

**K.V. Galaktionov, A.A. Dobrovolskii: The Origin and Evolution of Trematode Life Cycles. Publ. House "Nauka", Sankt-Petersburg, Russia, 1999. Hard cover, 90 figs., 404 pp. Price not given.**

Both authors belong the Dogiel's Petersburg school of parasitologists and are known to have studied since a long time ago the biology of trematodes, mostly of the northern seas of Russia. The book is based on their original research and on a good knowledge of Russian and foreign publications. It is divided in five chapters plus an introduction and a summary. It is illustrated by mostly original line drawings, which have captions in Russian and English; the title of the book, its summary and table of contents also are in English.

The first chapter (pp. 9-167) is devoted to the description of both parthenogenetic and hermaphrodite development. In all there are two parthenogenetic and three hermaphroditic stages, two of which – miracidium and cercaria – are free-living. A thorough description of morphology and function of all stages is presented and a survey of variability in different systematic groups is presented.

The second chapter (pp. 168-258) interprets the life cycles of trematodes as a system of adaptations. The function of adaptations of free-living stages is that of dispersal whilst the parasitic stages have a generative function. The authors recognise two groups of miracidia: those which actively penetrate into their hosts and those which infect the hosts passively. Attention is being paid to chemical cues guiding miracidia to their hosts, a problem only recently developed.

The third chapter (pp. 259-286) discusses the trematodes from the point of view of how many hosts – one, two or more – take part in their life cycle. The authors deal with the whole range of cases, starting with the very rare homoxenic cycle of trematodes which develop only in one host and ending in the also very rare cycle with four hosts, three intermediate and a final one.

The fourth chapter (pp. 287-330) concerns population biology of the trematodes, which has been rather neglected in this group of parasites. The authors state that each generation forms its own hemipopulation; this is exemplified by the infection of molluscs *Littorina saxatilis* with parthenogenetic trematode larvae along the Barents Sea beaches. Special attention is paid to host-parasite relations on populational level, including host mortalities and reduction of host reproduction. The chapter is illustrated with original diagrams.

The fifth chapter (pp. 331-363), "Main principles and trends in trematode evolution" in a way crowns the whole book. The authors see the main peculiarity of trematodes, unlike other groups of parasitic worms, in the gradation of generations taking place in different hosts. These generations differ from each other in all aspects including structure, biology, reproduction and host-parasite relationships. The authors agree with T. A. Ginetsinskaya (1968, 1988) in that parthenogenetic generations are – compared with the hermaphroditic ones – the most ancient ones. At the end of this chapter, the spread of trematodes to different ecosystems, from molluscs up to higher vertebrates as well as the evolution of their life cycles are discussed.

The list of references covers 28 pages and includes 598 publications, of which 126 are in Russian; about one half of the papers have been published in the last 20 years.

The authors can be congratulated on this interesting book throwing new light on many problems. It will certainly be used by Russian as well as foreign specialists; the latter would of course benefit much more from an English translation, which should keep the lucid and easy to understand style of the Russian original.

**Oleg N. Bauer**