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The Permian and Triassic Systems and their Mutual Boundary

Edited by A. Logan and L. V. Hills
Canadian Society of Petroleum Geologists, 766 p., 1973.
Members $20.00,
Non-members $25.00.

Reviewed by F. G. Stehli
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This memoir contains many of the papers presented at the 1971 International Permian-Triassic Conference from which it evolved. Like the Conference, the book includes contributions from many fields of geologic investigation and its chapters range as well from precise documentation to speculation. To achieve some organization the editors have chosen to fit the diverse contributions into five major catagories and though the fit is not always entirely comfortable it is hard to see how it could be. Part 1, *The Systemic Boundary* contains but two papers, the first by N. D. Newell summarizes succinctly the nature of the "Permian-Triassic" problem. Part 2, *Biostratigraphic Evidence: Northern Continents,* includes 21 papers which in aggregate do cover much of the evidence for the hemisphere. Part 3, *Biostratigraphic Evidence: Southern Continents,* contains only five papers and this does not provide comparable coverage for this hemisphere. Part 4, *The Organic Crisis* with 16 contributions succeeds in dealing with what is known of the fossil record of many of the groups of organisms that actually do, or potentially can, contribute to our further understanding of this boundary problem. Part 5, *The Search for Causes,* fails to uncover one that can be claimed as *the* cause, though the eight papers which comprise this section are interesting and useful.

No one familiar with the problems that beset the placing of the Permian-Triassic boundary, to say nothing of fixing a cause for the apparent changes associated with it in some groups of organisms, will be surprised to find that no neat solution to either problem emerges from this volume. What the book does do, and quite comprehensively, is to bring together evaluations of the present state of knowledge of the nature and possible position of the systemic boundary in many parts of the world and to extend consideration of the fossil record to many groups of organisms as seen by experts in each. With many data collected and many problems pin-pointed, it seems likely that the volume will stimulate new work critically focussed on the solution of manageable parts of the complex general problem. Memoir 2 is a good summary of what we know and a tacit admission of failure thus far to penetrate to the heart of the problem. It should serve well as a spring board for future work and will find a useful place in the library of those concerned with the Permian-Triassic or with boundary problems in general.

MS received, October 23, 1974.

Modern Mineralogy

by Kieth Frye
Prentice-Hall, Inc.
325 p., 1974.
$12.50.

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My first reaction to this book was to seek justification for its title. What makes *Modern Mineralogy* modern? One might expect perhaps, a topical reference to triple junctions or subduction zones, or a frequent substitution of "scenario" for the old fashioned word hypothesis. But no, one concludes on examining the book, that its claim to modernity must rest on a once-over-lightly introduction to the extra-nuclear structure of atoms, a genuflection towards crystal-field theory and a perfunctory treatment of phase diagrams.

The book covers the usual topics of a one semester course in mineralogy (i.e., structural, physical and chemical aspects of the science) and had it been clearly written it might have served as an alternative to the several texts that already exist in this field. However, it is badly written and contains many errors of vocabulary, grammar and just plain fact.

Take as an example the following quotation from page 274:

> All rocks having a unique and characteristic correlation between chemical composition and mineralogical composition belong to the same facies. That is, all rocks of the same chemical composition have the same mineralogical composition if they belong to the same facies.

These two sentences might mean the same thing in Choctaw, but in English they do not. What's more, the first is untrue.

Another, of many possible examples, is taken from page 249:

> The generic classification of rocks has led to endless controversy, much of it semantic.

Semantics is ill-served by an author who thinks that generic means genetic. Similar assaults are made on words throughout the book: Dr. Frye seems unaware that he uses the term system in two different ways on page 215, that variance (p.2) is not the same as varient, or that paragenesis (in the appendix) is not equivalent to occurrence. And what is a "miniscus"?

According to the dust-jacket, one of the book's strong points is that it contains "more than 150 carefully prepared and selected drawings". It would be very easy to prove careless preparation and bad selection in many cases, but let four suffice. 'Silic' appears for 'silica' in figure 7.3 and the field labelled 'solid' in figure 7.5b should be labelled 'two solids'. Figure 6.14 taken from Tuttle and Bowen is a bad choice because it is based on the misconception that there is a continuous spectrum of compositions between haplogranitic melts and the aqueous fluids with which they are in equilibrium. Figure 7.7, Bowen's two reaction series, is a bad choice in its unaltered form, because it perpetuates the jumble of potash feldspar, muscovite and quartz at the low temperature end. A *modern* mineralogy should not do that.

The text is not without a few flashes of humour. We are told that hexagonal closest packing should be familiar "even to those that have never racked up billiard balls". Elsewhere we are exhorted to build a sand castle and compare it with a similar structure of aluminum filings. Yet again, the author hints at a miss-spent youth when on p. 210 he comments on the mixing of alcohol and gasoline. I kept reading in the hope that somewhere I'd find the recipe for a mint julep.

I don't recommend the book for any purpose.

MS received, September 30, 1974.

World Survey of Climatology, Volume 2, Climates of North America

Edited by R. A. Bryson and F. K. Hare
Elsevier Scientific Publishing Company, 420 p., 1974.
$49.50.

Reviewed by J. A. Davies
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This large volume, edited by Bryson and Hare, is one of a fifteen-volume series entitled *World Survey of Climatology* (H. E. Landsberg, editor-in-chief). Six contributors are involved in the four lengthy chapters which endeavour to discuss the climates of the continent from Alaska to Mexico, based on data for 1931-1960. In Chapter 1, the *Climates of North America,* Bryson and Hare present a lucid account of the controls of the continent's climates, the climatic and mean circulation patterns and more briefly, past climates dating from the early Holocene. *The Climate of Canada and Alaska* is presented in Chapter 2 by Hare and Hay. In addition to the commonplace parameters discussed in most regional climatology they have boldly introduced concepts and parameters from the energy and moisture balances which have been rarely treated outside of the work of the USSR school of climatologists. In addition, an appendix by Baier discusses the successful crop water balance model for Canada developed by the Canadian Department of Agriculture. Court treats the *Climate of the Conterminous United States* in Chapter 3 from the viewpoint of the controlling air masses, moisture, precipitation, storms, evaporation, heat, climate types and some statistical relations which include such singularities as the January thaw. *The Climate of Mexico,* handled in Chapter 4 by Alemán and Garcia, emphasize the role of complex surface topography and dynamic aspects of the atmosphere in determining temperature and precipitation regimes.

Much of the text is given over to lengthy sets of climatic tables (130 pages) and copious illustrations (about 140 pages) with a surprisingly limited written text of 148 pages. Hence it shows some of the characteristics of a climatic atlas and a computer dump of data. The specialist can gain much from these and from the excellent reference lists. The non-specialist may find himself bogged down in detail he doesn't want and have difficulty in relating the four parts since themes and approaches are not common. The book is handsomely produced but the price ensures that the specialist and non-specialist will only consult it in libraries.

MS received, October 30, 1974.