From the foregoing experiments it would appear that stickleback alone caused the death directly or indirectly of 49 per cent. of the fry; birds, 57 per cent.; adult trout 64 per cent.; and all natural enemies combined 71 per cent.

Summarizing our results for the past four summers: In 1923, the loss of trout fry in southwestern Ontario was 96½ per cent.; in 1924 it was 98 per cent., same place; in 1925, it was 73 per cent.; and in 1926 it was 71 per cent. These two latter on Forbes brook, Prince Edward Island, Canada.

It is quite possible that a portion of the losses may be due to cannibalism among the fry themselves; but this would not alter the total losses as given above.

A. P. KNIGHT

KINGSTON, ONTARIO,
CANADA

THE NEED FOR DEFINITELY INDICATING NEW SYNONYMY AND NEW COMBINATIONS IN TAXONOMY

RECENTLY Dr. Schramm, of *Biological Abstracts*, requested me to serve as a member of a committee to advise the organization publishing *Biological Abstracts* in regard to a number of policies on indexing information from taxonomic papers. One of these questions dealt with the indexing of synonymy and another with the indexing of new combinations of generic and specific names.

It is very important that the working taxonomist should know when a given species is transferred from one genus to another, and it is equally important that he should know when a species name has been suppressed as a synonym of some previously described species. It is the aim of the founders of *Biological Abstracts* to furnish such essential information to students of taxonomy. They have found it very difficult to tell from many papers whether synonymy as indicated in the paper is new or has been previously recorded. They have also found it difficult to determine when species are transferred for the first time from one genus to another. This is especially true for papers dealing with taxonomic zoology.

It therefore seems advisable to present for the discussion of taxonomic zoologists the desirability of determining some way of indicating in their papers when new synonymy is proposed and when new combinations of generic and specific names are employed. In many of the recent extensive revisionary papers, long specific bibliographies have been given with no indications as to whether any of the synonymy is new. It is suggested that an easy way to overcome this would be to write in parentheses the words "new synonymy," or some abbreviation thereof, after each reference to a newly published synonym.

The labeling of new combinations or transfers of species from one genus to another forms a more decided digression from the practice commonly used by zoologists, and especially entomologists; but it is believed that if taxonomic workers would place the words "new combination," or some abbreviation thereof, in parentheses after each such transfer or new combination, it would greatly expedite the work of abstractors and catalogers, and to no small degree assist their colleagues.

Botanists have been much more careful and definite in indicating and cataloging all new combinations. I think it is time for the zoologists to take a lesson from the botanists and label their new combinations. It seems to me equally important that the botanists and zoologists agree to indicate in some clear manner all new synonymy.

S. A. ROHWER

BUREAU OF ENTOMOLOGY,
WASHINGTON, D. C.

SURFACE TENSION METHODS

ATTENTION should be called to the misapplication of a quotation of Lenard in SCIENCE for March 18, 1927. Lenard states that the straight wire method, as a tearing off method, "as opposed to the ring method" (in Gegensatz zur Ring- oder gar Scheibform des Abreisskörpers) gives the accurate results to which Dr. du Noüy refers. Lenard by no means considers the ring method on equal terms with his own "tearing off method." Lenard's method is not entirely recent and was approved as a substitute for the ring method several years ago. (*Cf. Jour. Phys. Chem.* 1925, 897.)

J. M. JOHLIN

VANDERBILT MEDICAL SCHOOL,
NASHVILLE, TENNESSEE

SCIENTIFIC BOOKS

The Fauna of British India, including Ceylon and Burma. Hirudinea. By W. A. HARDING and J. PERCY MOORE. London: Taylor and Francis, March, 1927.

THE new volume of the fauna of British India, devoted to leeches, is perhaps the most exhaustive and certainly one of the most interesting of the whole series. As there are only forty-six species to be discussed, it is possible in about three hundred pages to go into a great deal of detail about structure, habitat and relationship to human affairs. The editor, Sir Arthur E. Shipley, contributes a readable historical

preface, in which he relates the various opinions of ancient times concerning leeches. Professor J. Percy Moore has written a chapter on segmentation of the Hirudinea, and has worked up the families Erpobdellidae and Hirudidae, including the familiar large leeches of the type used in medicine, and the dreaded blood-sucking land leeches. Mr. W. A. Harding describes the Ichthyobdellidae and Glossiphonidae, which include just half of the species in the fauna. Among the Glossiphonidae are *Glossiphonia complanata* and *Helobdella stagnalis,* also found in North America. Most remarkable is the account of the ferocious land leeches of the genus *Haemadipsa.* Although these have been discussed by many writers, there is much still to be learned concerning them. In their local variations, with the formation of distinctive subspecies or closely related species, they are said to differ from the aquatic leeches, and follow more nearly the manner of evolution of the land snails. Moreover, several of the color-varieties are associated with land planarians which are similarly colored, suggesting mimicry. Altogether, the book is much more than a local fauna, and will rank as a standard work, indispensable to all who have occasion to study leeches.

T. D. A. COCKERELL
UNIVERSITY OF COLORADO

Vorgeschichtliches Jahrbuch für die Gesellschaft für vorgeschichtliche Forschung. Herausgegeben von MAX EBERT. Band II: Bibliographie des Jahres 1925 mit sechs Tafeln und einer Abbildung im Text. Berlin und Leipzig. Walter de Gruyter und Co., 1926.

THE Gesellschaft für vorgeschichtliche Forschung, founded in 1925, has for its object the advancement of Prehistory in all its fields. Its managing committee consists of Max Ebert (chairman), Königsberg; O. Almgren, Upsala; G. Karo, Halle; B. Meissner, Berlin; H. Obermaier, Madrid; H. Ranke, Heidelberg.

The 344 pages of the Prehistoric Year Book form a fair criterion of the ever-increasing activity in the general field of prehistory. All but seventy-eight pages are given over to bibliography, only the more important references being accompanied by a review consisting of one or at the most a few paragraphs. This "review" of the literature comes under four heads: A, Europe—General; B, Paleolithic and Mesolithic; C, Europe—Neolithic and later periods; D, Egypt; E, Palestine and Syria; F, the Near East.

The other features of the volume are: (1) an illustrated article on the excavation of prehistoric fortifications (twenty-two pages), (2) news of a scientific and personal nature, and (3) the index, consisting of twenty-eight pages. This is an Old World Year Book, as will be seen from the table of contents. That such a large and creditable volume is annually possible is a striking commentary on the rapidity with which our knowledge of Old World prehistory is expanding; it fully justifies the existence of our American School of Prehistoric Research, founded in 1921 in order that American students might the more readily obtain first-hand knowledge of Old World prehistoric records as well as to have a part in recovering and interpreting them.

GEORGE GRANT MACCURDY
YALE UNIVERSITY

SPECIAL ARTICLES

THE DECOMPOSITION OF AMMONIA ON IRON CATALYSTS

THE catalytic activity of a number of promoted iron catalysts used in the synthesis of NH_3 from N_2 and H_2 was investigated by the decomposition of NH_3 on specially prepared surfaces.[1]

The NH_3 catalyst consists of a fused mixture of pure artificial magnetite to which about 1 per cent. of aluminum oxide and 1 per cent. of an alkali oxide, usually potassium, has been added in the fusion process. The mixtures investigated included an unpromoted iron, an iron promoted with aluminum and potassium oxides, and a tin poisoned catalyst.

The surface upon which the decomposition took place was prepared by fusing the mixture of the finely powdered granules to a twisted platinum strip.[2] It was found that the coating process could be carried on through a range in temperature of from about 300° C. to 1,200° C. Very uniform coatings of the desired thickness of the mixture can be obtained so that the temperature of the coating was very uniform and easily controlled by varying the current through the strip. The chemical activity of these surfaces after a thorough reduction depended upon whether the catalyst mixture was coated in the reduced or metallic form, or in the unreduced or oxide form, and the temperature at which the coating takes place. Thus the rate of decomposition of NH_3 on a given catalyst mixture at a given temperature was found to vary four fold. The coated strip was mounted in a two liter decomposition chamber, and the increase in pressure with time, for a given temperature, was re-

[1] Preliminary results on the use of this method for the testings of catalysts was presented at the Jubilee Meetings of the American Chemical Society at Philadelphia in September, 1926.

[2] *Jour. Phys. Chem.*, 30, 525, 1926; *Jour.* Franklin Institute, May, 1927.