took the volume with me into my field camp in the St. Elias Mountains in the southwest Yukon but made slow progress because of the wealth of information in the book and because the papers really pointed out many of my own field problems of glacial geology. The changes in stratigraphic nomenclature that have occurred recently, together with the abundant evidence displayed by many authors for different patterns of glacier behaviour in different regions, are requiring a rethinking of ideas on correlation of events. This rethinking is apparent from the book in the discussion being generated between the scientists reporting on each area. With the fluidity of ideas, it is particularly valuable to have so much material assembled in one volume.

The presentations demonstrate the wide range of dating techniques that it has become necessary to employ, the problems of correlation of the different dating techniques and the gaps that still exist in dates of glacial events. They demonstrate the development of a framework of mountain glaciation fluctuations that are not constrained by the continental glaciation framework and point out the need for considerably more research in the field and in the laboratory for the development of new dating techniques.

Some of the field measurement techniques employed can be questioned — for example, the morphological measurements of moraines reported in some detail, the rock hammering techniques and the validity of lichenometrical techniques — but in general the papers are both good syntheses of research conducted and good scientific presentations of ongoing work.

The presentations are divided regionally, with chapters on the Brooks Range, the Seward Peninsula, the Yukon Tanana Uplands, Nenana River Valley, West Central Alaska, the Alaska Peninsula, the Aleutian Islands, Cook Inlet basin, the Gulf of Alaska and southeast Alaska, and a general summary of the process leading to the book and some general conclusions begin the volume. Although a synthesis of the whole of Alaska was not the purpose of the book, a more detailed overview of the implications of the regional findings is probably necessary. The message would appear to be that similar trends throughout Alaska mask considerable differences in detail of glacier fluctuations.

The volume undoubtedly fills a need for all of us interested in glacial geologic problems of the cordilleran northwest of America and should be a basic reference book on the desk of all glacial geologists and glacial geomorphologists. The editors have, as they point out in their introduction, seen the need for a synthesis volume, and they must be congratulated for their successful completion of the task.

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ICE SEAMANSHIP. By GEORGE Q. PARNELL. London: The Nautical Institute [202 Lambeth Road, London, England SE1 7LQ], 1986. 87 p., 35 figs., index, recommended reading list. Softbound. £17.

The aim of *Ice Seamanship* is to provide a handbook for navigators and masters of ships operating in ice-infested waters. The author, George Q. Parnell, as a master mariner of the company of Master Mariners of Canada and a member of the Nautical Institute, is presumably well qualified to write such a book, although he gives no autobiographical details. As a reviewer who is more familiar with sea ice than with seamanship in sea ice, I found this annoying, as the reader has no information as to the experience of the writer.

Quite rightly, the hazardous aspects of operating ships within an ice cover or near the ice edge are stressed in great detail. Also the very sensible recommendation — do not proceed unless you are sure about what you are going to encounter — is to be found time and time again in the handbook, advice that cannot be over-stressed. Radar, although a valuable asset in pack ice and just off the ice edge, is not to be relied on, and the author is careful to point this out. Suggestions on how to trim the ship, what to do if beset in the ice, the correct track through pack when under escort, iceberg avoidance, and what to do to minimize damage if collision is unavoidable are all provided, along with many other valuable pieces of information.

There are several points in the book that I am unhappy about, however. My principal objection is that the author is really not too informative about pressure ridges. Indeed these features, which are very common within the ice cover, are mentioned only once, and their significance to ships is severely understated. A 10 m sail and a 30 m keel will really not do a ship too much good if collision occurs. The omission of a detailed discussion on pressure ridging and other features of sea ice deformation is serious for another reason. Pressure ridge sails offer the best indicator of the age of sea ice, rather than colour as the author suggests. It is always difficult to tell the difference between first year and multiyear ice floes, but it would usually be near impossible to do so by colour alone, given the ice will almost certainly be snow covered. Shape and degree of consolidation of pressure ridge sails, combined with other morphological features of the ice cover, are the best indicators. On the whole, the account of ice properties in the handbook is incomplete and rather naive, indeed sometimes erroneous. Fortunately the errors would not impact greatly upon ice seamanship. Grease ice, for example, as a herded slurry of frazil crystals, can reach over a metre in thickness; all salt does not drain from multiyear ice; the word "height" applied to ice is ambiguous — "freeboard" should be used; the raised rims of pancake ice are mainly the result of wave pumping. There are more.

Mention of waves brings me to another point. There is only one mention of there being reduced wave and swell action in pack ice. This would seem to be important information to the ice seaman. However, there is also no mention that several vessels have been destroyed by entering the pack in search of calm seas, only to find the worst conditions imaginable within the first km of the edge: high waves throwing ice floes at the ship.

Finally, I should add that there is no description whatsoever about ice chart interpretation. I would have expected this to be an essential section in a handbook of this type.

The handbook is clearly presented with many illustrative diagrams. It is typewritten rather than typeset.

Sadly, I cannot recommend *Ice Seamanship* as a stand-alone handbook on the operation of ships in pack ice, but as a complement to other manuals on this subject perhaps, since the experience of the author as a master mariner and his recommendations are presumably valuable to ships operating in these inhospitable seas.

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HOW TO FIND INFORMATION ON CANADIAN NATURAL RESOURCES: A GUIDE TO THE LITERATURE. By GABRIEL PAL. Ottawa: Canadian Library Association, 1985. 182 p. Softbound. Cdn$25.00.

Natural resources have received increased attention over the last several decades, stemming in part from escalating energy prices, rapid depletion of energy and other resources, and a growing interest in conservation and ecology. A growing body of natural resource literature has reflected this heightened interest, and the number of books, articles, serials, and government publications relating to natural resources has become large and unwieldy. This is especially true in Canada, a nation both rich in natural resources and dependent upon their export. Gabriel Pal's book attempts to make sense out of this expanding literature and provides a useful guide to gathering current data on natural resources.