3. If manuscript is to be read from, hold it in the hand (and hold it high); manuscript which is stationary on a desk causes a rigidity of the body which should be avoided.

4. The length of line of the type-written manuscript must be short—not more than seven inches. This is very important. The long line of the ordinary typed manuscript is convenient for the type-writer, but it is fatal to the reader. The effort necessary to catch the right line as the eye returns to the left-hand margin of the paper consumes energy which should be devoted to securing that mysterious *rapport* that must be established between reader and hearer if the function is not to be a painful one. For the same reason the type must be good and black, and the lines far apart. Whatever contributes to the physical ease of the speaker conduces also to that free and undistracted state of mind which is indispensable to the securing of the desired *rapport*.

5. Better still—make a mental note of the *Art und Weise* of those men of science (half our number perhaps) who, whether by instinct or by early training, know how to address an audience effectively. There is a subtle mental attitude about them, quite aside from physical details, which can perhaps be better caught by instinctive imitation than by conscious intention. May their tribe increase!

6. If, in addition, every individual reader would, in his own interest, see to it that there is enough oxygen in the audience-room to permit of ready comprehension on the part of his hearers, then indeed would the mid-winter scientific meeting become such a joy to the spirit as would brighten, in retrospect, many a coming month of solitary hard labor.

The essential matter of inspiring papers is always at hand; a little furbishing up of method of presentation is all that is needed to make that matter far more effective, in the way of presentation, than it is, too often, at present. Of this the reader may be certain—if he insists upon beginning his paper with his voice thin, low and veiled, and directed downwards upon the floor instead of outwards towards the level of his hearers' ears, the spirits of his auditors, so far as they have any esthetic quality at all, will also descend to their boots, and will remain there until another speaker gives them a chance at better nourishment.

X. Y. Z.

SCIENTIFIC BOOKS

Principles of Microbiology. By V. A. MOORE. Ithaca, N. Y., Carpenter & Co. Cloth. Pp. xl + 506, 101 illustrations. $3.50.

It is unfortunate that the limited field which this book covers was not indicated in the main title. For as the subtitle tells us it is a "treatise on bacteria, fungi and protozoa pathogenic for domesticated animals." Even then it does not claim to be complete, but, as the author says, is a "text-book for veterinary students beginning the study of microbiology. It is not exhaustive but rather elementary in character."

The first 188 pages and the last 65 are given over entirely to the discussion of general bacteriological matters along the same lines that we find in any of the half dozen books on general bacteriology. As we look through the list of chapters we find the same familiar titles as in all the others: Historical Sketch, Bacteria and their Place in Nature, Morphology of Bacteria, Classification, Bacteriological Apparatus, Sterilization and Disinfection, Preparation of Culture Media, Isolation and Cultivation of Bacteria, Microscopic Examination, Vital Activities of Bacteria, Relation of Bacteria to Disease, Use of Animals, Bacteriology of Water and Milk, Immunity, Serum Diagnosis and Vaccine Therapy. The remaining 253 pages, or just half the book, treat of the application of these general principles to veterinary matters.

Although we recognize the fact that the book is intended only for beginners and does not pretend to be complete yet we feel that the half of the book dealing with general bacteriology might with advantage have been left out altogether. For this general part while admittedly incomplete does not in many instances give as good, nor as accurate and up to date discussion of the topics mentioned as

do some of the general text-books. Neither is this part specific enough in its directions to serve the student as a laboratory guide. It would have been better to have referred the beginner to the standard text-books for the general discussion, or to have provided him with specific directions for undertaking laboratory work leading up to the applications of veterinary bacteriology. This would have allowed the author more space for the extension and elaboration of the more valuable and specific part of the book in a way which he is well qualified to undertake.

It is hardly necessary to specify the shortcomings of the general part more than to point out that the historical sketch contains no reference to the other and earlier workers than Leeuwenhoek; the chapter dealing with classification is inadequate and confusing, and includes practically none of the recent work; in describing the preparation of culture media the methods are old-fashioned and but scant notice is given to the present-day standard methods; under the description of cultures the standard card of the Society of American Bacteriologists is not mentioned, although it is included in the chapter on classification, where it does not belong.

The chapter dealing with the bacteriology of water and milk is entirely unsatisfactory. The Standard Methods of Water Analysis now in use in practically all laboratories in this country are neglected altogether, although they are mentioned as giving methods for the preparation of culture media. The methods of interpreting the results of an analysis are not at all clear nor do they accurately represent present-day practise.

The discussion of the relation of bacteria to milk, a subject which touches closely veterinary matters, is also given but brief consideration. Too great stress is laid on such matters as the bactericidal property of milk, a subject about which there is much question, and the topic of bacteria in milk, particularly the pathogenic bacteria, is treated altogether too briefly. The author might very well have expanded this discussion to considerable length in a book of this character.

The good points of the book, and they are many, are mainly to be found in the part dealing particularly with veterinary matters. Here we have a careful summary of our knowledge of veterinary microbiology. But even here clearness and accuracy seem many times to have been sacrificed to brevity, although on the whole this part of the book is deserving of much praise. In the treatment of many topics we might mention important points which have been omitted, as for instance, Winslow's classification of the *Streptococci,* the occurrence of *M. gonorrhœa* in animals, the recent separation of *Bacillus coli* into its varieties, the modern methods of staining *Treponema.* But while sins of omission are frequent, those of commission are relatively rare and unimportant. The illustrations are not abundant but are well chosen, though their quality is not up to the standard set by the rest of the typography.

F. P. GORHAM

BROWN UNIVERSITY

Biology: An Introductory Study. By H. W. CONN. Boston, Silver, Burdett & Co. 1912. Price $1.50.

THE opinion of the reviewer was once solicited by a representative of one of the large publishing houses of this country as to who could write a good elementary biology and the answer was given that Professor Conn could do this. I do not believe that the publication of his present book had any reference to my statement, but it has warranted this statement. The book presents the subject in the most satisfactory manner of any of the texts which have appeared. In the first place it is a dignified college biology, demanding the serious attention of the student. The treatment is logical, beginning with the simple and working towards the complex and decidedly at variance with the views of those who believe it pedagogical heresy to put a compound microscope in the hands of the beginner. The illustrations are inelaborate, but quite ample and very well selected. At the ends of the chapters are references to books and papers, mainly of historical interest and a group of