

NOTES AND NEWS

A valuable bibliographic service is offered to students of birds by the editorial staff of the *Wilson Bulletin*, official organ of the Wilson Ornithological Club. Each quarterly issue lists titles from recent literature on North American ornithology and general avian biology. In the June issue, 104 titles are classified under major headings such as physiology, anatomy, ecology, life history and behavior. These lists are offered as separates, printed on one side of a page only, so that they may be cut and adapted to a particular bibliographic system. The annual cost is \$.25 for one set, \$.40 for two sets. Requests and remittances should be sent to Dr. Josselyn Van Tyne, Museum of Zoology, University of Michigan, Ann Arbor, Michigan. This service is available to anyone interested.—F. A. P.

PUBLICATIONS REVIEWED

In the American ecological literature, two different biogeographic classifications have been prominent; the life-zones of Merriam and the biomes of Shelford. To these two systems may be added Dice's biotic provinces, in use for some years by Dice and his students in local studies, but only recently applied to the entire North American continent north of central Mexico (Dice, Lee R. 1943. *The Biotic Provinces of North America*. Ann Arbor, University of Michigan Press, viii + 78 pp., 1 folded map; price \$1.75). Dice's studies constitute another attempt to recognize, delimit, and classify the major ecological divisions of this continent and to provide some rational basis for the analysis of biotic interrelations bearing upon distribution.

There are four basic units in Dice's system. A *biotic province* is a biogeographic unit which "covers a considerable and continuous geographic area and is characterized by the occurrence of one or more important ecologic associations that differ, at least in proportional area covered, from the associations of adjacent provinces" (p. 3). *Biotic districts* are subdivisions of the provinces, based on "ecologic differences of less importance than those that separate biotic provinces." (No other criterion is given.) A *life belt* is a "vertical subdivision of a biotic province" (p. 3), but also apparently of a biotic district (p. 4), although this is not stated to be so. Lastly, Dice recognizes the *ecologic association* as a "uniform and relatively stable community below the rank of life belt and biotic district" (p. 4). Each of several "well-marked successional stages as well as . . . the climatic or edaphic climax of an area" are recognized as separate ecologic associations.

In all, 29 biotic provinces are described. Each description, one-half to three pages in length, is an orderly, brief account of geographic limits,

origin of name, synonyms (drawn chiefly from community units of biocologists), relations to neighboring provinces, topography, climate, soils, vegetation, together with mention of biotic districts if any have been recognized and comment on certain characteristic animals, chiefly mammals. In some accounts there are included life history notes the relevancy of which often is not clear. A bibliography of 152 titles brings together most of the recent American papers on biogeography. There is an index of four pages, listing only biogeographic units.

As one reads the accounts, an excessive amount of arbitrariness becomes evident. Thus, the eastern part of the aspen parkland, in south-central Canada, is "properly [!] included in [the "Illinoian"] province and [in the west] . . . divided between the Hudsonian and Saskatchewan provinces" (p. 12). What is accomplished by this splitting of a biotic community, the unity of which Dice recognizes when he states that it "seems . . . not to be of sufficient importance to constitute a separate biotic province"? Again, on page 32, "isolated patches of humid redwood forest occur along the Californian coast south of San Francisco, but these patches are not considered to be a part of the Oregonian province," which includes the north-coast redwoods. The fauna of these patches is related to that of more northern redwood areas. Should any biogeographic classification deny a fact such as this?

Dice's own brief contrast of the biotic province and the biome makes a further elaboration of the differences worthwhile. As he states, a biome is "coincident with its climax" (p. 4). Thus, isolated areas of coniferous forest in several of Dice's western biotic provinces may be considered to be parts of one biome. Geographic discontinuity is a feature of several western biomes. "A biotic province, on the contrary, is never discontinuous" (p. 4). This claim does not seem to me to argue in favor of biotic provinces. The very discontinuity of the major communities is of fundamental significance in faunistics. Moreover, the continuity of biotic provinces is more apparent than real and can be reduced to a mere matter of map drawing, for the ecological units within one of Dice's geographic blocks can hardly be said to be continuous. For example, the associations and life belts in the mountainous region called the "Coloradan" province are certainly chopped up; several climaxes (or biomes) are present. The "Hudsonian" province, however, is relatively continuous; but one climax, the transcontinental coniferous forest, is present.

Thus, a fundamental difference between the two systems emerges. A biotic province may include one to six different important climaxes

(or one to six different biomes, as each vegetational climax formation is the basis of one biome). Moreover, many of these climaxes recur in several biotic provinces. The biota of the coniferous forest displays fundamental similarity in the "Coloradan," the "Montanian," the "Hudsonian," as well as other provinces. But Dice's system obscures this; there is no clue that the "Hudsonian" is more closely related to the "Montanian" and "Coloradan" than it is to the "Saskatchewan" and "Kansan" (both primarily grassland). There are, therefore, certain hierarchical relations between the biotic provinces as well as between subdivisions of several provinces which are not at all apparent. Moreover, Dice states (p. 5) that the "classification of biotic provinces . . . is based to a very large extent on the vegetation. . . . The vegetation accordingly offers for the present the most satisfactory basis for distinguishing the major ecologic communities of the continent." If this is so, why could not the relations of the vegetational climaxes be emphasized more? The life belts of one western biotic province are most closely related to corresponding life belts in a neighboring province. Yet the life belts are made subordinate to the biotic province. How does Professor Dice reconcile this feature of his system with his recognition of the fundamental significance of vegetation?

No extended critical analysis of biotic provinces is possible from a study of this book. The discussion of the theoretical bases for the units of Dice's system is inadequate, and in the accounts of provinces not enough is explained of the author's reasons for his decisions. There are no qualitative analyses of the mammalian fauna of each province such as were presented earlier for the "Canadian" and "Sonoran" biotic provinces (Ecol., 19, 1938:503-514 and 20, 1939:118-129, respectively). Perhaps this was the author's intention; lack of adequate data and other circumstances may have prevented him from preparing more detailed accounts of his provinces. But Professor Dice's field experience apparently has been extensive, and, emphasizing that "any biogeographic classification must be in part arbitrary," he wisely offers his classification "frankly as an experiment" (p. 7). Tacitly, then, ecologists and zoogeographers are invited to test this classification. Dice's book serves to re-focus attention on numerous problems in the vast field of biogeography, and my comments are offered in the same spirit of cooperative investigation.—FRANK A. PITELKA.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

JUNE.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held Tuesday, June 29, 1943, at 8:00

p.m. in Room 145, Allan Hancock Foundation, Los Angeles, with President I. D. Nokes in the chair.

Minutes of the May meeting were approved and applications for membership were read from Mr. M. B. Cater, P.O. Box 4247, University Station, Tucson, Arizona, proposed by John McB. Robertson; and from Mr. F. T. Maddocks, Division of Highways, 3435 Sierra Way, Sacramento, California, proposed by Mrs. N. Edward Ayer. A letter was read from Harvey I. Fisher announcing the anniversary edition of the Condor. A motion was carried that Mr. Howard Robertson be elected to honorary membership.

Field observations were reported by Miss Frances L. Cramer, Lieut. Kenneth E. Stager and H. P. Davis.

The address of the evening was given by Dr. Hildegard Howard on the subject of "New Mounts of Old Birds." Illustrated by slides, the talk described restorations of fossil birds of the southwestern states and particularly those from the local Rancho La Brea asphalt pits.

Adjourned.—WALTER W. BENNETT, *Secretary*.

NORTHERN DIVISION

JUNE.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, June 24, 1943, at 8:00 p.m., in Room 2503, Life Sciences Building, University of California, Berkeley, with President Robert C. Miller in the chair and about 130 members and guests present. Minutes of the Northern Division for May were approved as read. There were two proposals for regular membership in the Club: William E. Douglas, Tulelake Ranger Station, Tulelake, California, by H. W. Carriger; P. Quentin Tomich, 2315 Dwight Way, Berkeley 4, California, by Jean M. Linsdale. A special proposal was read nominating Howard Robertson, President of the Board of Directors, to honorary membership in the Club, in recognition of his long service to the organization.

R. C. Miller mentioned the publication of a recent volume by David Lack on the natural history, habits and behavior of the English Robin.

The president called upon Mrs. Joseph Grinnell to give a brief history of the club, as this meeting marked the fiftieth anniversary of its founding on June 22, 1893.

A program appropriate to the occasion was furnished by Mrs. T. Eric Reynolds in the form of Kodachrome motion pictures entitled "Added Fun with Birds." Outstanding was a new sequence on a nesting colony of Caspian Terns near Alvarado, California.

Adjourned.—FRANCES CARTER, *Recording Secretary*.