

misleading, because the few important fields are manned by the U.S.A.F., while the unimportant one is not manned at all.

Under "Administration" it is stated that "Greenland is administered by a special department in the Danish Ministry of the Interior"—this is not the case, since it is a branch of the Office of the Prime Minister.

Reference to resources emphasizes the Ivigtut cryolite mine and its great importance to the Greenland budget. The mine is of course not operated by the Pennsylvania Salt Company (p. 69) nor has it ever been so. It is owned jointly by the Danish Government and a private Danish corporation. The authors are apparently unaware of the fundamental change in the Greenland economy due to a shift from production of seal and other oils, to commercial fishing, especially of cod.

Should a further edition of this useful handbook on the Scandinavian States and Finland be called for, Mr. Gathorne-Hardy and his committee could perhaps refer the parts of it dealing with Lapland, Spitsbergen, and Greenland to the appropriate governments for amplification and correction. TREVOR LLOYD

CLIMATE OF THE CANADIAN ARCTIC ARCHIPELAGO

By R. W. RAE. *Toronto: Department of Transport, Meteorological Division, 1951. 11 x 8½ inches; 90 pages; maps and diagrams. 35 cents.*

This welcome publication by a meteorologist widely experienced in arctic climates replaces the old 'Meteorology of the Canadian Arctic', which had been out-of-date and out of print for some years. The new study is a great improvement on the old, and is a vital addition to the documentation of the north. The author was in charge of the joint Canadian/United States weather station at Resolute Bay, Cornwallis Island, for a considerable period; he has drawn on this experience and on the files of the Canadian Meteorological Service in completing his report. He pays tribute in his introduction to the unpublished

work of W. C. Wonders on the same region. It is clear, none the less, that the principal source upon which he drew was his own unrivalled fund of memories.

Mr. Rae proceeds along traditional lines. He discusses successively the controls of climate, temperature, precipitation, clouds, visibility, winds, and relative humidity. The formal account is followed by forty invaluable pages of tabulated climatic data, which will be of great value to other research workers. Some of this wealth of material has been represented cartographically in a series of twelve distribution maps (the first to be published for the Canadian Arctic Archipelago based on adequate data).

The cold pole of the Canadian Arctic is now placed in northern Ellesmere Island, where January is believed to have a mean temperature of below -40°F ; indeed, the new weather stations in the outer fringe of arctic islands have made it clear that we have been partially misled in our thinking about winter cold by the concentration of stations along and near Lancaster Sound, which is anomalously warm in mid-winter presumably because of partially open water. Isachsen, Mould Bay, and Eureka have all experienced minima of below -60°F , in spite of the briefness of their record, whereas Arctic Bay has never attained this degree of cold in fourteen years of record. Mean temperatures in January and February are below -30°F over a wide area of the archipelago, whereas they are above -20°F along Lancaster Sound.

The new stations have reinforced to an astonishing degree our preconceived idea that the outer islands were very dry. Total annual precipitation at Eureka has averaged only 1.74 inches in the three or four years of record. The total rainfall for the period January 1948 to December 1950 was only 1.44 inches (a figure sometimes exceeded in a single day at Ottawa or Washington) and fresh snow amounted to less than 15 inches in each of the three years (cf. Montreal, 112 inches average annual fall). To some extent these figures are vitiated by the extreme difficulty of

measuring fresh snowfall, but they cannot be far from the truth. The arctic "deserts" are a proven reality.

Mr. Rae discusses the annual cycle of cloudiness in considerable detail. In commenting on the gloomy, overcast skies of summer, he lays special stress on the double maximum of cloudiness characteristic of central and southern parts of the archipelago. In spring and early summer there is widespread marine status and sea fog that partly dissipates later in the summer, only to reform as temperatures fall below freezing in the autumn. Mr. Rae ascribes this stratiform cloud-deck to the trapping of moist, chilled air below the usual radiative inversion of temperature. He states, however, that the cloudiness of autumn tends to consist of more turbulent stratocumulus layers, probably due to higher wind-speeds; otherwise the process of formation is similar. This may be so in the archipelago; but stratocumulus decks are equally extensive farther south in the same season, and frequently form in deeply unstable polar air that is heated from below by residual open water. Inversions are frequently absent in such instances, and the "layer" habit of the autumnal cloud remains something of a mystery.

There are one or two points in Mr. Rae's treatment at which I must cavil. I wonder how many of the convolutions of the 40°F isotherm on the July temperature map (Fig. 11) are based either on observational material or on topographic probabilities. It is also plain that on the same map Mr. Rae made little use of available statistics from the nearby mainland. Thus the 50°F isotherm pursues an erratic course that bears little relation to reality: it passes on Fig. 11 north of Port Harrison (which has a July mean of only 47°F) and far to the south of Churchill (54°F), Baker Lake (50°F), and Coppermine (50°F). This is an unfortunate lapse in view of the importance attached to this line by biologists. The closed loop of the 60°F isotherm that is obviously supposed to lie over Goose Bay (62°F) misses it by some hundred miles; the 55°F line passes right through the site of the

airbase. It is quite true that these criticisms apply only to the mainland, whereas Mr. Rae was addressing himself to the archipelago. But it is inevitable that these maps, covering as they do a large part of the arctic and subarctic mainland, will be widely copied for this larger purpose, and it is unfortunate that they are by no means of uniform reliability.

In all other respects, however, the new report is a thoroughly useful and well-conceived contribution to arctic science. It is to be hoped that studies of similar scope will soon be forthcoming for other parts of the Northland.

F. KENNETH HARE

NORTH OF THE CIRCLE

By FRANK ILLINGWORTH. *New York: Philosophical Library, 1952. 8½ x 5½ inches; 254 pages; illustrations. \$4.75.*

As far as can be determined the objective of 'North of the Circle' is to prove to a lay reader that life in arctic areas may be comfortable rather than harsh. It is questionable whether the series of anecdotes related accomplishes this objective. Otherwise, the book is a more or less pleasant ramble which in total is incomplete, in part inaccurate, mostly undocumented, inadequately illustrated, and quite possibly over-optimistic.

Mistakes in fact are legion. For instance: "up the Yukon towards the Bering Sea" (p. 40); "no [agricultural] ground pests" (p. 68) though severe damage has been caused over the years by root maggots and cutworms in arctic vegetables; every statement but one about the Matanuska Valley on p. 73; "The Russians did not want to sell" Alaska (p. 152) in spite of historians' statements to the contrary; the Alaska purchase "was the largest single deal in real estate in history" (p. 153) ignoring the 40 per cent larger Louisiana Purchase just sixty-four years previously; the Malaspina Glacier "covers fifteen hundred square miles" (p. 153) although shown to be only 900-1,000 on the most recent maps; discussion of the periods of Alaskan development (p. 155) omits the beginning of fishing, Alaska's greatest industry; the Alaska Rail Road suc-