

Book review

Altukhov, Y. P., 1990: Population Genetics. Diversity and Stability. 352 pp., 113 figs., 56 tab. Chur–London–Paris–New York–Melbourne: Harwood Academic Publishers. ISBN 3-7186-4984-5. Hard bound DM39.80.

This volume is not a traditional text-book on population genetics and evolutionary theory, nor is it a comprehensive compilation of the current status of knowledge in the scientific fields which it covers.

The main part of this book repeats the structure and logical presentation of the material contained in the author's monograph "Genetic Processes in Population", published by NAUKA in 1983.

In preparing the revised version now translated into English the author considered it essential to focus attention chiefly on Russian authors whose research covers the approach and problems dealt with in this book and which may not be so well-known to an English-speaking audience.

In this context, one of the author's main objectives to communicate the results of his own work, and of his closest co-workers, within the framework of an approach to revealing the factors and conditions of genetic stability. As a consequence, the list of references contains 74 citations, where Altukhov is senior author or co-author.

The chosen sub-title of this book 'Diversity and Stability' indicates the author's emphasizing intention to characterize a natural population not only as a unit of evolution, but also as an object of practical utilization. The book, therefore, analyzes strategies for preserving and rationally utilizing natural populations and it discusses principles of stabilizing the underlying gene pools.

The topics range from a discussion of economic management in agricultural populations to the investigation of the specific nature of the genetic processes in contemporary human populations.

The book has been divided into seven chapters. In this review a citation of the headings of the different chapters may be sufficient to give some further insight into the classification and content of this volume:

"The Theoretical Principles of Population Genetics" (Chap. 1); "Heritable Variation in Populations" (Chap. 2); "Genetic Processes in Natural Population Systems" (Chap. 3); "Genetic Processes in Experimental Population Systems" (Chap. 4); "Factors Maintaining Protein Polymorphism in Natural Populations" (Chap. 5); "Population Genetics and Evolution" (Chap. 6); "Population Genetic Aspects of the Problem "Man and the Biosphere" (Chap. 7)".

In the 'Preface' the author summarizes his key conclusion as "The main result of adaptive evolution is an optimum genetic diversity of natural populations as the principal condition for their stable reproduction over generations and as a measure of their maximum adaptation to the actual environment in which they have been shaped and which they now inhabit". This statement can be considered as an extremely abbreviated summary.

With regard to a discussion of the genetic mechanisms of speciation the author emphasizes the rather unorthodox, but well-known hypothesis of evolution as a process in which periods of long stability are followed by phases of rapid species transformation through qualitative genome reorganization and not the result of gradual genetic changes.

Many facts are presented and integrated within the scope of this viewpoint of the mechanisms which are responsible for evolutionary processes.

Finally, I want to characterize this book as a stimulating and interesting one. I enjoyed reading it. I am sure, any reader with an interest in the problems of population genetics and evolutionary biology will confirm this opinion.

M. Huchn, Kiel