The malian clock is not nearly so accurate, but can continuously correct internal and external time. The conventional view expressed in this stimulating book is that the pineal conveys its message exclusively via melatonin, although recently it has been shown that in some species pinealocytes send nerve axon-like processes to neighbouring parts of the brain, and in future it may be necessary to consider neuronal as well as hormonal control of the biological clock by the pineal.

A great deal is known about the physiological role of the pineal and melatonin in animals, much less in man. The book starts with a brilliant review by RV Short of *Time, the Universe—and the Emperor Penguin*. This bird has an incredible life history, in one of the most extreme environments in the world, and its survival is due to the correct timing of a host of physiological responses. The pineal is of particular importance in the onset of puberty and control of oestrus in seasonally breeding animals, and melatonin is now of commercial importance on both sheep and deer farms.

This symposium is mainly about how the light message, via the retina and pineal, influences the testis and the ovary. Many strange species, including Japanese quail, Iguanid lizards, Syrian, Turkish and Djungarian hamsters, as well as house sparrows, are described, and mechanisms considered whereby the photoperiod modulates the ability of oestradiol to suppress pituitary secretion of luteinizing hormone.

The pineal is not a seasonal breeder, a much more difficult topic and, as stressed by Arendt, there is no good evidence for a major physiological role of the human gland. This notwithstanding, recent demonstrations of major changes in melatonin rhythms with human puberty, investigation of melatonin as a possible hypnotic, studies of the effect of bright light pulses in depressed patients, and the use of melatonin by pilots to influence jet-lag, are topics of current interest. At present, no clear conclusions about these subjects are possible, but it is useful to have the critical evaluation in this volume.

The book is well produced, with good illustrations, an accurate index, and careful editing by David Everest and Sarah Clark. It is a credit to Vincent Marks and Josephine Arendt, who proposed the symposium, and who played a major part in the development of melatonin assays. The volume is mainly of specialist interest, but investigation of disorders of human timekeeping is dependent on many of the ideas discussed here. Highly recommended.

JD PARKES


The study of pain is a particularly multidisciplinary area of medicine and keeping up-to-date is therefore especially difficult. It is a hopeless task attempting to be familiar with advances in fields as disparate as neurophysiology, neurochemistry, surgery, anaesthesia, and psychiatry, and one is therefore thankful to the International Association for the Study of Pain under whose auspices have appeared the journal *Pain* with its periodic references to the current literature, and books such as the present *Advances in Pain Research and Therapy*.

This book comprises selected papers from the Proceedings of the Fourth World Congress on Pain held in Seattle in 1984, and as with previous volumes in this series, it is immaculately and expensively produced by Raven Press. The book is of course only as good as the papers delivered at the symposium, and there are some very good papers indeed. The individual styles of the contributors I think enhance rather than detract from the overall presentation, and certainly make more interesting reading. Since there is little attempt at cohesion and so many topics are covered, whether the reader will find what he is looking for may be unpredictable, and I suspect the book will be mainly used for browsing or specific reference purposes, especially in view of its high price.

Readers of this book, however, will be rewarded by some outstanding contributions. A personal selection would include Perl's masterly introductory overview "Unraveling the story of pain", Basbaum's update on cytochemistry of the dorsal horn, Willis' contribution on thalamocortical mechanisms, and a thoughtful and very up-to-date chapter on evoked cerebral potentials and pain by Bromm. The chapter on mechanisms of neuropathic pain by Ochoa and colleagues has the great bonus of a particularly lucid as well as entertaining style ("Anyone who claims to understand how the sympathetic system influences pain is probably mistaken or has chosen to explain only some aspects of a complex issue"), and neurologists will be as intrigued as surgeons that over the past five years Rosomoff's unit has managed over 1000 patients with demonstrated intraspinal compressive lesions like herniated disks or bony stenosis without surgical removal; despite leaving the space-occupying lesion in situ, management of the peripheral musculoskeletal problems has resulted in restoration of function even at long-term follow-up of up to seven years, and good relief of pain.

This book undoubtedly records the state of the art in 1984, and fully justifies its title. Contributors, editors and publisher are to be congratulated.

GD SCHOTT


Although there is very little of McAlpine, remaining in this, the fourth edition of *Multiple Sclerosis*, the editors do explain that they continue to use his name in the title in order to honour his enthusiasm for the creation of the original *Multiple Sclerosis* published in 1959 together with Compton and Lumsden.

This book has become the definitive work on multiple sclerosis. The editors have rearranged the script into three sections. The first, by Donald Aitchison is concerned with the epidemiology of the disease. Brian Mark- thews discusses the clinical aspects of multiple sclerosis and finally the immunological and pathological aspects are shared by Batchelor and Roy Weller.

The epidemiology of multiple sclerosis has fascinated neurologists for many years and Aitchison takes us through the development of our understanding of its epidemiology and also outlines the known epidemiological facts which point so clearly to pathogenesis.

Brian Matthews' writings on the clinical aspects of the disease are masterly and here any student of the disorder will find answers to many of the questions he may have posed in his clinical practice. The common and unusual presentations of the disorder are clearly described and although Matthews modestly states that "the differential diagnosis of multiple sclerosis obviously covers a large field in clinical neurology and cannot be covered completely in a brief chapter", he has almost achieved just that.

A chapter follows on the laboratory diagnosis of the disease with a clearly written review of the value of evoked potential studies and a critical but very fair discussion of the recent controversy over the possibility of