to appear between the citation of volume and the citation of pages, because the nature of the date-number nearly always distinguishes it from the smaller numbers for volume and for pages, and one does not then have to use bold-face type or ordinarily to print "vol." or "v." I remember, however, once bringing tears into the eyes of a librarian by suggesting that the pages be separated from their volume by the date. It seems so logical to follow this order and to make for so much greater clarity that I can not understand why bibliographical practice is ordinarily against it. Can any of the readers of SCIENCE tell me why the date should not be interpenetrated between volume and pages?

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A UNIFORM, clear style for footnote citations is unquestionably desirable and no one is in better position to realize it than the editors of journals receiving contributions from a wide range of authors. These very same journals also have a wide range of readers to whom uniformity and fulness of citation will be a boon.

The danger to be avoided in the systematization of footnotes is over-abbreviation. Certainly, Arabic numerals are preferable to Roman because of the greater ease with which they are read; but when it comes to using cryptic formulas such as PSBA, JAFL, BAMNH, PCAS, AJS, ACM, etc., in referring to publications, it seems that we sacrifice clarity for the sake of saving half a line of type and give many a reader a crossword puzzle instead of a clear citation. Ink and paper are cheap. Why not use enough of both to make footnote citations uniform, clear, unambiguous and understandable to every reader?

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RAILROAD PASSES FOR SCIENTIFIC WORK

WITH the development of scientific research, many field investigations are carried on. Since science is poor, it would be desirable to have railroad passes to further this work. This laboratory has made plans to investigate some of the results, on the human organism, of a surgical operation. Such work will have to be done in the field, necessitating travel for which we have no funds.

The Interstate Commerce Commission, which regulates the issuing of railroad passes, provides free transportation to "persons exclusively engaged in charitable or eleemosynary work." It makes no mention of the matter of scientific research. Evidently, scientific research is a question which the Interstate Commerce Commission has not considered. Is scientific research charitable or eleemosynary? Possibly a large part of research might be so called since there is no remuneration paid to college professors carrying on such research as an extra load to teaching. The results of much such research evidently are bestowed gratuitously on succeeding generations.

This laboratory has approached one railroad and they express their willingness to donate a pass if they can be sure that such action will be within the law.

It seems that it would be desirable that this question be considered by men of science and some statement be made to the Interstate Commerce Commission in order that this latter body may take some action.

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SCIENTIFIC BOOKS

Mosquitoes of Surinam—A Study in Neotropical Mosquitoes. By C. BONNE and J. BONNE-WEPSTER. Royal Colonial Institute of Amsterdam, Department of Tropical Hygiene, 1925, 558 pp., 31 pl.

DR. BONNE for a number of years was government bacteriologist of Surinam. He and his talented wife, Mrs. J. Bonne-Wepster, greatly interested in all sanitary matters, conceived the idea as early as 1916 that they would make a careful study of the mosquitoes of that region, and the present fine volume is the result. It took many years in the course of its preparation and a number of years more to secure its publication. They began to correspond with the writers in the summer of 1916 and to send in specimens for identification. Later, in 1919, they came to Washington and spent some time in the National Museum studying the mosquito collections and familiarizing themselves with the methods used in the preparation of the four-volume Monograph of the Mosquitoes of North and Central America and the West Indies, the final parts of which had recently been published by the Carnegie Institution. Although very appreciative of the opportunities given them in Washington and greatly pleased with the result of their work here, their thoroughgoing ideas led them subsequently to visit the British Museum and to make a careful study of the types of neotropical species which had been before Theobald's eyes when he wrote his elaborate Monograph of the Culicidae of the World. They then went to Holland and began the arrangements for the publication of their extensive work. A little later they returned to Surinam and continued observations, but have now gone back to Holland, where Dr. Bonne has been made director of the Laboratory of the Cancer Research Institute in Amsterdam.

The book before us is, fortunately for us, written in English. It is printed admirably in large, well-spaced type. It covers 558 pages and is illustrated by thirty-one plates carrying eighty-three figures. These figures are of hypopygial structures and larval details. The work is practically exclusively of a taxonomic character. It includes full descriptions of all the species found by the Bonnes in Surinam, except certain species of *Culex,* subgenus *Choeroporpa* and also gives short notes on all the other species of tropical America known to them. In spite of its rather strict taxonomic character, there are occasional interesting and important biological notes appended to the descriptions. We wish there had been more of these notes and that the authors had been able to insert a separate chapter on group habits and ecology. Although three pages are given to the habits of the yellow fever mosquito, it would have been extremely interesting had they included absolutely everything about this important species that came to their notice in their years of study in Guiana. Their account of the apparent spread of the species from the coast to the interior is suggestive and may be of significance in the consideration of the question of the original home of yellow fever and the mosquito that carries it.

It is quite possible that from the sub-title of the book a misconception may arise as to its scope. It is in no sense a complete treatise on Neotropical mosquitoes. We think it would have been better if Dr. and Mrs. Bonne had confined themselves to the original title, "Mosquitoes of Surinam." Then the original and painstaking observations on those insects would have appeared without dilution. From the sub-title, "A Study of Neotropical Mosquitoes," one would expect a mention of all the recorded Neotropical forms. The authors surely did not intend this construction, since they had but little first-hand information from regions farther south. It results that there is much compilation, in which the original observations seem lost. Of course the new matter is still there, but it has to be delved for and seems fragmentary. Simply the mosquitoes of Surinam would have been a condensed and very creditable piece of work.

If under a natural misconception from the subtitle we were to consider the work as a compilation of Neotropical mosquitoes, it is very incomplete. To begin with, the authors were apparently frightened at the large number of small *Culex* of the group *Choeroporpa,* and they simply left them out. At least the species might have been listed and the probable synonymy, in the opinion of the authors, pointed out. There are forty-five species recognizably described in this group, of which our authors notice but fourteen. By restriction to the tropics and omission of these recently described, the list would naturally be reduced somewhat; but still the omission may be considered serious. Other omissions are less important, but can be picked up here and there. They serve, however, to diminish the authoritativeness of the work as relating to the whole Neotropical fauna. Especially with the Sabethids, lack of personal acquaintance with the species has led to occasional repetitions, as with *homotina,* treated both as a *Wyeomyia* and a *Goeldia.* The Brazilian species described by Lutz and Peryassú have been omitted, as is stated. We think they should have at least been listed. Some day we shall find out what these species are; but with the specific criteria at present in use the old descriptions are worthless. We do not blame our authors for not going further; but we wish the work had been complete for the Neotropics.

But all this concerns itself with what might have been. We realize that the authors' work was done in Dutch Guiana, and that, as an account of the mosquitoes of Surinam, the work has a very high rank. With the exception of Panama, and excluding the work done in Brazil, we do not know of another tropical American region in which the Culicid fauna has been covered with the intelligence, care and completeness exhibited in this volume.

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HARRISON G. DYAR

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE METHOD FOR OBSERVATION OF THE LIVING CHICK EMBRYO

DURING the progress of a series of observations[1] by the author on the effects of suffocation on the chick embryo, it became very desirable to know the exact time of the cessation of heart beat. It seemed to us that it should be possible to remove a portion of the shell, cover the egg loosely to reduce evaporation and observe the embryo as often as desired. We first tried removing about a fourth of the entire shell from the top of the egg when it was lying in a horizontal position, placing the egg on a piece of paper, covering it with a beaker or tumbler and placing the whole in the incubator. This method enabled us to observe embryos from their forty-fourth hour of incubation to about their hundred and twentieth hour. Eggs opened before the forty-fourth hour of incubation seldom developed further.

Then it was found that by removing about a square inch of shell from the large end of the egg, together with a little albumen, placing the egg in a vertical position in the neck of a short, wide-mouthed bottle, (simply for support in that position), and covering

[1] Byerly, T. C., 1926, "Studies in Growth. I. Suffocation Effects in the Chick Embryo," *Anat. Rec.* vol. 32.