

Haldane as guru

N.W. Pirie

Haldane: The Life and Work of J.B.S. Haldane with Special Reference to India. By Krishna R. Dronamraju. *Aberdeen University Press:1985. Pp.211. £14.90, \$20.50.*

A "Haldane Industry", similar to the Darwin, Galileo and Newton Industries, is not likely to arise. This is partly because Haldane, though very influential, did not initiate a new way of looking at nature which was, in essence, comprehensible to all scientists, and partly because he wrote

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Haldane at the Indian Statistical Institute — ". . . too original a man to fit tidily into any political, religious or social system".

amply about himself and left few obscure corners. Nevertheless, he had so many facets of character, and contributed to so many aspects of science, that biographies of him should be written from several points of view.

Dronamraju worked with Haldane, first as a PhD student and then as a colleague, in India until Haldane's death in 1964. Although reverence and respect are intimately mixed in his account, they do not disguise the fact that Haldane often managed the practical business of running a research institute clumsily. Dronamraju deals tactfully with the reasons for the break with the Indian Statistical Institute, and then with the research unit set up in Calcutta by the Indian Council of Scientific and Industrial Research, before the final move to a less troubled existence in Bhubaneswar. The account adds little to what those who knew Haldane already knew: gossip addicts will have hoped for more.

Brief descriptions are given of Haldane's research in Britain and in India, of his serious general articles, and of his hundreds of popular articles. An important point to emerge is that payment for these articles enabled him to pay the expenses of

his colleagues to attend conferences. Also, while book reviews are usually thought of as ephemera, Dronamraju lists 69 from the *Journal of Genetics* and quotes from several of them; to judge from the samples, it seems that they would repay study as a running commentary on changing attitudes in genetics and related sciences.

Haldane went to India in 1957 for political and climatic reasons. It is clear from this book, and from other publications, that the move was in no sense a retirement, but was the beginning of a new phase of scientific work. I feel that Dronamraju overstates the extent to which Haldane accepted Hinduism. He was, of course, sympathetic to the principle of non-violence in spite of having written, many years before moving to India, that he enjoyed killing people in the First World War. But non-violence underlies almost all ethical systems — in Hinduism it may be nearer the surface.

Haldane was too original a man to fit

tidily into any political, religious or social system. The attempt to appropriate him is one point on which this book can be criticized. There are others. The text is almost unbelievably repetitive. One wonders whether the author, having shoved his notes together, ever re-read the whole. Space is wasted on what seem like excerpts from travel agents' leaflets about places visited, and on potted biographies of Haldane's more distinguished visitors. That space could more usefully have contained explanations of the nature of research projects other than Dronamraju's own.

In spite of its defects, this is a book from which anyone interested in Haldane will learn something. There are new facts in it, and pungent quotations from relatively inaccessible publications. □

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Heavenly movement

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Celestial Mechanics: A Computational Guide for the Practitioner. By L.G. Taff. *Wiley:1985. Pp.542. \$45, £46.55.*

DID NOT Newton do everything in celestial mechanics? Or, if not Newton, then Laplace and Lagrange? The resounding "no" to these questions given by the *cognoscens* is strongly supported by Taff's new book. The subject — which deals with the motion of natural and artificial bodies under the influence of gravitational forces — is very much alive today. The possible applications are legion, ranging from planetary theory to artificial satellites to stellar dynamics, and new and original contributions continue to appear in the literature.

Taff's book is an unconventional contribution to the science (or, as the author calls it, the "art") of celestial mechanics. Usually we write for our colleagues, even when we write textbooks. Here is a delightful exception, written for graduate and senior-level audiences in an informal style and including helpful analytical "tricks". Taff's view is that it is more important for the reader to see the logic of a procedure than to be intimately familiar with the details. Such a straightforward approach contrasts, for example, with the sometimes overly sophisticated presentations of the gravitational problem of N-bodies. On this point, Taff brooks no nonsense: "The astronomical community must face the fact that our understanding of the general N-body problem ends at N=2". Those of us who have dedicated

our careers to $N \geq 3$ can only — if with some reluctance — agree with him.

These remarks should not be taken to imply that the book is in any way lightweight. While it provides all the necessary background it is fully up to date and, at points, especially when dealing with Taff's own interests, will serve as much as a work of reference as a textbook. Readers will need to be familiar with the basic techniques of vector analysis, series solutions of differential equations, numerical integration methods and least squares, and with the fundamentals of classical mechanics.

There is room for improvement, but the many, mostly insignificant, errors can be easily remedied in a second edition. And, to be fair, celestial mechanics now covers so many complex subjects that nobody can claim universal expertise; is it reasonable to criticize the error in Fig.30 (which was borrowed from Moulton's book) when the chapter on the three-body problem, containing this figure, is sound, just because the reviewer is a fussy budget on this particular topic? The subject index is rather short and might also benefit from attention, and an author index would be helpful. The list of astronomical constants could be enlarged and several of the "Problems" could be made more approachable by offering additional information. But these criticisms are dwarfed by the success of an author who has shown once again that Newton, Laplace and Lagrange have left much work for us to do in this beautiful and fascinating area of theoretical astronomy. □

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From J.B.S. by Ronald Clark (OUP, 1984).