

---

 Book Reviews
 

---

Norpoth, K.H.; Garner, R.C. (eds.): *Short-Term Test Systems for Detecting Carcinogens*. Berlin, Heidelberg, New York: Springer 1980. 417 pp., 211 figs., 132 tabs. Hard bound DM 72,-.

In 1975, Ames and coworkers developed a *Salmonella* mutagenicity test able to rapidly screen for potential carcinogenic substances. This achievement has been encouraging in the search for assay systems which could detect hazardous compounds before their introduction into our environment and to allow for accurate risk-evaluations required for rational legislation.

The book 'Short-term test systems for detecting carcinogens' contains the proceedings of an international symposium held in Dortmund (GFR). It gives an excellent account of the present situation, provided that the reader is able to put the individual contributions into a general framework.

It is becoming clear that bacterial mutagenicity assays have their limitations as test systems for carcinogenic compounds. These limitations stem from the inadequacy of *in vitro* systems to properly reflect the complicated processes of drug activation and inactivation *in vivo* as well as from differences in the structure of bacterial and eukaryotic genomes. Most contributors confirm the need for complementary assays in whole animals with biological end-points like chromosome aberrations and actual tumor development in laboratory animals.

These proceedings are primarily of interest to those working in the field. The scope would have been greatly expanded by a general overview of the state of the art and the role of non-mutagenic promoters and antipromoters in the causation of human cancer at the level of mutational damage.

L. Smets, Amsterdam

Murray, B.G.: *Population Dynamics, Alternative Models*. USA: Academic Press 1980. 212 pp., 74 figs., 21 tabs. Hard bound \$ 34,-.

Population growth and growth regulation are problems which can be found discussed in any present day textbook of ecology. However, in most cases only examples of logistic growth curves are given which tend to show that population growth is pre-

ferentially or exclusively regulated by density dependent factors. In about 200 pages, however, this author presents a whole set of alternative models and new ideas which show these problems of population growth and growth regulation in their full extent. The author, B.G. Murray, by origin an ornithologist and most experienced in his field, refers to populations of the plant and animal kingdom, with special emphasis placed on zoological aspects. The book is not only written for the presentation of new mathematical models. Rather it is based on a broad knowledge of ecological interplay: the interactions between individuals within a population and those between populations, including the special case of predator-prey relationships. Human populations are also discussed but in an objective manner, without the intention of making a top hit for the popular market. That should be reason enough for anyone interested in the hot topic of human population growth to take a good accounting of this fine book.

The first two chapters treat the basic principles of population growth and regulating factors, including mathematical models (exponential, logistic, Lotka equation). In chapter 3 limiting factors are discussed: space, food, predators, time. It is demonstrated that density dependent parameters are frequently also limiting factors. The reviewer was especially attracted to chapters 4 and 5 which discuss the strategies of evolution with regard to development and extinction of individuals of various species. Conclusions can be drawn on the important concept of 'maximum yield' in applied ecology. A simple classification into *r*- and *K*-strategies is insufficient: age distribution, fertility, start and termination of reproduction, as well as other parameters species-specific have also to be taken into consideration.

In summary it can be said that the author succeeds in presenting the real problems of population biology. The strength of this book is that mathematical models are used to explain biological problems, and not vice-versa. The result is a book based on facts that can be recommended to anyone really interested in the fundamentals of population dynamics.

D. Sperlich, Tübingen