints which are lacking in contrast. It is also very noticeable that in the text, references, and in particular in the photographs, the majority of the examples are from North America. Less than a quarter of all the photographs are from areas outside this continent and there is only one photograph from South America and one from Asia (from the Caucasus).

There is a useful glossary at the end of the book although many may argue with the definition of the term “glaciology”. By derivation the word “glaciology” means the study of ice generally and not only glaciers and this is accepted by the majority of glaciologists.

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*Aletschgletscher*. 1:10,000, Sept. 1957, Blatt 2. Zürich, Abteilung für Hydrologie der Versuchsanstalt für Wasser- und Erdbau an der Eidg. Technischen Hochschule; Wabern-Bern, Eidg. Landestopographie, 1962. Sw. Fr. 10.00.

THE first section of the new 1:10,000 map of the Aletsch Glacier, an I.G.Y. project, was published about a year ago and was reviewed in the *Journal of Glaciology*, Vol. 3, No. 30, 1961, p. 1160. This was Sheet 3 covering the lowest part of the glacier from the Märjelensee to the snout.

Sheet 2 has now been published. It shows the middle part of the glacier between the Konkordiaplatz and the Märjelensee, an area which has been studied intensively, particularly

by the Abteilung für Hydrologie der Versuchsanstalt für Wasser- und Erdbau an der Eidg. Technischen Hochschule in Zürich.

The major feature of the map is the Konkordiaplatz. Of the four major ice streams which meet there, the map shows the lower parts of the Grosser Aletschfirn to the west and the Grüneggfirn to the east; the Jungfraufirn and the Ewigschneefeld appear on the northern edge of the map. Moraines are shown, and all of the well-defined dirt features and crevasses. The two moraines bordering the Jungfraufirn at the top of the map are 900 m. apart; after having traversed Konkordiaplatz they approach each other as close as 170 m. As it narrows the Jungfraufirn also deepens, and at the Konkordiaplatz the ice has a seismically determined depth of some 800 m.—the greatest thickness yet recorded on an Alpine glacier.

At the Konkordiaplatz the four ice streams combine to form the main glacier, and this then flows over a rock step between the Dreieckhorn and the Faulberg. The glacier reaches its maximum velocity of 200 m./yr. in this narrow and steep area. Here the net ablation amounts to 2–3 m./yr., and near the snout this figure increases to 12–15 m./yr.

Sheet 2 also covers almost the whole basin of the Mittelaletschgletscher to the southwest. This glacier has shrunk so much that it no longer contributes ice to the main glacier, and the map shows that its surface now lies above that of the main glacier.

An interesting feature of the map is the recording in certain parts of it, by means of coloured lines, of the probable ice extent at earlier periods of time.

Work on the outstanding Sheets 1, 4a and 4b of the Aletsch Glacier map is in progress. It is expected that the complete 1:10,000 map of the whole Aletsch basin will be published in 1963.

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