

Captain Giaever brings out well the difficulties of working under exacting conditions of blizzard, extreme cold and isolation. His book cannot be too highly recommended as an account of all the facets of a successful and well-organized expedition. D. S. BROCK

SNOW HYDROLOGY: SUMMARY REPORT OF THE SNOW INVESTIGATIONS.

Published by the North Pacific Division, Corps of Engineers, U.S. Army, Portland, Oregon, 1956. 437 pages, 70 pages of plates, maps and figs., 27 cm.*

THIS publication is a summary report of some snow investigations conducted in the western half of the United States of America by the federal Weather Bureau and the Corps of Engineers, the military body concerned with river floods in the Mississippi Basin. Its 437 pages of photolithographed typescript are accompanied by 70 plates, many containing several figures each, although these, like the typescript, are admirably legible.

The growing use of surface water resources in most countries has led to proposals for numerous engineering works, for whose proper design and operation hydrological information and theory have become increasingly necessary. Such theory has however, even in snow-provided countries, hitherto tended to be concerned with rainfall only and not snow, whose melt and run-off have been assessed by empirical methods.

The investigations now reported began with research in the physics of snow in three upland areas. From the data thus obtained basic relationships of phenomena were determined and methods were devised for applying these to the solution of snow hydrology problems. The results could then be used in such matters as the estimation of maximum probable and "standard" floods, the forecasting of seasonal run-off and the methods of predicting hydrographs of river discharge, such as are required for the operation of reservoirs and the fighting of floods.

The equipment used included a radio-isotope-radio-telemetering snow gauge and an electronic storage routing analogue. The former transmitted daily readings of snowpack water equivalent by high frequency radio from a remote site to a base station.

The editors of the report took the view that the basic relationships revealed by the investigations were probably applicable wherever snowfall was of appreciable hydrological concern. They therefore presented their information in considerable detail and even with some duplication, so that the reader could see for himself how conclusions were attained or methods could be applied, and could find individual subjects discussed completely without reference to other parts of the report. It is intended to be not a handbook or manual of procedure but a store of data, theories and methods to which hydrologists can turn time and again for material, when tackling their own problems. The two-word title of the report is conveniently brief but perhaps incorrectly comprehensive. Each chapter includes a brief bibliography; an index is lacking, but there is a generous table of contents.

It may not be irrelevant to mention that at the present time the irrigation engineers of Iraq are busy with hydrometric work for the assessment of the water resources of the Tigris and Euphrates basins and have already decided that they must bring into account the snows of the Iranian and Turkish mountains within the basins. In so doing they will surely be indebted for much valuable guidance to the publication now being reviewed; to their gratitude will be added that of the hydrologists and river control engineers of numerous other countries. W. ALLARD

ÉTUDES DE GLACIOLOGIE EN TERRE ADÉLIE, 1951-52. FRITZ LOEWE. *Expéditions Polaires Françaises*, No. 9. Paris, Hermann et Cie., 1956. (Actualités Scientifiques et Industrielles, 1247.) 159 pages, 10 text-figures, 8 plates.

THE book covers description of apparatus and observations of radiation balance at Port Martin on the coast of Adélie Land (lat. 67° S., long. 141° E.) and 1,800 m. up on the inland ice at lat. 80° S.,

* These reports may be ordered from the District Engineer, San Francisco District Corps of Engineers, San Francisco, California. Charges, including mailing, are as follows: "Snow Hydrology" \$4.65 per copy; "Development of Radioisotope-Radiotelemetering Snow Gauge Equipment," \$1.10 per copy. Drafts should be made payable to the Treasurer of the United States. Ed.