vanced undergraduates. Because its level of technical detail places it between most other textbooks and review articles, graduate students and research scientists will find it to be a useful reference and guide to subjects outside their immediate areas of research. The third edition has been expanded relative to the second edition, and includes updated material on relatively new topics such as genomics and prokaryotic cell biology. In addition, new material on well-developed experimental models, such as the stringent response, sporulation, and protein secretion, have been added as well.

The book is different from most other current molecular genetics volumes in the amount of space it devotes to several series of classic experiments and the impact they have had on the development of the field. For example, nearly ten pages discuss the bacteriophage T4 rII gene and the role it played in the discovery of mutational hotspots, nonsense mutations, and the logical structure of the genetic code. Although such information may not be of immediate practical value to most readers, its inclusion will broaden their historical knowledge of the field, and will illustrate how complex problems were teased apart using elegant experiments in an era that lacked the powerful tools that are available today.

In summary, this new edition is a significant upgrade from the well-received second edition. Drawing from a wide range of organisms, it presents detailed information, both classical and current, on many aspects of prokaryotic molecular biology. It should find a welcome home on the bookshelves of advanced undergraduate students, graduate students, and established researchers in the field.

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PHYSIOLOGY AND BIOCHEMISTRY OF EXTREMOPHILES.

Edited by Charles Gerday and Nicolas Glansdorff. Washington (DC): ASM Press. $129.95. xvi + 429 p + 4 pl; ill.; index. ISBN: 1-55581-422-0. 2007.

Extremophiles are organisms that thrive under environmental conditions that are considered extreme. This book provides an in-depth examination of the physiology and biochemistry of these organisms, while also touching on aspects of their ecology and evolution. The volume contains 28 chapters, each reviewing different aspects of the extremophile literature. These chapters are grouped into sections that deal with extremes of temperature, salinity, pH, and pressure. The thermophile and psychrophile sections have the most chapters, reflecting historical interest in extremes of temperature, as well as a greater body of research relative to other types of extremophiles. Each section appropriately begins with chapters that focus more on the ecology and biodiversity of each group of organisms (covering what organisms are where) before moving onto chapters that are focused on physiology and biochemistry (how and why organisms thrive in these extremes). Other sections of the book discuss the origins and evolution of life, the search for life elsewhere in the universe, and the biotechnological importance of extremophiles. I found that these latter sections served to place extremophile research into a broader context, while the discussions of specific types of extremophiles explored adaptive mechanisms in greater detail.

This book brings together and will be of relevance to a variety of disciplines in addition to extremophile biochemistry and physiology. I would recommend this volume to any biologist who is interested in understanding how life can adapt to and thrive in "harsh" environmental conditions. It will also serve well as a reference for anyone who is interested in only certain types or aspects of extremophiles. More thorough editing would have captured minor errors or awkward phraseology; this is, however, outweighed by a truly international list of contributors, which reflects a global interest in this fascinating subject.

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ARCHAEA: MOLECULAR AND CELLULAR BIOLOGY.

Edited by Ricardo Cavicchioli. Washington (DC): ASM Press. $129.95. xii + 523 p + 18 pl; ill.; index. ISBN: 1-55581-391-7. 2007.

Archaea along with bacteria comprise the two groups of prokaryotes. The discovery of the Archaea, now over 30 years ago, has blossomed into fascinating revelations about the origin of life and the discovery of unique mechanisms that penetrate diverse aspects of biology, biochemistry, and genetics. The field of archaeal biology is growing rapidly. For this reason, we can anticipate a continued need for comprehensive coverage on these organisms that promotes dissemination of relevant information.

The current volume consists of 23 short, edited chapters, ranging from DNA replication to Archaeosome vaccines. The chapters are generally broad with useful figures and tables. Considerable attention is focused on information processing, including DNA, RNA, and protein synthesis and processing. Additional emphasis is placed on general aspects of cell structure, including the unique archaeal envelope and molecular translocation across this structure. The latter third of the book contains chapters on genetic and genomic research strategies, as well as proteins of biotechnologic importance. These par-