

The Revised New Nuttall.—The second edition of the Nuttall-Chamberlain 'Manual,' recently issued,¹ comes to us under a modified title, properly indicating the scope of the work.² It is also embellished with twenty chromolithographic plates, giving figures of about 110 species. In the case of the majority of the species, they are sufficiently truthful in coloring to be of material service to the inexperienced student of birds; in the other cases they are very good reproductions of very poor originals.

The text, of course, is mainly as in the first edition, being printed from the same electrotype plates, but many important corrections have been made, here and there, in the parts by Mr. Chamberlain, through which means the work is more nearly 'brought down to date,' and much improved. This is noticeable especially in the matter relating to the subject of geographical distribution; but if one were disposed to be critical, various desirable improvements, overlooked in the present revision, might be pointed out.

The preface to the first edition, or what purports to be such, is retained, but comparison of it with the preface to the first edition shows that 19 lines in pp. vi and vii have been expunged and replaced by 21 lines of new matter, of quite different import and much more creditable to the taste of the editor. Yet the preface, thus materially altered, still bears date "September, 1891." This, to say the least, is an idiosyncrasy in book-making we do not remember to have before seen.

This revised edition of the Nuttall-Chamberlain 'Manual,' with its amended title and important correction in the text, and the added helpful colored illustrations, is well deserving of generous patronage, as a Popular Handbook of the Ornithology of Eastern North America.³—
J. A. A.

Millais on Change to Spring Plumage without a Moulting.³—The intent of this paper is to show that in acquiring their summer plumage certain species of water-birds undergo not a moult but a recoloration and restoration of the old feathers of the winter dress. The Sanderling (*Calidris arenaria*) is taken as a typical example of this change, and feathers

¹ A Popular Handbook | of the | Ornithology | of | Eastern North America. | By | Thomas Nuttall. | Second revised and annotated edition | By Montague Chamberlain. | With Additions | and One Hundred and Ten Illustrations in Colors. | [Cut of Hummingbird] Vol. I | The Land Birds. | [Vol. II. Game and Water Birds.] | Boston: | Little, Brown, and Company. | 1896. — 2 vols, crown 8vo. Vol. I, pp. i-liv, 1-473; Vol. II, pp. i-vii, 1-431, col. pll. i-xx, and 172 illustrations in the text.

² For notice of the first edition, see Auk, IX, 1892, pp. 59-61.

³ On the Change of Birds to Spring Plumage without a Moulting. By John Guille Millais. Ibis, 7th ser., Vol. II, Oct. 1896, pp. 451-457, pl. x.

plucked from this species at various dates form a series depicted in a colored plate, which purports to show a color change without moult. It so happens, however, that Mr. Chapman has also studied the Sanderling (Bull. Am. Mus. Nat. Hist., VIII, 1896, pp. 1-8) and states that the change is due to a moult. That all who read may each judge for himself which of the two writers has the best claim to credence, I make use of the 'deadly parallel column,' italicizing the important features. Mr. Millais's remarks are given in the first column, Mr. Chapman's in the second.

MR. MILLAIS.

"Illustrations are given (Plate X, figs. 8-12) showing the *gradual change* of a feather from the back of the neck *during the period extending from March to August*.

" . . . Mr. Allen's chief argument seems to be that a feather once completed is dead and retains no further power of transmitting color through the quill from the epidermis. Now if this were the case how is it that we find a feather like that of figs. 9, 10 and 11—feathers which are to be found in the plumage of the bird during successive months? According to Mr. Allen the bird would have to renew its feathers every month which is a manifest impossibility. As there can be no reasonable doubt that the same feather goes through the changes exhibited in figs. 9-12 (*because there is no moult during that period*), and as we have the proof of all intermediate changes of the feathers taking place, there seems equally little reason to doubt that fig. 8 passes into fig. 9, for here again we have the transition shown. We know that many of the small perching birds assume their summer plumage by means of the gray edgings of the feathers wearing off; *I do not, however, think that this takes place*

MR. CHAPMAN.

"This brings us to the change from winter to breeding plumage, which Herr Gätke, as already described, asserts is accomplished without moult.

"My series of twenty specimens illustrating *this change* show that it *begins late in March* or during the first half of April *and is completed in May*. They show, furthermore, that *it is accomplished by a moult*. In proof of this statement I will describe several of these molting birds. No. 3685 (Coll. Geo. B. Sennett, Corpus Christi, Texas, March 28, 1886) is to all outward appearances in the winter plumage of the adult, but examination shows that *the moult is in active progress over the entire body*, in the scapulars, tertials, all but the greater series of wing-coverts, the upper and under tail-coverts. . . . Am. Mus. No. 45485 (California, April 13, Xantus) closely resembles the preceding . . . No. 6042 (Coll. Geo. B. Sennett, Corpus Christi, Texas, April 20, 1889, Singley) is slightly more advanced than either of the birds just described. *New feathers are appearing not only over the whole body*, tertials, lesser and median wing-coverts, but the moult extends to the outer pair of tail-feathers,

in the case of the *Sanderling*, in the change from fig. 10 to fig. 11, but that it is the colouring matter moving down the feather and obliterating the white. After this change, I think that the edge of the feather then wears away in an appreciable degree, causing its form to be altered as seen in fig. 12.

"To sum up, so far I see no reason whatever to differ from the opinion of many of our own naturalists, and I maintain that Herr Gütke's solution of the Spring change of the Dunlin and the *Sanderling* is perfectly correct as regards an actual influx of pigment through the old feather, whilst Mr. Frank M. Chapman's observations on these two birds in the same journal as Mr. Allen's require modification. We know well that new feathers come in place of the few that are cast, but that is no evidence that the whole bird undergoes a moult of all except the rectrices and remiges."

Comment seems quite unnecessary, and such evidence as Mr. Chapman's can hardly be set aside as needing "modification" by so uncompromisingly biased a writer as Mr. Millais. The balance of his article need not occupy us seriously, for he states no facts which are not admitted by everybody, and figures no feathers which new growth could not have produced. He even admits that some of the feathers are of new growth, but clings to the old idea of color change in others adjacent. He finds a moult in *Harelda glacialis*, a winter resident, and only slight evidences of one in the transient migrants, *Podiceps auritus* and *Calidris arenaria*. The fact, that most birds largely complete their moult before migrating seems to have been quite overlooked in explaining these differences. In fact, the superficial views of the sportsman rather than the deductions of a careful ornithologist pervade the article, which smacks strongly of the very dogmatism the author so deprecates in others.—J. D., Jr.

which with the median pair are about half grown. Only seven of the twelve old tail-feathers remain, and it seems probable that all the rectrices are renewed. Am. Mus. No. 60007 (Micco, Florida, April 30, 1891; C. S. Allen) has nearly completed the molt, though new feathers are still appearing all over the body. The rectrices, tertials and lesser and median wing-coverts have apparently been renewed. Nearly all the newly-grown or growing feathers of the upper parts are broadly tipped with ashy gray, which, as numerous specimens show, is later worn off, leaving the black and rufous of the full breeding plumage. It is evidently unnecessary to describe other specimens in this series which show the molt in every stage, and prove beyond question the manner in which the change from winter to summer plumage is accomplished."