

## BOOK REVIEWS

blackest people you would ever see' (p. 238). Many interpreted his touchiness to racial slurs as 'radical politics', though the maximum extent he ever went was to campaign for Adlai Stevenson as Democratic candidate for President in 1952.

Eddington's shadow continued to harass Chandra in the form of vituperative reviews for his two major books on stellar structure (1939) and dynamics (1943). Though they were invaluable contributions to astrophysics, Eddington derided them for 'ugliness'. At the 1939 Paris Colloquium on Novae, Eddington verbally fenced with Chandra and attributed his relativistic degeneracy equations to Western scientists. In 1944, Chandra was nominated Fellow of the Royal Society by Raman, who also proposed forwarding his name for the Nobel in 1948.

Although Chandra relinquished the subject of white dwarfs in America, advances in nuclear physics eventually led to the rediscovery of his theory and realization that he had been right all along. Robert Oppenheimer and his students showed how massive stars could perish and collapse completely, but they 'did not take Chandra seriously', feeling 'he was not a "real" physicist' (p. 201). Chandra, on his part, liked complicated mathematic methods and avoided collaboration with Oppenheimer. He also declined the offer to join the 'Manhattan Project' that produced the atomic bomb.

In his middle age, Chandra moved to definitive research on radiative transfer, hydrodynamic and hydromagnetic stabilities. He collaborated with Enrico Fermi on magnetic fields of spiral galaxies and served as a consultant at Los Alamos on turbulence, upon the urgings of Edward Teller.

When Stirling Colgate's supernova research proved beyond doubt that stars really undergo ongoing and endless collapse, Chandra was elated. He carefully edited, rewrote and published Colgate's work in 1966. He also published papers proving that super-massive stars could shrivel away and disappear into a niche in space and time. John Wheeler gave this cosmic receptacle the name 'black hole' in 1967. Chandra returned to his first love and performed astoundingly complex calculations to streamline emerging knowledge into his magnum opus *The Mathematical Theory of Black Holes* (1983).

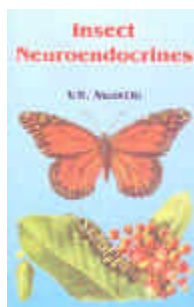
After receiving the 1983 Nobel, Chandra's unflagging productivity took him to fresh pastures of gravitational

wave collision with stars and analyses of Newton's *Principia* using 20th century mathematics. An Icarus who took risks and probed the reality behind appearances, Chandra was gifted with typical Indian humility and rarefied sense of aesthetics. Befittingly, the 1999 X-ray Observatory in space of space shuttle Columbia was named after this giant of astrophysics, whose salad days were sadly sacrificed at the altar of meanness.

How many more Chandrasekhars are being denied to the world by the subordination of science to politics?

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**Insect Neuroendocrines.** V. B. Awasthi. Scientific Publishers, 5a New Pali Road, Post Box No. 91, Jodhpur 342 001. 2005. 431 pp. Price: Rs 2350.

The volume gives an overall idea about the neuroendocrine system and its variation in different insect groups, as it has been known to vary in their morphological features from insect order to order. Not many Indian books have been published on insect endocrine organs and their physiology, excepting probably the volume by late K. K. Nayar. Through the 35 brief chapters, the author tries to give a brief idea about the general organization and variations of the insect neuroendocrine system, highlighting different endocrine components and identification techniques of different secretory neurons, including ultra-structural details. Different physiological influences imparted by various insect hormonal principles also have been dealt in subsequent chapters briefly. The last part of the book provides a good illustration of different epithelial endocrine glands using both photomicrographs and several

electron micrographs of different insect endocrine components, representing selected insect orders that have already been published by either the author himself or pioneering insect endocrinologists. All micrographs have been reproduced in the volume in an excellent fashion. A selected reference list also has been provided by the author at the end of the first part of the text. Hence the book forms a good source of preliminary information to both students and beginners on insect endocrine research.

However, morphological details and also various physiological and functional details of insect endocrine components have been treated briefly and that too in the light of comparatively old literature. One shortcoming that could be identified with this particular volume is that the author has restricted to picturize the scenario and status of known information on insect neuroendocrines for a period of 20–25 years earlier, as is evident from the reference list and the kind of details that the author tries to deal in this book. So the volume must definitely cater to the needs of a beginner on various aspects of insect hormones and hormone-secreting components. But the level of knowledge on insect endocrines has drastically transformed during the last decade or two thanks to the different ultra-sensitive and precise analytical techniques that enable one to identify and characterize insect hormones. In this respect, the present volume probably does not give up-to-date information on recent trends and findings on insect endocrine components. Of course, for a beginner and for students of insect endocrinology, this volume is really an asset.

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**Stress: From Burnout to Balance.** Vinay Joshi. Response Books, Sage Publications India Pvt Ltd, B-42 Panchsheel Enclave, New Delhi 110 017. 2005. 209 pp. Price: Rs 185.

'Without stress there would be no life', wrote Hans Selye who coined the term stress. Certainly, stress has been with us from the early days of mankind. Yet, the

fuss and fascination on stress are on the rise. This is easily explained. The number one among the major threats to human health in the new millennium is surprisingly neither AIDS nor coronary artery disease. The principal menace to our well-being is stress. Stress-related illnesses account for absenteeism from work places and contribute to large financial losses to organizations. Also, it has been confirmed that stress aggravates several diseases. Stress response of the body is often compared to an airplane readying for take-off. To confront the perceived danger, several systems in the body undergo change. Chronic stress can also cause permanent damage to emotional and cognitive brain functions, such as memory. Hearteningly, stress by itself does not hurt anyone; what counts is how one responds to stress. The good news is that stress can easily be managed.

In this book, Vinay Joshi thoroughly examines the physiological effects of stress and details the diverse mechanisms responsible for mediating the body's response to stress. He also prescribes methods to combat stress and to alleviate illnesses secondary to stress.

The book is divided into 16 chapters. A dramatic prologue, a vivid description of the response of a prey to a predator, sets the tone for the text. The early chapters define stress and stress response, explore the effects of stress on body metabolism and energy mobilization, the digestive system and the immune system. The relationship of stress to diabetes, cardiovascular diseases, aging, autoimmune diseases, psychiatric illnesses such as depression

and the effects of stress on the reproductive system, memory and perception of pain are included in the subsequent chapters. The later chapters describe specific stress reduction or stress management techniques, which include physical exercises, massage, breathing exercises and behavioural techniques such as meditation. Practical tips for physical exercises as well as using emotions or thoughts to reduce stress are enumerated for easy avail. The last chapter which begins with a Marathi proverb, 'Healthy poverty but lame riches' discusses the 'most common stressor for majority of the population in our country'. The author says that this stressor poverty cannot be eliminated or minimized. The book concludes with an appeal for 'empathy for the poor and a small donation to any charitable institution working with the poor' – a prescription to reduce stress among the rich?

The emphasis in the book is to provide recent scientific advances in stress physiology and strategies to combat stress. Thus, the author provides the scientific basis of various stress management therapies. He also discusses how an individual's beliefs, personality types, temperament and societal interactions dictate the magnitude of stress effects on him or her.

This paper-back volume also reflects the breadth of the author's expertise and his wit. There are some juicy incidental remarks. An example is: 'Antagonists are like bureaucrats – they do not perform useful work themselves'. Fascinating simple analogies can also be found – function of an air conditioner is cited to explain feedback circuit. There are also thought-pro-

voking citations from scientific studies: 'In a more recent study conducted (at University of California) on professional actors (in Hollywood), they were required to do either a tragic scene or a happy one. The ones doing the tragic scene showed a stress response, which decreased immune function. In contrast, the actors who were doing an euphoric scene showed an improvement in their immune response'. Several such studies are cited, invigorating and lending authenticity to the text. You would also find answers to: Is stress a friend or a foe? Can stress accelerate aging? How to use your sense of humor to relieve stress? Salient points are effectively presented by italicization, through text boxes and simple figures.

The book is structured akin to a text of medical science, though the author is a business executive outside the domain of medicine. It is appropriately indexed under stress psychology, stress physiology and stress management. The text is intended for professionals from diverse fields and definitely they would profit from the book. The contents of the book are exhaustive and the style, which is distinctive, is engaging and lucid. It is worth its price. I recommend it to be carried along during your vacation.

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