

FLIGHT OF HORNED OWLS IN CANADA by J. Dewy Soper, Preston, Ont. (pp. 478-479). In this the author observes that whilst the above species were unusually abundant in October and November, 1917, at various points in southern Ontario, they were abnormally scarce in the country north-east of Lake Superior where they are usually common.

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THE GEOGRAPHIC DISTRIBUTION OF COLOR AND OTHER VALUABLE CHARACTERS IN THE GENUS JUNCO; a new aspect of Specific and Subspecific Values. By Jonathan Dwight, M.D. Bull., Amer. Mus. Nat. Hist. Vol. XXXVIII. pp. 269-309, June, 1918.

Whether one does or does not agree on every point with the author of this paper, it must be regarded as an important contribution not only to the difficult subject of the genus to which it refers, but to zoology in general and ornithology in particular. In it Dr. Dwight offers a new solution to the confusion of differentiated forms of this highly variable group, and attempts to point out a way in which like problems can be simplified in other departments of zoology.

He cuts the gordian knot of the multitude of intergrading subspecies by raising several of them to full specific rank and regarding the intermediates as hybrid. As criteria between specific and subspecific variations he divides them into qualitative and quantitative characters; qualitative characters being new qualities, or characters, and hence specific in value and quantitative being an increase or reduction of quantity in qualities or characters already existing in the parent form and hence of subspecific value only. This is to replace the older hypothesis that species are wholly isolated units and that intergradation between extreme variations are proof of this subspecific relationship. It must be acknowledged that this is largely according to the trend of modern thought which is coming to regard the specific unit of systematists with growing distrust and as an unstable division. Whilst this view from a paleontological standpoint is unassailable the writer cannot but regard it as being misplaced in considering modern zoological problems. Through geological time species are uncertain if not fluid quantities flowing imperceptibly one into the other, but at any one given moment of time through any given geological horizon I cannot see how we can refuse to recognize their individual isolation from contemporary forms, without making confusion worse confounded and destroying our perspective of current events. The fact that species may be extremely variable within themselves and on the point of giving rise to new ones is not sufficient ground for rejecting the specific concept altogether.

Whether or no we can frame a satisfactory definition for the species does not alter the specific fact, it merely indicates upon the limitations of our present knowledge. The fact that hybrids (as usually understood) between acknowledged species are usually rare, but constantly occur without swamping or mongrelizing the species seems evidence that the unit is a real one and not a figment of the imagination.

Dr. Dwight's distinction between quantitative and qualitative quantities seem subject to the question, which is which? He regards the black head and the red back of *J. oregonus* as qualitative, yet the gray head of *hiemalis* is but a reduced blackness, and the red back of *oregonus* but the persistence and increase of a color present in juveniles of the opposite race. It does not seem that these characters offer any better or perhaps as good a means of specific determination as those heretofore applied.

The characters of Dr. Dwight's hybrids also seem to lack the appearance logically to be expected in such individuals. True hybrids between specifically distinct forms usually show pie-bald mixtures of parental characters seldom even blendings of them. Our finest example of this arises from the crossing of the Red and the Yellow-shafted Flickers. These species hybridize most freely and the resultant shows if not in the first generation at least in the succeeding ones, a bewildering array of mixed pure characters in every possible combination, rarely a blending of them. Thus the moustache mark may be black or red or red and black, but rarely if ever, brown, which would be half-way between and a blending of the two. Dr. Dwight's hybrids on the contrary are all perfectly even blendings, one form imperceptibly gliding into the other, with very little reversion to pure parental characters. The very constancy of each type also raises a certain amount of suspicion. In every character true hybrids should show dominant, recessive and mingled resultants in such varied combination that duplicate individuals are the exception, not the rule. Dr. Dwight's postulated hybrids, however, are as constant in type as they are in blending. On the whole, while we admire Dr. Dwight's serious purpose and the amount of concentration he has brought to bear upon the subject, it does not seem that his attempt to form new standards of specific relationship will be more acceptable than the old ones.

In untangling the relationships between these confusing forms, however, the author has rendered a great service. Whilst his explanation of the causes may not be entirely acceptable, the facts he has brought out have probably simplified the subject considerably and in the light of his painstaking re-