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BOOK REVIEW

Esad PROHIĆ: Geokemija.- Targa, Zagreb, 1998, 554 p. Appendices A to D. Price 70 DEM.
University textbook, *Manualia universitatis studiorum Zagrabensis*.

Geochemistry is a relatively new science which has risen from the two older sciences of chemistry and geology. Such a subdivision is a general process observed in all branches of geology, making it more difficult for one individual to even keep abreast of the advances in a specialist field. This difficulty has become particularly apparent in the case of studies of the chemical processes in geology, since very few chemists are interested in such problems, and few geologists are sufficiently trained in theoretical chemistry to pursue such research. Therefore, the new science came into being, with the aid of a few chemists and physicists, and some geologists trained in chemistry and physics. Although the term "geochemistry", had been coined as early as 1838 by Schoenleben, geochemistry as a separate science can be said to date from the establishment of the Geophysical Laboratory, in 1905, by the Carnegie Institution of Washington. New research, followed by an adequate pool of data, encountered the problem of a geological audience, uneducated to communicate in a chemical, or more appropriately a geochemical manner.

Recognition of the problem, in the mid 20th century, led to improvement of the educational process by the introduction of "Geochemistry" as a basic course. The necessity for a standard textbook had been solved with the appearance of the Mason classical work "Geochemistry", which sufficed the student requirement for decades. Intensive experimental work and research, as well as the subsequent accelerated flow of analytical data however, promoted preparation of new books. The presentation of such a complex subject, where authors have to cope with chemical fundamentals on the one hand, and Earth Science processes on the other, resulted in two basic styles, which like the pendulum swings between the two extremes. The Krauskopf's, Brownlow's, Richardson & Mc Sween's, and Allegre & Michard's textbooks, are good examples of the kind.

Writing a textbook in such a competitive and advanced field is not a simple task, and Esad Prohić, Professor of Geochemistry at Zagreb University, took the liberty and courage to assemble a book "Geochemistry", in his native language, trying to reconcile both tendencies. The language barrier, i.e., introduction and translation of a number of new terms into Croatian, was another obstacle, which had to be overcome in a satisfactory

manner. The book is written in modern concept, based on thermodynamics and kinetics. The selection of the presented topics is not completely traditional, although the descriptive manner prevails. The Chapters: geochemistry of the major geological compartments, like, hydrosphere, atmosphere, biosphere, sedimentary rocks, magmatic rocks and processes, metamorphic rocks and processes, follow each other traditionally, but we cannot claim, however, that the book is not process-oriented. He skilfully mingles facts with basic chemistry, well-balanced theoretical background precedes geological process, exemplified in a clear way.

The book has some shortcomings, of course. The major one is the inconsistency in the volume of presentation of some particular divisions. The author's devotion to sediments, through his personal, scientific interest, and past activity in environmental geochemistry, made this chapter more extensive, while isotope geochemistry or igneous and metamorphic processes were slightly neglected. The basic criticism should be directed toward the lack of an index. For the beginner in geochemistry (the book is intended as an introductory course) it might cause some difficulties in the learning process. Inconsistency in the style, units, poor citation of relevant literature and sources, misprints, borrowed drawings, however, cannot diminish this brave attempt, and the author's efforts to fulfill a gap in the scientific literature written in the native language. The shortcomings are a matter of clarification and improvement in later editions.

By the decision of the University Senate, it is intended as a university textbook primarily for the students of geology (*Manualia universitas studiorum Zagrabensis*). It can be used in the high schools as an optional manual for teachers in the field of mining-geology and petroleum engineering by decision of the Ministry of Education and Sport. It will also be useful to other professionals in geology and related disciplines like environmental sciences, mining, pedology, geophysics, and those interested in understanding how the Earth operates.

Hard cover, good paper and quality of publishing give the book an attractive outlook. This is a good textbook of geochemistry in the Croatian language.

