

such topics is crucial for the full comprehension of the book. As expected, many of the chapters are heavy on mathematics, for example, when discussing diffraction of X-rays from a crystal or solving the phase problem. However, many illustrations and diagrams are included to facilitate understanding. For interested readers, every chapter is complete with a thorough list of references on all the topics discussed in the text. I would highly recommend this book to someone who is thinking about or already using X-ray crystallography and would like to obtain a deeper understanding of its theoretical basis as well as some practical guidelines.

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Infections Causing Human Cancer.
By Harald zur Hausen. Weinheim:
Wiley-VCH; 2007, 532 pp. US \$215
Hardcover. ISBN: 9783527310562.

Infections Causing Human Cancer by Harald Zur Hausen provides an excellent overview of the role of chiefly viruses and the *Helicobacter* group of bacteria in the development of human cancers. The book is aimed at introducing the subject to graduate students, clinicians, and researchers interested in the pathogenesis of malignant neoplasm. The author begins by sketching a historical account of how it took almost a century to appreciate the link between infectious agents and oncogenesis. This includes the seminal contributions of Peyton Rous, who demonstrated the cell-free transmission of chicken sarcoma in 1911, the description of a “milk factor” (later known as a mouse mammary tumor virus) by John J. Bittner in 1936, and the discovery of a specific childhood lymphoma by Dennis P. Burkitt in 1958 and its etiological agent, a herpes virus, by Michael Epstein, Yvonne M. Barr, and Bert G. Achong in 1964.

The text is elegantly arranged, both by the agents and the type of cancer they cause. The author has devoted at least a small sec-

tion to most known human viruses and discusses the current understanding of their link to cancers. While much of the focus of the book is on infectious agents and human cancers, animal models of cancers also are discussed. Treatment options, including preventive and therapeutic vaccination, appear at the end of each chapter for most viruses discussed. Each chapter has an extensive bibliography reflecting literature as current as 2006. While the author makes an effort to summarize key findings from current literature, the text sometimes suffers from lack of coherence as the author goes from aspects of cell biology to describing a specific step in a biochemical pathway to aspects of molecular biology in the same paragraph.

Herpesviruses, papillomaviruses, and retroviruses are the three most important groups of infectious carcinogens, and these get additional attention in the text. Interestingly, in 2006, the U.S. Food and Drug Administration approved Gardasil®, a human papilloma virus vaccine. This vaccine protects against four human papillomavirus (HPV) types. HPV Types 16 and 18 cause 70 percent of cervical cancer cases, and HPV Types 6 and 11 cause 90 percent of genital warts cases (source: www.gardasil.com). Cancer is a significant cause of mortality in people infected with HIV, albeit indirectly through immunosuppression. However, the author intentionally does not treat this important group of retroviruses and refers the readers to relevant literature. Although tumor bacteriology or tumor parasitology did not become as well established as tumor virology, the book has an informative chapter contributed by James G. Fox, Timothy C. Wang, and Julie Parsonnet on *Helicobacter* infection and cancer. The authors focus on *H. pylori* — its discovery, life cycle, specificity, virulence determinants in cancer development, and cancer prevention. They also discuss animal models of *Helicobacter*-induced gastric cancers and virulence determinants of Enterohepatic *Helicobacter* spp. The penultimate chapter deals with parasites and human cancer. Although there are numerous sporadic reports linking parasites (especially *Schistosoma* trematodes) and cancer, the au-

thor concludes that this is still a gray area and one that remains poorly understood. In fact, the first positive reports on infectious cause of cancers linked parasites, liver flukes, and *Schistosoma* with specific human cancers. Ironically, the Danish scientist Johannes A.G. Fibiger won the Nobel Prize for Physiology or Medicine in 1926 for his investigations incriminating the nematode *Ganglyonema neoplasticum* in rat tumors, although his results have not been confirmed independently.

Globalization, coupled with increases in human migration, means that more and more humans will be competing for space and resources with wild populations of animals that harbor infectious agents. Such encounters have the potential to result in hitherto unknown human diseases, including cancers. This book will serve as a useful reference in understanding some of these infectious agents and their role in development of cancer.

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Stress in Health and Disease. Edited by Bengt B. Arnetz and Rolf Ekman. Weinheim: Wiley-VCH, 2006; 434 pp. US \$230 Hardcover. ISBN: 978-3527312214.

The concept of stress, as it applies to the human experience of feeling worn out, pressured to keep up with the frenetic pace of modern society, and “emotionally uneasy” (as one author in this book phrased it), is so pervasive in today’s culture that it would seem impossible to produce a living human adult who has avoided the experience completely. We lament about being stressed, brag about being stressed, attempt to fix and treat our stress, and (in some perverse effort to cover all our bases) stress that we are too stressed out. Yet, as it is with entities that are by their very nature primarily conceptualized as a human perceptual experience (i.e., “I feel stressed”), a neat and tidy definition of stress, particularly one that explains its underlying pathophysiology, has been elusive.

Now more than ever, as physicians and health care workers in every area of medicine are confronted with patients experiencing “stress” that affects, if not their actual bodily health, then at the very least their sense of well-being, it is imperative that we begin to understand this entity in a more coherent manner. This is the goal of a new multi-disciplinary compilation on the subject edited by Bengt B. Arnetz and Rolf Ekman. It is one of the first books attempting to address every possible dimension of stress — historical, cultural, biological, sociological, evolutionary, and clinical — related to both health and pathology. As such, it emphasizes the need for new, innovative paradigms born of trans-disciplinary collaboration.

In this vein, the work succeeds to pull together many different voices and perspectives from a host of predominantly Swedish, Norwegian, and American clinicians and scientists. For example, the book opens with an insightful historical exploration of stress that charts the concept’s birth (at least in the modern sense) to the early 19th century, when dramatic urban growth and changes in the speed of business, travel, and communication contributed to a sense of “nervous energy” depletion that caused “mental strain.” Thus, stress is not simply a biological or psychological phenomenon.

Each chapter is authored by a different set of authorities and remains fairly specific to their area of expertise, often directly reflecting their own research findings. These chapters explore stress through many different lenses, including that of business and management, biology, evolution, a psychosocial paradigm, and so on. The biological chapters cover many expected bases with adequate depth, including autonomic activation, the cortisol response and other endocrine outcomes, central nervous system involvement, inflammation and immune function, and metabolic effects. In addition, the psychosocial chapters add more dimension by exploring anti-stress interventions (e.g., social support), the role of sleep and fatigue, the potential link to medically unexplained syndromes, and connections to