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NEW BOOKS SIGNIFICANT IN
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Capillary Methods of Investigating Micro-organisms. By B. V. Perfil'ev and D. R. Gabe. Translated by J. M. Shewan. Oliver and Boyd, Edinburgh and University of Toronto Press, Toronto. Price \$32.00. 1969.

This volume is a 627-page translation of one of the most significant Russian books in microbiology published during the past decade. The book first appeared in 1961, and it won for the authors a Lenin Prize in 1964.

Bacterial taxonomists are treated to discussions of the many new bacterial genera described by Perfil'ev, Gabe, and their co-workers: Caulococcus, Cyclobacter, Desmobacter, Dictyobacter, Krassilnikovia, Kusnezovia, Lieskeella, Metallogenium, Pedomicrobium, Phormidiopsis, Seliberia, Streptobacter, Teratobacter, Trichonema, Trigonobacter, and others. Some of these studies appeared in an earlier collection of translated papers (Perfil'ev et al. 1965, Applied Capillary Microscopy, Consultants Bureau, N. Y.). Microbial ecologists, especially marine and soil microbiologists, can obtain the ideas generated by an active Leningrad group and summarized in the volume. Of primary interest is the Russian attempts to overcome problems associated with the study of natural populations in an undisturbed state.

This taxonomical and ecological information is interspersed among minutiae regarding the capillary methods developed during a lifetime of effort by the authors. Among the contrivances described in detail are: (a) Peloscopes, flat-walled capillaries for study of aquatic microenvironments; (b) Pedoscopes, capillaries for denser bottom muds and soils; (c) Crenoscopes and other devices, for perfusion and micro-continuous culture studies; (d) Periphytometers, for examination of aquatic fouling (sessile) microorganisms; (e) Capillary modifications of the well-known Cholodny and Riccardo and Rossi slide-burial techniques; (f) Microisolators, microselectors, and microtourniquets, which are used for single-cell isolation and culture; (g) Capillary methods for enumeration of microorganisms; (h) Microcomparators, for direct examination of treatment and control microcultures during exposure to unique environments; and (i) Applications of capillary methodology to crystalloscopy.

Generally useful aspects of this volume are exhaustive and profusely-illustrated summaries of the literature on microscopic techniques for the study of living microorganisms. Single cell isolation, micromanipulation, and continuous culture techniques are given extensive treatment. Much of the literature reviewed was heretofore available only in the Russian language. These reviews supplement several recent papers and books on microculture in English (cited in Hartman, 1968, Miniaturized Microbiological Methods, Academic Press, Inc., N. Y.).

The book was written with the same patience that it took to develop the intricate methods described therein. And it takes considerable patience also to read it. It was not written for the layman. Over 200 pages are devoted to details regarding the manufacture of capillary tubes and apparatus. It is a lesson in glass blowing par excellence. This information

needed to be recorded and will be invaluable to some investigators. Other investigators, however, will find it easier to develop alternative techniques than to emulate the meticulous Russian procedures. In most cases the effort would not be worth the results obtained.

We are indebted to Dr. James M. Shewan of the Torrey Research Station, Aberdeen, Scotland and his collaborators for an excellent translation. Mrs. Elza Zvirbulis, upon our request, checked selected passages and found them translated accurately; the book reads more smoothly than most translations. Some references are incomplete, but of a dozen that I checked, only three minor errors were found. Because of paper quality, the 272 illustrations are of better clarity in the translation than in the original Russian edition. The Table of Contents has been abbreviated substantially in the translation, but author and subject indices have been added to more than counter-balance this omission.

- Paul A. Hartman

Methods in Microbiology. Vol. 3b. J. Norris and B.W. Ribbons.
Academic Press, Inc. Dec. 1969. Price \$14.50. 369 pp.

This volume gives the answers to many of the questions that confront workers in the field of systematic bacteriology. It includes twelve chapters written by good authorities on special techniques of cultivation or propagation of twelve groups of microorganisms. The briefest and best review is a list of the chapters with authors.

Chapter I. Isolation, cultivation and maintenance of autotrophs, by Vera G. Collins. II. Growth of photographic bacteria and blue-green algae, by N.G. Carr. III. Techniques for the study of anaerobic, spore-forming bacteria, by A. T. Willis. IV. A roll-tube method for cultivation of strict anaerobes, by R. E. Hungate. V. Rumen bacteria, by P. M. Hobson. VI. Methods for the Gram-negative, nonsporing anaerobes, by Ella M. Barnes. VII. Psychrophiles and thermophiles, by T. D. Bullock and A. H. Rose. VIII. Growth and requirements of halophilic bacteria, by N. E. Gibbons. IX. Isolation, cultivation and maintenance of the myxobacteria, by John E. Peterson. X. Isolation, cultivation and maintenance of mycoplasmas, by R. J. Fallon and P. Whittlestone. XI. Algæ, by M. R. Droop. XII. Isolation, growth and preservation of bacterial phages, by Eve Billing.

That there has not been nomenclatural adjustment in microbiology is due to the fact that the blue-green algae and the bacteria are generally now recognized as constituting a kingdom coordinate with the kingdoms of the plants, animals and viruses. This is evidenced by the treatment of the blue-green algae by Dr. Carr in Chapter II and the treatment also by M. R. Droop in Chapter XII on algae. For those who are interested primarily in the procaryotic organisms, Dr. Carr's is the more satisfactory. For those who prefer to be classed as microbiologists, the treatment by Dr. Droop includes much of interest.

Methods in Microbiology (3b) is well organized, well printed, and should serve a useful purpose to those who are interested in the new grouping of the bacteria with the blue-greens.

- R. E. Buchanan