

## 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