

only now emerging from the level of tantalizing anecdotes of chance observations and progressing to systematic studies. A chapter is devoted to 'whale brains and intelligence', which I am glad to see takes a conservative view of the mental ability of whales and assesses it by comparison with other mammals.

The last quarter of the book recounts the history of whaling. If the suffering of individuals and the plundering of species can be ignored, the development of catching and processing techniques makes a fascinating subject. It has been told before, but many of the details given here are novel enough to make another telling worthwhile. The final chapter deals with the present state of exploitation and conservation of whales, ending on a note of slight optimism for their future and a plea for the rational exploitation of all marine resources.

The presentation of this work appears more textbookish than an easy read, with many citations and some rather technical phrasing. If I had been editor I would have divided some of the longer sentences; but explanation of the intricacies of cetacean anatomy and physiology needs Bonner's measured elaboration. It is aided by Michael Clark's illustrations and is leavened by anecdotes and asides. The suggestion that nutty-nasting whale's milk would go well with strawberries raises the vision of an incongruous juxtaposition of genteel teas in the sun and a whaling factory ship stinking on the cold grey sea. About half of the 14 colour plates show dead whales. This is a pity for there are now plenty of photographs of whales in the wild. However, the selection is an allegory of the changing methods of cetacean research. Whales were first studied dead at the whaling station, then alive but in captivity, and now in their natural surroundings. We can look forward to more photographs of living whales in the future.

GENERAL BATHYMETRIC CHART OF THE OCEANS: THE ANTARCTIC SHEET

[Review by Sir George Deacon* of the *General bathymetric chart of the oceans, sheet 5.18, 5th ed.* Published under the joint authority of the International Hydrographic Organization and Intergovernmental Oceanographic Commission (Unesco). Ottawa, Canadian Hydrographic Service, 1980. Scale 1:6 000 000 at 75°S.]

This new sheet of the series begun by Prince Albert of Monaco in 1903 is notable for the great increase in the number of soundings made during 25 years since the fourth edition, and for the concentration of effort needed to compile and produce it. Two scientific coordinators, G. L. Johnson of the US Office of Naval Research and J. R. Vanney of the Laboratoire de Géologie Dynamique, Paris, have supervised groups using large-scale plotting sheets supplied by the hydrographers of USA, UK, Australia, New Zealand, Chile, Argentina and France, and the findings of some 60 specialists in the geology of the region. In mapping the continent they were helped by D. J. Drewry and G. de Q. Robin of the Scott Polar Research Institute. The collated effort was supported by the Intergovernmental Oceanographic Organization in conjunction with its advisory bodies, and by the International Hydrographic Commission.

The chart is a polar stereographic projection on the scale of 1:6 000 000, reaching to 64°S at the sides of the square chart, and to 60°S in its corners. The overall size of the sheet is 107 × 117 cm. The sea floor is contoured at 200-m intervals, with an extra line at 500 m between two of the blue shades of colouring. The colour shades deepen at 200 m, 500 m, 1 000 m, and then at 1 000 m intervals. The topography is too detailed to be substantiated by printing individual soundings, but the tracks of continuous lines of soundings are shown. Spot soundings are printed where they help to show maximum, minimum and other key depths.

On the continent, ice-surface contours are printed at 100-m intervals, and under-ice terrain contours (now available for more than half the continent) at 250-m intervals. Where available, sea-floor contours are continued below the ice shelves, so that below the Ross Ice Shelf 500 m sea-floor contours link to -500 m under-ice terrain contours. The interpretation gets a bit involved over Roosevelt Island.

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Though the continental shelf begins to be much better known, the detail still tends to be limited to the neighbourhood of the Antarctic land bases. Less accessible areas have little or no information, especially the areas of persistent ice cover in the western margin of the Weddell Sea and south of the Bellingshausen and Amundsen seas. The Ross Sea with an abundance of tracks leading to McMurdo Sound and the Bay of Whales is the best known. The Antarctic shelf is abnormally deep and its topography irregular. Especially in the Indian Ocean and Australasian sectors there are characteristic outer banks with soundings less than 500 m enclosing deeper shelf basins, broken here and there by radial ridges and canyons.

The continental slope—generally more accessible—is better known. It is traversed by innumerable canyons, 30 of them already named. It is particularly close to the land in 0°–10°E and 19°–28°E. The new contours attract attention to some prominent radial ridges, and to the striking chain of seamounts from 115°–131°W in 65°S, now named Amundsen Ridges. The combined picture of undersea, ice-surface and under-ice, contours is likely to facilitate study of the morphology of the continental margin. The topography of the shelf and slope is shown in much greater detail than is possible for the shelves and slopes round the Arctic Ocean (GEBCO, Arctic Sheet, 5th Edition).

Research will be further assisted by four Mercator sheets, GEBCO numbers 5.13 to 5.16 covering the ocean between 46°40'S and 72°S, planned to appear in 1981–82, but for purposes such as plotting circumpolar distributions of physical variables and biological patterns oceanographers would also like to have a polar-projection chart covering the whole ocean as far as 30°–35°S on a single sheet. They could make good use of a simplified version and extension of the present polar chart on about quarter the scale.

TALES OF THE ARCTIC

[A review by Graham Rowley* of J. M. Scott's *Red hair and moon water: Arctic short stories*. London, Robert Hale, 1980, 201 p, £6.25.]

In *Red hair and moonwater* J. M. Scott has drawn heavily on both historical episodes and his own wide experience in the north to write this collection of seven short tales. In some cases fiction and history are strangely combined. For instance *The Inanimate voyage* is clearly based on the drift of HMS *Resolute* and the author has thinly disguised the fact by altering some of the names and the ultimate fate of the ship.

The book suffers from slipshod proof reading. Many words are misspelled, some are incomplete or missing, and in *Red hair* the text seems to have been set in the wrong order, with what is logically the end of the story appearing in the middle.

The stories themselves are light and entertaining. *The sledge patrol*, set on the Greenland ice cap, and *The rifle*, based on a journey in Labrador, are particularly successful. Both are about the relations between two men travelling together, and both are about places where Mr Scott has himself made memorable journeys. The book will be read with enjoyment whether or not the reader has a particular interest in the north, and with some nostalgia by those who knew the old north.

IN BRIEF

MUSK-OXEN ON OSTROV VRANGELYA

In the spring of 1975, 40 musk-oxen were airlifted to the USSR from Nunivak Island, Alaska, where a herd of 31 had been introduced from Greenland in 1930 (*Polar Record*, Vol 18, No 112, p 89–90). It was understood that they were taken to two sites in the Soviet Arctic, on Ostrov

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