Book Reviews

PARASITIC WORMS AND AQUATIC CONDITIONS.

Symposia ČSAV. Proceedings of a Symposium held in Prague from October 29th to November 2nd, 1962. Editors: R. Ergens and B. Ryšavý. Publishing House of the Czechoslovak Academy of Sciences, Prague 1964. 265 pp.

The work contains all papers presented at the symposium on Parasitic worms and aquatic conditions, arranged in Prague in November 1962 by the Institute of Parasitology of the Czechoslovak Academy of Sciences and by the Czechoslovak Parasitological Society. Although the subject was rather limited to the importance of aquatic conditions for the biology of various helminth species, some papers were dealing with taxonomy and zoogeography with the aspect to contribute to the solution of purely ecological problems.

The introductional part contains two contributions; the paper presented by B. Rosický "Some aspects of the parasite-host-environment relation" and the paper by I. E. Bykhovskaya—Pavlovskaya "To the methods and problems of parasitological investigations of animals bound to aquatic conditions". The following part of the volume was divided into four groups. Group 1 deals with the influence of external factors on the quantitative and qualitative formation of the helminthofauna and contains contributions on the changes of the parasitofauna of fishes caused by the activity of man (A. I. Agapova), on the parasitofauna of fishes in new water-reservoirs (N. A. Izyumova). Differences in the helminthofauna of the definitive and the intermediate host in various biotopes are described in papers by V. Dyk, V. Kašťák and Z. Ždárská. L. Reimer deals with the salt content of the water as one of the factors influencing the development of fish and bird trematodes in the Baltic Sea. Group 2, concerned with life-cycles, contains 9 papers. H. Thieme, D. Zajíček and V. Baruš dedicated their papers to the life history of nematodes. The work of the latter author is concerned with the reservoir parasitism of invasive stages of the economically important nematode *Syngamus trachea*. The development of the trematodes of the suborder *Strigeata* is discussed in studies by O. N. Bauer, J. Vojtek and D. Zajíček; with the development of some other trematodes are dealing the papers by K. Odening and L. Reimer. B. Ryšavý presented a paper on the life-cycle of cestodes paprasitic in birds of the order *Anseriformes*. In the third group are papers concerned with host-parasite and parasite-host relations. Most interesting is the work of J. Lewellyn on the effect of the host and its habits on the morphology and life-cycle of the monogenean parasite. The pathogenity of *Sanguinicola inermis* in juvenile carp is discussed by Z. Lucký; the papers of K. Niewiadomska and K. M. Ryzhikov deal with the specificity of bird helminths. The last group contains contributions on systematics, phylogenesis and helminthocenoses. There are two taxonomic papers, one by M. N. Dubinina on the family *Ligulidae*, the other by A. A. Spassky on the family *Hymenolepididae*. G. Malmberg deals with the taxonomy and ecology of monogenitic trematodes of the genus *Gyrodactylus*. The contribution by G. Gussev solves problems

concerned with the parasitofauna of fishes (*Monogenoidea*), the paper by Y. V. Kurochkin is dedicated to the formation of the helminthofauna of juvenile fishes in the Volga delta. All papers are supplemented by discussions, which reveal further information on the problems in question. The last chapter of the volume is devoted to a general discussion. The book will be essential reading for parasitologists, biologists and veternarians.

F. Moravec

GENERAL PROTOZOOLOGY. V. A. DOGIEL, REVISED BY J. I. POLJANSKIJ AND E. M. CHEJSIN. *Second Edition. Oxford University Press, Oxford 1965. 141 pp., illustrated.*

In modern biology, Protozoa constitute one of the fundamental experimental material, combining the features of the individual cell and of the whole organism under various conditions of the external environment, from free-living to parasitic forms. Protozoa can also serve as a model for a wide range of morphological and physiological adaptation properties.

In spite of its immense importance the synthesis of studies on the general principles of the structure, function and development of the protozoan cell has been, until recently, largely neglected, which may be due to the difficulties in accomplishing such synthesis. One of the most successful approaches to a comprehensive picture of Protozoa can be found in Dogiel's General Protozoology. The First Edition of this monograph (General Protistology, Moscow 1951) was remade, extended and modernized by professor Poljanskij and professor Chejsin after the death of professor Dogiel and published under the name General Protozoology in 1962 in the U.S.S.R. and, three years later, in England. The First Edition comprised knowledge on general protozoology up to the year 1950, the Second Edition was extended by additional new data to the year 1961 and partly to 1962. Because of the tremendous development, which protozoology has undergone during recent years, this was rather a difficult scope for the authors and their collaborators from the Laboratory of Unicellular Organisms of the Institute of Cytology, Soviet Academy of Sciences, Leningrad and, from the Department of Invertebrates of the University of Leningrad. The book offers a surveying picture of the realm of Protozoa from all aspects. The first chapters are concerned with the morphology of Protozoa, the following chapters give a brief outline of their physiology and biochemistry. Then follow chapters on the life-cycles and the reproduction of Protozoa. Much attention has been paid to problems of the evolution and ecology of Protozoa. Problems of veterinary and medical protozoology are discussed en route in the various chapters.

The most important part of this monograph are the four chapters on the morphology of Protozoa: Chapter I "The cytoplasm of Protozoa, its organoids and inclusions" is concerned with the chemical and physical structure of the cytoplasm, the principles of the ultrastructure of their organoids, food reserves etc. Chapter II "The nucleus and its division" informs on the structure of the resting nuclei, types of nuclei and their division, the centriolar apparatus a.o. Chapter III "Skeletal and fibrillar structures" discusses the supporting structures, the contractile elements, the neuromotor apparatus and the subpellicular structures from various aspects. Chapter IV "Protozoan organoids of locomotion" is concerned with the morphological and physiological aspects of various locomotion mechanisms of Protozoa. The reader will also find many data on protozoan morphology in the following two chapters, which are of a more physiological nature. Chapter V "Irritability and the receptor organoids of Protozoa" deals with the morphological and physiological aspects of irritability in Protozoa, with the chemotaxis, thermotaxis, galvanotaxis, with protozoan response to injuries, tactile reactions, the equilibrium of Protozoa and, with the organoids of attack and defense. Chapter VI "Physiology of the metabolism of Protozoa" surveys the types of protozoan nutrition, the morphology of the buccal

apparatus, the capture and digestion of food, the excretion and secretion, osmoregulation and respiration. Chapter VII "Reproduction of Protozoa" deals in detail with the various types of reproduction, the sexual processes, regeneration, the formation of colonies and cysts. Chapter VIII "Life-cycles of Protozoa" will greatly interest parasitologists because of the very complicated life-cycles of parasitic Protozoa. Chapter IX "Some problems of the evolution of Protozoa" offers a comprehensive view on the species problem in Protozoa, on features of convergence between Protozoa and Metazoa, on features of anomorphosis and idioadaptation, on various problems of natural selection in Protozoa a.o. Chapter X "Ecology of Protozoa", the closing chapter of this monograph, contains fundamental data on the ecology of free-living and parasitic Protozoa. Here especially, the parasitologist may find many interesting data on the representation of parasitism in Protozoa (25% of all Protozoa are parasites), on the distribution of parasitism from the aspect of the taxonomic position of Protozoa and their hosts, on the influence of parasitism on the morphology and biology and, on many other related problems. A survey of the taxonomy of Protozoa, as adopted in this monograph, completes this publication.

The references comprise over a thousand of parasitological citations including many original papers by Russian and Soviet authors, to which the protozoological public had little access in the past.

Dogiel's General Protozoology was already in its First Edition a work of great value, reflecting the author's deep thoughts on the world of Protozoa. He tried to extract from the seemingly unsurmountable quantity of morphological, physiological and functional features in Protozoa some general data on the laws governing the developiment of the living cell and contribute in this way to a more exact conception of these laws. The task of professor Poljanskij and professor Chejsin was not easy either, but they succeeded in bringing the work up to date without disturbing Dogiel's original conception when re-writing some of the chapters (e.g. the nucleus, reproduction, life-cycles, species problems a.o.). In some instances, however, both writers should have been more consequent. We feel that some outdated data should not have been included (e.g. the problem of the multinucleate state of microsporidian spores and the presence of polar capsules in their spores). On the other hand, some modern and, for protozoology important data such as experimental aplochlorosis in Euglena, the internal budding in Toxoplasma a.o., should have been added.

By the merits of Oxford Press, the translation of this monograph into English has made this work available to readers, who are not in command of the Russian language. It is only regrettable that the publication of the English translation is three years behind the second Russian edition because, in recent years, Protozoology has undergone such tremendous development that, even in this relatively short time, some of the facts have already become outdated.

The monograph, although not entirely concerned with parasitary protozoology, may greatly interest specialists in this field of science for its general and comparing character. The arrangement of the text, the well chosen illustrations and graphs classify it as a convenient textbook of general protozoology. In favour of this publication is also the fact that it offers a comprehensive survey of the work accomplished by the Soviet school of protozoology.

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