ter social and educational background; they confirm the conclusions of Crawford and Friedman that the members of the Nobel Committees preferred to award candidates from their own field; in the case of the literature and the peace prizes, the Danes had some advantages due to cultural and linguistic issues. Another important point to be mentioned here is that they have studied in detail how the newspaper media in the USA ignored or criticised the prize at the early stage, but with time, as more and more Americans got this recognition, the public interest grew. And finally, why did the number of Danish Nobel Prizes decrease in the second half of the 20th century? According to the editors, the main reasons are to be found in the constantly growing international competition.

It is not an exaggeration if I call this work 'The Bible of Danish Nobel Prizes'. One has to wait at least half a century to see such a work again. Though the issue at stake is the history of Danish Nobel Laureates and almost all the authors and editors are from Denmark, there is no tendency to show nationalistic chauvinism, rather the opposite is the case. Each and every case is dealt with in an objective and rational manner. I need not say that this book is recommendable for the historians of science, as the fact is that for those who wish to do work on the Nobel Prizes, this book is indispensable.

1. See Rajinder Singh and Falk Riess, Mahatma Gandhi and his four chances for the Peace Nobel Prize, *Diskus*, 2000, **10**, 43–48.

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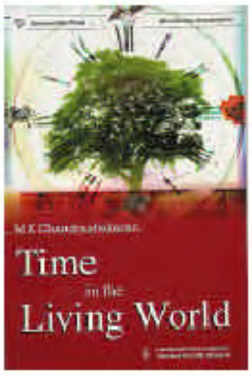

Time in the Living World. M. K. Chandrashekaran. University Press (India) Private Ltd, Hyderabad. pp 198. Price: Rs 175.

Measurement of time is fundamental to all living beings. It enables the organisms to judiciously organize their activities (activity and rest periods, foraging, predation, predator avoidance, timing of reproduction, and interactions with conspecifics and heterospecifics and so on) in relation to daily, seasonal and annual changes in the environment and maximize their fitness. However, the idea that animals, plants and microorganisms can measure time was considered absurd nearly until the mid 20th century. It is around this period, M. K. Chandrashekaran (MKC) began his research career and subsequently made major contribution to chronobiology/animal behavior independently and in association with other researchers working especially in Germany and USA. Study of animal behaviour was popularized in India mainly by the efforts of MKC who was also successful in placing this branch of biology on a firm footing by training and inspiring a large number of students to undertake teaching and research in the area. Biological rhythms are widespread among living organisms. They are shaped by the endogenous pacemakers and entrained by the geophysical correlates of the environment. The circadian (daily), lunar-monthly and circannual rhythms are described for several species of plants and animals. Also, the clock genes are now discovered depicting chronobiological events at the molecular level.

The book has VII chapters. The first chapter introduces the subject of chronobiology, the terminology used, methods of study and historical perspective very lucidly. Chapter II describes tidal and lunar rhythms of the marine crab, *Emerita asiatica* and highlights the ecological relevance of such rhythms. The author details how accidentally he rediscovered the biological rhythm of the crab by working round the clock. Chapter III deals with the circadian clock of the fruit fly (*Drosophila*) and describes the mechanisms governing the eclosion and developmental plasticity. Chapter IV deals with the biological clocks and behaviour of insect bats. It describes many interesting aspects of behaviour of the bats with respect to foraging, recognition of their pups, and factors entraining their emergence from caves and so on. Chapter V deals with the biological clock of the field mouse (*Mus booduga*) and elegantly describes maternal entrainment of the activity rhythms of the pups. Chapter VI deals with the human circadian rhythms of sleep/wakefulness, REM sleep, problems of shift workers, isolation experiments in male and female subjects, influence of isolation on temperature rhythms and menstrual cycles, role of social cues in time estimation, the head clock, implication of circadian rhythms in health, medicine and psychiatry. The last chapter entitled 'Looking Back' narrates the author's sojourn from his graduation days to the present position. All chapters are written lucidly and much of technicalities are avoided so that even a nonspecialist/non-biologist can understand the essence of chronobiology with considerable ease and clarity. The sequence in which the various chapters are arranged is logical. In particular the last two chapters are highly readable and inspiring.

A novel feature of this book is that it reads like the author's memoir providing glimpses of his discoveries and experiences, in India and abroad; interaction with many contemporary scientists, establishment of laboratories for behavioural studies, and isolation facilities for human studies on par with the international standards and so on at Madurai University, documenting carefully and elegantly, in a manner that will surely inspire young as well as senior scientists. The book provides a deeper insight on how plants, animals and humans measure time. I greatly enjoyed reading this book. Certainly, the book deserves a place in the personal library of every biologist.

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