

is to give the average reader a general introduction to the Arctic and to help him in understanding its peculiarities. In eight chapters the author treats the arctic lands and seas and describes the history of their exploration, the role of men in the north and the political and economic importance of the Arctic and even the subarctic regions. Each of these topics in its general outline is covered sufficiently to meet the reader's requirements. The German speaking reader should be grateful for this work as it fills a gap in recent German literature. But unfortunately its purpose is not completely fulfilled. Although the general text is satisfactory, the author is sometimes careless in his details. Only a few examples will be given here:

Ice islands (p. 15) do not originate in the calving of glaciers, they are considered to be drifting parts of the ice shelf. Fort Ross (p. 39) is situated on Somerset Island and thus cannot be the northernmost point of the American mainland. The Commander Islands (p. 74) lie in the Bering Sea, not the Okhotsk Sea. The nickel mine at Rankin Inlet (p. 134) is no longer in operation; it was closed down in 1962. The Hamilton (Churchill) Falls (p. 138) are to be found in the Forest zone of Labrador, not in the Barren Grounds. More attention should be paid to the drawing of a few of the maps. On p. 7 the tree line is inaccurate in its position in the Siberian Far East, Western Alaska and the west side of Hudson Bay. The author should also have mentioned that only the distribution of sporadic permafrost is shown. On p. 30, the West Greenland Current needs the colour of a warm current. And finally, the picture on p. 65 obviously shows an ice chisel, hardly a fish spear. A short bibliography for further reading would be useful.

Interspersed throughout the text is a great number of brilliant, often large sized photographs, excellently reproduced, illustrating nearly every topic and covering many arctic areas. In these pictures lies the strength of the book: they are a real delight.

ERHARD TREUDE

EUROPE: A NATURAL HISTORY. By KAI CURRY-LINDAHL. *New York: Random House. 1964. 9¾ x 12½ inches. 299 pages, 264 photographs — 108 in colour. 2nd in series: "The Continents we live on". \$20.00 (U.S.A.) \$18.95 (Canada).*

The excellence of this book marks it as very moderately priced. It comprises a truly outstanding collection of photographs, a scattering of useful and unusual maps, and a text which is often engrossing and at all times, or so it appears to your reviewer, factually sound. This achievement is the result of the collaboration of an able author (the Director of Natural History at the Nordiska Museum in Stockholm), a formidable list of photographic virtuosi and, according to the preface, a number of biological experts whose advice and criticisms have been sought in the writing of it.

Some of the pictures are breathtaking — Scandinavian upland scenery, an oak forest in England, a German spruce forest, beechwoods in Denmark — and all of them are good. But this is by no means just another coffee-table picture-book. It confronts the reader with the life of a continent, its beauty and its fascination, and the effects of man upon it. The unstated burden of it is that this great wealth will continue to exist so long as man leaves it alone, but that the process of erosion and extinction has begun long ago. One chapter, on the Mediterranean lands, is called "Eden in a ruined landscape", and describes with power the effects of human civilization: "During the past three thousand years the soils have been dissipated, and although the climate has hardly changed, its effects are no longer what they were when the land was rich in forest. Today the Mediterranean countries are living on a rapidly diminishing capital, with fertile soils being washed into the sea or blown away; unless a radical change occurs soon, all the land is doomed to exhaustion." The Dust Bowl, the Red River and the Mississippi are not alone; and one may wonder indeed where Hannibal found his elephants.

The European lynx is shown in its last stronghold in the Carpathians. Closer to our own Arctic home, "the walrus . . . has been almost exterminated around Spitsbergen. It may still be found at Novaya Zemlya, but is otherwise rare in Europe". The polar bear, on the other hand, is reported as doing fairly well in the European Arctic — but the slaughter at present going on off the Alaskan coast will no doubt soon have its effects upon the whole circumpolar distribution. "The wolf . . . is now ruthlessly hunted from helicopters and snow scooters. Only about twenty to forty of these animals remain in Sweden." This means extinction. There are happier moments: the bison, finally extinguished in the wild state in 1921 in Poland and in 1925 in the Caucasus, has been reintroduced successfully to its natural habitat from an extremely tenuous thread of bison DNA remaining in zoological gardens. The numbers are still small, but they are growing.

As the landscape goes, so goes the fauna. Pollution of fresh water is another specialty of man. To quote again: "The brown trout was for a time widely distributed in Europe but increasing water pollution has restricted its range. It now occurs chiefly in streams in such mountainous country as Bohemia, Czechoslovakia." The author does not mention that the brown trout is still abundant in Scotland and in Ireland, although threatened there too, but the message is nevertheless well taken. Man is the most corrosive force in nature.

The author does not talk down to his audience. The text is straightforward and without nonsense, and although we are brought face to face with the unpalatable facts of our own follies, we are also inspired by the unusual and the beautiful. Place-names have often been collected in euphonic anthologies, but what about plants and animals? Here is talk of suslik, saiga, crake, moufflin, ibex, hellebore; amphipod, dotterel, garganey and natterjack.

We ought, I suppose, to stick to our last in this journal and consider the North. The final three chapters are entitled: "the great taiga"; "the frozen

tundra"; "polar bears and arctic seas". Here we meet landscape at its best, perhaps because it is newest, and northern biogeography, because of its simplicity, is all the more intriguing. "Each night, over head . . . birds spread out over the land. Then, even the wings of ducks seem to sing, the widgeon whistle; the teal sound like flutes; the wings of the goldeneyes make a musical noise." Oddly enough, in these last three chapters the quality of the photographs falls off a little, with a few exceptions. The Arctic fjords provide some of the finest scenery in the world, but they do not appear here. Is there a shortage of European Arctic photographers? They have done well in Greenland.

The book as a whole, however, fully makes up for this partisan criticism. It is beautiful, thoughtful, provoking. Buy it.

M. J. DUNBAR

TRAITÉ DE GLACIOLOGIE. TOME I. GLACE — NEIGE — HYDROLOGIE NIVALE. By LOUIS LLIBOUTRY. Paris: Masson & C^{ie}. 1964. 10 x 7¼ inches, vi + 428 pages, 36 plates, numerous tables and diagrams. 140 F.f.

This is the first of two volumes of a monumental text on glaciology. In this volume the emphasis is more on the physical side for which the author has special qualifications. Each chapter contains an extensive bibliography; it is, however, awkward that full references are lacking for a considerable number of the publications discussed in the text. An introduction defines and delimitates glaciology as a special branch of science and gives a brief history of the subject. The latter is undoubtedly the weakest part of the book as it contains a considerable number of errors.

Chapter I deals with the physics of pure ice, its molecular and crystalline structure, its optical and electrical properties and particularly the changes between the solid and fluid states. The