The papers dealing with settlement are necessarily restricted to those species of invertebrates whose larvae are readily reared under laboratory conditions. Much of the experimental work over the last three or four decades has been on polychaetes and barnacles. The present volume indicates the trend toward research with other, previously unstudied forms, particularly coelenterates and opisthobranch mollusks. The review of Chia and Bickell on hydrozoan coelenterates is useful because it considers all aspects of settlement, namely the behavior of the planula larvae prior to attachment, the characteristics of the environment that induces the settlement, and finally possible roles of various sensory receptors in locating surfaces for settlement. Research on settlement up to now has seldom considered experimentally the functioning of the sensory organs, and indeed the present volume reflects the paucity of such investigations.

The most significant advances in the past five years have been made in the work on settlement of opisthobranch gastropods. This research is described by Hadfield and by Switzer-Dunlap. Opisthobranchs perhaps more than other gastropod mollusks are associated with very specific diets. Thus nudibranchs generally feed upon coelenterate or bryozoan prey whereas Anaspidea feed on littoral thallus algae. It is not surprising that these gastropod forms often have very specific settling responses that establish the relationship between them and the organisms on which they feed. The exact sensory mechanisms that may explain such responses are not yet known, but the elegant experiments of Hadfield show that very specific compounds are involved and that such substances are effective in solution rather than associated with a surface, as has been reported for barnacles.

The volume includes original observations and summaries of settlement in a number of other taxa. Rice, in addition to her lucid review on the morphological and behavioral changes at metamorphosis, gives the first published account of settlement by the pelagosphaera larvae of sipunculans. A well-organized and readable account of settlement in echinoderms is given by Strathmann, and Pilger reviews settlement and sex determination in the Echiura. Lewis summarizes substratum selection in "free-living" and symbiotic barnacles. There appears as yet to be no explanation of how the interesting species-specific relationships between barnacles and their cetacean and sea-turtle hosts is established.

This volume is not a comprehensive account as the title may suggest, and it is certainly not a complete "synthesis of existing ideas" as the editors hoped. Rather, it is largely a review of recent research, mostly accomplished within the last ten years; the treatment is not balanced but reflects where current interest lies. As an introduction to the literature the volume is marred by the use of abbreviated reference citations. Overall, its principal usefulness should be in stimulating ideas for further research, both behavioral and ecological, on benthic marine invertebrates. One dares hope that this will be sufficient reward for efforts of the editors and contributors.

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A Great River

The River Volga and Its Life. PH. D. MORDUKHAI-BOLTOVSKOI, Ed. Junk, The Hague, 1979 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 474 pp., illus. $70. Monographiae Biologicae, vol. 33.

The Volga is one of the great rivers of the world, and it has probably been the most studied of them from a limnological point of view. Sadly though, much of the work on the Volga has been published in Russian and cannot be read by many of the international scientific community. Now and again, however, the Russians come from behind their wall of cyrillic script and complex syntax and tell us what they have been doing. The last time was in 1928 when A. L. Behning published *Das Leben der Volga* in the series Die Binnengewässer. The present book is a worthy successor that brings us up to date.

The particular importance of the Volga is that it has, particularly in recent decades, been much impounded and altered by humans. But in contrast to other large rivers, such as the Missouri and the Ohio, a great deal was known about its ecology before alteration. Serious biological work began on the Volga in the mid-19th century and has continued with increasing vigor and resources to the present time. Mordukhai-Boltovskoi and his coauthors therefore had a wealth of literature to summarize, and they have done it very much with a view to bringing out just what the effects of humans have been.

The book takes up the various topics one would expect in such a work. Geography, geological history, hydrology, dissolved substances, phytoplankton, pollution, production, zooplankton, benthos, and fish are each the subject of a chapter or more. There are also chapters on the littoral of the reservoirs, some of which are very large lakes, and on fish parasites, which are a popular subject of study in the Soviet Union, and a long annotated list of the species of plants and animals that occur in the river.

The book is a mine of information but is certainly not bedtime reading, for each chapter tends to deal in turn with each reach of the river, discussing their differences, changes brought about by each reservoir, and differences with the past. Many of the chapters produce no particular surprises to a specialist in running water ecology, but they should be informative to others, especially to those concerned with impoundments. There are, however, parts that are of great interest and that are full of new ideas. For instance, Romanenko's chapter on microbiology is particularly interesting and novel, and there is some fascinating discussion of the spreading of invertebrates up and down the river in response to the changes caused by humans.

So this is a useful book and it deserves a wide audience. I have only two criticisms. I could have used a good map of the drainage basin, comparable, say, to the one of Tasmania that accompanied volume 25 of this series. And the English is a bit rough and hard to follow at times. It is not that the grammar is wrong but that the usage is sometimes quaint. The grammatical errors that do occur are regrettably only too common in scientific writing, so perhaps the translator may be forgiven.

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Books Received

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Angina Pectoris. Vol. 1, 1977. I. E. Katzeff and H. Edwards. Eden Press, St. Albans, Vt., 1978. x, 244 pp. $22. Annual Research Reviews.

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