

is what determines the length of life, barring accidents.

Burnet states that the study of human genetics is largely based on what has already happened, as humans would be adverse to becoming part of a planned program of mating and producing large numbers of offspring to order. However, much as been discovered about human heredity in terms of blood groups, enzymes, and different types of hemoglobin. Mice can be studied in a planned and programmed manner and their aging process provides an excellent comparison to that of humans. The average lifespan of two years makes the mouse a good study animal. Accurate information may be accumulated "about average lifespan, the incidence of cancer in relation to age" and other aspects of aging in mice. The mice seem to follow the same general pattern as humans, albeit more rapidly than humans.

Some readers will consider many of Burnet's statements highly controversial; however, I hope this will not prevent anyone from reading this important book. As the author points out, the ideas he espouses may not be totally acceptable, but with the continued conditions of overpopulation and energy shortages, many of these disputed ideas may eventually become accepted realities. Among the controversial ideas are the following; persons responsible for repeated violent crime must be removed from society. "The nature of execution for such conditions must not be 'capital punishment', it is not punishment or revenge but the orderly legal removal of a danger to others of the community. Psychopathic killers are rare enough...to be certain their abnormality is genetic and therefore incurable." On the other hand, there are occasions "when the inability of a product of conception ever to have a tolerable existence is utterly evident, infanticide, either positively or by neglect, is already acceptable." "There are, however, at least a thousand serious genetic abnormalities where the infant is born anatomically normal."

According to Burnet, "even the worst imaginable nuclear war would be most unlikely to exterminate [humans] completely or to destroy the whole of [recorded technological] and scientific information." We will continue as a people with our faults and problems and strive to find a solution one way or another.

These few quoted passages will possibly serve to entice those who are reading this review to spend some time with Dr. Burnet. He has written a fascinating book, provocative and stimulating.

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Health

HUMANIZING HEALTH CARE: ALTERNATIVE FUTURES FOR MEDICINE

by Robert F. Rushmer. 1975. The MIT Press (Massachusetts Institute of Technology, 28 Carleton Street, Cambridge, Massachusetts 02142). 210 p. \$4.95.

This book is intended to identify major health care delivery problems in the United States and suggest viable solutions to these problems. I am not at all sure that it accomplishes its purpose.

It is written in the style of a doctoral dissertation: cluttered with technical jargon, it is difficult to read. Throughout the book, the reader is referred to chapters not yet read with no specific direction as to page, diagrams are cited that are pages away from their reference and the statistical evidence that is presented becomes overwhelming. The references at the end of every chapter are to specialized journals and publications not readily available. Many of the charts are well done, but most attempt to convey too much information. Were it not for the chapter summaries, I would have easily lost any sense of purpose or direction.

The chapter entitled "Health—Personnel Requirements" was the highlight of the book. As a teacher attempting to counsel students into health related careers, I found this section most useful. Not all biology students can be physicians; this chapter offers hope for a greater distribution of talents within health care services by suggesting careers in nursing, as physician's assistants and within the allied health services.

I feel that the usefulness of this book is limited to those working with prospective health administrators or people who will make policy decisions on a national health care delivery system. It is far too difficult for the secondary student and of limited value for the secondary teacher of biology.

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History and Philosophy

AN INTRODUCTION TO THE HISTORY OF VIROLOGY

by A.P. Waterson and Lise Wilkinson. 1978. Cambridge University Press (32 East 57th Street, New York 10022). 251 p. \$27.50.

As the title indicates the book describes the development of virology and the diseases caused by viruses over the last two thousand years. The aim of the book is to provide the evolution of the

present chemical concept of the virus, and to study the contributions of the scientists of the past to the development of the nature of the virus particle.

It is a study of the ideas, concepts, and interactions on one hand, and experiment and technique on the other. Four well-studied viruses were chosen as the basis for the development of the ideas presented; they include fowl plague, tobacco mosaic, rabies, and smallpox. These viruses provide information in a chronological sequence allowing for the application of the concepts of virology to each of these agents, particularly during the last century, which then provides a frame of reference for the reader.

Though it is a small book (6 x 9), it has large, clear, easily readable print on non-glare paper. The footnotes are excellent and provide useful information. Biographical details, while very extensive and comprehensive, have been relegated to the appendix.

The book is well written but would have limited usefulness in a high school library. It would be of value to the beginning microbiology student who is interested in the historical development and treatment of relatively new field of study. It would be a useful reference for the advanced student.

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BIOLOGY: ITS HISTORICAL DEVELOPMENT

by Howard B. Baumel. 1978. Philosophical Library (15 East 40th Street, New York 10016). 101 p. \$6.

Howard Baumel's small book gives a very brief survey of the history of biology. The material is arranged by topics (Beginning of Biology, Rise of Modern Biology, Conquest of Disease, Origin of Life, Development of Genetics, and Developing a Theory of Evolution), and within each topic the material is presented chronologically.

Unfortunately the book rises only occasionally above some rather serious shortcomings. From a technical point of view, the most unforgivable problem is the lack of an index. Over ninety scientists are covered, and without an index the book has little reference value. This flaw might be overlooked if the style and format were more readable. However, the extreme brevity of many of the vignettes, the lack of cohesion among them, and the absence of a central thesis or focus makes casual reading difficult.

In those infrequent instances when scientists are treated in some personal depth and/or in a historical context, the material is interesting and engaging. For