

and prefaced them by a long and elegant essay on Huxley's life and his influence on education. In addition, he provides a chronology, bibliography and index. The essays selected are timeless: quite apart from their historical importance, Huxley's ideas and ideals bear on many contemporary issues such as specialization in science education, the nature and role of technical and technological education, and the place of examinations. The essays deserve to be read again.

W. H. BROCK

## British Geology

*The History of British Geology.* By John Challinor. Pp. 224. (David and Charles: Newton Abbot, November 1971.) £3.50.

THE title of this book is misleading, for it is not a *history* of British geology, but, as its sub-title suggests, a bibliographical guide to the principal contributions made to the advancement of geological knowledge in Great Britain. A more appropriate title might be "Source Book of British Geology". The period covered extends from about 1538, when John Leland made some interesting geological observations during his tour of Britain, right up to the present day, but the majority of papers listed are those published in the 19th and 20th centuries. The area covered includes England, Wales and Scotland, but excludes Ireland. This is regrettable, because, geologically speaking, Ireland cannot be dissociated from the rest of the British Isles, and there has been a mutual exchange of ideas between geologists working in Ireland and in Great Britain.

There are two main sections in the book. The first, entitled "Primary Literature", is a chronological list of references to important contributions to the progress of British geology. This section is restricted mainly to papers embodying original research, but it also lists some composite works such as Geological Survey memoirs and important textbooks.

The second and longer section is entitled "Major Themes". These number eighty-six in all, and each is discussed briefly. As would be expected, they too deal mainly with developments that have taken place in the 19th and 20th centuries. Cross references are made to the primary literature, and also to an additional list of references entitled "Secondary and Associated Literature", contained in Appendix A. The latter are mainly papers or books dealing either specifically or incidentally with the history of geology in Britain, together with some others bearing on the development of British geology in a more general way than those cited in the primary list.

Appendix B contains an index of authors cited, with, in some cases, short biographic details. Appendix C is an index of place names, stratigraphic divisions and fossils, with cross references to both the "Primary Literature" and the "Themes" in which they are mentioned.

The author states that his purpose is "to provide a short introduction to a great and hitherto entirely neglected subject, the general history of British geology", by reviewing some of the written records that mark the progress of the science in Britain. His conclusion that the subject has been neglected is certainly correct. There exists no systematic and detailed account of the progressive development of geology as a whole in this country, or even of any of the several subdivisions of the subject, that covers the whole of the last 140 years or so, the period following the publication of Lyell's *Principles of Geology*, during which many major advances have taken place.

This work is no more than its author claims, an introduction to the subject. His choice of sources is necessarily arbitrary. He makes no claim for finality or infallibility, and would, I am sure, willingly admit that others might make different choices, or that there may be important omissions. One might, for example, have expected mention of the fact that the long series of annual Presidential Addresses published by the Geological Society of London since 1828 provide a valuable source of information about the progress of British geology. It may be suggested, too, that a more systematic arrangement of the themes would be helpful to the reader. This is, however, a pioneer work, the first of its kind.

Although it can be supplemented by consulting the author's *Dictionary of Geology*, where other source references are to be found, as it stands it provides a valuable and welcome guide to the development of geology in Great Britain, and, it may be hoped, will stimulate further study of the subject.

V. A. EYLES

## Mendel to Morphogenesis

*Molecular Genetics: an Introductory Narrative.* By Gunther S. Stent. Pp. 650. (W. H. Freeman: San Francisco, 1971.) £5.10.

*Molecular Biology of the Gene.* By James D. Watson. Pp. 662. (W. A. Benjamin: New York, 1971.) Hardback \$16.50; paperback \$10.95.

FROM their lists of contents, these two books seem to have much in common. Each starts with a chapter on classical Mendelian genetics, continues with a consideration of the chemistry of the cell and then proceeds to look in greater

depth at the mechanisms by which genes are expressed. Stent considers in some detail the processes by which genetic information is transferred between bacteria, and his discussion of transformation, conjugation and transduction gives his book a balance not dissimilar to that of Professor W. Hayes's book *The Genetics of Bacteria and their Viruses*. Stent comes last to the genetic code and the mechanisms and control of protein synthesis whereas Hayes takes these topics in the reverse order. Stent's book is an introduction, however, which does not aim to compete with the more advanced treatment to be found in Hayes.

Watson's book is, of course, a revised version of his very successful first edition. He progresses directly from the physico-chemistry of cells to the structure and function of DNA and then to the genetic code and protein synthesis, concluding with chapters on what might be termed the future growth points of molecular biology—embryology at the molecular level, antibody synthesis and the problem of the cancer cell. Stent concludes with a single chapter, "Ramifications", in which he discusses the implications for cell biology of molecular biology and deals with problems similar to those discussed by Watson. The two books are written at comparable levels, with Stent's perhaps the more detailed, and each is adequately indexed.

But in spite of these superficial similarities, the two books embody different approaches to molecular biology. Stent's view is in the terms of genetics; Watson's approach is more physico-chemical. Whereas Stent's more historical treatment gives what is perhaps a better understanding of how the subject developed and why critical experiments were performed, Watson's approach yields a clear view of molecular biology more as a discipline in its own right, less an offshoot—albeit a distinct one—of genetics.

It goes without saying that both books are well written and each fulfils its aims well. It would be invidious to make any recommendation to distinguish between them. But for those students whose interests lie more in the work which has been performed with bacteria, including those genetic systems peculiar to microorganisms, Stent's book has an evident appeal; his historical approach is executed with great success. For those students more interested in what might be termed the story of how DNA makes RNA makes protein, told like it is, Watson's book will be the handier. Each book offers a valid perspective from which to view molecular biology; the only safe recommendation to aspiring molecular biologists is to read both of them.

BENJAMIN LEWIN