

## THE GEOGRAPHY OF CANADA.

By J. L. (and M. J.) ROBINSON. *Toronto: Longmans, Green, 1950. 7½ x 10 inches; xii + 205 pages; illustrations and sketch-maps. \$2.75.*

Until within the last decade the writing of school texts on the geography of Canada, for Canadian students, was largely in the hands of professionals in other fields. It is therefore most welcome that professional geographers are now contributing such important works. Although the present text is not the first of its kind, it is one of the best yet to appear.

Professor Robinson of the University of British Columbia, the senior and principal author, has studied the country from coast to coast at first hand, and has given particular attention to the vast, little known, federal territories of the northwest. In addition to regional chapters on "Newfoundland and Labrador" and "The Canadian Shield", separate treatment is given to "The Hudson Bay Lowland", "Yukon Territory", "The Mackenzie Valley", and "Arctic Islands". Indeed nearly one-fifth of the book is devoted to these six regions.

A frequent query directed toward those with professional interest in arctic lands is: "Where can I find a simple, straightforward, comprehensive description of these areas?" In this book we have an excellent "first reader" source for the Canadian Arctic, written simply and clearly so that high school students may use it readily, and yet with careful attention to the latest research so that the informed lay-reader may also profit.

It is difficult to find fault with a text so generally well designed for its purpose, but improvement in illustration would have enhanced greatly the value of the book. The photographs seem well chosen, but the reproduction is unsatisfactory, sometimes because of over-reduction. The maps are of very uneven quality in both drawing and significance.

In content the weakest part of the book is the treatment of population distribution. The population of Canada is so unevenly spread in each of the provinces and territories (with the exception of Prince Edward Island) that the

figures of population, and of population density, for such areas have little or no geographical significance. The dot-map of population distribution for 1941, for Canada as a whole, is virtually illegible. An attempt to map population, perhaps by dots, within each of the areas considered, would have helped the book far more than most of the succession of hard-to-read, too-small-scale, not-very significant maps which are liberally dotted through the text.

Perhaps we ought to re-interpret much of our school approach to geography in terms of exposition of population distribution. Such an approach might have made this very good book an excellent one.

ANDREW H. CLARK

## THE BARREN-GROUND CARIBOU.

By A. W. F. BANFIELD. *Ottawa: Department of Resources and Development, 1951. 10½ x 8½ inches; vi + 52 pages; illustrations, maps, and diagrams. Mimeographed.*

The barren ground caribou is the basis of existence for Indians and Eskimo in an immense area of Canada. The penetration of civilized commerce and transport throughout its range have not diminished its importance in the least. We cannot afford ignorance of such a resource. Here we have, in a concise and invaluable report, the results of an investigation involving thousands of miles of flying and the cooperative efforts of a large number of observers, including several trained assistants. The work was undertaken at the request of wildlife officials of the Dominion and all the provinces assembled in conference, and carried out by the Department of Resources and Development, over a period of three years.

The report is disquieting. Where once large areas were considered fully stocked and numbers estimated in millions, Banfield finds many empty spaces and estimates 670,000 animals. As a necessary background for dealing with the problem of numbers he gives the most complete account yet presented of the life history of the caribou. The movements of 19 herds, all to some degree separate

and permanent entities, are traced. This should be enough to dispel any notion of the unity of the caribou herd. It is not always easy, in fact, to decide whether one or two herds are being dealt with. In familiar areas the reviewer finds that herds he thought he knew have been "lumped" with others. There are some very interesting observations of the behaviour of caribou, including some in contact with wolves. A verified case of bovine tuberculosis is an addition to the pathological record, and the granular tapeworm was also found encysted.

No one investigation or series of investigations is likely to provide all the answers necessary for caribou management. Surely a resource so important should be kept under constant study. It is certain, for example, that even in early days there were great variations in the numbers of caribou. In some years they may very well have been far too numerous for their own good, and in other years there may have been just as few as there are now. However, destructive factors have been carefully studied by Banfield, and are capable of producing the present scarcity, even though there may not be absolute certainty that other influences are not at work. Human utilization, the controllable factor, will have to be reduced until the animals increase. As some of the users are shown to need 100 animals per year, and others less in proportion as they have other resources, it will not be easy to establish an equitable basis for the reduction.

C. H. D. CLARKE

#### MIGRATION OF BIRDS

By FREDERICK C. LINCOLN, illustrated by BOB HINES. *Washington: United States Department of the Interior, 1950. Circular No. 16 of the Fish and Wildlife Service. 9 x 6 inches; iii + 102 pages; maps and line drawings. \$0.30.*

Although the fact is nowhere mentioned, this latest in a series of United States Government publications on bird migration is merely a slightly "warmed-over" version of 'The migration of North American birds' by the same author,

published as Circular No. 363, United States Department of Agriculture, 1935.

Except for the insertion of certain references to three or four of the more recent developments in migration study, the addition of two appendices, and the expansion of the bibliography, the text of the "new" version is almost word-for-word the same as the 1935 circular. Where minor changes were made, they often led to curious results. For example, the following quotation is from the 1935 version: "During the World War broad areas in the air were under constant close surveillance, and among the airplane pilots and observers many took more than a casual interest in birds. Of the several hundred records resulting from their observations only 36 were of birds flying above 5,000 feet and only 7 above 8,500 feet." These sentences appear *verbatim* in the 1950 version, except that "War" now becomes "Wars" and, for some reason, the word "close" is deleted. The statistics remain unchanged.

Mr. Lincoln is at his best in his delineation and discussion of the flyways of North America. Some of his descriptions have been modified to include information gained in the past fifteen years, and they are interestingly written. However, the section on "Arctic routes" reappears unchanged and indicates in two paragraphs that, in sum, they are tributary to either the Atlantic or Pacific coast routes.

He is probably at his worst in dealing with the influence of weather on migration. The section under that heading appears unchanged in 1950, despite the following points: (1) the validity of his opening sentence: "The state of the weather at any point has little if anything to do with the time of arrival of migratory birds" must be seriously questioned; (2) the association between the advance of migrants and isothermal advances is probably not as close as was once thought; (3) the concept that strong tail winds "interfere with their balance and disarrange their feathers" might well have been omitted, even in 1935.

Since recent European studies of migration are not given consideration, and since the text again deals almost