of drug dependence, however remotely, this book will prove invaluable as one that brings together information otherwise only to be found scattered throughout the literature of many unrelated academic disciplines.

VINCENT MARKS

Mass Spectrometry

Principles of Organic Mass Spectrometry. By Dudley H. Williams and Ian Howe. Pp. 245. (McGraw-Hill: London and New York, November 1972.) £5.

THIS is a useful, indeed a very valuable, little book which outlines most of the aspects of modern mass spectrometry currently being investigated and presumably represents a fairly elementary series of university lectures. It comprises a series of comprehensive if rather condensed chapters upon the mass spectrometer, ionization and energy transfer, metastable ions, the quasi-equilibrium theory, energetics of ion decomposition, the relationship between fragmentation pattern and structure, isotopic labelling, collision processes, field ionization, ion structures, gas chromatography-mass spectrometry and the use of the computer in mass spectrometry. Each chapter concludes with a succinct list of relevant reviews and cognate papers useful for further reading. The book concludes with a useful index.

There are some trivial points raised in the text, and the few following items invite more serious criticism. Firstly, the attention paid to S.I. units is uneven, suggesting that one author may be less than enthusiastic about this new innovation. It may have been desirable to have included a table equating the newer units with the traditional ones of torr, kilocalories and so on. The second is the needless confusion occasioned in the mind of a beginner in this field by failing to call attention to the difference between H when the magnet is held steady while the voltage varies, and B —the magnetic induction—when the magnetic field is varying (page 4, 1's 1 and 2) rather than the voltage. This book also commits the now standard error of misquoting Stevenson's Rule (pages 94–97).

A further source of regret is occasioned by the practice of including valuable if not vital information in the form of footnotes or commentaries upon the tables. Much of the material so conveyed is often vital to a logically presented argument which, therefore, loses something of its power.

This book is well produced and is in the best traditions of scholarship. It is printed in a very clear legible type and is accompanied with a set of excellent explanatory diagrams. Both the publishers and the authors are to be

congratulated upon the production of this book.

ROWLAND I. REED

Fossil Manual

Palaeontology and Geological Time. Prepared by the Course Team. (The Open University. Science: A Second Level Course.) Pp. 64. (The Open University: Bletchley, Buckinghamshire, 1972.) £1.10.

AUTHORS of this type of remote-control laboratory manual carry an enormous responsibility to their followers because they will have limited opportunity to rectify misunderstandings and textual errors. Thus, though one would wish to welcome such a venture in principle, one cannot help being disappointed at the outcome. This is a pity: a great opportunity has been missed for raising standards of geology teaching in many secondary schools and first-year university classes. Instead, an attractively designed, seemingly cheap, 63-page booklet has appeared on the market, which will doubtless sell well as a pre-examination crib despite the following glaring deficiencies.

The adult user will be deprived of basic facts necessary to comprehending the study as a result of over-simplification. The younger user, or by-product, on the other hand, will have absorbed a doctrinaire approach which, when based on misleading statements, will undermine his receptiveness for subsequent professional training. Thus, for all its good points in bringing science to the man in the street, this volume sets a dangerous educational precedent; when it could so easily have contributed substantially to an advancement of the science at no extra cost.

The text is arranged in a series of introductory paragraphs copiously illustrated with classical diagrams, which are followed by outline quizzes reminiscent of a weekly woman's magazine. The desired answers to these self-assessment tests are at the back of the book, but unfortunately they do not explain the reasons for eliminating alternative answers (for example, SAQ3 c and f). Thus, those who have erred, and even may have been technically correct, remain lost.

The best aspects of the volume are its glossary and its attempt to cover the broad field of palaeontology. The weaknesses lie in its keys, particularly Table 2, which is biologically misleading; elementary scientific-grammatical inaccuracies in technical diagrams (SAQ4B6; SAQ6D4; SAQ9F7); clumsy annotations, bar scales are never used to indicate sizes; naïve popularizations of complex themes, for example, coral clocks and intraspecific variation. The unfortunate adoption of North American examples, where European alternatives are available, is surprising.

But the worst aspect of all is the treatment of the "Fossilization Process", which is wholly inadequate.

This is a neo-classical exercise book, complete with errors. In failing to delimit the limitations of their keys the authors show little appreciation of the biological and consequent mineralogical background of palaeontology; thus the consequences reveal themselves as a shower of random facts. Thus the volume is best suited to redeploying the energies of 12-year-old boys and their fathers on wet holidays.

J. A. E. B. HUBBARD

Parapsychology

Psychical Phenomena and the Physical World. By Charles McCreery. Pp. 158. (Hamish Hamilton: London, January 1973.) £2.30.

MR MCCREERY'S book, written with clarity and objectivity, is the fourth volume of the Proceedings of the Institute of Psychophysical Research, and continues the study of lucid dreams (those in which the subject knows he is dreaming), ecsomatic experiences and the philosophical and scientific questions raised by these and considered in earlier proceedings. The book is divided into a first part dealing with philosophical questions raised by such experiences, and a second containing empirical material.

The former considers lucid dreams, ecsomatic experiences, apparitions, materializations and psychokinesis. It discusses such questions as the criteria whereby we may distinguish the waking from the sleeping state; perception in out-of-the-body experiences and the difficulty of distinguishing between physically seeing the world and having hallucinatory perceptions which correspond to it; the problem of establishing complete satisfactory standards of distinction between apparitions and "real" people; the nature of materialization, and the differences between materialization, apparitions and physical objects; and the fact that, though psychokinesis seems inconceivable, yet we cannot explain how we move objects physically, nor do we even know how we control our limbs.

The empirical section of the book begins with an account and analysis of a number of extra-sensory perception card-guessing tests, investigating the capabilities of eldest, only and younger children in family order. In the three most significant experiments eldest children did best, although other factors such as their socio-economic groupings affected the results. There follow studies of a lucid dreamer, the Marquis d'Hervey de Saint-Denis, born 1822, who published a detailed record of his dreams; the lucid dreams and ecsomatic experiences of "Subject E"; and some