

to whole cells, and acts as an admirable guide through a complex literature. R. Cordier gives a shorter general survey of the structure of sensory cells in the Metazoa, mostly at the level of the light microscope. The subject, though not the account, is somewhat unsatisfactory at the present time because of the difficulties of relating form to function. Cordier concludes "... that morphological research on sensory cells, even at the submicroscopic level, does not furnish a safe and reliable base on which the satisfactory understanding of their function and activity could be founded", and contrasts this with recent progress on secreting cells.

Finally there is an article on the form and function of the plant cell by B. R. Voeller, with electron micrographs by Ledbetter and Porter. The author does not have space to do full justice to the subject, particularly on the physiological side, and this is indeed a criticism which might be made of the treatment of the botanical material throughout *The Cell*.

Since this may be the last volume, it is worth making a few remarks about the whole series. It is, without doubt, an impressive treatise of high standard which should be in all biological libraries. Equally, it is unlikely to be on the personal shelves of many biologists because it is too expensive and, for students, too detailed. It is made up of detailed review articles and it should therefore be compared with a review journal such as *The International Review of Cytology*. It has the advantage of an editorial policy that can ensure a more or less complete coverage of a field. But a journal has the even greater advantage that it can keep up to date by repeating reviews in a rapidly moving field. As an example, the two reviews on nucleo-cytoplasmic relations in the first volumes of *The Cell* already show signs of ageing. For these reasons, I would predict that the days of the review treatise on this scale are passing.

J. M. MITCHISON

## BIOLOGY OF RUSSIAN INLAND WATERS

Fauna and Flora of the Rivers, Lakes and Reservoirs of the U.S.S.R.

By V. I. Zhadin and S. V. Gerd. Translated by A. Mercado. Edited by R. Finesilver. Pp. 626. (Jerusalem: Israel Program for Scientific Translations, 1963.) 128s.

**N**EARLY one-sixth of the land surface of the world lies within the U.S.S.R. and many of the world's largest lakes, river systems and reservoirs are among her numerous water bodies. Considerable resources are devoted to hydrobiological research, much of which is little known in the Western world. Despite the language difficulty, the original Russian version of this book has been an indispensable source of information for hydrobiologists, so an English translation is most welcome.

Better accounts of the general principles of fresh-water biology can be found elsewhere, and these sections have an elementary and old-fashioned approach with some loose writing. Nevertheless, the emphasis put on unfamiliar aspects stimulates thought, and the sections on topics which have been particularly examined in the U.S.S.R., such as rivers and reservoirs, are full of interest. Investigations of the evolution of lake populations and the distribution of species receive special attention and several Russian systems for classifying water bodies are described.

There is a wealth of information on the location, morphology, characteristics and populations of all the larger water bodies (except the Caspian and Azov Seas) as well as the better-investigated smaller water bodies. Leading Russian hydrobiologists and their laboratories are introduced. Special attention is directed to the management of reservoirs and other water bodies, to

exploit their biological resources, for which the Russians have many new and unusual ideas.

There is a curious statement on p. 35 (apparently correctly translated) about bacteria being "primary producers", which may be justifiable, but not from the context. The unfamiliar use of "dystrophy" for the condition of severe oxygen deficit under a snow and ice cover should be noted.

The print shows through the pages more than one would expect from an expensive book, and the photographs (which were poor in the original) are not well reproduced. The line drawings, however, are excellent. Many more references to original work would have greatly increased the value of the book. Only authors, water bodies and species are indexed. This deficiency is accentuated by the frequent use of unusual and superfluous technical words and only partly offset by the detailed contents list and the repetitive text. The translation appears to be free from serious error, but there are a few curiosities and some words and phrases which are American or Russian rather than English.

D. F. WESTLAKE

## FIGHTING FOREST FIRES

Soviet Progress in Forest Fire Control

Edited by N. P. Kurbatskii. Authorized translation from the Russian. Pp. iii+38. (New York: Consultants Bureau, 1964.) 10 dollars.

**R**USSIA has a history of forest fires, but only in comparatively recent times has any attempt been made to estimate the areas involved. These statistics indicate that enormous losses of timber occur as a result of the fires, many of which seem to be located in Siberia. There is no indication in *Soviet Progress in Forest Fire Control* of the causes of the fires. There is one mention of forests being burnt along the Siberian railroad from Tomsk to Krasnoyarsk, a distance of some 300 miles, but the reader is left to make his own deduction of the cause. However, it is pointed out that "during the years of Soviet power the flammability of forests decreased substantially". To substantiate this statement, statistics are given for two 4-year periods, 1906-10 and 1940-44, when the area of forest fires was respectively 269.2 and 124.8 thousand hectares!

The first report in this book is on the comparative fire resistance of different tree species in the Taiga zone, near Tomsk. Statistics are used to demonstrate the differences, but really no new facts emerge. No one would argue with the summing up that, "the thicker the bark of trees, the deeper the root system, the higher the crown, the lower the resin content and content of volatile oils, the less the danger of fire injuries".

The second article is on the effect of relief on forest fires in Western Sayan (west of Lake Baikal). One-third of the forests of the U.S.S.R. are in the mountains, where they are important not only on account of the timber they yield but also for their protective and water regulating roles. The author considers the problem of the relief on the conditions of the outbreak, development and after-effects of forest fires in mountainous areas, but, in trying to suggest control measures, he appears to rely on water courses to act as natural barriers. He states that a network of fire-fighting barriers will be practical only in forests that are being exploited. In other words, as is well known, a good communication system does help in fire-fighting.

The principles of extinguishing forest fires are discussed in a third article, and some of these go into great mathematical detail concerning rates of absorption and heat liberation. Indeed, the author is at great pains to describe how water and fire-resistant chemicals function, but at the end of the article the reader is left wondering to what