lisher, explains the logic of infinity and related concepts in a non-technical fashion and is therefore of value to the non-specialist in mathematics who is interested in its logical basis without bothering about the technicalities. More such books are appearing in the market, covering very similar themes. The ‘pioneer’ in this regard was perhaps George Gamow’s entertainer of half a century earlier, which provides the ‘amusement’ for them. The present book, however, also deals with some technical aspects like the formal proofs of the Gödel Theorems and a fuller exposition of the ‘transfinite cardinals’ of Cantor theory, topics which are not easily found in most textbooks, and should thus be useful to the more serious student of mathematics, who is further helped to develop his logical thinking capacity without external aid, through a collection of puzzles/paradoxes whose answers are given at the end of the book.

Another item of delight is the story of Rucker’s personal encounters with the ‘Mathematical Genius’ (who very rarely granted interviews). The serious student of mathematics may profitably combine books of this kind with more ‘substantial’ classics like Courant’s ‘What is Mathematics?’ to grasp the abstract ideas and methods of mathematics in a more palatable and wholesome fashion.

To summarize, the book whose style will please both the uninitiated and the more serious thinker in mathematics, ventures to convey both the abstract concept of infinity in all its forms, both ‘potential’ and ‘actual’, spatial and temporal, large and small. The main lesson seems to be that even mathematics as an ‘exact science’ has its limitations (thanks to the Gödel Theorems and the like) which have led to at least two schools of thought: Platonistic versus Formalistic, and encouraged the (more holistic) intuitionists to lean towards Mysticism, a subject which is beyond the scope of this review.


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The Annual Review of Physiology has a long sustained tradition of publishing good articles on selected topics and/or areas relating to different fields of physiology, thereby highlighting the important developments in a particular field. I was particularly delighted to accept the offer to review the 1995 volume, for the reason that it has review articles on membrane ionic channels and cellular and neurophysiology which are closer to my research interests.

The Review begins with an autobiographical sketch by Hans J. Schatzmann, where he has attempted to convey the excitement of his many years of research on the ion pump mechanisms in biological membranes.

The comparative physiology section has topics related to thermal adaptation in membranes (J. R. Hazel), temperature-protein interactions (G. N. Somero), where the recent discoveries of temperature effects on protein structure-function and gene regulation in the experimental contexts are reviewed and attempt made to relate them to concerns of comparative, evolutionary and environmental physiologists. There is additionally a review on the evolution of endothermy in mammals (J. Ruben).

Among the topics covered in the section on Respiratory Physiology, there is a review by N. J. Gross on a recently identified enzyme surfactant convertase, a scinic protease which acts on lung surfactant, converting one of the subtypes, tubular myelin (TM) to the small vesicle (SV) subtype. Drazen, Gaston and Shore review three different chemical regulatory mechanisms of pulmonary tone, viz. cysteinyl leukotrienes (LTD4 being most potent), neuropeptides and nitrogen oxides, and the physiological significance of these in regulating airway tone in human asthma. While the individual effector systems are known, it is not clear how the three different effector systems function in an integrated fashion, which is where future research would be directed.

In the Endocrine Physiology section, Inagami, Naruse and Hoover review the current status of research on the thin uncellular layer, endothelium which forms a permeable and physical barrier protecting vascular smooth muscle cells, as an endocrine organ with multiple functions.

There is also a review by Woodruff and Mather on the recently discovered modulators of follicle stimulating hormone release, viz. inhibin, activin and follistatin. There are recent references on relationship between aberrant production of inhibin and cancer.

The section on Renal and Electrolyte Physiology has articles dealing with the role of reactive oxygen metabolites (S. V. Shah), transforming growth factor-beta and Angiogensin II (Ketteler, Noble and Border), and platelet growth factor in the pathogenesis of renal disease (H. A. Aboud).

The Cell Physiology section has an interesting and up-to-date review on mechanosensitive or stretch-activated channels by Henry Sackin. A hypothetical scheme with different pathways for how stretch-activated cation channels and stretch-activated K channels might be involved in volume regulation of the cell and K homeostasis is presented. I found this scheme particularly interesting. The earlier debate on the mechanosensitivity being an artefact of the patch-clamp technique, has been recently put to rest by the work of Sukharev et al. (Nature, 1994, 368, 265–268), by demonstrating that mechanosensitivity is an intrinsic property of certain channels that can be reconstituted into different lipid environments. Mechanosensitive channels are attracting a lot of current interest amongst cellular physiologists, and considering their mechanotransducer property, are found in cell systems where mechanosensitivity is required, viz. muscle spindles, vascular endothelium and auditory cells. They are also found in plant and fungus cells. Stretch-activated plant channels are suggested to be important in mediating the geotropic response by transducing mechanical (i.e. gravitational) signals, an interesting biological feature.

Membrane ionic channel-linked diseases are beginning to be understood, and pathological situations arising from channel dysfunction are beginning to be classified under 'channelopathies'. Like the CFTR chloride channels, abnormalities...