cerned that the technology is moving too rapidly and that the costs will include unforeseen harmful consequences? What perceptions does society have of this rapidly evolving field and how are these perceptions likely to influence its regulation by the relevant governmental agencies? It is just these questions that *The Genetic Revolution* seeks to address.

The book is divided into 15 chapters that deal with three broad areas. Chapter 2 (written by the editor) provides a historical perspective of the scientific discoveries that have given rise to the present advanced state of molecular genetics. Chapters 7 through 11 address the application of molecular genetics to the fields of plant agriculture, animal agriculture, medicine, neuroscience, and evolution, and raise questions about some of the social implications of the emerging biotechnology in these areas. The remaining chapters (other than the last two) deal with how society, in the form of ecologists and environmentalists, perceives the scientific advances and how those perceptions are likely to affect public policy and government regulation. Finally, the last two chapters (14 and 15) summarize the relevant conclusions drawn in the scientific and public policy chapters, add critical comments about the issues discussed, and attempt to arrive at a reasonable forward path.

Davis is clearly the driving force behind this book. Besides writing the three chapters on issues, background, and scientific summary, it is his well-respected standing in the scientific community, and his long-term interest in how science is perceived by the public, that has enabled him to bring together the broad spectrum of experts needed to discuss the diverse issues dealt with here. The comments of the various experts certainly reflect their own world view, but on the whole those comments are quite balanced, avoiding extreme positions on either side, and focusing on the relevant social and scientific issues.

While all of the chapters are well written and interesting, I particularly enjoyed reading the chapters on microbes, molecular medicine, neuroscience, and public policy, written by Campbell, Friedmann, Schwartz, and Wildavsky, respectively. The public policy chapter was particularly intriguing with its treatise that "the difficulty in reaching consensus on issues in genetic engineering may reveal fundamental differences in views of the world that are hard to resolve—perhaps because they are buried deep in people's consciousness" (p. 280). I would enthusiastically recommend *The Genetic Revolution* to all persons who are concerned with issues that affect the application of molecular genetic technologies to human health and development.

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THE BIOLOGY OF LIFE SPAN: A QUANTITATIVE APPROACH. *Revised and Updated English Edition.*

By Leonid A. Gavrilov and Natalia S. Gavrilova; edited by V. P. Skulachev; translated by John Payne and Liliya Payne. Harwood Academic Publishers, Chur and New York. $120.00. vii + 385 p.; ill.; subject index. ISBN: 3-7186-4983-7. [Originally published in Russian in 1986.] 1991.

This book is an updated translation of the 1986 Russian edition. The translators are to be commended for the quality of the English text. The authors claim that the biology of life span is a discipline of its own, albeit with strong ties to other disciplines, namely demography, ecology, genetics, gerontology, radiobiology, toxicology and zoology. They lament the lack of interactions between investigators of these different disciplines, which they feel results in ignorance of available data and concepts needed for future advances. It is their hope that this book will serve to promote the needed interactions.

Surprisingly, therefore, the content of this book is primarily focused on aging processes (i.e., senescence). Indeed, this book is difficult to view as other than a work in the field of gerontology, although it does contain useful information for investigators in all of the disciplines. Many new insights and views of particular importance for the discipline of biological gerontology are presented. As a geronotologist, I found it to be highly rewarding reading.

The following are a few of the insights worthy of careful consideration. In a thoughtful discourse, two beliefs widely held by many gerontologists are challenged by the authors: the concept of an upper limit to the life span of a species and the hypothesis that life span is genetically programmed. They also review an extensive database on the influence of sex on life span and conclude that the widely held belief that the life span of the female is greater than that of the male is not the case in the majority of species. A large part of the book is devoted to evaluating mathematical models of life span that have been proposed over the years by distinguished gerontologists. Conceptual errors in these models are carefully delineated. Moreover, the authors formulate the conditions that any mathematical model must satisfy. They feel that a complete mathematical theory of life span is not immediately at hand, but that the tools are now available for this task to be successfully launched. They believe the use of the hypothesis of limited reliability of the organism (a modern version of the "wear and tear" theories of aging) to address the age-dependent component of the force of mortality will provide the substantive base for the development of this mathematical theory.

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