tion of rocks which recurs in a similar tectonic setting throughout geological time and in many parts of the world. A forbidding volume of literature has arisen around these rocks; and the authors have done good service in this timely conspectus.

As was to be expected of two premier experts in the field, this account is definitive and authoritative. It begins with an introduction in which the subject is outlined, and evidences of origin adduced; the authors come down strongly in favour of a deep-water, turbidity current hypothesis. There follow chapters in which the main features of the rocks are described: the descriptions are succinct and are illustrated by a very large number of excellent photographs. Throughout this section genetic implications are discussed, and this is further extended by the chapter on experimental investigations. Finally, the authors give two examples of palaeogeographical reconstructions based on their interpretations and here point the way for further developments in this field. The authors' coverage of the very extensive literature is complete, as is shown by the comprehensive bibliography.

There are perhaps two sources of disappointment. The first is that the treatment of some controversial issues is brief. The authors may well reply that in the limitations of space they could not be discursive: but this has meant that some very fundamental criticisms of the points of view of the authors, for example, those of Cummins (pp. 28–29) and Hubert (p. 253), are incompletely answered. The second omission is that there is scarcely a reference to calcareous flysch, and very little on turbidite conglomerates; yet both of these are widespread and an up-to-date synthesis of the scattered literature would have been welcome. However, perhaps this is to expect too much; we are fortunate in having this clarification of the central aspects of the problem.

J. E. PRENTICE

LIPIDS AND ATHEROSCLEROSIS

Metabolism of Lipids as Related to Atherosclerosis

A Symposium. Compiled by Fred A. Kummerow. Pp. xxxiv+300. (Springfield, Illinois: Charles C. Thomas, Publisher, 1965.) 14.50 dollars.

THE series of papers published in *Metabolism of Lipids as Related to Atherosclerosis* constituted a symposium held on the occasion of the dedication of the new Burnsides Research Laboratories at the University of Illinois, Urbana, in June 1963. Twenty-six scientists and clinicians from the United States and two from Canada contributed, and together they construct a most varied and stimulating picture of modern research into lipid metabolism. The relationship of their researches to atherosclerosis is close in some cases, and not so immediately obvious in others, but there can be no doubting the high scientific standard of every paper. Many disciplines are represented; the challenges of clinical medicine and epidemiology are met by pathologists, histochemists, biochemists, physical chemists, experimental pathologists and others. Modern techniques have opened new avenues of exploration: chromatographic techniques such as thin-layer or gas–liquid chromatography, infra-red and ultra-violet spectroscopy, electron microscopy, radioactive tracer methods and many other recent tools all show their value.

Dr. Irvine Page, in an introductory chapter, warns against enslavement to sophisticated instruments, but the preliminary thought and planning evident in these published papers render the warning unnecessary, and the results show that the instrument is more often the productive slave. Several of the studies are of a speculative nature and necessarily incomplete or inconclusive, but they all point to the possibility of an exceptionally productive new era in lipid research.

Dr. Louis Katz deals with clinical aspects of athero sclerosis, with particular reference to factors which increase the risk, and Dr. G. V. Mann outlines the present position of dietary treatment. The natural history of atherosclerosis, from the fatty streaks of infancy onwards, is discussed by Hartroft of Toronto and by McGill and his colleagues from New Orleans. Kummerow's group throw fresh light on the composition of the extractable and bound (so-called 'ceroid') lipids of the human aorta, and also on lipoprotein denaturation. There are three chapters on the physiological and pharmacological control of cholesterol metabolism: van Itallie and Hashim concentrate on serum cholesterol, Steinberg on cholesterol synthesis and Kritchevsky on the oxidation of cholesterol by rat liver mitochondria. The subjects of other chapters include the relationship between low-density lipoproteins; cholesterol and triglycerides; the synthesis of fatty acids; studies on phospholipids; essential fatty acids; poly-unsaturated fatty acids; coenzyme Q (ubiquinone); and an antithrombin and heparin co-factor. Klein examines the behaviour of sterols at interfaces, in a search for clues to enzymatic reactions and processes involved in the assembly of lipid structures.

Only the lipid chemist will understand the import of every paper, but all who are trying to apply basic knowledge of lipids to biological and clinical situations will appreciate this fine book. It certainly points the way for much future research; since the symposium took place two and a half years ago, much of this 'future research' is presumably well advanced by now. The almost exclusively American references in the various chapters are a tribute to the pace of lipid research in the United States, but workers in other countries perhaps deserve rather more recognition.

The book is compact, very well produced, well indexed and easy to read—altogether an attractive volume.

T. B. BEGG

MAINLY FERREDOXINS

Non-Heme Iron Proteins

Role in Energy Conversion. Edited by Anthony San Pietro. (A Symposium sponsored by The Charles F. Kettering Research Laboratory.) Pp. xiv+475. (Yellow Springs, Ohio: The Antioch Press, 1965.) 12.50 dollars.

THE Charles F. Kettering Research Laboratory is well known to workers engaged in the investigation of photosynthesis. It is becoming known to an even wider circle of research workers through its published symposia, of which *Non-Heme Iron Proteins* is the second. This volume describes the proceedings of a meeting held in March 1965, which included contributions by many of the leading workers in the fields under discussion. It is unfortunate, therefore, that this excellent volume suffers in several respects from a lack of purpose. Ostensibly concerned with non-haem iron proteins, it is in fact mainly concerned with ferredoxins. Ostensibly concerned with the part played by these proteins in energy conversion, this aspect is scarcely touched on, as one of the chairmen was led to remark. Several papers seem out of place in their particular sections, and the order in which they are arranged could be improved on.

These are more than minor irritations, since in general the papers are well written and contain valuable summaries of work in progress. However, they are presented in such a way as to make it extremely difficult to locate specific information (there is, of course, no index). It is impossible to list all the contributions in detail, but I shall try to summarize the contents of the four sections into which the symposium was divided.

The first covers the physical and chemical properties of iron compounds in general, and includes contributions on electron paramagnetic resonance and Mössbauer spectro-