THE GEOLOGY OF ANTARCTICA. Robert J. Tingey (editor). 1991. Oxford: Oxford University Press (Oxford Monographs on Geology and Geophysics 17). 680 p, illustrated, folded colour map in back pocket, hard cover. ISBN 0-19-854467-7. £95.00.

This book is the first integrated account of the geology of the last continent on Earth. It is divided into 19 chapters written by authors who are all established experts in their field and who have stamped their authority on the book. The index is brief but comprehensive once the grouping has been mastered and a little lateral thinking has been applied. The map in the back pocket is not of the continent, as one might have expected, but is a 'Tectonic map of the Scotia arc' produced by the British Antarctic Survey; it is nonetheless valuable for that.

Symposium volumes on Antarctic geology are now many and varied, and they provide innumerable vignettes of some parts of the geology of the region. They also include many excellent review papers, but nowhere has there been a comprehensive geology of the continent. The reason for this is not that the deficiency has gone unrecognized — it most certainly has been recognized — but until now nobody has had the time, the inclination, or the encouragement to produce one. It is a labour of love that I suspect, with time and familiarity, has led to contempt. Bob Tingey has, however, stayed the course, although that compliment has an unfortunate double-edge. The book has been a long time in production, and, in several chapters, the latest references cited are now rather dated, although some authors have evidently made last-minute revisions and referred to the latest Antarctic geology symposium volume, also published in 1991.

It is difficult for any editor compiling a book of this kind to ensure that all aspects are covered by the contributors and that there is continuity through the volume. On the whole this has been achieved with few gaps and relatively little duplication. The editor himself, in the preface, has drawn attention to the major gaps: chapters on the Cainozoic volcanism of the Ross Sea region; the geophysics of the continental margins; and an integrated account of the geological evolution of Antarctica and Gondwana. The second gap is partially covered in the chapter by John Anderson on the continental shelf, but the tectonic evolution of the margins of Antarctica is lacking. The first and third of these gaps I would regard as major shortcomings in a volume that is otherwise comprehensive. The McMurdo Volcanic Group occupies a crucial position in the Cainozoic history of Antarctica and includes Mount Erebus, Antarctica's most famous volcano and one of world-wide importance on account of its lava lake in the summit crater, which has persisted since at least the turn of the century. The third shortcoming is a great disappointment. It is true that some of the information on Antarctica and its relationship with Gondwana can be gleaned from other chapters in the book, particularly the chapter by Peter Barker and others on the tectonic development of the Scotia arc region, but a review of the whole subject would have been very valuable. In fact, it is difficult to find a comprehensive account of this topic anywhere in the geological literature. I would venture to suggest that it is worth a book in its own right, and I hope that someone might accept the challenge. A final drawback worth mentioning is the lack of a geological map of Antarctica as a whole, either as a single sheet in a back pocket or as a set of sheets, perhaps even within the volume. Such a single, coloured map would undoubtedly have added to the cost of the volume but that would have been more than compensated by the increased scientific value of the volume.

The negative aspects of the book outlined above are more than outweighed by the positives. Each chapter provides a thorough review of its subject and is supported by a good or, in some cases, a very extensive reference list. The excellent opening chapter by Tingey himself reviews the majority of the Antarctic Precambrian and is understandably the largest. The following chapter by Malcolm Laird covers as large an area geographically, completing the Precambrian and continuing through to the Middle Palaeozoic. The Devonian to Triassic Beacon Supergroup rocks of the Transantarctic Mountains and correlatives are well-covered by P.J. Barrett, but the chapter on the Mesozoic tholeiitic igneous rocks by Tingey is shorter than might be expected, although it is complemented by the following chapter on the Dufek intrusion by Arthur Ford and Glen Himmelberg. (With due respect to Tingey, I wonder if his chosen author for the tholeiitic intrusions failed to contribute.) The tectonic development of the Scotia arc region is well-described by Peter Barker and others, and is visually enhanced by the excellent map in the back pocket. Wesley LeMasurier and D.C. Rex emphasize the importance of the petrology and petrogenesis of the volcanic province of Marie Byrd Land, and one can only bemoan the absence of a complementary chapter on the McMurdo Volcanic Group. There are two good chapters on the unseen geology of Antarctica: the continental shelf by John Anderson and the subglacial crust by Charles Bentley. There is a substantial chapter by George Denton and others on the Cainozoic history of the ice sheet, and it is encouraging to see it here, although some geological purists might be upset by its inclusion. However, it is important to recall that in Antarctica geological and glaciological knowledge and understanding have both been enhanced by the other science. B.C. McKelvey's chapter on the Cainozoic glacial record in south Victoria Land from McMurdo Sound drilling projects is a good example of this and, although short, provides an appetizer for the results of further drilling projects now being planned. The palaeontology of the continent is well-described in five chapters: Palaeozoic invertebrates by Roger Cooper and John Shergold; Mesozoic-Cainozoic invertebrates by M.R.A. Thomson; terrestrial vegetation by Elizabeth Truswell; fossil fishes by G.C. Young; and Mesozoic and Cainozoic tetrapods by Edwin Colbert. Especially interesting here is the debate concerning the palaeolatitude and palaeoclimate of Antarctica indicated by the fossil record, which con-

flicts with determinations made by other techniques, particularly geophysical techniques; as yet, there is no satisfactory resolution. There are two chapters on geological resources: petroleum by John Behrendt, and minerals by Peter Rowley and others. These are important investigations because they yield a wealth of information about geological processes, but the authors rightly stress that these are scientific studies and are not in any way commercially orientated. Both chapters conclude that exploration, still less exploitation, by extractive industries is almost certainly still decades in the future, a forecast that should comfort environmentalists. Finally, there is a chapter on meteorites by W.A. Cassidy. Strictly speaking, this is not geology, but it contributes to that science, and the peculiar concentrations of meteorites in blue-ice areas of Antarctica have not only turned meteorite collection into a field study but have also yielded new data on ice-sheet behaviour.

Bob Tingey is to be warmly congratulated on his achievement, which is equally as great as his contributors. The book is not perfect; which book is? But, at last, the last continent has a long-awaited single volume describing its geology. It is an essential work for any geologist working in Antarctica; any geologist working in the Southern Hemisphere should have ready access to a copy; and no geological library will be complete without it. In the modern world no book of this kind is cheap, and purchasing a copy will certainly leave a hole in your pocket, but it is extremely good value for money. I would recommend anyone interested in the subject to give up drinking and smoking for a month to buy a copy; you won't be disappointed! (P.D. Clarkson, Scientific Committee on Antarctic Research, Scott Polar Research Institute, Lensfield Road, Cambridge CB2 1ER.)

COASTAL ECONOMIES, CULTURAL ACCOUNTS: HUMAN ECOLOGY AND ICELANDIC DISCOURSE. Gísli Pálsson. 1992. Manchester: Manchester University Press. 202 p, hard cover. ISBN 0-7190-3543-0. £35.00.

This is a book about fishing, productive activity, and human–environmental relations. Rather than focusing on ecological adaptations, technical aspects, or superficial cultural constructions of the environment, however, it challenges theoretical assumptions in ecological and symbolic anthropology and explores how relations and interactions between people and the environment are represented over time by both indigenous and anthropological discourse. By arguing that it is social discourse and social relations that allow us to understand the complexity of human and environmental relations, Gísli Pálsson moves us away from thinking merely in terms of an ecosystem approach or in terms of the symbolic and gets us to think of the significance of human intention and purpose in economic production. People actively create and define their 'folk models,' their cultural constructions, but these are not immutable, they are reconstructed and redefined in changing social circumstances. Pálsson illustrates this with reference to three periods in Iceland's economic development that have different cultural models, each with a distinct discourse.

In the first chapter, Pálsson argues that the theoretical discourse among many anthropologists has been one that regards human action as natural, something that happens outside society, with the producer seen as an autonomous agent with predetermined intentions, sensations, and perceptions. This is opposed to an approach that regards the producer as someone enmeshed in a complexity of social relations and production as something that is consciously motivated, informed, and defined by this fact. The second chapter looks at fishing economies in anthropological discourse. The author argues that anthropology has failed to move beyond a 'natural' model of fishing that reduces the producer to an autonomous being 'engaged in the technical act of catching fish' (page 23). This emphasis on the material and technical has serious, and quite possibly dangerous, implications for how anthropologists and others view and understand fishing and the economies of coastal communities. For Pálsson, one implication of anthropological discussions that focus on the extractive aspects of fishing is to have ignored gender relations and the prominent role played by women in fishing societies. Another is social differences between the culturally diverse array of fishing societies that are ignored or not fully considered because of a desire to discover universality in individual behaviour and collective culture.

Chapter 3 deals with indigenous social discourse and systems of production in fishing societies, the cultural representations of those who live in fishing societies, and the cultural or folk models that are the products of indigenous discourse. Pálsson argues, convincingly, that such discourse is logically valid as an account of social reality because, as authors of folk models or cultural accounts rather than passive receptors of culture, people actively create representations of human–environmental relations during social and economic activity, and such representations are also products of changing historical and cultural circumstances. How representations develop is discussed in the following three chapters, where the author concentrates on an ethnographic account of the three historic phases in the Icelandic fishery: small-scale subsistence peasant fishing, the market economy, and the consolidated capitalism of modern state production.

During Iceland's medieval period, fishing was embedded in the social economy of small-scale peasant production, with no fine separation between social, economic, and domestic life. But it was also a period during which Icelanders began to domesticate nature. The transition from peasant production to a market economy not only saw changes in how Icelanders represented nature, there was a corresponding change in social relations. A value was also given to labour and production, defined as gender specific in a system of production that considered success as individualistic. Moreover, the cultural model that char-