reviews

Wonderful contrivances

N. Feather

Perpetual Motion: The History of an Obsession. By Arthur W. J. G. Ord-Hume. Pp. 235. (Allen and Unwin: London, 1977.) £50.

THE subtitle of this book *The History of an Obsession* is significant in its place: the study is one of unrelieved failure (and a modicum of fraud); of inevitable failure when the products of obsessive fantasy are examined for sober fact. It is also apposite in another connection. In his Acknowledgements and Preface, and casually in asides throughout the text, the author gives a brief history of his own thralldom to his subject.

Mr Ord-Hume is a qualified mechanical engineer, with a successful career as a small-aircraft designer behind him, whose first encounter with the perpetual-motion saga was at his father's knee: "[My Father] used to tell me about it all when I was very small." Then, at university, his persistent importuning of one professor in particular at last brought the injunction never "to mention the subject again". In later life Mr Ord-Hume began a file of literature references to perpetual motion, as a by-product of research for other writings. The file grew and grew. Finally, a few years ago, the BBC's producer of *Horizon* planned a programme on perpetual motion, and he was asked to help. As he reports: "For several weeks I became thoroughly steeped in this subject, exploring in depth the references which I had filed away over the years . . . [the] material ended up in the form which you now have in your hands".

The form, alas, is not entirely prepossessing, there are footnotes with references to cited literature, there are four pages of bibliography and an index of more than six pages, indeed the trappings of a scholarly work, but the writing is far from scholarly. (On the author's behalf it should, however, be said that it was not his intention to write academically—rather to provide "a subjective history of the quest for the impossible".) Mr Ord-Hume should at least, however, have supervised his indexer. A single person referred to in different places in the text under slightly different guises (as Edward J.

Wood, rather than as Wood *simplificiter*, or as Edward Somerset, rather than as the Marquis of Worcester) is apt to be indexed under each guise, without cross-reference—and the author himself might well have considered the item "Ord-Hume, author, quoted" as supererogatory!

More serious, for whatever readership he was consciously writing, Mr Ord-Hume should have made sure that he got his elementary physics right. His version of Newton's first and third laws will pass muster, but his second law will not—"When a force acts upon a body in motion, the effect of this action is the same, in magnitude and direction, as if it acted on the body at rest." His version of the second law of thermodynamics reads: "heat cannot be increased without the expenditure of more work: it cannot run uphill".

There is much, then, to irritate the knowledgeable, or confuse the tyro, in this book, but there is also a wealth of solid information, and a gallery of illustrations (some ninety of them)

of the strange and wonderful contrivances from none of which, in the upshot useful work was obtained without drawing on an external source of energy (some, in fact, were never intended to do external work—the self-winding clocks, for example). The illustrations alone provide interest and instruction; it is convenient to have them in a slender (and not immoderately priced) volume. Apart from this aspect, however, the serious engineer will probably in the end find it necessary to seek out the two-volume work of Dircks (vol. 1, 1861; vol. 2, 1870) in the library, if he wishes to pursue the subject in depth.

Mr Ord-Hume may claim to have brought the story up-to-date by the inclusion of Strutt's radium clock, the Wilberforce pendulum and the breeder reactor as objects of discussion—but again, I fear, he has garbled the physics in the process. □

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Plant cell and tissue culture

Applied and Fundamental Aspects of Plant Cell, Tissue and Organ Culture. Edited by J. Reinhart and Y. P. S. Bajaj. Pp. 803. (Springer: Berlin, Heidelberg and New York, 1977.) DM190; \$83.60.

PLANT CELL and tissue culture is developing into an active and exciting area of research and is permitting novel lines of investigation in the various plant sciences. *In vitro* techniques are being widely used: on the one hand they enable manipulations of microbial genetics, physiology and biochemistry to be accomplished with higher plant materials; whereas on the other hand, they prove a direct tool for the propagation of useful agricultural varieties. A major volume attempting a contemporary review of the field should reflect a fair measure of this excitement and potential. Indeed, there are some excellent and readable reviews in *Plant Cell, Tissue and Organ Culture* which capture interest and stimulate thinking. Several reviews of plant cell culture techniques

are particularly notable. These excellent gems are, however, set with uninspired efforts to make up this collection of thirty-five articles. Several of the reviews are either very poorly written or ramble from the declared topics.

The whole volume can be compared to that paragon of biological reviews, *The Bacteriophage Lambda*, published by Cold Spring Harbor Laboratories. One profound difference is immediately evident. Although the *Lambda* book seems to be a product of firm editorial control, this present book does not seem to have had such direction and, consequently, reads as if it were written by committee. Further, the *Lambda* book focuses on an organism, and thus, has a unifying theme, whereas this volume attempts to cover not only many organisms but also the entire complex phenomenology of plant cell, tissue and organ culture. Perhaps this is too much to ask of one book. We are left with the impression that the immediate details of the technology of *in vitro* plant culture overshadowed a coherent presentation of the underlying