tertain. There are occasional points one might quibble about, but these tend to lie on the fringe of the story and do not interfere with the main tale: how man learned to convey written and spoken intelligence underneath the ocean by electrical means.

Two main incidents are described: how the first telegraph cables were deposited on the bed of the Atlantic Ocean and how the first telephone cables were designed and laid there almost a century later. The first incident is one of determination and physical adventure and how problems were solved in the infancy of electrical technology, while the second is more about intellectual adventure and skill and how the problems were solved once the engineer had mastered the theoretical means. Although one would expect the author to fall between the two extremes of theory and adventure, his light, racy description, filled with the human-interest details of modern journalism, tends to keep the reader's interest throughout. Clarke's ability to seize the main features of the technical problem and to present them in familiar but not too superficial terms contributes much to his breezy style. The numerous illustrations add to the interest of the book.

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Survey of Raw Material Resources. vol. 2 of *Proceedings of the Second United Nations International Conference on the Peaceful Uses of Atomic Energy.* United Nations, Geneva, Switzerland, 1958 (order from Columbia University Press, New York). x + 843 pp. Illus. $18.50.

This is volume 2 of an extraordinary series of papers (published in 33 volumes) that represent the scientific presentations at the Second United Nations International Conference on the Peaceful Uses of Atomic Energy. At the first conference, held in 1955, there were only three technical sessions. At the second conference, in 1958, the number of papers presented had almost doubled. The editorial committee is to be congratulated not only upon the speed with which it published the results but also upon the excellent organization of the material.

Volume 2, entitled simply *Survey of Raw Material Resources,* actually goes far beyond this subject and thus differs considerably from the comparable volume published after the first conference (No. 6, *Geology of Uranium and Thorium*). This earlier volume was indeed concerned primarily with the descriptive geology of radioactive mineral deposits. In contrast, the new volume is concerned not only with the mineralogy and geology of such deposits but also with prospecting techniques, geochemistry, age determination methods, isotope composition, and genesis. The work contains 102 papers, grouped in the following categories: raw material supplies (17 papers) (session E-5); geochemistry (session E-7b), including geochemical prospecting (15 papers) and isotopic composition and age determination (9 papers); and mineralogy, geology, and prospecting (session E-9), including mineralogy and genesis of deposits (21 papers), geology of deposits (30 papers), and prospecting (10 papers).

Another contrast lies in the better organization of the material in the new volume, and yet another, in the greater number of papers from countries other than the United States that have been included. Volume 6 of the first series included 117 papers, of which 88 were by scientists from the United States. In this new work, only 30 of the papers are presentations by geologists from the United States. This reflects the gratifying increase in scientific investigation outside the United States of radioactive mineral deposits and also the increasing willingness of the various governments to allow their nationals to present the results of their research.

One further contrast lies in the great increase in the number of papers from the U.S.S.R. Unfortunately the policy of the Soviet Union with respect to revealing locations of deposits remains unaltered. In one of the longer Soviet articles ("Paragenetic associations of hydrothermal uranium minerals in uranium deposits of the Soviet Union," by A. I. Tishkin, G. A. Tananayeva, G. D. Gladishev, I. V. Melnikov, V. A. Polikarpova, and M. S. Tsibulskaya) a great variety of uraniferous mineral associations are described in detail, yet not for a single one is a specific locality cited as an example. This indicates continuation of the unfortunate policy that first became evident in two previously published monographs on Soviet uranium mineralogy [see *Am. Mineralogist* **43**, 378 (1958)].

Although this volume is concerned primarily with uranium and thorium, it also contains papers on other metals of importance to the atomic energy industry—namely, zirconium, rare-earth elements, and beryllium. Another group of papers deals with geochemical problems that are related only incidentally to the geochemistry of radioactive elements. For example, there is a paper entitled "Some geochemical determinations using radioactive and stable isotopes," by A. A. Smales, D. Mapper, J. W. Morgan, R. K. Webster, and A. J. Wood; another, by A. P. Vinogradov, entitled "Meteorites and the earth's crust"; and a third, by J. R. Merrill, M. Honda, and J. R. Arnold, called "Beryllium geochemistry and beryllium-10 age determination." This all too brief sampling is intended merely to show that the scope of this volume far exceeds that of its earlier counterpart and that scientists are increasingly directing some of their attention to more fundamental problems of "radioactive" geology.

The work is monumental in scope, and all serious students of radioactive mineral deposits will benefit greatly from a careful study of the numerous papers. Even those geologists who are not directly concerned with uranium and thorium geology will find this book a valuable addition to the modern literature on mineralogy, geochemistry, and prospecting.

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The Enzymes. vol. 1. Kinetics, thermodynamics, mechanism, basic properties. Paul D. Boyer, Henry Lardy, and Karl Myrbäck. Academic Press, New York, ed. 2, 1959. $24.

This first volume of a new edition of *The Enzymes* is concerned primarily with the kinetics, thermodynamics, and mechanism of enzyme reactions. Molecular aspects of enzymology are stressed to a greater extent than metabolic functions and relationships. It is most appropriate that a book which closely relates protein chemistry to the mechanism of enzyme action should begin with a moving tribute to the late James B. Sumner, an editor of the previous edition of this monumental treatise, whose experimental ingenuity and scientific courage did so much to establish the protein nature of enzymes.

Although there is considerable overlap in subject matter between many of the chapters, each is written from a unique standpoint, and they complement each other admirably. All of the 20 authors have made outstanding contributions to their respective fields. The first three chapters deal with enzyme kinetics. Rufus Lumry then contributes a very stimulating discussion which relates the thermodynamics of enzyme reactions to the peculiar catalytic properties of proteins. Five chapters on various physicochemical aspects of enzyme mechanisms follow; one of these chapters (that by F. H. Westheimer) is a superb account of enzyme models. The next three chapters consider the structural features of the protein moieties of enzymes which determine the binding of substrates and inhibitors. The volume concludes with a comprehensive review of enzyme induction (by M. R. Pollock)