

ing important resources of Oregon. There is no reason why the State should not use her wild birds and animals as a prudent farmer protects and uses his flocks and herds. Game protection and game propagation is a business proposition not only for the man who lives in the city, but for the farmer, the fruit grower and the timber man. Game laws and game protection cannot be made effective until we get the real interest of the farmers, homesteaders, and other land owners throughout the state.

"Game protection is not a political question. Nor is it entirely a legal question. It has an economic aspect, and above all it requires educational work."

The November number cites five instances of accidental shooting during the past deer season and gives the following warning to hunters: "Hunters should never shoot at moving brush, leaves or grass with the expectation of killing game. It is dangerous, for the moving object is likely to be a man. Never shoot at any object until you are absolutely positive of identification." The main article of this issue is entitled "Refuges for wild birds and animals." Thus it can be seen that the contents of "The Oregon Sportsman" is of the eminently appropriate sort.

But setting aside the material itself, it is the idea embodied that appeals to the reviewer; for he believes that there can be no consistent obedience to the law without a knowledge of the necessity for the law and some sympathy for it. Mr. Finley, State Game Warden of Oregon, by means of education, is laying a sure and sound foundation not only for the automatic enforcement of game laws but for the conservation of Oregon's natural resources.—H. C. BRYANT.

SOME BIRDS OF THE FRESNO DISTRICT, CALIFORNIA. By JOHN G. TYLER (Pacific Coast Avifauna, no. 9, Oct. 1, 1913, pp. 1-114).

The Pacific Coast Avifauna series, published by the Cooper Ornithological Club, has just received another addition to its already long list of valuable papers published under that head. Number 9 of this series is a non-technical paper dealing purely with life histories and the manner of occurrence in the region of the species treated.

One hundred and sixty-one species are listed, evidently not a complete catalogue of the birds of the region, as a number of species not included are known at least to migrate through the state in general, and undoubtedly will be found eventually in the Fresno region. Accounts are well written and accurate, the description of flights of

Turkey Buzzards being a good example of the scores of vivid pictures of common phases of the lives of familiar birds, things recognizable at once to all bird students, and yet very seldom put into print.

The author adheres closely to the usages of the 1910 edition of the A. O. U. *Check-List*, evidently wishing to avoid discussion of the technicalities of nomenclature and classification, and to make his contribution purely one of the life-histories of birds. The only exception noted is his treatment of the San Joaquin Valley Wren, for which he uses the name *drymoecus*, rather than include it under *charienturus*, as in the *Check-List*.

In the case of the red-breasted Sapsucker the binomial *Sphyrapicus ruber* is used instead of the trinomial *S. ruber ruber*, the uniform usage throughout the remainder of the paper, apparently as a passive protest against the treatment accorded this species in the *Check-List*, which, however, through the policy adopted in the paper, he feels obliged to follow. In the cases of the Red-breasted Sapsucker, Brown Towhee and Blue Grosbeak, although the *Check-List* name is the one used, brief footnotes, or else a statement in the text, contain references to dissenting opinions.

The paper will serve as a striking example of the excellent work that can be done by a maximum amount of careful and accurate bird observation, with a minimum of bird killing. The identifications are carefully made, nevertheless, and where there was doubt specimens were collected and submitted to experts. The small amount of collecting is reflected, however, in the rather uneven balance of certain subspecies, and also in the absence from the list of some birds, which, with hardly a doubt occur in the general region. Thus the occurrence of *Melospiza lincolni striata*, *Passerella iliaca schistacea*, and *Hylocichla guttata nanus*, together with the absence of *Melospiza lincolni lincolni*, *Passerella iliaca megarhyncha*, and *Hylocichla guttata guttata*, if truly indicative of conditions, is a rather remarkable state of affairs deserving of careful investigation. No doubt is meant to be cast upon the accuracy of the identification of the specimens collected, but it seems probable that more extensive collecting would show that by chance some of the more uncommon visitants were gathered in, while more common ones were not secured. The notes on the hummingbirds also could probably be considerably extended by a careful collection of specimens.

The paper should be very useful in many ways. It is a reliable record of present conditions in a rapidly changing region; students of life-histories of birds, and of dis-

tribution, will find here much valuable data; and the amateur bird student and the school-teacher with nature classes in the region treated, will have a good, reliable text-book to fall back upon. It is to be hoped that the work can be brought to the attention of the two last mentioned groups in particular.

It is fortunate, and also a recommendation for the work published by Mr. Tyler, that such competent experts as J. Grinnell and H. S. Swarth were prevailed upon to edit the paper.—FRANK S. DAGGETT.

THE SEQUENCE OF PLUMAGES OF THE ROOK, With Special Reference to the Molt of the "Face." By H. F. WITHERBY. (British Birds, London, vol. VII, no. 5, Oct. 1, 1913, pp. 126-139, pls. 4-11).

In a great deal of the work that has been done on the molts of birds, little attention has been paid to the molt of the less conspicuous feathers and feather-structures of birds, and it is a pleasure to find that this phase of the subject is coming into the prominence which it undoubtedly deserves. It is to be hoped that Mr. Witherby's investigation of the molts of the "face" of the Rook (*Corvus frugilegus frugilegus*) is the herald of much more study along this line, and that the interesting results of his research may stimulate others to do this sort of work, realizing that the less conspicuous structures are not necessarily less interesting or less significant. Throughout all the literature on the subject of molts, scarcely a reference can be found to the shedding of filoplumes, or of the down feathers of adult birds which possess them, nor has the reviewer hitherto been able to find any thorough account of the molts of the rictal and other facial bristles, ear-coverts, eye-lashes, oil-gland "tuft," or other modified feathers of the head and trunk. In a few cases the life and development of specialized feathers have been studied, as for instance the "racket" feathers of the motmots; but where is there any thorough light on the development, molt, and seasonal changes of the "brush" of a turkey, the powder down of herons, or the eye-lashes of any birds?

Mr. Witherby devotes the first half of his article on the Rook to a study of the molt and history of the feathers of those parts of the "face" which ultimately become bare, namely, the upper throat, chin, forehead, base of mandibles, and lores. The results which he obtained, well illustrated by the first seven plates accompanying the article, are very interesting in showing what the trend of evolution has been in bringing about the bare face of the European Rook (*Corvus f. frugilegus*), and in demonstrating how such bare spots may have arisen in other birds which have them. The comparison with the East-

ern Rook (*Corvus f. pastinator*) is particularly interesting. In the second part of his article, the method and general character of all the molts of the species is carefully described, so far as contour and flight feathers are concerned; but here, again, as in other literature on the subject, no reference is made to the molt and acquisition of filoplumes, relative to the contour feather with which they are associated, nor is there any statement concerning the loss and replacement of eye-lashes; moreover, it is not made clear what is the subsequent history of the nasal bristles. Nevertheless, Mr. Witherby's article is undeniably a step in the right direction, and it is hoped that it will be followed by further work along similar lines.—ASA C. CHANDLER.

A STUDY OF A COLLECTION OF GEESE OF THE *Branta canadensis* GROUP FROM THE SAN JOAQUIN VALLEY, CALIFORNIA, BY HARRY S. SWARTH (Univ. Calif. Publ. Zool., vol 12, no. 1, pp. 1-24, 2 pls., 8 text figs.).

In a paper of 24 pages Mr. Swarth sets forth his conclusions as to the status in California and probable relationships of the four forms of the *Branta canadensis* group, as derived from the study of one hundred and fifty-three skins. The author finds that great confusion has arisen in connection with our effort to understand these geese, because of the highly variable character of certain marks, notably the white cervical collar and the black throat line, marks which have previously been relied upon for diagnostic distinction. This variability is convincingly illustrated by two tinted plates, which exhibit twenty heads of *B. c. minima*, of which no two are alike in pattern, or even in correlation of the discredited characters. Mr. Swarth finds that measurements, especially of bills and tarsi, when taken in connection with the general color tone of under plumage, whether light or dark, afford the only reliable basis of distinction. He concludes from these data that the only breeding form in California is *Branta canadensis canadensis*; that *Branta c. occidentalis* has no status as a species of California, but that it is a nearly resident form occupying the humid northwest coast region, where it probably intergrades with *canadensis* upon the east and *hutchinsi* on the north; and he predicts that a closer study of conditions in the Northwest will show that *hutchinsi* and *minima* do not, as has been frequently asserted, overlap in their breeding ranges, but that a regular gradation of size from *hutchinsi* to *minima* will be found to exist as the region is traversed—though whether from east to west or south to north does not yet appear. This