

duced; but no silver was deposited on the paper. Washing the glass with a certain kind of soap appears to interfere with the silvering process; while another kind of soap seems to be as effective as caustic potash.

Using a glass container, partially filled with the silvering solution, then (after the deposition of silver had started) filling the container with solution it was found on completion of the operation, that but little silver had deposited on the upper half of the container. The line of demarcation was sharp, just as though, once the deposition of silver had begun, the metal was attracted more readily to that part, of the receptacle. To conclude, it seems worth while to find a container that will not attract silver.

W. W. COBLENTZ

WASHINGTON, D. C.,
January 6, 1919

SYSTEMATIC PAPERS PUBLISHED IN THE GERMAN LANGUAGE

My friend, Dr. W. T. Holland, has sent me copies of his article on the above subject in *SCIENCE* of November 8.

We are all agreed in our wish for the advance of knowledge and that the "eternal verities" are the only thing that will count in the long run; but in zoology the Russian, Hungarian, Japanese and other languages have never been recognized and I can not think that Dr. Holland himself would recognize descriptions published in the language he cites—Choc-tau. German is, without doubt, a barbarous language only just emerging from the stage of the primitive Gothic character, and I venture to suggest that it would be to the advantage of science to treat it as such from the date August 1, 1914. The science of botany is in many ways in advance of zoology. At the Botanical Congress at Vienna in 1905 men of Russian and various other nationalities objected to their languages not being recognized in science and it was found that the only method of arriving at an agreement was to insist on a Latin diagnosis being added in systematic papers in all languages, and this was agreed to. This regulation, though it has obvious disadvantages, may be found neces-

sary in zoology also, the only alternative that I can see being descriptions in either English or French, the language of diplomacy. In recent-Japanese works on entomology an English description is always added to the Japanese text.

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SCIENTIFIC BOOKS

A Synopsis of the Bats of California. By HILDA WOOD GRINNELL. University of California Publications in Zoology, Vol. 17, No. 12, pp. 223-404, pls. 14-24, 24 figs. in text. January 31, 1918.

This work constitutes a notable contribution to the literature of California mammalogy and is characterized by the minute detail, thoroughness of treatment, and painstaking accuracy which one has come to expect in the publications of the Museum of Vertebrate Zoology of the University of California.

Following the introduction, the treatment is taken up under main headings as follows: Senses of bats, habits, voice, enemies, economic value, origin, geographic distribution, dentition, coloration, age-variation, sexual variation, nomenclature, classification, keys for identification, and table of comparative measurements, followed by treatment of the thirty-one forms belonging to eleven genera and three families of bats represented within the geographic limits of California.

Under each specific or subspecific heading appears a full annotated synonymy embracing the nomenclatural changes leading up to the name in current use and all references to the form as occurring in California. The particular species or subspecies is then discussed under the headings, diagnosis, description (including head, limbs and membranes, pelage, color, skull, teeth, measurements), synonymy and history, distribution, specimens examined, and finally natural history.

Data on senses and habits of bats are presented, chiefly compiled from the work of Halm, Ackert, Merriam, Miller, Howell and others, but supplemented by original observa-

tions by the author and her associates. In connection with habits the author states (p. 232) "The habits of our California bats are, unfortunately, but little known. The time and extent of the breeding season, migration and hibernation, the choice of diurnal retreats, and favorite feeding grounds, the methods of securing and devouring prey, the nature of the food, the economic value of bats—these are only a few of the many points on which data are as yet almost wholly lacking."

In connection with breeding habits and enemies, no mention is made of the interesting difference in numbers of young between crevice-inhabiting bats and certain tree-inhabiting species. As is well known *Nycteris cinereus* and *Nycteris borealis*, tree inhabiting forms, have from two to four young, while crevice and cave-inhabiting species have only one or two. As implied by Nelson¹ this seems to be due to the increased risk from the habitat relations of the tree-living forms. An augmented mortality probably results also from the migratory habit of *Nycteris*.

That bats deserve protection for their yeoman service in destroying insects goes without saying. It seems probable, however, that Campbell's estimate of the value of their work in Texas in destroying mosquitoes and thereby reducing malaria, quoted by Mrs. Grinnell on pages 238-239, is exaggerated. Stomach examinations of *Nyctinomus mexicanus* have shown many insects, but mosquitoes only rarely.²

The most adequate statement regarding the relation of bats to geographical distribution which has been seen by the reviewer is made by Mrs. Grinnell (pp. 242, 243), who emphasizes the fact that "conditions of temperature and humidity limit the distribution of bats as strictly as they do that of other groups of mammals. In California there is not a single obvious barrier to the distribution of any species of bat; yet not one of the thirty-one forms inhabiting the state has been found to

be distributed uniformly throughout the entire area."

A study of the dates of capture of *Nycteris borealis teliotis* leads, according to our author, to the inference that "the sexes separate during the summer months, the females remaining in the Lower Sonoran zone, while the males migrate into the Upper Sonoran and Transition zones (p. 326)." After reference to a similar withdrawal from the breeding grounds by the males of certain species of birds, Mrs. Grinnell suggests that "Their departure relieves congestion in the nesting area and leaves a greater food supply for the females and young." In the case of red bats in California, however, one can not readily concede the implications either of congestion in their breeding area or the necessity, with an insectivorous species of the sort, for a greater food supply in summer; but the discovery of the separation of the sexes as noted, if confirmed with the acquisition of more material, is most interesting whatever its explanation.

There are no descriptions of new forms. New locality records are published for nearly every California species and subspecies. Subspecies *altipetens* H. W. Grinnell of *Myotis* is here referred to species *lucifugus* rather than *yumanensis* as originally described. *Myotis lucifugus alascensis* Miller is for the first time recorded from California, a specimen having been taken at Eureka. Definite records of occurrence in California of *Myotis lucifugus interior* Miller are also published for the first time. *Antrozous pacificus* Merriam is accorded full specific rank instead of being regarded as a subspecies of *pallidus*.

The paper is generously illustrated with half tones and maps. Life studies of several species appear, and comparisons of dorsal and lateral outlines of bat crania are made possible by an extensive series of enlargements. A few well executed line drawings show particular external characteristics of bats, and clear maps indicate the geographic ranges within California of all the forms considered.

¹ *National Geographic Magazine*, May, 1918, p. 491.

² See E. W. Nelson, *National Geographic Magazine*, May, 1918, p. 492.

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.

WALTER P. TAYLOR

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.