

ecological repercussions of an industry with worldwide impact would be lost to historians and those who need historical data in such projects as marine mammal censusing. In sum, this is an important reference book, not meant for the casual student, but absolutely essential for the research library and the professional scholar deeply involved in the subject. To put it another way, the researcher or library that makes frequent reference to the standard works, such as Starbuck's *History of Whaling*, Hegerty's addition to Starbuck, Langdon's two books and, most recently, Honore Forster's *The South Sea Whaler: An Annotated Bibliography* (Sharon, MA., 1985), will find Sherman's work to be well worth the substantial price of this volume.

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BIBLIOGRAPHY ON THE FATE AND EFFECTS OF ARCTIC MARINE OIL POLLUTION. By S.C. YOUNG. Environmental Studies Revolving Funds Report No. 026. Ottawa: ESRF, 1986. 212 p. Cdn\$50.00.

This bibliography is a product of a collaborative effort between the Arctic Science and Technology Information System (ASTIS) — for which Stuart C. Young, of the Arctic Institute of North America, Calgary, undertook the demanding task of compiling the bibliography — and the Environmental Studies Revolving Funds, which is a creature of the Canada Oil and Gas Lands Administration and which performed the less demanding task of levying a reluctant oil and gas industry to fund the enterprise.

To quote the ASTIS order form:

The bibliography contains 748 citations on the physical, chemical, and biological fate, and on the biological effects, of petroleum and its hydrocarbon constituents in arctic seas. Virtually all citations have abstracts, and one or more location codes indicating libraries where the document can be obtained on interlibrary loan. [It] is 212 pages long, plus a 12 page introduction.

As is described in its Introduction, the bibliography is largely based on a 1980 Environment Canada Report, "A selected bibliography on the fate and effects of oil pollution relevant to the Canadian marine environment" (Report EPS-3-EC-80-5), by A.L. Samson, J.H. Vandermeulen and P.G. Wells, which was a product of the Arctic Marine Oilspill Program's now defunct Standing Committee on the Fates and Effects of Oil.

Perhaps it is a sign of changing economic times that the Environment Canada report, with its 1794 citations, was distributed *gratis* until it became out of print, while the ESRF report, with 748 citations, sells for Cdn\$50.00. It is available for purchase from the Arctic Institute in Calgary or from Pallister Resource Management Ltd. of Calgary. A microfiche version is available for \$24.00. It is noteworthy that Environment Canada makes available *gratis* as part of its EE Series reports a set of 15 reports comprising various bibliographies on oil and hazardous material spills.

The objective of this bibliography is to provide a convenient and complete bibliography of the physical, chemical and biological fate and biological effects of oil in the geographic region of the Arctic, including Cook Inlet, the Gulf of Alaska and selected other areas, and including laboratory studies of arctic relevance. This reviewer cannot resist noting that the accepted authority for the "area of maximum sea ice extent" is none other than the Central Intelligence Agency. The stated objective is clearly satisfied, and in a "user-friendly" fashion. The primary citations are listed by author, with indexes for subject, geographic region, title and serial — e.g., journal or proceedings. Particularly useful is a statement of document availability. Each citation is followed by an abstract, usually prepared by the author, which is invaluable to the user as an indication of content and scope.

Interestingly, only 7 of the 748 citations are to papers in this journal.

The primary criticism that can be levelled at the content of the bibliography relates to its scope. Much information about arctic oil spills can be obtained from temperate spills. For example, the Buzard's Bay spill was in ice conditions, and useful experiences have been gained from other temperate winter events. Unfortunately these are excluded. Insights into behaviour of oil spills in the arctic summer can be gleaned from accounts of temperate spills. Oil spill detection and tracking studies have been excluded, as has work on oil spill dispersants, although work on the fate and effects of oil/dispersant mixtures has been included. The compiler has clearly stated such limitations, and while arguments can be advanced that the bibliography would have benefitted from a wide scope, it is not easy to "draw a better line."

It is not clear why the scope of this bibliography should be restricted to the Arctic, since many Canada lands, such as the Hibernia area, are not arctic.

A search for omissions was fortunately not very successful. The chapter "Oil Pollution in Ice-Covered Arctic Waters" by Weller in the text by Geyer (Marine Environmental Pollution I, Hydrocarbons, Elsevier) is not included. The pioneering work on the Alert Bay beach spill by Green, Buckley, Cretney and Wong (Pacific Marine Science Report 74-9) is absent. There are no citations at all to the work of C.S. Wong. Of the eight chapters in Engelhardt's text *Petroleum Effects in the Arctic Environment*, three have been omitted, obviously consciously.

It is questionable if some citations, such as to the Oil Spill Intelligence Report, should be included. The EE Series of reports by the Environmental Emergencies Branch of Environment Canada is not cited. But these are relatively minor criticisms that spring from a personal belief that bibliographies should err on the side of including rather than excluding.

In summary, this is a valuable bibliography, which deserves a place on the bookshelf of those concerned with researching or commenting on the environmental effects of petroleum development in the Arctic. Unfortunately in these times of tight budgets it is unlikely that it will get the exposure it deserves because of its excessive cost. If the ESRF really wants to disseminate information of this type, it should do so in a less profiteering fashion.

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ICE SCOUR BIBLIOGRAPHY. Edited by C. ROSS GOODWIN, JEAN C. FINLEY and LYNNE M. HOWARD. Environmental Studies Revolving Funds Report No. 010. Ottawa: ESRF, 1985. xi + 99 p., index. Softbound. Cdn\$40.00.

Ice scour (gouge, plough mark, furrow, score) is defined as the disturbance of subaqueous bottom sediments by floating ice. When an ice keel loads and disturbs the sea floor, it either becomes grounded and ceases to move on, or, if it has sufficient energy under the influence of swell, currents, wind or pressure from other ice, the keel penetrates the sea floor sediment and excavates a trough, which is referred to as a scour. Two types of ice scours are important in influencing seabed disturbance — iceberg scours and sea or lake ice pressure ridge scours. Ice and iceberg scour is a significant process in high latitude environments and as such is important to both the glacial scientist and engineer. Both modern and relict scour can represent a hazard to sea floor facilities, such as hydrocarbon pipelines. It is for this reason that the bibliography was initiated and funded by the Environmental Studies Revolving Funds, a petroleum industry research fund administered by Canada Oil and Gas Lands Administration of the Canadian Government.

The bibliography begins with a short Introduction, in both English

and French, which explains the purpose and organization of the book. The bibliography itself is organized under nine subject areas, primarily the main geographic areas where ice scour occurs, including individual sections on lakes and emerged sea floor areas. Two other principal categories are 1) Theory and Modelling and 2) Protection from Ice Scour. The last category is a general one where papers dealing with other aspects of ice scour, such as methods of analysis and research needs, are placed. Within each category the papers are fully referenced alphabetically by the principal author, followed by an abstract, usually in full, or a preface of an article that did not have an abstract or summary. Also included with each reference is an ASTIS (Arctic Science and Technology Information System) document number and a location code indicating where the documents may be obtained on interlibrary loan. A comprehensive index has been compiled under the categories of title, author, geographic location, subject and serial (publisher).

The bibliography contains 379 citations, the majority of which are obtained from the "grey literature" due to the fact that much of the research is the result of industrial contracts and opportunity based observations that were made as part of operational activities or scientific programs. It is this aspect that makes this bibliographic search unique. Many of the citations are very obscure but, nonetheless, are significant; a library subject search would be nowhere as complete as this compilation.

The book concentrates, in particular, on Canadian and United States shelf waters, and there appears to be a lack of information from Antarctica, where the world's largest icebergs occur on a shallow shelf. This is apparent from the title, where the Canadian term ice scour is used instead of several other terms, such as gouge and plough mark, used in the scientific literature of other countries. Also, literature from Scandinavia and the Soviet Union is almost entirely lacking, something the editors readily admit within their Introduction. Papers from these regions may not be abundant, but it is apparent that time constraints did not allow the editors to properly research what work has been carried out in these areas. As a consolation, they indicate that both ESRF and ASTIS will continue to update this bibliography in the ASTIS data base under the subject term "ice scouring," but this does not help the purchaser of the book.

For the Canadian and U.S. offshore areas the bibliography is quite complete and the citations summarize the different papers and reports very well. The book is suited to the reader who wants a complete breakdown of all papers written on various aspects of this subject, but it will not itself give the new reader to this subject the necessary understanding of the processes of ice/iceberg scour or the engineering designs to counteract the potential hazard; such a book would be very welcome in the published literature.

For someone wanting some information on the subject of ice scour in relation to their own interest, it would be wise to obtain this book from a library, considering its price. For researchers and engineers involved in high latitude shelves and, particularly, in offshore resource exploitation in areas prone to sea bottom scour, this bibliography is highly recommended.

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CULTURES IN CONTACT, The Impact of European Contacts on Native American Cultural Institutions, A.D. 1000-1800. Edited and with commentary by WILLIAM W. FITZHUGH. Washington, D.C.: Anthropological Society of Washington Series, Smithsonian Institution Press, 1985. 320 p., maps, figs., illus., bib. Hardbound. US\$29.95.

This is a significant book, not only because it deals with a wide variety of early contact areas from Greenland to the Caribbean, but also

because it has brought a multidisciplinary approach to a study of the problems that ensued after indigenous populations of eastern North America first encountered Europeans. William Fitzhugh, who has edited and provided the commentary for a collection of papers delivered at meetings of the Anthropological Society of Washington during the 1981-82 season, must be congratulated on the broad sweep of the contributions chosen for this volume. Archaeological, ethnographical, historical, pathological and socio-political points of view have all been brought to bear on the subject of what actually happened during the first century or so of interaction between native Americans and the "aliens from the east," whether of Scandinavian, Basque, English, Spanish or other stock.

Although these papers demonstrate that the patterns of interaction showed considerable differences, depending on the region and the ethnic groups involved, and that in some areas the indigenous population, as, for instance the Narragansett, were temporarily better able to cope with the commercial and territorial expansionism of the Europeans than in other regions, nevertheless the end result was in most cases appallingly similar. In practically every case dealt with in this volume, with the exception of Labrador and Greenland, the original inhabitants of eastern North America were either annihilated by a combination of epidemic disease and warfare or suffered painful diminishment both culturally and statistically. Meanwhile there was, of course, a concomitant establishment of Europeans in all the regions most appropriate for settlement. As Fitzhugh has noted in his commentary on Part I, only in the Arctic and sub-Arctic, where until the 18th century interaction was mainly ship-based rather than land-based, was the effect of a European presence not devastatingly negative; there, however, Inuit language, culture and population survived, and "Inuit people . . . continue to occupy their territorial homeland."

The dates given in the book's subtitle might imply that detailed coverage has been given to contact areas from the time of the first Norse establishments in Newfoundland through to the end of the 18th century, but that would be a very difficult task for one volume to cover. The majority of these papers are concerned with the 16th and 17th centuries, and it is clear that the collection was never intended to cover all the contact areas of eastern North America. However, it is surprising that one very important area of early contact has not been included. Apart from Susan Kaplan's paper, which touches on the French seigneurie period in relation to French-Eskimo contact in Labrador, there is barely a mention in other papers of the widespread influence of French traders and settlers. The selected case studies are based mainly, though not entirely, on archaeological research projects relating in Part II to Narragansett, Sakheag and Iroquois tribes; Part III examines the Powhatan chiefdom and other Algonkian groups in the Chesapeake area and Part IV is a final section by Kathleen Deagan on "Spanish-Indian Interaction in Sixteenth Century Florida and Hispaniola."

It is to be hoped that further volumes will include such vital areas as the Gulf of St. Lawrence, since there are fruitful comparisons that could be made between Spanish, French and English approaches to trade and settlement that appear to have little to do with an "institutional" vs. an "entrepreneurial" approach, and more to do with informal modes of interaction such as intermarriage (discussed in Deagan's paper). In southern New England, according to the paper by Peter Thomas: "Interracial marriage was forbidden" and "Social boundaries were closely prescribed by colonial law," whereas attitudes to intermarriage were entirely different in areas such as the Gaspé and Acadia, where from the 1580s onward there was sustained social interaction between Indians and the trader-fishermen (although it should be noted that the Gulf was not "rapidly deluged . . . after its discovery by Cabot," by Basques or any other fishermen, as is stated in the commentary to Part II).

The influence of both Moravians in Greenland and Catholic missions in Florida are discussed in Parts I and IV, and particular attention is paid by Deagan to the work and concern of men such as Bartolome de las Casas and the Dominican fathers, while J. Frederick Fausz has pointed out that by 1625 more than one Englishman felt, like Sir Francis Bacon, that settlements should not be allowed where Indians had to be