

Thus we are told that the energy of natural hyper-velocity impact is "quite great" (p. 82), and the amount of heat generated is "fairly large" (p. 91). Pyroxferroite is said to be abundant (p. 179) whereas it is only a minor accessory of some lunar basalts, earth-crossing Apollo asteroids are said to have diameters of the order of half a kilometre (p. 281), whereas the average is two kilometres, and on p. 301, we learn that the lithosphere of Mercury, possibly 600 km thick, is thin compared with that of the Earth (!), apparently a confusion of composition with physical state. Students are given some guidance into such matters as Rankine-Hugoniot equations, but are virtually on their own when confronted with pseudoternary liquidus diagrams.

The book is of moderate size and is handsomely printed on high gloss paper. Its expert design makes the most of the material presented, with excellent tones to the numerous photographs and generally clear line drawings. Typographical errors are rare. With half of the space devoted to illustrations and tables, and another 15 per cent to lists of references, the book can be said to achieve the author's modest aim of providing an entrée to the subject's vast literature, at least to 1974. However, it is representative of, rather than a solution to, the problem of conveying to the student and professional scientific communities an appreciation not only of the technological achievements but also of the basic scientific results of space exploration.

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The Billion Barrel Oil Swindle

By L. A. Sikabonyi
Exposition Press, Hicksville, New York,
 256 p., 1976.
 \$8.50

Reviewed by P. Fitzgerald Moore
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The most extraordinary statement in this novel of the oil industry appears in the "Author's Note" where he says "Neither

the references to localities in Canada or Alberta, nor any of the events and persons described in this book reflect any actual incidents or portray any real person . . ." If ever there was a *roman à clef* this would seem to be it. Indeed the fictional names of the companies and people involved are so transparent as to make one wonder why they were altered at all. But what relation the story has to the *cause célèbre* involving the author and certain oil companies a few years ago we cannot tell, for, in fact as in fiction, the matter was settled out of court.

The novel is about a geological consultant who has an idea for an oil trap beneath land controlled by a major oil company. The major company has lost interest in this land and so their land man makes a deal with the consultant to 'peddle' the acreage for them. The consultant is allegedly cheated out of his fee and royalty when a firm which he is trying to interest in the prospect takes his information and goes over his head to deal directly with the major. The exploratory well drilled on the prospect results in an important discovery and the consultant sues for his share.

The plot hinges on the interpretation of the oral agreement that the consultant had with major. Nothing was ever written down. And although, in the oil industry, multi-million dollar deals are quite often settled on a handshake, this usually takes place within a group of business executives between whom mutual trust has been built up through the years.

Many years ago, when I was a farmer, this is the way deals were made in the marketplace and it has always struck me as rather ironic that it is in the "villainous" oil business that the practice lingers on when elsewhere distrust and lawyers now hold sway.

But there are limits even to the camaraderie of the oil patch: and it frankly strains one's credulity to suppose that a major company would give a two-man consulting firm an exclusive right to peddle its land or that it would not simultaneously have offered it to any company known to have exploration money available. So perhaps we should take literally the author's claim to be writing a work of fiction.

The main action of the novel takes place in a room at the courthouse where the examination for discovery is being held. The consultant is vindicated, but

has to settle out of court for a sum barely enough to pay his legal fees. His business is boycotted by the industry which sees him as a trouble-maker and his attempt to claim his share of the loot in a business dominated by corporate giants results in personal disaster.

Intertwined with this story are episodes outside the courtroom where naive questioners are given simple lectures on the technicalities of the oil industry. And there are conversations in the business clubs of Calgary where the domination of the major integrated companies is condemned and an alternative structure for the industry advocated by the author through the mouths of various oil men. Sikabonyi knows his oil industry and the book is free from those technical *gaffes* which so often mar books about the business. Alas, in spite of "ghostly" help, it is no work of art. There are too many didactic passages and the only woman who appears as a person rather than an anonymous, but "curvaceous", ministrant is soon turned into the wide-eyed and passive recipient of information about the land tenure system in Alberta.

But I must say I found the book held my attention to the end. Perhaps it is the fascination of reading about one's own business – a sort of narcissism like that which produces all those movies about "show-biz."

MS received August 30, 1977

Meadow Lake Geolog: The Land—Past and Present

By E. A. Christiansen, C. A. Padbury and R. J. Long
Museums Branch
Dept. Tourism and Renewable Resources and Saskatchewan Research Council,
Interpretive Rept.
 No. 1, 50 p. 1975.
 \$2.00

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Meadow Lake Geolog is in the nature of a primer of Quaternary Geology for the

tourists visiting the Meadow Lake Provincial Park in Saskatchewan. This park lies along the Waterhen River from Cold Lake on the Alberta border to north of the hamlet of Meadow Lake. The Pamphlet is in part a road-guide originating from Meadow Lake and making a circle tour of 172 km through the park with 10 road stops designated and described geologically.

The text is well illustrated with multicoloured maps and cross-sections. Some of the diagrams are devoted to the purpose of definitions of general geologic terms such as are found in introductory text-books. The Pleistocene geology is discussed with a few cursory remarks on the sub-drift paleo-topography. Modern topographic features at the road-stops are well explained. The detailed treatment of the sequence of tills in this area would make it worthwhile as a brief case-study for reading in Pleistocene courses.

A convenient glossary in the appendix provides definitions, for the layman, of various scientific terms used in the guidebook.

Two-thirds of the illustrations of a total of 69 figures are in colour and on the cover is a handsome lithograph of the area from a satellite. The format 16.5 x 26.5 cms, stapled on the short dimension, makes the guidebook difficult to file on an ordinary reference shelf and if a series of these guidebooks are envisaged for other parks, shelving convenience should become a consideration. As a shadow of things to come, there is a small foul up on metric conversion in Figure 9.

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Geomorphology

By Robert V. Ruhe
Houghton Mifflin Company, Boston
 246 p., 1975.
 \$14.00.

Reviewed by Stuart A. Harris
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Most knowledgeable Canadian readers of this book will find that they have two

reactions to it. Firstly, they will probably want to include it in their personal libraries, and secondly, they will only want to expose Canadian students to it as a source for American examples.

Bob Ruhe has certainly succeeded in covering the relationship between soil studies and geomorphology more completely and informatively than in any other book known to the reviewer. This is largely because, as he states in his preface, he prefers to use examples from his "own work and from the work of close associates during the past several decades". Because of his geomorphological work with the Soil Conservation Service, he has had unique opportunities to build up great experience in a wide variety of geomorphic situations and he makes good use of the time element in geomorphology. Hence the value of the book to professional geomorphologists.

The name of the book is misleading. The author only tackles selected areas of the field normally called "geomorphology". What he does cover is tackled in an interesting, readable fashion, although he is inclined to use more formulae than are always really necessary. Fluvial geomorphologists may be surprised to find that he uses about the same number of formulae to account for fluid mechanics and hydrology as he does to explain wind action or glaciers.

As noted above, almost all the examples chosen are from the United States of America. This may be fine for a student at the University of Iowa, but it will upset Canadian students. An additional problem is that he gives mainly American references. Thus the only reference for details of the use of lichenometry is to Reger and Péwé, 1969. Where references is made to subjects studied mainly elsewhere, e.g., gilgai, or loess in New Zealand, he often gives only a few references which fail to cover the subject adequately.

His coverage of the ideas current in American geomorphology will sometimes seem uneven. Thus he refers to the Pearlette ash as originating from North-Central New Mexico, although adding that "at present there is

doubt as to the validity of the source... and whether the Pearlette is only one ash". Again in Chapter 6, he ignores the variety of catenas discussed by Bucknell in his paper, "The catena cauldron". However, these are quite important to geomorphologists using soil. At times, he gets into difficulties through trying to fit the results of his research into the overall geomorphological picture. One example occurs under "glaciation and landscapes" where he gives data on measured rates of ice movement in temperate glaciers and in the Antarctic ice sheet. He then follows this by discussing measured rates of advance for ice fronts in the last phases of the Wisconsin glaciation in the United States, concluding with obvious relief that they are about the same order of magnitude. He misses the fact that ice movement at any point in an ice mass equals the rate needed to replace the loss by ablation downstream, plus the rate needed to make any alterations occurring in the position of the ice front. No mention is made of the evidence for local lobate surging of the Laurentide ice, indicated by radiocarbon dates. Many discussions are incomplete, e.g., he does not mention lithology as a control on the size of alluvial fans.

This is not a traditional text, and he does not use Davisian cycles of erosion. He does use simple Thornthwaite climatic models and he does use case studies. Environmental effects by Man are generally ignored. Only one typographical error was noted by the reviewer and the book is well illustrated with usually novel examples. At least one caption (Fig. 4.5) should be lengthened to explain which thin section was which, while Fig. 8.9 is rather complicated. Two diagrams would have been better.

Altogether, it would seem to be a very useful book for those interested in the use of soil studies in geomorphology and the Quaternary. It is unlikely that it will be used as a textbook in many pure geomorphology courses at Canadian universities, but it might be used in an introductory Quaternary soils course by an informed instructor.

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