

History of science, on the other hand, has a vital part to play in epistemological research: for no understanding of the sources of human knowledge can be complete without a reliable record of the actual evolution of scientific ideas. It has also to struggle with methodical difficulties; but it is successfully shedding the infantile impediments of chauvinism, hero worship, silly anecdote-mongering, and reaching the mature sophistication that will allow it to fulfil its task responsibly. To associate it, at this critical stage, with the worst dilettantism of our time is—the purest of intentions notwithstanding—to deserve rather than to help it. Indeed, to illustrate my point I have only to take the first number of this journal. It consists of two long essays: the first, by J. E. McGuire, on "Atoms and the Analogy of Nature", is an able, well documented and well argued, historical study of a significant problem of epistemology debated in Newton's time—history of science at its best; the other, entitled "In Defence of Classical Physics", is another of Professor P. K. Feyerabend's extravaganza—philosophy of science, so called, at its worst: bombastic, pointless chatter about dimly perceived issues long since settled by the physicists, and completely out of touch with the serious problems they are actually facing. If this first number is representative of the editors' policy, one must fear that one half of the journal will just be dead weight needlessly appended to its valuable historical content.

Fortunately, the second issue goes some way to temper such apprehensions: its contents—including papers of great interest and substantial essay reviews—are entirely of historical character and of high standard. Let us hope, therefore, that the historians will keep the philosophers under control, and all will be well. L. ROSENFELD

VARIABLE STARS

The Dwarf Novae

By John S. Glasby. Pp. 293. (Constable: London, August 1970.) 60s.

MR GLASBY is director of the Variable Star Section of the British Astronomical Association; he is an able and indefatigable observer of variable stars in general and of dwarf novae in particular. His new book is an exhaustive review of what is known, or has been thought, about the dwarf novae, and contains extensive bibliographies; it consists, in approximately equal proportions, of a synthesis of published papers and a description of the individual stars.

In the descriptive section, the author is on his own ground—indeed, many of the illustrative light curves are drawn from his own observations. But he is less at home in reviewing the observational and interpretative attempts of professional astronomers. There are about half a dozen important mistakes: for instance, evolving stars are said to have begun hydrogen burning in their centres (p. 84), and doppler shifts are not expected unless the motion is directly in the line of sight (pp. 85, 234). The author also forgets for whom he is writing: thus, he explains stellar magnitudes at the outset, but later writes gaily about the Hertzsprung-Russell (or Russell-Hertzsprung, as he insists on calling it) diagram, break-off points, zero-age main sequences, Kelvin time-scales, and Markov chains, all without previous explanation. There are also several careless mistakes. Not only is there a considerable number of inconsistencies in the text, and discrepancies between the text and several of the diagrams, but the values quoted on different pages for such quantities as orbital periods, spectral types and radial velocities sometimes conflict. The Crossley reflector, already credited with an aperture of 80 inches on page 213, grows still further by page 243.

In view of the occurrence of short-period light variations in at least some of the dwarf novae, it is a little surprising that Glasby makes no reference to any visual observations of such changes; and none of the visual light curves indicates any—not even that of U Gem, a system showing conspicuous eclipses when at minimum light. Furthermore, the number of observations used in plotting the magnitude variations seems, in many cases, to have been scarcely greater than the number of inflexions drawn in the light curves: it would have been better if Glasby had plotted the actual observations rather than just the curves.

In spite of careless grammatical mistakes and poor punctuation, the volume makes a substantial, if indigestible, meal for those interested in dwarf novae; it can be recommended as an introductory review, and will be of special interest to the amateur observers upon whose work our knowledge of the dwarf novae so largely depends. ROGER GRIFFIN

SILICATE WEATHERING

Chemical Weathering of the Silicate Minerals

By F. C. Loughnan. Pp. x+154. (Elsevier: New York and Barking, Essex, 1969.) 100s.

LOUGHNAN has written a book that will be welcomed by students of geology, geochemistry, soil sciences and various other related disciplines. There is really no other book like it in the field of chemical weathering of silicates, and in the present period of public concern about ecology, this volume ought to provide the needed quantitative information about the mechanisms of weathering of rocks and the formation of soil. In many ways, the present volume is comparable with W. D. Keller's *The Principles of Chemical Weathering* (1957), but although Keller's work had the same central theme, it was more a collection of lecture notes than a proper textbook. Loughnan has indeed written a cohesive textbook, perhaps more suitable for research students than for final year undergraduates.

The book has six chapters. The second chapter, on the structures and properties of the primary and secondary minerals, includes some basic, but selective, crystallographic information which will be appreciated by students and teachers alike. The third chapter, on the chemistry of weathering, very successfully proves that the basic laws of chemical equilibria can indeed explain the observed chemical weathering phenomena. The fifth and sixth chapters abound with many examples, quite a few from Loughnan's own well-known work in this field.

The references are well selected, but most are pre-1966. In the age of sea floor spreading, it is a pity that chemical weathering under specifically oceanic conditions is not discussed. SUBIR BANERJEE

BASIC PALAEOMAGNETISM

History of the Earth's Magnetic Field

By David W. Strangway. (Earth and Planetary Science Series.) Pp. viii+168. (McGraw-Hill: New York and Maidenhead, August 1970.) 67s.

THERE are many differing views on the precise nature of the principle of uniformitarianism but, philosophy apart, the fact remains that man's success in extending his knowledge of the Earth backward in time for millions of years is one of his most remarkable achievements. From the magnificent intellectual edifice constructed by the great nineteenth-century geologists to the revised vision of the Earth embodied in the new global tectonics, man has steadfastly refused to be bound intellectually by the limitations imposed by his geologically infinitesimal life span.