brought on by the flooding of the Sekani traditional lands in 1968, and on the other by a detailed historical account of Sekani social groupings, ranging from local hunting bands in the nineteenth century to regional and 'Pan-Indian' forms of organisation in the twentieth century. Lanoue unites these disparate levels of organisation through the concept of 'brotherhood' — a category that contemporary Sekani use to indicate their shared solidarity with their hunting partners, domestic partners, or Indian neighbours, depending on the social context. Lanoue convincingly demonstrates how this middle-range concept has been developed and refined in reaction to both early fur-traders and modern forestry workers to produce a uniquely Sekani approach to their own identity. This allows Lanoue to present and then transcend standard approaches that analyze a group's demography, level of technology, participation in the cash economy, and intensity of land use, in order to assess social cohesiveness.

The main argument about brotherhood as a distinctive notion of social organisation would be sufficient to create a solid ethnography of the Sekani. Lanoue adds to this an intriguing hypothesis about the origins and meaning of high rates of violence among the Sekani. Far from seeing violence as being a sign of the disintegration of Sekani society, Lanoue argues that it is a marker of the creative process by which new social boundaries are being formed. Unfortunately, this insight is only loosely connected to the historical discussion and the fieldwork account, remaining a little vague in the mind of the reader.

This is an excellent source book on the people and history of northern British Columbia and is a welcome addition to a growing literature on the ethnography of the sub-Arctic regions of western Canada. For the upper-level undergraduate and graduate student it will clarify debates on Athapaskan bands, continuity and change within kinship systems, the origins of ethnicity and nationalism, and the dynamics of Canadian Indian politics; it will also be a case study of the problems of northern economic development. (David G. Anderson, Department of Social Anthropology, New Museums Site, Downing Street, Cambridge CB2 3DZ.)

SEA MAMMALS AND OIL: CONFRONTING THE RISKS. Joseph R. Geraci and David J. St Aubin (editors). 1990. San Diego: Academic Press. xvi + 282 p, illustrated, hard cover. ISBN 0-12-280600-X. $65.00 (US).

This book is a compilation of essays by different authors on specific groups of marine mammals, but is organised so that the whole forms a cohesive unit. The main body of the book is arranged in pairs of chapters. The first of each set provides behavioural, ecological, and dietary information on (in order) pinnipeds (seals, fur seals, sealions, and walrus), cetaceans (whales, dolphins, and porpoises), sea otters, polar bears (which are included because it is argued that they are sea mammals in terms of their ecology), and manatees; the second deals with the physiological and toxic effects of oil. In this respect, the scope of the book is far greater than its title suggests, and it serves as a good general introduction to sea mammal range and distribution, habitats, feeding patterns, and thermoregulatory mechanisms, which may be of a value that is quite independent of their relevance to oil spillage. A drawback to this approach, however, is that a good part of the book does not deal directly with the effects of oil on sea mammals, although it does provide the means by which those effects may be understood.

In addition to the complimentary pairs of chapters are introductory essays on the biochemistry of hydrocarbons and spill-treating agents, and on an analysis of computer modelling to predict the effects of oil spillage on specific sea mammal populations. I found both chapters helpful as introductions, but I would have liked a little more depth, particularly in the chapter on the composition and effects of petroleum. For example, there is only one paragraph on the effects of oil dispersants on marine mammals, although it is often suggested that dispersants may have more deleterious effects than spilled oil. To be fair, the writer makes points that are stressed throughout the book: that research is still at an early stage, and that there remains much that is not yet understood or that has not yet been assessed.

Chapters 3 and 4 deal with pinnipeds, although only North American pinnipeds are considered in chapter 3. Chapter 4, by David J. St Aubin, catalogues 29 incidents of oil spills or discharges from the late 1940s to the *Exxon Valdez* disaster in March 1989, giving for each the species of pinnipeds involved and how they were affected. Some of the more serious incidents are then considered in more detail. St Aubin concludes that there has never been a large-scale mortality of pinnipeds that can be attributed directuly to oil fouling, and that those animals that have been observed in direct contact with oil appear to have suffered little or no serious effects. However, St Aubin notes that oil spillage may present an increased risk to animals with pre-existing diseases, in unfavourable habitats, competing with other species for resources, or exposed to unusual environmental conditions. Because of the difficulty in long-term studies of affected animals, there is no data on bioaccumulation of heavy metals associated with hydrocarbon ingestion.

St Aubin raises the question as to whether pinnipeds avoid or detect contaminated areas, quotes data from studies analysing their sense of smell and sight, and presents evidence from eyewitness accounts that show that some animals actively avoided contaminated areas, while others did not. This issue is taken up in chapter 6 by Joseph R. Geraci, who quotes his own research into oil detection and avoidance with bottlenose dolphins that were able to see oil slicks in laboratory conditions. When oil was placed on the surface of one of the dolphins' holding tanks, results indicated that they preferred to avoid it by surfacing in adjacent tanks with clean water. Contrary to this are eyewitness accounts of whales and dolphins swimming and feeding in contaminated areas. This contradiction is

also apparent in sea otters. In chapter 8, Geraci and Thomas D. Williams cite research that suggests that captive sea otters became 'nervous and curious' when oil was introduced into one side of their pool, but in the wild were observed diving in contaminated water and walking along the beach making no attempt to avoid oil patches. Data for the ability of polar bears and manatees to detect and avoid oil is scarce, although St Aubin (chapter 10) cites research indicating that polar bears are able to detect oil and prefer to avoid contact with it. However, both polar bears and manatees inhabit areas where there have not yet been major spills, and there is no anecdotal evidence to suggest what their response might be.

Sea mammals are a difficult group to study at the best of times, and so it is not surprising that we know very little about their behavioural or physiological responses to environmental contamination. In the case of pinnipeds and cetaceans, only a few carcasses or dying animals have been found that have enabled biologists to study the toxic effects of oil, but even if these cases can be attributed to oil, they only tell us about those most severely affected, and not about those that recover or that die at sea. Sea otters and polar bears, because of their need to maintain a well-groomed coat to protect them from the cold, are those sea mammals most at risk from oil spills, as the recent *Exxon Valdez* incident showed, where an estimated 1000 animals died as a direct result of oil fouling. As Geraci and Williams point out: 'the sea otter's vital commitment to grooming predetermines its fate once it has contacted oil' (page 216). (E. Cruwys, Scott Polar Research Institute, Lensfield Road, Cambridge CB2 1ER.)

GLOBAL ENVIRONMENTAL CHANGE: UNDERSTANDING THE HUMAN DIMENSION. P.C. Stern, O.R. Young, and D. Druckman (editors). Washington: National Academy Press. 308 p, hard cover. ISBN 0-309-04494-4.

Polar researchers take global change in their stride. The ice-sheets that determine our research fields are recent developments in the history of the world: of course they are changing — whoever said they were not? The editors of this book are less blasé and, as social scientists, more directly anthropocentric. The earth, they tell us, has entered a period of hydrological, climatological, and biological change that differs from previous episodes of change in the extent to which it is human in origin. To explain or predict current changes one must understand the human sources, consequences, and responses, some of which can alter the course of global change. Not all would agree immediately with this premise: the role of the meddlesome ape has indeed grown, but that of cosmic forces has not declined. Nevertheless the world continues to change, and man is involved in both causes and consequences.

Global change has become a study in itself. Alarming overtones — that polar ice is melting, or the sky falling in — have stimulated public interest and opened the public purse. The natural scientists learned long ago the advantages of featuring global change in their research proposals. Have social scientists been slower off the mark? If so they are catching up, at least in the United States. In 1989 the US National Research Council and related bodies established the Committee on the Human Dimensions of Global Change, charging it with the task of promoting the social and behavioural sciences in this research field. Nationwide they assessed current research and determined how best to evaluate data resources, encourage collaborative research, and develop a US research agenda for global change studies. This book represents the committee's deliberations.

Following a summary and prologue, the editors present chapters on global change and social science, human causes of global change, human consequences and responses, problems of theory and method, data needs, and human resources and organizational structures. The book ends with five recommendations for a US national research program: that national funding should more readily flow for research on human dimensions of global change; that funding bodies should establish programmes of targeted research; that federal funding should help to establish data sets and make them readily available; that a national fellowship programme in human-based studies should be set up; and that a number of national centres should be dedicated to this research. If the findings are predictable, the case is germane and well-argued. Global change exists and has profound social repercussions: give the social scientists their share of US research funds. Polar researchers in the humanities, seeking funds in any other country, might find this a useful sourcebook of ideas and objectives. (Bernard Stonehouse, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

THE HISTORY OF SIBERIA FROM RUSSIAN CONQUEST TO REVOLUTION. Alan Wood (editor). 1991. London: Routledge. xiv + 192 p, maps, hard cover. ISBN 0-415-05873-2. £35.00.

This volume is the third to result from a meeting of the British Universities Siberian Studies Seminar, in this case one held in London in 1986. Its editor, Alan Wood, has been the driving force behind the seminar since its inception in 1981, and he has done an excellent job in bringing together papers on very diverse aspects of Siberian history. He himself contributes an introduction, an afterword (bringing the story into the twentieth century), and a chapter on his own special subject of exile and crime in nineteenth-century Siberia. He also includes a useful glossary of terms that he compiled. His easy style hides some very thorough research.

Wood's contributors are no less well versed in their subjects. Basil Dmytryshyn, a veteran Siberiologist, sorts out the complicated administrative apparatus in the seventeenth century. David Collins has thorough documentation for his study of subjugation and settlement. J.L. Black is concerned with Russian emergence on the Pacific.