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 Book Reviews
 

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**Benedik, J.: A New Approach Towards the Study of Recessive Lethal Mutations.** Folia Facultatis Scientiarum naturalium universitatis Purkynianae brunensis. Tomus XXII, Opus 1, Biologia 67. Brno: Univerzita J. E. Purkyne V 1981. 85 pp., 55 figs. Softbound Kčs 10,-.

Since the early beginning of genetics as a science, lethal mutants have been investigated and have proved to be an excellent tool with which to research the genetic structure of natural populations. The authors of this book have made an analysis of the populations of *Drosophila melanogaster* in Southern Moravia in order to elucidate the dynamics of lethals in natural populations. In the triangle Brno-Valtice-Moravsky Pisek, 44 randomly selected lethals, bearing lethals on the second chromosome, were isolated and the lethal phase estimated. From the changes in frequency of heterozygotes for these lethals in populations of successive generations, components of fitness were estimated by use of the minimalizing method. A population-genetic model was made which made it possible to divide fitness into 5 components. Estimates of the components of fitness were used to determine the changes in frequency of heterozygotes up to the 50th generation. In 18 samples from natural populations, the frequency of the lethals fluctuated between zero and 40.62%, with a mean frequency of about 0.25%. The distribution of the viability categories has a typical bimodal character with one peak at zero viability and a second one at about normal viability. About 20% of the studied lethals were embryonic lethals, about 20% had a maximum decay in the egg stage, and another 20% were late lethals. Mating ability of males heterozygous for lethal and fertility of females heterozygous for lethals had the greatest positive effects on the persistence of lethals. Zygotic viability of heterozygotes and competitive ability of lethals carrying sperm was a factor which increased the chances of eliminating the lethals. Further analysis of the model showed that the

equilibrium connected with balanced polymorphism for any lethal under study could hardly be expected in natural populations. No differences between natural and induced lethals relative to the components of fitness were found. Supplements to the algorithms of the programs for calculating cluster analysis as well as for the minimalization methods are given.  
H. F. Linskens, Nijmegen

**Reinbothe, H.; Krauss, G.-J.: Entstehung und molekulare Evolution des Lebens.** Jena: VEB Fischer 1982. 306 pp., 65 figs., 21 tabs. Soft bound DM 24,-.

Reinbothe and Krauss present a concisely written essay on the origin and the molecular evolution of life. It consists of six chapters that deal with life and living beings in general, the function of living systems and their possible origins. Geochemical and paleontological data and the results of simulation experiments in the laboratory relevant to the origin and development of early life are also presented and discussed with respect to the evolution of genetic information. Much of the authors' thinking is influenced by M. Eigen's view on the origin and evolution of biological information. This bias includes the hypothesis that nucleic acids acted primarily as informational macromolecules, also during prebiotic evolution, and that the central dogma of molecular genetics is also applicable to the origin of life. These views are not consistent with recent experimental data on the abiotic polymerization of amino acids into non-random polypeptides which suggest that polypeptides were likely the first informational macromolecules. But all in all, the book gives a solid, though somewhat conservative status report on molecular evolution for all of those who want to read a more general introduction into the field.  
K. Dose, Mainz