controversy, and to avoid the idiocy of treating opinions on policy as evidence of security risk by shifting to "defects of character," documented in the specularly trivial examples cited by the AEC majority opinion.

Revisiting the affair through Stern's book suggests that the Oppenheimer case poses a true dilemma. There will be occasions again when prudence will dictate some serious screening of highly placed government personnel. And again there may be no way of controlling the paranoia of a loyalty-security quest once it is institutionalized. Eisenhower, Hoover, Strauss, Nichols, Gray, and Borden were not evil or incompetent men. Yet their performance in the Oppenheimer case has left an unnerving record of self-righteousness, insensitivity, and provincialism that should remain a matter of permanent interest and study for students of government.

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Data for Earth Scientists

Handbook of Geochemistry. K. H. WEDEPOHL, executive editor. C. W. Correns, D. M. Shaw, K. K. Turekian, and J. Zemann, editorial board. Springer-Verlag, New York, 1969. Vol. 1, xvi + 444 pp., illus.; vol. 2, part 1, unpaged, illus., in loose-leaf binder. $56.

The literature of environmental science now doubles every five or so years, and the retrieval time of important data can be long. As a remedy to this situation, Wedepohl has assembled a group of about 70 collaborators to extract the existing data of geochemistry from the publications of science. Each chemical element has been accorded a chapter, with the exceptions of the noble gases, platinum metals, and lanthanides, which are treated as groups, and of some short-lived members of the natural radioactive series which will not be considered at all. The following characteristics of the chemical elements in naturally occurring substances are treated: crystal chemistry; isotopic chemistry; behavior in igneous, metamorphic, and sedimentary processes; abundance in extraterrestrial materials, minerals, rocks, the atmosphere, and natural waters; biogeochemistry; and economics.

The first installment appears in volume 2, in which 22 elements are presented. Nearly all the chapters have sections missing; additions will be issued at yearly intervals. A loose-leaf format allows for ready insertion of supplementary pages. Many of the data are set forth in tables and graphs. The use of the narrative style in the chapters also permits critical presentation, and some of the authors perform a most needed service in evaluating and interpreting the material in their sections.

The volume is going to be much used and perhaps will have an impact upon the community of earth scientists similar to that of *Data of Geochemistry* by Frank W. Clarke. The contributors have been appropriately chosen. The magnitude of the venture tends to dwarf the typical inadequacies of the many-authored volume: the unevenness in writing, often resulting from some contributors' using languages other than their native tongues; the time delays of publication (the article on rhenium was received in October 1965); the omissions, errors, and misprints. One hopes that users will point out amendable parts to the executive editor.

Volume 1 contains, according to Wedepohl, the fundamental facts of geochemistry, geophysics, and cosmochemistry. Its 12 chapters by 11 authors cover such topics as crystal chemistry, thermodynamics, meteorite composition, cosmic abundances, geophysics, composition and abundance of different types of rocks, the atmosphere and hydrosphere, and data evaluation. The permanent binding suggests that this volume is expected to survive the results of future investigations more successfully than its loose-leaf counterpart. Its contents indicate that this may not be the case, however. The chapter on geophysics would be markedly enhanced with addition of the recent studies of plate tectonics, magnetic reversals, and sea floor spreading. The chapters on sedimentary rocks and extraterrestrial materials will be in need of alterations as the results of the present intensive studies of deep-sea drillings and of moon samples are published.

There are some curious omissions. The volume lacks chapters on geochronology, stable-isotope geochemistry, and organic geochemistry, clearly most active and basic parts of the discipline.

Most of the chapters reflect the high degree of competence of their authors, yet their utility for reference or as class texts suffers from their brevity. For example, the chapters on crystal chemistry and thermodynamics contain 24 and 40 pages respectively. Although this book may have been conceived as a basic reference in geochemistry, the end result is a rather unsatisfying collection of overly digested material.

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The 1964–65 Solar Minimum

Solar-Terrestrial Physics: Solar Aspects. Proceedings of a Joint IQSY/COSPAR Symposium, London, July 1967, Part 1. A. C. STRICKLAND, Ed. M.I.T. Press, Cambridge, Mass., 1969. x + 414 pp., illus. $19.50. Annals of the IQSY, vol. 4.

Solar-terrestrial physics, a discipline that not long ago consisted principally of studies of sunspot numbers and of sea-level geophysical phenomena, now has matured to encompass all the phenomena relating sun and earth. The circumstance that has brought this about is, of course, the possibility of spacecraft-based *in situ* measurement of the many parameters of the interplanetary medium. That possibility has been exploited in two major undertakings: the International Geophysical Year, devoted to investigation of solar activity in general, and, more recently, the International Years of the Quiet Sun, specializing in the phenomena of the one solar minimum that has occurred since such observations could be made.

This book is one of seven volumes planned by the IQSY Committee to chronicle the initial results of the many scientific investigations of that 1964–65 minimum. It is one of two on solar-terrestrial relations which, along with another devoted to the first widely studied prototype particle flare of the new cycle, that of 7 July 1966, form the scientific-analysis complement. The other volumes are concerned with measurement techniques, list the activity, and catalog the available data and the relevant publications.

In this volume we have 25 papers by an impressive array of the experts. There are several articles each on solar activity, interplanetary space, cosmic rays, the radiation belts, and the aurora and airglow. There is no doubt that anyone concerned with these subjects will find the book useful for some time,