REVIEWS

REVIEWS: THE FABRIC OF GEOLOGY; THE FOUNDERS OF GEOLOGY; ILLUSTRATIONS OF THE HUTTONIAN THEORY OF THE EARTH

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THE FABRIC OF GEOLOGY, Claude C. Albritton, Jr., *Editor.* Originally published by Addison-Wesley Publishing Company, Inc., Reading, Massachusetts, 1963, x + 372 pp., illustrated.

Second printing with corrections: Freeman, Cooper, & Company, Stanford, California, 1964, x + 374, pp., illustrated. [With "Notes on the Contributors" added to the text.]

The history of geologic thought is reviewed and evaluated in the sixteen essays which comprise *The Fabric of Geology,* a volume prepared in compliment to the 75th Anniversary of the Geological Society of America. These distinguished contributions long will serve as an introduction to the history and philosophy of geology and as a guide to its future development. Students will find portions of this book included in required reading lists.

In the first essay, "James Hutton and the Philosophy of Geology," Donald B. McIntyre salutes Hutton as the "Founder of Modern Geology." He reviews Huttonian theory and places it in proper historical perspective. W. H. Bradley in "Geologic Laws" discusses the role of general laws in geology, demonstrating the unique and fundamental position of geology among the sciences. In "Historical Science" George Gaylord Simpson compares the historical aspect of geology with that of the other sciences. David B. Kitts explores in detail "The Theory of Geology." V. E. McKelvey considers "Geology as the Study of Complex Natural Experiments."

Six essays deal with geologic thought within particular branches of earth science: In "Correlation by Fossils," A. O. Woodford describes valid methods of intercontinental correlation using for examples the classic zones and stages of the Jurassic. His concluding paragraphs provide an adequate answer to the anti-typologists. Donald B. McIntyre discusses "Precision and Resolution in Geochronometry." J. Hoover Mackin's "Rational and Empirical Methods of Investigation in Geology" deserves special mention. These methods, often opposed and argued, are given restrained and scrupulously fair evaluation. This essay should be required reading for every graduate student early in his thesis or dissertation research. Mason L. Hill considers the "Role of Classification in Geology" with examples given from the classification of faults. Charles A. Anderson's "Simplicity in Structural Geology" deals with the application of Occam's razor to geologic interpretation. "Association and Indeterminacy in Geomorphology" is the subject of Luna B. Leopold and Walter B. Langbein.

Next, Frederick Betz, Jr., discusses "Geologic Communication." In "The Scientific Philosophy of G. K. Gilbert," James Gilluly reviews the considerable contributions of this distinguished American geologist to the methodology of later workers. J. M. Harrison considers the "Nature and Significance of Geological Maps." The "Philosophical Aspects of the Geological Sciences" is treated by Arthur F. Hagner. Robert F. Leggett's "Geology in the Service of Man," traced from remote antiquity through William Smith to the present day, concludes the series of essays.

As editor, Claude C. Albritton, Jr., wrote the preface and the final portion entitled "Philosophy of Geology: A Selected Bibliography and Index," an excellent contribution providing a rich guide to future reading. An index to this bibliography and a subject index to the volume are appended.

The Fabric of Geology is recommended enthusiastically to all geologists and others interested in geologic thought, its history, its evolution, and its philosophy.

THE FOUNDERS OF GEOLOGY, by Sir Archibald Geikie. Published by Dover Publications, Inc., New York, 1962, xi + 486 pp., $2.25. [Reprint of the second edition of 1905.]

In 1896, Sir Archibald was invited by the president of Johns Hopkins University to inaugurate the Lectureship founded in memory of George Huntington Williams, late Professor of Geology in that institution. He chose for his subject "an outline of the history and development of geology during the period between the middle of the eighteenth and the close of the second decade of the nineteenth century — an interval of about seventy years, full of peculiar interest to students of the science, for it was during that interval that the main foundations of modern geology were laid."

In 1897, the series of six lectures was published entitled *The Founders of Geology*. Later, in preparing a second edition, Sir Archibald extended his coverage to include the "earlier progress of geological ideas, from the times of ancient Greece onwards" and departed from the original lecture form to develop his subject more fully. It is this second edition which has been reprinted from the original by photo-offset-lithography, a process which reproduces faithfully with little chance for error of transcription. This pitfall is illustrated by the cover of the reprint which is emblazoned with the words "BY SIR *ANDREW* GEIKIE!" It seems strange that the publisher has not yet discovered and corrected this error.

The Founders of Geology is a classic in its field. It is well-written, informative, and quite readable. It has been out of print for many years and copies have commanded a high price on the used book market. This inexpensive reprint will be welcomed by everyone interested in the history of geology.

ILLUSTRATIONS OF THE HUTTONIAN THEORY OF THE EARTH, by John Playfair. Published by Dover Publications, Inc., New York, 1964, xl + 528 pp., $2.75. [Republication of the facsimile reprint (University of Illinois, 1956) of the 1802 edition.]

This work is one of the great milestones in the history of geology. It was first reprinted in 1956 prefaced by an introduction and biographical sketches of both Hutton and Playfair written by Professor George W. White of the University of Illinois. Its popularity is demonstrated by the rapid appearance of this second reprint which is well-done and pleasing.

James Hutton's classic *Theory of the Earth, with Proofs and Illustrations,* was published in 1795, shortly before his death. In this work Hutton's brilliant statements were obscured by his prolix and ponderous prose. Thus, for some years it attracted little notice. Fortunately for the geological sciences, the mathematician John Playfair, close friend, biographer, and champion of Hutton, was moved to write and publish a summary of and commentary on the *Theory*. His *Illustrations of the Huttonian Theory of the Earth* is the result. Three sections of the book (140 pages) are devoted to a summary of Hutton's theory. In the remaining 388 pages of "Notes and Additions" Playfair clarifies and extends the *Theory* and introduces his own important original observations. Playfair's mastery of English, his orderly and lucid style, and his own enormous contributions to geologic thought are combined into this volume with literary qualities rarely equalled in all scientific writing.

The eloquent comments on Playfair and his work by Sir Archibald Geikie (*The Founders of Geology*, 1905) cannot be improved: "Gifted with a clear penetrating mind, a rare faculty of orderly logical arrangement, and an English style of altogether remarkable precision and elegance, he was of all men best fitted to let the world know what it owed to Hutton. . . . His volume appeared in the spring of 1802, just five years after Hutton's death, with the title of *Illustrations of the Huttonian Theory of the Earth*. Of this great classic it is impossible to speak too highly. After the lapse of a century it may be read with as much profit and pleasure as when it first appeared. For precision of statement and felicity of language it has no superior in English scientific literature. To its early inspiration I owe a debt which I can never fully repay. Upon every young student of geology I would impress the advantage of reading and re-reading, and reading yet again this consummate masterpiece. How different would geological literature be to-day if men had tried to think and write like Playfair!"

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