variety of ways and although it is hardly to be expected that the reports would be uniform under such conditions, it is felt, nevertheless that they have considerable value on account of the number of different methods by which the samples were tested. One of the collaborators tested the samples by the simple staining of bacteria; two used them for counterstaining in the Gram technic for staining bacteria. In three cases they have been tested in blood stains, in one case with hæmatoxylin, in another with methylen blue in the well-known Wright method, and in the third without combination with any other dye. Three of the investigators used the samples in tissue staining as a counter-stain against hæmatoxylin. One of the investigators, besides using the eosin in blood work and as a counterstain in the Gram technic, reports results obtained in staining cultures of *Penicillium*. These cultures after being killed and fixed were stained in mass, then mounted and examined. Lastly, another collaborator reports using the samples in two indicator media, one with brilliant green and the other with methylen blue.

The variety of these methods is sufficient so that there is good reason to feel that any sample which gave good results in all cases can be safely recommended. It was very clearly demonstrated that in the great variety of purposes for which these samples of eosin have been used, the American samples almost without exception are the best. Some may be slightly better than others for certain special purposes but there seems to be no reason for condemning any of them.

Satisfactory samples were obtained from the following American concerns: Eimer and Amend, Harmer Laboratories Company, Heller and Merz Company, N. Y. Color and Chemical Company, Providence Chemical Company, Darwin Chemical Company, Campbell and Company, Geigy Chemical Laboratory, Coleman and Bell Company, H. S. Laboratories, E. Leitz, National Aniline and Chemical Company Company and D. H. Pond.

The chairman of the committee is ready upon request to furnish investigators with information as to the apparent merits of each of these samples for particular purposes and as to how any particular one of these lots of eosin may be obtained.

Committee on Standardization of Biological Stains, National Research Council,

S. I. KORNHAUSER
F. W. MALLORY
F. G. NOVY
L. W. SHARP
H. J. CONN, *Chairman*

ZOOLOGICAL NOMENCLATURE

IN accordance with the provisions respecting the use of "plenary power" by the International Commission on Zoological Nomenclature, to suspend the rules in cases in which the application of the rules will produce more confusion than uniformity, the secretary has the honor herewith to notify the zoological profession that a proposition by Commissioner David Starr Jordan is now before the commission to suspend the rules in the following cases and to "definitely reject the works named below from consideration under the law of priority," namely:

Gronow, 1763, Museum Ichthyologicum.

Commerson (as footnotes in Lacépède Hist. nat. des Poissons, 1803 mostly).

Gesellschaft Schauplatz, 1775 to 1781. An anonymous dictionary accepting the pre-Linnæan genera of Klein.

Catesby, 1771, Natural History of Carolina, Florida and the Bahamas (1731 to 1750), revised reprint by Edwards, 1771.

Browne, 1789, revised reprint of Civil and Natural History of Jamaica (1766).

Valmont de Bomare, 1768-1775, Dict. Raisionnée Universelle d'Hist. nat. (several names accidentally binomial).

In connection with these works, attention is invited to Opinions Nos. 13, 20, 21, 23, 24, issued by the commission.

The effect of the foregoing proposition is to reject as unavailable (as of the dates in ques-

[1] Notice to zoologists (especially to ichthyologists) of Consideration of Suspension of Rules of Nomenclature in cases of Gronow (1763), Commerson (MS. names—quoted in footnotes in Lacépède, 1803 mostly), Gesellschaft Schauplatz (1775 to 1781), Catesby (1771 reprint by Edwards), Browne (1789), and Valmont de Bomare (1768 to 1775).

tion) all systematic (chiefly generic) names published as new in the foregoing works, but to leave them as *available* as of the dates when they were later adopted by authors whose nomenclatorial status is unquestioned by zoologists; thus, a *modus operandi* is suggested to solve in a practical way the impasse which has existed for about twenty years in the views respecting the use of the words "binary" and "binomial" and while neither side concedes the principle it supports, both sides unite on another principle, namely, that the important end in view is to obtain, not to delay, results, and that the "plenary power," used judiciously and discreetly, offers us a practical method to solve the problems upon which there is such conscientious difference of opinion as to interpretation that concensus of opinion seems hopeless.

The secretary is fully persuaded that the application of the rules to the foregoing publications will continue to result in greater confusion than uniformity and he proposes at the expiration of the proper time (one year) to recommend to the commission the adoption of Commissioner Jordan's proposition.

Zoologists interested in this proposition, *pro* or *con*, are cordially invited to present their views in writing to any member of the commission so that they can be given due consideration when this proposition comes to vote (approximately October 1, 1923). Views, *pro* or *con*, which reach the secretary prior to September 1, 1923, will be manifolded and submitted to the commission prior to the final vote.

C. W. STILES,
Secretary to Commission

SPECIAL ARTICLES

THE ORGANIZATION OF THE NERVOUS MECHANISM OF RESPIRATION

WE have been accumulating experimental data on the nervous mechanism of respiration for some years past, but these results have been for the most part presented in preliminary notes only.[1] Circumstances have arisen which make it seem probable that the publication of the full experimental data must be still further delayed. We wish, therefore, to present a brief summary of our general conclusions at this time.

Gad stated that the nervous mechanism of respiration extended from the facial nerve to the lumbar plexus. We must, in all probability, enlarge the field to include the fifth cranial nerve. Any statement of the organization of this mechanism must take account of all the pertinent elements found in this rather extensive region.

The primitive nervous mechanism for the control of respiratory movements in vertebrates has its central representation in the medulla oblongata. Against Trevan and Boock's view[2] of a primitive respiratory center in the region of the corpora quadrigemina we would say, (1) that we have no evidence of any cells in this region which are sensitive to carbon dioxide in the same sense that the central cells in the medulla oblongata are sensitive to it; and (2) since the corpora quadrigemina themselves are not primitive, it is difficult to see how such a primitive mechanism could be located there.

The activity of the central respiratory mechanism in the medulla is conditioned by (1) the concentration of substances dissolved in the blood, *e.g.*, carbon dioxide; (2) the temperature of the blood flowing through the medulla; (3) the volume of blood flowing through the medulla in unit time, and (4) afferent nerve impulses from various peripheral sensory fields. All these various conditions are summed algebraically in the central respiratory mechanism. This view implies an important extension of our common idea of the summation of stimuli.

The afferent nerve impulses arise, in higher mammals, *e.g.*, the cat, from the lungs and the

[1] Pike, F. H. and Coombs, H. C., *Soc. Ex. Biol. and Med.*, 1917, xv, 55; *Am. Journ. Physiol.*, 1918, xlv, 569; Coombs, H. C., *Am. Journ. Physiol.*, 1918, xlvi, 459; Pike, F. H., Coombs, H. C., and Hastings, A. B., *Soc. Ex. Biol. and Med.*, 1919, xvi, 49; *Am. Journ. Physiol.*, 1921, xlvii, 104; Pike, F. H. and Coombs, H. C., *Am. Journ. Physiol.*, 1922, lix, 472.

[2] Trevan, J. and Boock, E., *Journal of Physiology*, 1922, lv, 331-339.