tarian researcher who has an application. Such theories provide a framework which only throws up possibilities for those who come with real situations. The latter still have the primacy of contribution to the real world of empirical science. However the temptation to being a know-all is probably hard to resist. 'Substantive' results are unfortunately in the province of the empiricists. Physicists have made their peace with this dichotomy. Biologists and physical biochemists have not.

Thermodynamics has this tantalizing story to tell, probably with much detail and discussion. Much of this is still happening. No one has yet taken the trouble to tell. And yet there is a soft undercurrent of independent thinkers who apply physical reasoning to biology in the best tradition of physics, which the practitioners of thermodynamics have often forgotten. It is the creed of the physicist using the formal ideal world to simplify the observational space to an ever-decreasing minimum of postulates to achieve a tangible description of the real world. There is this stoicism, governed solely by parsimony and aided equally exclusively by insights, that underlies an increasing number of publications. This *bare-bone* approach reduces a lot of patterns, structural and behavioural, to a minimum set of rules and processes to explain varied patterns, sand piles, coffee stains and assorted things. There are those who wish to achieve mechanism by using nonlinear dynamics, though the approximations so made barely model the outline of the complex real/biological world. This reasoning, however, will gain ground in biology too. Classical thermodynamics, however inadequate now, also started, as all physics, to understand reality in a real, empirical way. Or else, why should we continue to be preoccupied with random movement of suspended pollen grains or in the attempt to conquer the beauty of form?

V. SITARAMAM

Department of Biotechnology,
University of Pune,
Pune 411 007, India

Ancient Yoga and Modern Science. T. R. Anantharaman. Munshiram Manoharlal Publishers Pvt Ltd, 54 Rani Jhansi Road, New Delhi 110 055, 1996. Rs 170. 103 pp.

Ancient Yoga and Modern Science is a nice slim volume on yoga philosophy and its relevance to modern living and science. In a short span of 100 pages, this volume covers good ground on various yogas and their multiple aspects. It clearly carries the imprint of the erudite personality of its author, T. R. Anantharaman, one of the best known metallurgists of India and a life-long practitioner of yoga.

The author clearly sets out the practical and spiritual goals of yoga: 'In Yoga we are concerned with those aspects of *Paravidya*' (spirituality) and *Aparavidya* (science) which have a direct bearing on human growth and evolution at different levels; the physical, emotional, intellectual and spiritual. Thus, in some way, particularly from the practical view point, yoga is even more important for our students than science and spirituality as such, because of its direct involvement in the integrated growth, total health and ultimate fulfilment of human being'. In support he quotes the *Bhagvad Gita*: '*Adhyatma-vidya vidyanam* (*aham*)'.

Indeed, one of the distinctive features of this volume is the chapter 'On Yoga of *Bhagvad Gita*'. Although the Upanishads and Patanjalis' yoga sutras are authoritative accounts of yoga, they are not as accessible to common man as the *Bhagvad Gita*. It is rarely emphasized in books on Yoga philosophy that even though the *Gita* (as the Song of God is briefly, affectionately and more commonly referred to) is a major work on Karma Yoga, it has given enough attention to other Yogas. Indeed, it gives all essentials of Dhyana Yoga in fair detail: who is fit to follow it, how to sit, breathe, concentrate one's vision between the eyes, make the mind one pointed and practise meditation on the self to purify mind–intellect complex. And, of course, what distinguishes a self-realized yogi and sthita-prajna.

Chapter 6 gives ancient yoga in modern idiom. Referring to *Yoga Sutras*, *Upanishads* and the *Gita*, the author brings out aspects of Bahiranga Yoga and Antanranga Yoga – the outer-physical and mental – and spiritual limbs of yoga practices and their effects. The early signs of the evolution of a yoga practitioner and more basic changes in later stages are clearly brought out. For example, the first signs of advancement in yoga are lightness of body, good physical and mental health, non-covetousness, clearness of complexion, pleasing voice, agreeable body odour and scantiness of excretions. The more advanced yogi becomes a sthita prajna (as defined in *Gita*) with definite attributes – beyond passion, fear and anger.

To describe the supramental state that a yogi attains to, the author extensively quotes Aurobindo, one of the most cerebral mystics of modern times: normal mental nature and thought are based on a consciousness of the finite, but supramental nature is in its very grain a consciousness and power of the infinite; hence arises our difficulty in understanding and describing supramental nature. He then quotes extensively from the *Life Divine* by Aurobindo to explicate the nature and levels of consciousness as experienced by Aurobindo himself. The phenomenon of shedding of veils – the so-called sheaths – to get a tangible view of the Ananda state is clearly delineated. The author refers to the experiences of the French mystic Teilhard de Chardin and compares them with those of Aurobindo and ones described in the Upanishads.

The scientific explanation and connection with yoga brought out in the book (to my understanding) are rather tenuous. There are some excellent analogies in the book such as from the field of metallurgy, the area of scientific specialization of the author, and nuclear science to describe evolution of consciousness. But these are analogies nevertheless, in the same spirit as given earlier by the sages; the latter referred to real life observations. The sterling progress that is now being made in this respect is by psychologists and physicists in the emerging area of consciousness to which the author refers rather briefly.

I have a couple of points of disagreement with the author. Jawahar Lal Nehru was a great humanist and a poet (remember his tryst with destiny) and, of course, a politician, but he can hardly be placed in the company of Vinoba Bhave or Gandhi. I do not find much discussion of Gandhi's experiments with some

aspects of yoga – his devotional regimens, his periods of silence and his inner voices. Insistence on bramcharya, a wide term which includes celibacy or sexual continence, the author avers, is not justified (p. 39). This may be a practical viewpoint in these permissive days, when celibacy is difficult to practise, but all the great men the author refers to (p. 40) who lived long following a yogic discipline were known for their puritanical ways. These include Maharshi Karve, M. Visvesvarayya, Bhagwan Das, C. Rajagopalachari and Morarji Desai.

What I sorely missed in the book was some personal experiences of the author in the realm of spirituality and anubhuti. Perhaps, in the true Indian tradition, he was not keen to let them be known.

A conspicuous absence in the book is the discussion of the philosophy of Ramana Maharshi, the sage who first attained realization and then propounded his ideas. He verified the Vendantic truths in the light of his own experiences.

Altogether, however, *Ancient Yoga and Modern Science* is an excellent addition to books on yoga written in a lucid style reflecting the professorial background of the author. It can serve a good introduction to yoga philosophy and practice. The foreword by D. P. Chattopadhaya is entirely in consonance with the theme of the book. The book has been prepared elegantly in the series 'History of Indian Science, Philosophy and Culture'. It has a pleasing look and compares very well with the series on Indian philosophy published by State University of New York at Stony Brook. The reviewer recommends it to all those who are seeking answers to some of the perennial questions.

P. L. SACHDEV

Department of Mathematics,
Indian Institute of Science,
Bangalore 560 012, India

Edited and published by Prof. P. Balaram and Prof. S. Ramaseshan, Current Science Association, Bangalore 560 080.
Typeset by R D Typesetters, Bangalore (Ph: 3405672). Printed by Lotus Printers, Bangalore (Ph: 3380167).