A carefully prepared bibliography of 110 titles furnishes a ready key to the most important contributions to the literature.

One can but wish that the policy of the editors of the University of California Publications in Zoology provided for an index to individual papers, at least of the size of this one. This book, with no index, will probably be used as a separate publication by ten persons to one who will ever have occasion to consult it as bound in the volumes of the Publications in Zoology.

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BUREAU OF BIOLOGICAL SURVEY

BOTANICAL ABSTRACTS

THE plan of organization of a permanent board of control of botanical abstracts as outlined in the columns of this journal,[1] was effected at the Southern Hotel in Baltimore, on December 29, 1918. A joint meeting was held of the members of the temporary board, of the permanent board and of the board of editors at which was discussed many of the problems arising in connection with the undertaking. The following persons were present: A. F. Blakeslee, H. C. Cowles, B. M. Davis, B. M. Duggar, C. S. Gager, J. M. Greenman, A. S. Hitchcock, O. E. Jennings, B. E. Livingston, D. T. McDougal, Geo. E. Nichols, E. W. Olive, D. Reddick, J. R. Schramm and E. W. Sinnott.

The permanent board of control, which consists of two representatives elected from each of the allied societies, began functioning at this meeting. Some societies have been unable to hold a meeting at which representatives could be elected so that the following list represents the board as at present constituted:[2] American Association for the Advancement of Science, Section G, B. E. Livingston (4), A. F. Blakeslee (2); Botanical Society of America, Physiological Section, B. M. Duggar (4), W. J. Osterhout (2), Morphological Section, B. M. Davis (4), R. A. Harper (2), Systematic Section, J. H. Barnhart (4), A. S. Hitchcock (2); American Society of Naturalists, E. M. East (4), J. Arthur Harris (2); Ecological Society of America, Forrest Shreve (4), Geo. H. Nichols (2); American Phytopathological Society, D. Reddick (4), C. L. Shear (2); Paleontological Society of America, E. W. Berry (4), F. H. Knowlton (2); Society of American Foresters, J. S. Illick (4), Barrington Moore (2); Society for Horticultural Science.

The following actions were taken. They do not constitute the exact minutes of the meeting but are a codification of them with the omission of matters of ephemeral consequence. The temporary board of control was called to order at nine o'clock. It was voted unanimously that retiring members of the permanent board of control be not eligible for immediate reelection. The permanent board was thereupon organized with Donald Reddick and J. R. Schramm as temporary chairman and secretary, respectively.

Vote by ballot resulted in the election of Donald Reddick as chairman of the board of control of botanical abstracts. It was voted that an executive committee of five including the chairman be named by the chair, in consultation with the secretary. Drs. Harper, Livingston, Nichols and Shear were named. It was voted that the executive committee act as a committee on policy and make recommendations to the board of control prior to the annual meetings. Also that it attend to all *ad interim* business not involving change of policy.

The executive committee was given instructions as follows: (1) To incorporate the board of control of botanical abstracts; (2) to close a five-year printing and publishing contract with the Williams & Wilkins Co. of Baltimore; (3) to select editors for the sections for 1919, including those sections not now provided for; (4) to study and make a report at the next annual meeting on the arrangement of sections present within a fortnight to the botanical representative of the committee on grants of with reference to mycology; (5) to prepare and

[1] June 7, 1918, p. 558.

[2] The term of some members expires in two years and of others in four years, as indicated, but at the meetings of December, 1920, a new member will be elected by each of the participating societies for a term of four years, and such elections will be biennial thereafter.

the American Association for the Advancement of Science an application for a grant of funds. (Pursuant to an action taken by botanists at the dinner for all botanists.)

It was voted that the executive committee be informed that it is the consensus of opinion of the group present that the sections "bacteriology" and "cytology" be abandoned with the definite understanding that abstracts of articles in these fields be cared for by the other sections.

It was voted to appoint a committee, not confined to the board, whose duty it should be to prepare a list of all serials containing material to be abstracted for *Botanical Abstracts* and to appoint collaborators for such serials. J. R. Schramm was appointed chairman of the committee with power to select other members.

It was voted that the matter of including abstracts of zoological literature in *Botanical Abstracts* be left for the present to the discretion of the several editors, and that it be suggested to the committee that it limit its lists largely to plant literature.

Adjournment taken at three o'clock.

J. R. Schramm,

Temporary Secretary of the Board of Control of Bot. Absts.

SPECIAL ARTICLES

NON-SPECIFIC PROTEIN ANTIGENS PREPARED FROM SHATTERED HEMO-PROTEINS

For some time past I have been in quest of new methods to aid in combating various infections. I have tried out inhalations of several gases, hypodermic and intravenous injections of several salts and bases and acids, with practical negative results. However, recently I have obtained some very promising results while working upon the following hypothesis: In the blood and the blood-forming organs one may find the various compounds from which the building stones from which the various anti-bodies are formed during the process of active immunity to infection. Therefore the blood, or blood-forming organs may be the best material in which to find chemical compounds which may be isolated and used artificially to help the body resist infection. The blood in all probability contains the compounds which, when broken down to just the proper state of division, would yield a large number of proteins of relatively small molecular weight, which might act as antigens when introduced into the blood stream. The number and variety of these shattered products of blood digestion are doubtless very great, and some of them might well do the work of an antigen for almost any infection. In short, if the blood were properly digested and the various fragments of the digested blood tried out, it might be possible to find compounds which would not act harmfully in any way but would act as antigens in a great variety of infections.

In order to shatter the protein of the blood without destroying the particles it seemed best to employ no strong acids nor strong alkalis, nor any alcohol; but instead to use natural digestive enzymes. As a preliminary experiment I used Witte's peptone as a source for obtaining these shattered proteins. This worked very well, for Witte's peptone, being made from peptic digestion of blood fibrin proved to be very rich in these protein bodies. After trying Witte's peptone I prepared my own peptone and from that prepared my protein, from the fibrin of ox-blood by digestion with hydrochloric acid and pepsin. This method seems to be satisfactory. After the mixture of protein is prepared, it is separated into various parts such as primary and secondary proteoses and peptones. A mixture of secondary proteoses constitutes the protein we have used. The protein fractions were separated by precipitation with ammonium sulphate, the lower fractions being used, the other fractions rejected.

After long and careful testing on animals I have been using the protein in collaboration with clinical men on several different infections. Although the clinical side of the work has been going forward for over a year, in most diseases we are still far from a definite conclusion. However, Dr. Stanton and myself working on acute and chronic arthritis have found out that the protein is a very powerful remedy. It has given uniformly successful results on almost one hundred cases. Some of these were acute and others were chronic cases of years