

cribed in detail and this will be useful for investigators involved in migraine research. The possible therapeutic targets for anti-migraine medication are discussed extensively. The clinical presentation and treatment strategies for migraine have also been presented cohesively. If the disorganized arrangement of the chapters can be overlooked, this book gives an overview of the current understanding of the pathogenesis of migraine and would be useful for scientists actively engaged in this area of research. This is an area that needs attention considering the enormous human suffering associated with it. It is often trivialized but this disorder has considerable social and economic impact and there is an unquestioned need for better drugs for treatment and prevention of migraine.

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The Dynamic Neuron. John Smythies. The MIT Press, Cambridge, Massachusetts 02142, USA. 2002. 150 pp. Price not stated.

There are living things that make do without neurons; not just plants but even slime moulds and other such organisms. They even move about and coordinate affairs of the various parts, albeit somewhat slowly. In fact a good fraction of the world of living things, has no need for the 'memory' stuff. But a moving animal as we know it, has a nervous system and needs to learn, remember and forget. It can occur in small timescales when changes in chemistry and hysteresis in reactivity lead to memories that can form, remain and fade at a purely cellular level and these then reflect onto cell-cell interactions. For longer time

scales, the short-term changes in chemistry should shift over to longer-term changes in cellular properties, possibly turning on and off genes or relocating molecules in cells. Even longer-term changes will feed these cellular changes, including changes in expression patterns of neural molecules to changes in circuitry, either physical or chemical. In one sense then, the neuron and the nervous system must be plastic enough to change as needed. Smythies' monograph is perhaps more like a good review in this area but written with a wider audience in mind. At times, Smythies' writing seems to be addressed to the lay reader. Phrases like 'arrival at the receptor' and 'departure from the receptor' reflect this style.

There is not much to say about the contents; it strings together a lot of studies and is descriptive. Evidence for synaptic plasticity is followed by mechanisms biased towards redox systems. Exocytosis and endocytosis are put in a central scheme of neuronal plasticity. They are suggested as plausible mechanisms of redistribution of membranes while retracting spines and re-growing. A chapter follows on cell biological mechanisms mostly to do with cell adhesion molecules, neurotrophins, scaffolding proteins and other molecules. While they are important and possibly the route to neuronal plasticity, in the discussion of details of the biochemical events, their real ability to modify and their consequence is almost ignored. The author finally makes a case for cellular changes leading to synaptic changes in the concluding short piece.

The book did not make exciting reading. Seasonally changing nervous systems, phantom limbs and such phenomena that reflect plasticity in connectivity never even get mentioned. This book could be treated only as part of a big story and the reader is best advised not to start with any great expectations. But in the areas Smythies has dealt with, this monograph is a complete review.

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Kaveri Riverine System: An Environmental Study. T. S. Sadasivan *et al.* (eds). The Madras Science Foundation, Chennai. 2000. 257 pp. Price not mentioned.

The book under review is the outcome of an Integrated Environmental Programme of Research on the river Kaveri, South India. It is entirely coordinated by the Madras Science Foundation under the sponsorship of the Ministry of Environment and Forests, Government of India.

The data were collected by 11 post-graduate colleges, six universities situated on the banks of the Kaveri and two universities elsewhere. A team of 29 investigators and their research workers studied the river and its physico-chemical and biological characteristics for a two-year period from 1990 to 1992 and 144 sampling stations were covered every month during this 24-month period.

It has been found that Kaveri waters are mildly polluted. The tributaries and distributaries are more polluted than the main river. Anthropogenic pressures and non-point sources seem to be also responsible for a great deal of damage in certain specific regions. Increased discharge of water due to monsoon rains does not seem to have had much of an impact. Pesticide residues have been found persisting in the top level of the food chain. Bacterial and heavy metal pollution are negligible.

The investigation is an attempt of a multidisciplinary, multifaceted approach to study the entire Kaveri system.

The book contains nine chapters dealing with different aspects of both physical and biological characteristics of the river. This is a sort of final technical report and does not look like a book. The dimensions of the book (29.5 cm × 21 cm) make it difficult to handle. The book however contains valuable information on Kaveri riverine system which is the lifeline of the people of Karnataka and Tamil Nadu. This will remain a model for investigation on other riverine systems of India.

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