

## reviews

## BOOK REVIEW

*Geological Maps: An Introduction*

Alex Maltman. New York: Van Nostrand Reinhold, 1990. 224 pp, maps, diags., and biblio. \$49.95 cloth (ISBN: 0-442-30307-6).

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Geologic mappers are perhaps the preeminent applied users of maps. The three-dimensional nature of most geologic phenomena means that geologists must be able to read and manipulate a two-dimensional map in many ways unimagined by most geographers. Perhaps the most difficult course for undergraduate geologists to master is the geological field camp where geological maps are made. Thus, the complexity of the techniques assures a need for illustrated books showing the fundamentals of geologic mapping.

This book is a welcome addition to the sparse literature of this field. It is composed of fifteen concise chapters, each on a specific aspect of geologic maps: for example, cross-sections, portraying strike and dip, unconformities, and folds. The chapters are liberally illustrated with block diagrams and easy-to-read figures summarizing various topics, and eight full-color geologic map plates are included. There are also chapters on topics peripheral to interpreting geologic maps, such as on old and new techniques of producing geologic maps, as well as on the heritage of geologic mapmaking in Britain, where geologic mapping essentially originated.

The book is mainly limited to a discussion of geologic maps produced in Britain and its former colonies, especially the United

States, Canada, Australia and New Zealand. Discussion of geologic mapping in other regions is mainly limited to a few examples from France. Despite this limited geographic coverage, there are substantial international differences between geologic maps in the English speaking regions; the able comparison of maps produced by different mapping traditions is a laudable aspect of this book.

Each chapter includes a brief introduction, a discussion of the topic, a chapter summary and an annotated bibliography. Accompanying each chapter are several map exercises demonstrating the principles introduced in it. Many questions are posed about each map, but it is left to the reader to complete them because no exercise solutions are included. Because the 24 map exercises are based on 8.5" x 11" black and white maps, they can be easily reproduced for repeated personal trials or classroom use.

It is apparent from the annotated bibliography that several books about geologic mapping have been published since I completed my geological field camp in 1981, when this kind of reference book was unavailable. Although this book would have been an extremely useful reference book at field camp, I might not have graduated if my instructors could have assigned some of the complex exercises that it includes. There is no question that anyone who is able to complete all of the exercises will have a thorough knowledge of geologic maps and the various interpretative techniques that can be employed.

There are some minor problems with this text, but none that discourage me from recommending it. Although I found a few typographical errors in the text and exercises, the typical American reader will find a surprisingly great difference between British

and American spelling of geological terminology, which could be confusing to the novice. In this age of computer-typeset texts, a publisher could justify two printings of a scientific text when the terminology is this divergent, with each text using the lexicon of the appropriate audience. In addition, although this book is readily understandable to a geologist with a working knowledge of the geologic time scale and basic geologic principles, some of the text could be much more difficult for the typical American geology undergraduate to use without such background knowledge. More importantly, a few of the black and white exercises are simply too complex to use conventional pattern symbols to differentiate the areas. For example, because I am familiar with the geology of the Baraboo, Wisconsin area, I am convinced that I could not determine the geological history of the region to the extent requested in the exercise, given the cartographic complexity of the map included. Thus, I am concerned that some of the other exercise maps might be similarly flawed. Finally, I would recommend that the next edition include a geologic time scale and a chapter/pamphlet of accompanying exercise solutions.

Despite these criticisms, this book is an excellent reference text for field geologists. The diagrams explaining each topic are very well drawn, and easily understandable without reference to the text. Although the book will be most useful as a reference or field camp text, for me the highlight of this book was the entertaining stories about some famous geologic mappers. Like many Welshmen, Professor Maltman is an excellent story teller. He has done as good a job writing captivating stories about some famous geologists as he has in clarifying the exceedingly complex techniques of geologic mapping.