S. S. SHULMAN: MYXOSPORIDII FAUNY S.S.S.R. (MYXOSPORIDIAN FAUNA OF THE U.S.S.R.) *Publ. House "Nauka", Moscow-Leningrad, 1966. 507 pp., price 3.34 Rb.*

Shulman's monograph is the first modern work on the important group of parasitic protozoa of fishes, the Myxosporidia. The importance of this work is not limited by the fact that it deals only with the species parasitic in fishes of the U.S.S.R., because more than one half of all known Myxosporidia live in the U.S.S.R. So far, about 750 species belonging to 29 genera are known. Of these, the members of 20 genera were recorded from the U.S.S.R.

The work is introduced by chapters on the morphology of the spores and the vegetative stages on the grounds of most recent information obtained in electron microscopy. The author added numerous of his own photographs, unfortunately some of them lost in value through reproduction. Some chapters deal with the relationship between the structure and outer shape of the Mixosporidia and their life functions inside and outside their hosts. The author discusses also the function of the surface of the vegetative stages in the uptake of food and in the attachment to the tissues of the host. He explains in detail the shape of the spores in relation to their capability of resisting the pressure inside the host's tissue and that of the water. Also the speed of sedimentation of the spores in the water dependent on their shape, their appendages, mucous membranes and other factors are influenced by the range of hosts, which may be infected by a certain species in a certain type of reservoir. In regard to these factors, the author arrived at conclusions about the ecology of infection of the individual host species.

The quintessence of the book lies in its taxonomic part. In Shulman's conception, the subclass Myxosporidia received two large orders, the Bivalvulea and the Multivalvulea; the arrangement of the lesser categories is a synthesis of the system by Tripathi and Kudov. The determination keys added to all taxonomic categories must have been difficult to work out especially for the uniformity in members of the genus Myxobolus and Henneguya; in our opinion the author should have taken a more critical view on the independence of some species and families (Myxosomatidae).

In the following chapters the author reviews all conceptions on the life history and sexuality of Myxosporidia, which are most contradictory. Here, he considers Noble's conception to be most substantiated. Very original is Shulman's conception on the formation of the pansporoblast which he explains as some kind of internal budding. A special chapter deals with the changeability of the spores. So far, this problem has been greatly neglected, although it may give some information not only on the relationship among the individual genera or the possibility of the origin of new species, but it might be most important for the identification of the species.

Other chapters deal with the parasites of Myxosporidia, the pathogenic effect of the Myxosporidia on their hosts and the principles of control measures against infections caused by the Myxosporidia in the U.S.S.R. Very important is also the outline of the phylogenesis of Myxosporidia. In the author's opinion their predecessors were protozoa of the type of naked ameba and his explanations about their evolution are based on an analysis of the shape of the spores and their functional properties and also on the distribution of the individual genera in the various organs of the different groups of freshwater- and sea fishes.

Although some points in the argumentation of the author will have to be exactified, the chapters on the phylogenesis, on functional morphology and ecology of the Myxosporidia are real pioneering work. Of great practical importance is the most reliably collected taxonomic material, which will be very useful for an orientation among the numerous species occurring in the U.S.S.R. and in Europe. The monograph is concluded by a comprehensive bibliography. Shulman's monograph surveying the present stage of research in this group of protozoa, can be highly recommended to all protozoologists, ichthyoparasitologists and to all those interested in these topics.

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