of organisms ranging from algae and fungi to flowering plants. These provide for almost any imaginable situation which might face the describer of a new species when trying to comply with the requirements of the International Code of Botanical Nomenclature for a Latin diagnosis. It also exemplifies the use of Latin as a living modern language devoid of nationalism. Some of its more recent developments are to be seen in the chapter on chemical reactions and tests, though many of the older chemical terms are, of course, derived from pharmaceutical works. The vocabulary of 171 pages, which forms the bulk of the concluding section, is full of information not readily obtainable elsewhere.

As one whose formal training in Latin consisted of six months dreary grind which culminated in passing "Little-go" at the second attempt, I find Dr Stearn's book invaluable. I notice also that some of my colleagues in the Classics department dip into it with interest, and one of them has remarked that if the Romans had sent telegrams they would have developed this sort of Latin. This, I think, provides an objective estimate of the conciseness and clarity which botanical Latin has attained.

It is pleasing that in the seven years that have elapsed between the first and second editions the price has only risen from £5.25 to £6.50. This is a small price to pay for a concise history of systematic botany and of the development of the Latin alphabet and much else besides. T. G. TUTIN

# Interpreting Fossils

*The Meaning of Fossils: Episodes in the History of Palaeontology.* By Martin J. S. Rudwick. Pp. 287. (Macdonald: London; American Elsevier: New York, 1972.) £6.

THERE are probably some university departments of geology in Britain which even now do not offer their students any formal course of instruction in the history of the subject. Too often in the past it has been thought sufficient that the lecturer in palaeontology, stratigraphy, petrology or what you will, should preface his first-year course with a statement on the development of knowledge in that branch or at best devote his introductory lecture to a review of progress of ideas in it over the past hundred years or so. It is often doubted whether students are at that early stage equipped with sufficient basic knowledge of geological terminology to appreciate the analysis which is being made. The dilemma remains that at later stages of the undergraduate course, there is increasing pressure on curriculum time and such addition as the history of the subject is hardly likely to receive any priority.

Dr Rudwick states that his book had its origins in his course of lectures at Cambridge arranged primarily for undergraduates reading history and philosophy of science, but also attended by geology students. The subtitle of the work, rather than its title, indicates its scope and five "episodes" in the history of palaeontology have been chosen for exposition spanning the period from the sixteenth to the mid-nineteenth century.

Beginning with Conrad Gesner's contribution "On Fossil Objects" (1565), Dr Rudwick first develops the theme of the progression from the classification of "fossils" to the first glimmerings of an interpretation of the forms resembling living organisms, and in doing so he introduces the work of a number of the naturalists of Western Europe and relates it to the contemporary philosophical climate of the Renaissance period.

Each of the following chapters raises one or more of the problems which confronted the naturalist in his search for the nature and significance of fossils through the following centuries. The seventeenth century with its tentative approach to the organic theory and the problems arising from the position and altitude at which fossils are found provides the link with ideas on stratification. There follows the period with the constraint imposed by the theologically based limit on geological time, and later an exposition of Charles Lyell's ideas of what the author describes as a "steady-state" model of Earth-history.

The detailed work of the comparative anatomists at the beginning of the nineteenth century is emphasized in reference to their contribution to the various evolutionary theories which followed. The limitations of the palaeontological record as a means of confirmation of the Darwinian theory almost form the climax. Alongside this is the account of the stratigraphical search back into the older rocks for early forms of fossils and for evidence of some beginning of life itself.

Dr Rudwick has been very successful in conveying to the reader the manner in which successive problems in palaeontology were conditioned by the general thinking of the period. To be fully understood, the plausibility of each theory must be judged only in the light of the whole background of knowledge and philosophical temper of the time at which it was propounded.

Writing for two groups of students who have approached the subject from very different directions has imposed special constraints on the author. He has met the challenge with a concise and lucid account which is well illustrated. There is a glossary of about a hundred geological and palaeontological terms; but it has been assumed that the geological student has ready access to a dictionary for definition of such adjectives as teleological, anti-heuristic, and so on.

By reading this book the student of geology, whether specializing in palaeontology or not, could well develop a permanent interest in the broader historical aspects of the subject, and the excellent bibliography which is provided will be invaluable to him for further reading. J. M. EDMONDS

# Mammalian Biology

*Mammalogy.* By Terry A. Vaughan. Pp. viii+463. (W. B. Saunders: Philadelphia, London and Toronto, 1972.) £6.20.

THE first fourteen chapters of this attempt at a single volume presentation of the biology of mammals comprise an adequate, and in places lively, account of mammalian form and species diversity. The orders are tackled systematically and each chapter is well illustrated. The remaining eight chapters deal with such generalia as ecology, zoogeography, behaviour, reproduction, metabolism and temperature regulation, water regulation, acoustical orientation and general conservation problems. These chapters are rather less than totally adequate, but perhaps this shortfall is the inevitable outcome of an attempt to cover too vast a field in too little space.

*Mammalogy* is written for the American market and aimed at college and university students. European students may experience difficulty in coping with the American vernacular, names for scientific names are not invariably given. The reader may be puzzled by the rather arbitrary choice of topics singled out for elaboration in the latter part of the book. For example, why is a whole chapter (which, incidentally, happens to be very good) devoted to acoustical orientation and specializations of the ear, but only one page to olfactory communication? Being on average nineteen pages long, each chapter allows only a glimpse at the field and there are, naturally, disappointing omissions. In the chapter on behaviour a discussion on the mechanism bringing about observed behaviour and a fuller treatment of the problems concerning innate and learned behaviour would have been welcome. The final chapter on mammals and man is very short and adds little to what every student knows —that the future survival of many mammal species is in the balance.

Expensively produced and well illustrated this book can hardly be recommended as a "must" for European students who tend not to study subjects like mammalogy *per se*, but their teachers may find it a convenient, though limited, reference book.

D. MICHAEL STODDART