

nature uses the complete gradation, like that of Grouse and Sandpipers. Ground birds in general, such as Grouse, Sandpipers and Sparrows, are usually clothed throughout in colors graded according to this principle. But the males of many species of Pheasant are notable exceptions to this last statement.

Now there is still one more very beautiful phenomenon to record. If the animal itself is obliterated by this mechanism of nature, for what useful purpose beyond considerations of sexual selections do his *markings* exist, since *they* are not obliterated? The answer is that the markings on the animal become a picture of such background as one might see if the animal were transparent. They help the animal to coalesce, in appearance, with the background which is visible when the observer looks past him. In many birds, for instance, those colors, which would be seen by an enemy looking down upon them, are laid on by nature in coarser and more blotchy patterns than are the colors on their sides, so that when you look down on them you see that their backs match the mottled ground about them; whereas, when you assume a lower point of view nearer their level, and see more and more of their sides, you find them painted to match the more intricate designs of the vegetation which is a little farther off, and which, from this new stand-point of the observer, now forms the background. In this latter position, the head of the animal, being the highest part of its body, is seen against the most distant part of the background, whose details are still more reduced by perspective. To correspond with this reduction of strength in the more distant background, the details on the sides of the animal's head are likewise reduced in their emphasis, and like the more distant details are smaller in pattern.

It is a most significant fact that throughout the animal kingdom the highest development of the arrangement of color and light described in this article, and the highest development of the habit of standing or crouching motionless in full daylight to avoid discovery, seem to coincide very closely. For instance, Gallinaceous birds, most Waders, and the Cat tribe have both the color arrangement and the standing or the crouching habit highly developed. Contrasted with these, for example, are the skunks

and the bears. Neither of these quadrupeds has the gradation of color, nor the standing or crouching habit. They are both nocturnal, and therefore do not need either gradation or crouching for concealment.

It is plain, then, that while nature undeniably completes the concealment of animals by pitching their whole color-gradation in a key to match their environment, the real magic lies in the gradation itself from darkest above to lightest below, wherever this gradation is found. This is why it is so hard to see the Partridge in the tree, the Sandpiper on the mud, or the tiger crouching in the jungle.

DESCRIPTIONS OF A NEW HORNED LARK AND
A NEW SONG SPARROW, WITH REMARKS
ON SENNETT'S NIGHTHAWK.

BY LOUIS B. BISHOP.

THE birds upon which this paper is based were collected by Mr. W. H. Hoyt and myself in Towner and Rolette Counties, North Dakota, during the spring and summer of 1895. Both counties belong to the prairie region, are practically treeless, cultivated only partially, and dotted with lakes and sloughs of varying extent. The Turtle Mountains, part of which lie in the northern part of Rolette County, and through which passes the Manitoba boundary, are utterly different in character. They consist of hills rising a few hundred feet above the rolling prairie, contain numberless small lakes and ponds, and are covered with a dense growth of deciduous trees.

My thanks are due to Mr. Hoyt for the use of his series of skins of the races described, and to Dr. Allen and Mr. Chapman of the American Museum of Natural History, and to Mr. Ridgway of the Smithsonian Institution, for the privilege of comparing my birds with the collections of the respective museums.

Otocoris alpestris hoyti, new subspecies. HOYT'S HORNED LARK.

Subspecific characters.—Similar to *Otocoris alpestris* but with the upper parts generally paler and more gray, the posterior auriculars gray rather than brown, and the yellow of the head and neck replaced by white, excepting the forehead, which is dirty yellowish-white, and the throat, which is distinctly yellow, most pronounced toward the center.

Type, ♂ ad. (No. 1447, collection of L. B. Bishop), Cando, Towner County, North Dakota, April 22, 1895; L. B. B.

Length, 7.35; wing, 4.54; tail, 3.01; bill from nostril, .41; tarsus, .59.

The adult female in spring plumage (No. 1529, collection of L. B. Bishop, Rock Lake, Towner County, North Dakota, May 1, 1895) differs in a similar manner from the female of *alpestris*, but in the female of *hoyti* the yellow on the throat is much paler than in the male.

Two forms of Horned Larks are common in Towner County, North Dakota, in April: a small, pale variety most nearly allied to *O. a. arenicola*, which is already breeding, and a larger, darker bird found in flocks with the Snowflakes and Lapland Longspurs, whose reproductive organs are only slightly enlarged. This latter bird disappears early in May, and is apparently heretofore undescribed. From *leucolema* it may be separated by the darker upper parts and yellow throat, characters constant in all the specimens I have seen. The black of the malar region is broader than in skins of *alpestris*, but this difference may not always obtain. In size and color this form is intermediate between *alpestris* and *leucolema*, or rather between *alpestris*, which bounds its probable breeding-range on the east, *praticola* on the southeast, *arenicola* on the southwest, and *leucolema* on the west (*cf.* Dr. Dwight, Auk, VII, p. 144, line 14 et seq.). It can be distinguished from *arenicola* by its larger size and darker upper parts, and from *praticola* chiefly by its size, although in the latter the black markings of the jugulum and malar region are generally if not always more widely separated.

Ten adult males in breeding plumage from Towner County agree very closely with the type, differing only slightly in the intensity of the yellow on the throat, the purity of the white on the forehead, and the extent and prominence of the dark markings on the posterior part of the breast. One bird shows an

TABLE OF MEASUREMENTS OF *Otocoris alpestris hoyti*.

No. of Specimens.	Sex.	Locality.	Season.	Wing.			Tail.			Tarsus.			Bill from Nostril.		
				Average.	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Maximum.	Minimum.	Average.	Maximum.	Minimum.
10	♂	North Dakota.	Spring.	4.35	4.54	4.22	2.98	3.08	2.93	.90	.92	.88	.40	.42	.37
2	♂	Depot Island.	Spring.	4.37	4.38	4.36	3.01	3.04	2.98	.90	.91	.89	.405	.41	.40
4	♂?	North Dakota.	Winter.	4.32	4.47	4.22	2.89	3.05	2.79	.89	.92	.86	.365	.38	.35
4	♀	North Dakota.	Spring.	4.06	4.13	4.01	2.70	2.85	2.62	.88	.89	.86	.38	.39	.37

approach to *alpestris* in a yellow tinge to the supraorbital line and auriculars. The dark centers of the scapulars and interscapulars are also slightly more conspicuous in some specimens than in others.

Two adult male Horned Larks in worn breeding plumage in my collection, said to have been taken by George Comer, at Depot Island, Hudson Strait, in May 1894, differ from the type of *hoyti* chiefly in having the yellow of the throat a trifle paler, and the posterior auriculars browner and slightly yellowish. They are much nearer this form than to *alpestris*, and probably mark its eastern limit.

Four Horned Larks (probably males) taken at Cando, February 13, 1891, for which I am indebted to Mr. E. T. Judd, differ from spring birds in the following particulars: the yellow of the throat is paler,—in one specimen hardly perceptible,—the gray tips of the feathers longer, quite concealing the white and black of the forehead, and partially the black crescent on the chest, and the scapulars and interscapulars browner with more conspicuous dark centers. These birds might possibly be referred to *leucolaema*, as has been done with similar specimens by Dr. Dwight (Auk, Vol. VII, p. 143), but I am inclined to consider them representatives of the winter plumage of *hoyti*, principally on account of their dark upper parts, and somewhat smaller size.

I am very glad to have the opportunity of naming this race in honor of my friend Mr. William H. Hoyt of Stamford, Connecticut.

Melospiza fasciata juddi, new subspecies. DAKOTA SONG SPARROW.

Subspecific characters.—Similar to *Melospiza fasciata* but with the ground color of the upper parts paler, especially the superciliary streak and sides of neck, and the white of the lower parts clearer; the interscapulars with the black center broader, the reddish-brown portions narrower, and the gray edgings paler; the dark markings on the breast restricted, and more sharply defined against the ground color.

Type, ♂ ad. (No. 1674, collection of L. B. Bishop), Rock Lake, Towner County, North Dakota, May 11, 1895; L. B. B.

Length, 6.75; wing, 2.62; tail, 2.78; tarsus, .81; culmen, .51; bill from nostril, .36; depth of bill, .31.

W-66.5
T-70.0
T s.-27.6
C-12.9

A small series of Song Sparrows taken in Towner and Rolette Counties, North Dakota, during the spring and summer of 1895, may be separated from the eastern bird by the above characters. In general measurements, and in size and shape of the bill, this form is indistinguishable from *M. fasciata*, and shows no approach to *M. f. montana* in these respects, or in coloring. In general appearance it is characterized by a marked contrast between the light and dark portions of the plumage, most conspicuous in the interscapular region, while in *fasciata* the colors are more softly blended. From *samuelsis* and *heermanni*—perhaps its nearest allies after *fasciata*—it can easily be distinguished by a much paler ground color and less intense dark markings. Song Sparrows in the collection of the American Museum of Natural History, taken near Fort Snelling, Minnesota, during the spring, are intermediate between the Dakota bird and that inhabiting the Atlantic coast, but more closely resemble the latter.

In habits the Dakota Song Sparrow resembles the eastern bird, living in the brush which grows along the banks of the 'coulées.' It arrives in Towner County the latter part of April, but is by no means common on the prairie. One or two pairs nested at Rock Lake on a small island, which was covered with a tangled growth of willows, hawthorns and rose-bushes. We found it, however, quite common during June and July in the Turtle Mountains, inhabiting both the brush of the clearings and the reed-grown margins of retired lakes. The song is quite different from that of *fasciata*, being clearer, sweeter and more powerful. The first one I heard singing I could not believe was a Song Sparrow until I had the bird in my hand.

Two nests were found in the Turtle Mountains: the first on June 14, containing three young, one egg, and one egg of the Cowbird. This nest was composed of grass, and completely concealed in some high, dry and matted grass, on the borders of a small and secluded lake. The other nest was taken by Mr. Hoyt on July 11, and, thanks to his kindness, three of the four eggs which it contained are now in my collection. This nest was similar to the other, and hidden in the high grass of a hay slough.

The eggs, which average .75 in. in length by .60 in. in breadth, show a tendency to a sub-pyriform outline—a shape certainly

unusual in *fasciata*: otherwise, with their greenish-white ground color and profuse markings of reddish-brown, they are indistinguishable from eggs of the latter.

I take pleasure in naming this form in honor of Mr. Elmer T. Judd of Cando, North Dakota, to whom the success of our trip was largely due.

Average measurements (with extremes) of ten specimens (6 ♂, 4 ♀): length, 6.54 (5.75-6.75); wing, 2.66 (2.49-2.81); tail, 2.78 (2.69-2.91); tarsus, .81 (.77-.87); culmen, .51 (.49-.55); bill from nostril, .35 (.32-.37); depth of bill, .30 (.28-.31).

Chordeiles virginianus sennetti. SENNETT'S NIGHTHAWK.

A series of ten adult male Nighthawks from Towner and Rolette Counties, N. D., serve at least as an argument in favor of the validity of this subspecies. All closely resemble the type specimen (No. 4927, collection of George B. Sennett), now in the American Museum of Natural History, and differ from each other only slightly in the amount of buff or ochraceous, which replaces the white irregularly in different portions of the plumage. In all buff replaces the white to some extent, but no one of this series could be mistaken for *henryi*. The general pallor of the plumage is the chief characteristic of these birds, and serves to distinguish them from *virginianus* at a glance.

Three females from the same locality taken in June and July — one of them a breeding bird taken with a typical male and two eggs — are similar but with the upper parts darker and the entire lower parts tinged with buff, which becomes ochraceous-buff on the throat. Two other female Nighthawks from the same region, one taken on June 11, and the other with two eggs on June 24, are quite different, the prevailing tint of the entire plumage, except the greater wing-coverts, wings and tail, being ochraceous-buff. These birds might readily be referred to *henryi*, but all the males taken or seen during the breeding season were unmistakably *sennetti*. Two males of *virginianus* were taken by Mr. Hoyt during the migration in the latter part of May, but none were seen during the breeding season.

Two downy young taken by Mr. John Schaler from the same nest at Rock Lake, on July 17, have an interrupted black bar across the breast, black at the base of the mandible, and the entire upper parts mottled with black, but while the ground color of one is pure white, that of the other is pale ochraceous-buff, becoming white only in the center of the abdomen. This difference may be one of sex, or, taken in connection with the ochraceous females mentioned, connect *senetti* with *henryi*.

Wherever we went about the prairies we found this bird a rather common summer resident, especially in the neighborhood of water. It arrives the last week in May, and begins laying about the twentieth of June. The pale colors of the male protect him admirably, harmonizing with the dull gray of the fences and rocks, perched on which he passes the day, while the darker colors of the female render her less conspicuous when seated over her eggs on the black soil. Six eggs in my collection from Towner County average 1.67 in. in length by .88 in. in breadth, and are perhaps a trifle paler with somewhat smaller markings than eggs of *virginianus*.

Average measurement (with extremes) of thirteen specimens (10 ♂, 3 ♀): length, 9.53 (9.25-9.81); wing, 7.61 (7.08-7.87); tail, 4.68 (4.53-4.79).



AN APPARENTLY NEW *CHORDEILES* FROM COSTA RICA.

BY GEO. K. CHERRIE.

It is with much hesitation that I present the following as characterizing a new Nighthawk of the *C. virginianus* group,—that is, the species or subspecies in which the white wing-patch is posterior to the tips of the secondaries.