ANTARCTIC OCEANOLOGY I. EDITED BY JOSEPH L. REID. *Antarctic Research Series, Volume 15. Washington: American Geophysical Union of the National Academy of Sciences — National Research Council, 1971. 8 x 10¾ inches, 343 pages. $22.00.*

The Antarctic Research Series maintains a very high standard of excellence and usefulness, and this 15th volume in the Series is something of a milestone in Antarctic marine research. In terms of the past history and present climate of the world, the fact that Antarctica is a polar continent entirely surrounded by the sea is even more significant than that the Arctic Ocean is a polar sea largely surrounded by land. Glaciations begin in the Antarctic, and the effects of the circumglobal Antarctic Ocean are felt northward to the Caribbean and the gates of the Mediterranean. The antarctic waters in fact fill most of the deep ocean basins of the world, and round the antarctic continent itself they are among the most productive marine regions in terms of living resources. Research in these rich waters began early in the present century, pioneered by British oceanographers. Many nations are now engaged in the work, and the Antarctic Research Series forms the chief publication outlet for the United States' contribution.

The present volume covers a fairly wide spectrum of oceanography (or oceanology, as the title has it; the difference between the two is at the verbal level only), including general physical oceanography, marine paleontology, geology and geochemistry, and there is one short paper on living populations. It is therefore not easy, perhaps impossible, to review it in detail, but it may be said for a start that all thirteen of the papers are important contributions in their several fields. The paleoclimatic paper by Bandy, Casey and Wright has a particular fascination for the non-specialist (your reviewer, for example); it is an important addition to the long list of papers in the guide to past climates, and appears to confirm the existence of glaciation in the late Miocene, some four million years ago, but it dates the onset of the definitive Pleistocene glaciation at only one million years ago. In the light of other work in this field, it is clear it will be some time before the pattern of the Pliocene-Pleistocene climatic changes settles into a generally accepted form.

Arnold Gordon's remark that the Arctic Ocean is usually recognised to be a "marginal sea of the Atlantic" may stir partisan resentment, and it does not fit with other expert opinion, which holds that the Arctic is an ocean in its own geophysical right, and perhaps much older than the Atlantic. His paper on Antarctic oceanography is a general, up-to-date statement of the water structure and meridional circulation of the Atlantic and Pacific sectors; it is a valuable addition to the work of others, notably British and Russian scientists, and analyses a very large body of new measurements made by the U.S. teams. The water mass analysis by temperature-salinity plotting is particularly interesting; so is the discussion of the occurrence and distribution of super-cooled water and its origin, and the study of meridional transport fills an obvious need in antarctic oceanography. There are also some interesting speculations on paleoceanography and the climatic effects of a glaciated and a non-glaciated Antarctica.

The geophysics of the sea floor are served by three papers from the Lamont-Doherty Geological Observatory of Columbia University, and the volume closes with papers on geological and chemical matters of the sediments. This is a book for specialists, and the specialists involved will certainly be looking forward to the next volume on Antarctic Oceanology in this series.

M. J. Dunbar

ARCTIC FEVER: THE SEARCH FOR THE NORTHWEST PASSAGE. BY DOUG WILKINSON. *Toronto: Clarke, Irwin & Company Limited, 1971. 6 x 8¾ inches, 154 pages, illustrated. $6.50.*

The more I read of Doug Wilkinson's *Arctic Fever: The Search for the Northwest Passage* the madder I got for there was little I could find to criticize, to carp about, to nit pick or to put down.

Who better to write about "Arctic Fever" than one who is so sorely afflicted with that disease, one who knows intimately the locale about which he writes and one who has taken the trouble to do some homework before he took pen in hand.

The new interest in the resources of the North American Arctic and the routes leading to and from them has generated a spate of books and articles about this part of the world, many of them sired, unfortunately, by the instant expert.

The author of "Arctic Fever", while producing an eminently readable book, has told his story honestly. Where differences occur in source material he has acknowledged these differences. Where there are doubts they are stated. For example: "When I write about John Franklin, I am troubled". It is a pity