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ON A COLLECTION OF BIRDS LATELY MADE
BY MR. F. STEPHENS IN ARIZONA.

BY WILLIAM BREWSTER.

EARLY in 1881 I wrote to Mr. Stephens asking him to get me some Arizona birds during the following spring and summer. He replied that he was on the point of starting by wagon for California, but that being provided with a camping outfit, and feeling under no necessity of hurrying by the way, he was willing to give his whole attention, for several months at least, to collecting in my interest. It was accordingly arranged that the journey should take in as great a variety of country as possible, and that the most productive points should be thoroughly worked. The energy, intelligence, and conscientiousness with which this plan was carried out are sufficiently attested by the material results upon which the present paper is based.

The route traversed was substantially as follows: Leaving Galeyville on March 3, Mr. Stephens drove southward to Cave Creek, where a few days' collecting yielded a limited number of birds. At the end of this time he retraced his steps to Galeyville, and continuing northward, passed Camp Bowie, and crossed to the western side of the Chiricahua Mountains. Here a halt was made at Morse's Mill, after a journey of seventy miles by wagon-road from Cave Creek, although the distance is less than twelve

miles in an air line. This place is described in the notes as being at the head of a cañon, in a sort of basin, elevated about seven thousand feet above the sea, and encircled by mountains which rise from two to three thousand feet higher.

From some further remarks on the general character of the range, I quote the following: "The Chiricahua Mountains are situated in the southeast corner of Arizona, some of the foot-hills even reaching the line of New Mexico and the Mexican state of Sonora. Several small streams run east and west from their summits, those of the former division emptying into the San Simon Valley; of the latter into the Sulphur Spring and San Bernardino Valleys. The first two water-sheds are comprised in the Rio Gila system, while the San Bernardino Valley stretches southward, and water from it flows into the Pacific near Guaymas."

"These valleys are usually grassy plains, but there are scattering bushes, mostly mesquite, in some of them. The scrub oaks begin with the foot-hills; they are evergreen, the leaves being insensibly replaced with new ones in May. A little higher the juniper (called 'cedar' by the people here) comes in. Still higher, on the north side of the hills, there is a little piñon and scrub pine, while the summits are heavily timbered with red and black pines. In the gulches some fir grows, and on the hillsides, mostly near the summits and facing the north, occasional patches of aspen."

At Morse's Mill three weeks were very profitably spent, and on April 1 a start was made for Tucson, the next objective point. The route led through Sulphur Spring Valley, Tombstone, and Cienega Station, and at all these places, as well as at some intermediate points, a longer or shorter stay was made for the purpose of collecting. These delays consumed so much time that Tucson was not reached until April 18.

The country lying about this town and the neighboring station, Camp Lowell, proved so rich in desirable birds that it engaged Mr. Stephens' attention for nearly the whole of the two succeeding months, during which, however, a brief visit was paid to the Santa Rita Mountains, where some important observations were made.

The season practically ended with June, for the wagon-journey, begun on the 29th of that month, across the arid plains and scorching deserts of middle and western Arizona, was attended

with such privations, and often positive suffering, that little attention could be paid to birds. Mr. Stephens arrived at Yuma on July 15, and by August 1 reached his final destination, Riverside, California.

The entire trip yielded about six hundred and fifty skins besides a fairly large number of nests and eggs. Under the terms of our agreement I had all the birds, a representative series of the nests and eggs, and the field-notes relating to both. This collection, embracing the results of four months' uninterrupted work in a region as yet only imperfectly known, seems to me too complete in itself to be merely skimmed of its *cream*. Accordingly in preparing the following paper I have included every species which is represented among the specimens or mentioned in the collector's notes. It should be understood, however, that the latter were not kept with reference to this plan, and it is not unlikely that certain common birds, which are known to occur in Arizona, were inadvertently omitted. For similar reasons, the number of specimens obtained can seldom be taken as an exponent of the relative abundance of the species to which they belong, as a decided preference was given to the rarer kinds. Three species new to the "North American" fauna have already been announced (this Bulletin, Vol. VI, p. 252.).

A few technical points require explanation. The catalogue numbers are usually those of the collector's field-book, but in certain cases—as of specimens taken as types, or with birds obtained by Mr. Stephens before starting on the present trip—I have used my own numbers, either alone or in connection with the original ones. This double system need cause no confusion, however, for the field-numbers never reach 700, while those of my general catalogue are always above 5,000. Of the measurements, the length and stretch were taken in the field, the others from the dry skins. The biographical matter is of course based on Mr. Stephens' notes, which are sometimes paraphrased, sometimes literally quoted, as convenience dictates. The frequent quotations of Mr. Henshaw's experience or opinions are always, unless otherwise stated, from his Report in Volume V of "Explorations and Surveys West of the One Hundredth Meridian."

1. **Turdus unalascae** *Gmel.* DWARF THRUSH.—The only Hermit Thrush in the present collection is unmistakably refera-

ble to var. *unalascaæ*. In fact it gives nearly the same measurements as the smallest extreme in the large series examined by Mr. Henshaw.* Mr. Stephens marks it as the first which he has seen in Arizona where, however, it was found sparingly by Mr. Henshaw in October, 1873.

283, ♀ ad., Tucson, April 25. Length, 6.40; extent, 10.10; wing, 3.26; tail, 2.61; culmen, .52. "Bill dark brown, yellowish at base of lower mandible; legs pale brownish; iris brown."

2. **Turdus ustulatus** Nutt. RUSSET-BACKED THRUSH.—Under this heading I include with some hesitation, a Thrush killed May 17, in the Santa Rita Mountains. The specimen unfortunately was one of three or four which were accidentally destroyed while in the collector's possession, but Mr. Stephens is positive that it was referable to the above variety. As he is perfectly familiar with *ustulatus*, having previously met with it in California, there can, I think, be little doubt of the correctness of his determination. This record, if accepted, will make the first for Arizona.

397, ♀ ad., Santa Rita Mountains, May 17. Length, 6.90; extent, 10.70; "Iris dark brown; bill black, brownish at base of lower mandible; legs very pale brown."

3. **Turdus migratorius propinquus** Ridgw. WESTERN ROBIN.—Robins were met with only in or near the Chiricahua Mountains, where perhaps a dozen individuals were seen. The one mentioned below is typical of the slightly differentiated, but still apparently constant western race.

75, ♂ ad., Morse's Mill, March 20. Length, 10; extent, 16.40; wing, 5.38; tail, 4.36. "Iris dark brown."

4. **Oreoscoptes montanus** (Townsend) Baird. MOUNTAIN MOCKINGBIRD. There is no mention of this species among the notes made during the late trip.

6313 (author's coll.), ♀ ad., San Pedro River, Dec. 25, 1880. Length, 8.90; extent, 12.40.

5. **Mimus polyglottus** (Linn.) Boie. MOCKINGBIRD.—"Generally distributed and common, but not as abundant as in Southern California" (Camp Lowell). "Common in the valleys; they are found but a short distance up the foot-hills of the mountain ranges" (near Tombstone).

181, ♀ ad., near Tombstone, April 8. Length, 9.80; extent, 13.10; wing, 4.30; tail, 5.03.

* See this Bulletin, Vol. IV, p. 137.

550. ♂ ad., Camp Lowell, June 20. Length, 10.20; extent, 14.10; wing, 4.40; tail, 5.20. "Iris golden brown; bill and legs black."

6. **Harporhynchus bendirei** Coues. BENDIRE'S THRASHER.

—Mr. Stephens' notes contain few references to this species, and judging from the limited number of specimens which he obtained, it must be less abundant in Arizona than either *H. crissalis* or *H. curvirostris palmeri*, a status which is in strict accordance with Mr. Henshaw's experience. About half of the skins collected during the past season are labeled either Camp Lowell or Tucson, while the remainder were taken at various points directly north or south of the latter place, and not over twenty-five miles distant in either direction. Outside the limits of this desert region the bird was not anywhere met with, although it was common at Phoenix in February, 1880.

A nest taken June 16 near Tucson, and identified by the capture of one of the parent birds, was placed in a "cat-claw mesquite" at a height of about five feet from the ground. It is a deeply-hollowed, smoothly-lined structure, composed of fine grasses and soft, hemp-like vegetable fibres, which are protected externally, in a manner common to the nests of nearly all Thrashers, by a bristling array of interlaced twigs and thorny sticks. The interior cup measures two inches in depth by three in width. The two eggs which it contained, like those described by Dr. Coues, are readily separable from eggs of *H. palmeri* by their grayish-white instead of dull green ground-color. They are faintly marked with reddish-brown and lavender, the spots being confined chiefly to the larger ends, where many of them assume the character of blotches or dashes of color. These eggs measure respectively $1.02 \times .79$ and $.96 \times .79$. The greatest number of eggs found in any of the several nests examined by Mr. Stephens was three, but two seemed to be the usual complement.

Of the birds before me four are in first plumage, a stage which, if I am not mistaken, has never been previously examined. The first of these (No. 426, twenty-five miles south of Tucson, May 22) was unable to fly, and was taken from the nest. It differs from the adult in the following particulars: The upper parts, with nearly the same ground-color, have a tinge of reddish-brown which, on the rump, wing-coverts, and tips and outer webs of the primaries and secondaries, shades into brownish-chestnut. The sprouting rectrices are also tipped with the same color. The under parts generally are warm fulvous, which becomes nearly pure cinnamon on the sides and crissum, and along the median line pales to

fulvous-white. The breast and abdomen are everywhere thickly but finely spotted with dull black, these markings becoming finer and fainter where they border on the anal region. The remaining three (Nos. 538, ♀; 539,—; and 540. ♂; twenty-five miles north of Tucson, June 16) have the wings fully developed, and were all out of the nests when shot. They are apparently of about the same respective ages, but nevertheless exhibit a good deal of individual variation. No. 538 has the breast and sides finely spotted with dark brown, but a central space extending forward along the abdomen nearly to the breast is entirely unmarked. No. 535 has large, rounded, but indistinct blotches of light brown, thickly and evenly distributed over the entire under parts, excepting the throat, anal region and crissum. No. 539 has a cluster of faint, sagittate spots on the centre of the breast, but otherwise is entirely immaculate beneath. All three are essentially similar above, and differ from No. 426 in having the crown, nape, back, wing-coverts and outer webs of the secondaries pale reddish-brown, which, on the rump, is only tinged with chestnut. The primaries are dark brown edged with hoary; the rectrices, dull black with a terminal band of pale reddish-chestnut crossing both webs of all the feathers, but most broadly those of the outer pairs.

The adults making up the rest of this series vary a good deal with the season at which they were taken. A specimen killed in February is clear grayish-brown above, with the breast and abdomen thickly spotted; and one or two others shot early in May are nearly as deeply colored and distinctly marked. But most of the breeding birds are either entirely immaculate beneath, or with only a few faint specks scattered here and there upon the abdomen. Several of the latter are nearly as pale as my specimens of *H. lecontei*, and equally devoid of any special markings. This condition apparently is due mainly to the wearing off of the tips of the feathers, although the continued action of the sun's rays doubtless lends its aid, and still further bleaches the plumage.

453, ♂ ad, Camp Lowell, May 30. Length, 10.30; extent, 13.30.

4987, (author's coll.) ♂ ad., Tucson, Feb. 28, 1880. Wing, 4.25; tail, 4.84; culmen (chord), .99.

423, ♂ ad., twenty-five miles south of Tucson, May 21. Length, 10.40; extent 14.20; wing, 4.30; tail, 4.92; culmen, 1.06.

425, ♂ ad., same locality, May 22. Length, 10.30; extent, 13.10; wing, 4.01; tail, 4.96; culmen, 1.05.

455, ♂ ad., Camp Lowell, May 30. Length, 10.18; extent, 13.30; wing, 4.20; tail, 4.96; culmen, 1.05.

537, ♂ ad., twenty-five miles north of Tucson, June 16. Length, 10.10; extent, 12.70; wing, 4.14; tail, 4.78; culmen, 1.01.

583, ♂ ad., Camp Lowell, June 24. Length, 10.50; extent, 13; wing, 3.99; tail, 4.95; culmen, 1.05.

454, ♀ ad., Camp Lowell, May 30. Length, 10.10; extent, 12.70; wing, 3.95; tail, 4.43; culmen, 1.

529, ♀ ad., twenty-five miles north of Tucson, June 16. Length, 10.20; extent, 12.10; wing, 3.63; tail, 4.50; culmen, 1.01. "Iris yellow; legs dull bluish."

557. ♀ ad., Camp Lowell, June 21. Length, 10; extent, 13.20; wing, 4.10; tail, 4.60; culmen, .95.

426, ♀ juv. first plumage, twenty-five miles south of Tucson, May 22. Length, 6.10; extent, 9.40; "Iris light gray; bill dark brown, lighter below; legs pale bluish." Taken from the nest; wings and tail only partly developed.

538, ♀ juv. first plumage, twenty-five miles north of Tucson, June 16. Length, 10.10; extent, 12.50; wing, 3.77; tail, 4.59; culmen, .96.

539, — juv. first plumage, same locality and date. Length, 9.80; extent, 12.70; wing, 3.92; tail, 4.67; culmen, .92.

540, ♂ juv. first plumage, same locality and date. Length, 10; extent, 12.80; wing, 3.90; tail, 4.55; culmen, .95.

7. **Harporhynchus curvirostris palmeri** Ridgw. PALMER'S THRASHER. — During the present trip this Thrasher was met with at various points in the desert region about Tucson and Camp Lowell, where it was one of the most abundant and characteristic summer birds. Its favorite haunts were barren wastes covered with cactuses and stunted mesquites; but, like many other desert species, it occasionally visited the more fertile valleys to drink at the springs and water-holes. At these latter places specimens were obtained without much difficulty, but on all other occasions they were exceedingly shy and wary. In February, 1880, Mr. Stephens found Palmer's Thrasher at Phoenix, and he also took winter specimens along the San Pedro River.*

Numerous nests were taken. The one before me was placed in a cholla at a height of about seven feet. It is composed outwardly of large twigs, and is lined with bleached grasses. Although by no means a rude structure, it suffers by comparison with the nest of *H. bendirei*, its construction being simpler, and all the materials much coarser. The three eggs which it contained were only slightly incubated on June 14. They measure respectively $1.05 \times .82$, $1.09 \times .82$, and $1.08 \times .83$. They are pale greenish-blue, finely and very evenly spotted with brown and lavender. The number of eggs making up this set was not exceeded in any of the others examined by Mr. Stephens.

The series of skins embraces no less than twenty-two examples, and very fully illustrates all the variations of age and season. Among the number are several in the hitherto undescribed first plumage. The

* Its distribution in Arizona is apparently limited to a comparatively small area which, according to Mr. Stephens' experience, is bounded on the east by the valley of the San Pedro; on the west by a point "a few miles east of the Hassayampa, on the desert between it and Salt River."

youngest of these (No. 480, ♂?, Camp Lowell, June 2), although well feathered, has the wings and tail undeveloped, and was taken from the nest. Its entire upper plumage is rusty brown with a chestnut tinge which deepens on the rump and outer webs of the secondaries to decided chestnut brown. The general coloring of the under parts is pale fulvous with a strong tinge of rusty chestnut across the breast, along the sides, and over the anal region and crissum. The breast is obsoletely spotted, but the plumage elsewhere, both above and below, is entirely immaculate. An older bird (No. 577, Camp Lowell, June 23) with the wings and tail fully grown out, differs in having the back (excepting a narrow anterior space bordering on the nape), with the exposed webs and coverts of the wings, and a broad tipping on the tail feathers, bright rusty; — while in a third of about the same age (No. 614, ♂, Camp Lowell, June 28), the rusty color, although paler, is uniformly distributed over the entire upper surface save upon the wings and tail feathers, which are only edged and tipped with that color. This last example is so faintly marked beneath that the plumage at first sight appears immaculate; but a closer inspection reveals a few spots here and there among the central feathers of the breast. A fourth (No. 487, Camp Lowell, June 3), although apparently no older, has the breast and sides spotted more sharply than in any of the adults, while the rusty tinge above is chiefly confined to the rump, posterior half of the back, and the outer webs of the wing feathers.

Several of these young birds are so nearly similar to specimens of *H. bendirei* in corresponding stages that they can be separated only with great difficulty. The stouter bill and entirely black lower mandible of *palmeri* may, however, always be depended upon as distinguishing characters; and, moreover, the pectoral spotting of *bendirei* is usually (but not invariably) finer and sharper, and the rusty tinge above paler and less extended.

The adults present a good deal of variation, most of which is apparently seasonal. Winter specimens have the lower abdomen, with the anal region and crissum, rich rusty-fulvous, while the markings beneath are similar in character to those of true *curvirostris*, and the spots equally distinct, numerous and widely distributed. With the advance of the season, and the consequent wear and tear of the plumage, the spots gradually fade or disappear. Indeed some of the June specimens are absolutely immaculate beneath, although most of them, like Mr. Ridgway's types, have a few faint markings on the abdomen. In this condition the general coloring is also paler and grayer, and the fulvous of the crissum and neighboring parts often entirely wanting.

But although the evidence of this series tends to demolish several of the characters upon which *palmeri* has been based, enough remain to separate it from its ally the true *curvirostris* of Mexico and the Rio Grande Valley in Texas. The best of these, perhaps, is to be found in the different marking of the tail-feathers. In *curvirostris* the three outer pairs are broadly tipped with pure white which, on the inner web, extends twice as deep, basally, as on the outer ones, and has its boundaries every-

where sharply defined; in *palmeri* the outer rectrices are, at the most, barely tipped with pale brown, which either extends squarely across both webs, or fades insensibly into the darker color of the feather. The bill of *palmeri*, also, is usually longer and more curved than that of *curvirostris*.

8. **Harpörhynchus lecontei** Bonap. LECONTE'S THRASHER.—The great rarity of Leconte's Thrasher, even in the heart of the desolate regions where alone it has so far been found, is still further attested by Mr. Stephens' experience during the past season, for although he searched for it carefully in all suitable places between Camp Lowell and Riverside (California), he met with only two individuals. These occurred about fifteen miles west of Maricopa, Arizona, in a locality which the accompanying notes describe as follows: "Near the middle of 'Forty-five-mile Desert,' between Maricopa Wells and Gila Bend. No chollas or other cactuses in the immediate neighborhood, but some giant cactuses about a mile away in the hills; a few mesquites and much scattering low brush in the vicinity; nearest water twenty miles away."

Dr. Cooper is said to have found the species "rather common" in the desert between Fort Mohave and the San Bernardino Mountains, California, but Mr. Stephens has thrice traversed this route without seeing a single specimen. In a recent number* of the American Naturalist, however, Mr. E. Holterhoff, Jr., speaks of seeing the bird "on the Colorado desert, at a station called Flowing Wells," and gives an interesting description of a nest and set of eggs taken there. "The nest was placed in a palo verde tree, and was a very bulky affair, measuring externally nine inches in depth and six in width; the hollow of the nest was fully three inches in depth. It was so awkwardly situated that much of the base of the nest had evidently been filled in to firmly support the structure. The two eggs were somewhat smaller than those of *H. redivivus*, lighter in color, and marked all over with finer reddish spots, thicker at the larger end."

I am inclined to consider the Maricopa specimens above referred to as adults, although this is not so clear in the case of the male, portions of whose plumage suggest that of a young bird. Both are in worn, ragged condition, but there is no indication of any moult, save upon the wings and tail, where many of the feathers have been replaced by new ones which are conspicuous among the others by their fresher coloring.

* Vol. XV, No. 3, March, 1881.

On a former occasion* I urged the specific distinctness of this Thrasher from *H. redivivus*, and to this conviction I still hold, although a comparison of additional specimens of both species inclines me to believe with Dr. Coues that Leconte's Thrasher is, on the whole, more nearly related to *redivivus* than to any other United States form.

616, ♂ ad., near Maricopa Wells, July 5. Length, 10.80; extent, 12.30; wing, 3.85; tarsus, 1.27; tail, 5.35; culmen (chord), 1.30; bill from nostrils, .91; width below posterior angle of nostrils, .23.

617, ♀ ad., same locality and date. Length, 10.60; extent, 12; wing, 3.78; tarsus, 1.32; tail, 4.91; bill (chord of culmen), 1.32; bill from nostril, .94; width below posterior angle of nostril, .24. "Iris reddish brown; bill black; legs nearly black. Stomach contained a small species of katydid and some ants."

9. **Harporhynchus crissalis** Henry. CRISSAL THRASHER.
—Not uncommon near Tombstone, Tucson and Camp Lowell.

Dr. Coues, comparing this species with Le Conte's, Palmer's, and Bendire's Thrashers, concludes: † "and we are led to infer that when the 'topography' of the other three species is fully determined, it will be found no less extensive. For there is nothing peculiar in the economy or requirements of any one of the four in comparison with the rest." This view, however, is hardly supported by the testimony of observers who have had the best opportunities of studying these birds. The Crissal Thrasher, according to Captain Bendire, ‡ "appears to prefer damp localities near water-courses, and confines itself principally to spots where the wild currant is abundant." Mr. Henshaw says: "According to my experience, it is not a bird of the plains, but inhabits by preference the rough sides of rocky cañons or the hill-sides covered with broken *débris*, interspersed with straggling bushes." Mr. Stephens' evidence is not less explicit. He found the Crissal Thrasher in copses in valleys, and along streams. It was especially fond of well-shaded undergrowth, and spent much of its time on the ground, searching for food under the bushes. It never occurred among cactuses, and the only place where he saw it actually associating with Bendire's and Palmer's Thrashers, was at Camp Lowell, where the latter species, with other desert birds, came to drink at a water-hole and thus occasionally mingled with the Crissal Thrashers which inhabited the neighboring thickets. The contrast which these traits afford

* This Bulletin, Vol. VI, p. 67.

† Birds of the Colorado Valley, p. 74.

‡ Birds of the Colorado Valley, p. 75.

when compared with the ones characterizing the other three species named by Dr. Coues, is sufficiently apparent.*

A nest received from Mr. Stephens is precisely similar to those found by Captain Bendire. The three eggs which it contained measure respectively, $1.14 \times .76$, $1.14 \times .75$, and $1.08 \times .77$. Like all the specimens which have been previously reported they are entirely unspotted, and both in size and color closely resemble eggs of the common Robin.

Juv., first plumage (♀, No. 546, Camp Lowell, June 20). Above dull reddish-brown. Rump and a broad tipping on the tail, brownish-chestnut. Under parts nearly uniform brownish-fulvous. Crissum chestnut, of nearly the same shade as in the adult. Maxillary stripes dusky brown. No trace of spots or other dark markings either above or beneath.

Five other young birds in the series are essentially similar and call for no special comment. I cannot find any description of the first plumage of either *H. redivivus* or *H. lecontei*, but with the exception of these, *H. crissalis* is the only North American species in the sub-family *Miminae* whose young are entirely unmarked beneath. It is interesting to note that with respect to the color of the upper parts, especially that of the rump, they resemble the young of both *H. bendirei* and *H. palmeri*.

The individual variation presented by the adults before me is chiefly confined to the relative length and curvature of the bill, the general coloring of all being nearly uniform, although the breeding birds are slightly paler than those taken early in the season.

166, ♂ ad., near Tombstone, April 5. Length, 12.10; extent, 12.30; "Iris light brown. Stomach contained insects and a *small lizard*."

251, ♂ ad., Tucson, April 21. Length, 12.60; extent, 12.60; wing, 4.11; tail, 6.25; chord of culmen, 1.56. "Iris light gray, — almost white."

278, ♂ ad., Tucson, April 25. Length, 12.10; extent, 12.50; wing, 3.84; tail, 6.20; culmen, 1.47.

399, ♂ ad., Tucson, April 30. Length, 11.70; extent, 12.70; wing, 4.05; tail, 5.85; culmen, 1.53.

434, ♂ ad., Tucson, May 25. Length, 11.20; extent, 12.30; wing, 4.02; tail, 5.52; culmen, 1.43.

503, ♂ ad., Tucson, June 8. Length, 11.40; extent, 12.10; wing, 3.85; tail, 5.85; culmen, 1.46.

578, ♂ ad., Camp Lowell, June 23. Length, 11.60; extent, 12.60; wing, 4.05; tail, 5.75; culmen, 1.45.

437, ♂ juv., first plumage, Tucson, May 26. Length, 11.30; extent, 12.40; wing, 3.92; tail, 5.50; culmen, 1.18.

* In a recent letter Mr. Stephens adds:—"From my own observations I should characterize the respective haunts of the Arizona Thrashers as follows: *H. lecontei* is exclusively a bird of the deserts. *H. bendirei* is a desert bird approaching the valleys. *H. palmeri* occurs along the edge of deserts, occasionally appearing in valleys. *H. crissalis* haunts valleys and broad canons, seldom venturing into the deserts."

595. ♂ juv., first plumage, Camp Lowell, June 25. Length, 11.60; extent, 12.50; wing, 3.84; tail, 6.18; culmen, 1.35.

596. ♂ juv., first plumage, Camp Lowell, June 25. Length, 11.80; extent, 12.60; wing, 3.86; tail, 6.12; culmen, 1.40.

436. ♀ ad., Tucson, May 25. Length, 11.80; extent, 12.40; wing, 3.90; tail, 5.90; culmen, 1.55. Parent of No. 435.

435. ♀ juv., first plumage, same locality and date. Length, 11.30; extent, 12.20; wing, 4.02; tail, 5.55; culmen, 1.20.

546. ♀ juv., first plumage, Camp Lowell, June 20. Length, 11.60; extent, 12.40; wing, 4.95; tail, 6.02; culmen, 1.38.

555. ♀ juv., first plumage, Camp Lowell, June 21. Length, 11.30; extent, 12.20; wing, 3.73; tail, 5.65; culmen, 1.42.

10. **Cinclus mexicanus** Swains. AMERICAN WATER OUZEL.—The following notes relate to the only specimen met with:

“My attention was called to the song of some bird which came from the mountain brook running past camp. There was a steep, rocky wall on the further side, and the notes echoing from it, and mingling with the purling of the water, sounded exquisitely sweet. On looking for the author, I noticed some ripples rolling out from behind the willows that fringed the nearer shore, and soon discovered an Ouzel dabbling in the shallow water. My shot wounded the bird, but did not disable its wings, for it repeatedly dived, using them as propelling agents when beneath the surface. The sun shining on the air-bubbles that clung to its plumage made it look like a ball of silver flying through the water. On the surface it paddled along very much in the manner of a Phalarope.”

79. ♂ ad., Morse's Mill, Chiricahua Mountains, March 20. Length, 7.90; extent, 12.10; wing, 3.85; tail, 2.50. “Iris hazel. The flesh was dark and tough with a fishy smell. The inside of the skin looked like that of a small Wader. Stomach contained insects.”

11. **Sialia mexicana** Swains. WESTERN BLUEBIRD.—A single pair, taken in the Chiricahua Mountains in March, are accompanied by the note, “abundant in all kinds of timber.”

12. **Sialia arctica** Swains. ARCTIC BLUEBIRD.—This species is noted as “rare in the low valleys” among the Chiricahua Mountains. A small flock was also seen near Galeysville on “grassy plains,” where “they flew from one weed-stalk to another.” They were “restless and rather shy.” The single specimen obtained was shot on this latter occasion.

13. **Myiadestes townsendi** (Aud.) Caban. TOWNSEND'S SOLITAIRE.—Three specimens were obtained in the Chiricahua

Mountains, where they occurred sparingly among piñons. "They are rather tame, and have a habit of sitting perfectly still for several minutes at a time. Flight slow. Food insects." A fourth, taken May 13, in the Santa Rita Mountains, completes the series.

14. **Phainopepla nitens** (Swain.) *Scl.* BLACK-CRESTED FLYCATCHER.—The life history of this singular bird has been so fully given by Dr. Coues in "Birds of the Colorado Valley," that there is little chance of adding anything new. Most of the specimens obtained by Mr. Stephens are from Camp Lowell and Tucson, but he did not find it abundant at either of these points. He speaks of it as having "a sweet but not loud song," and remarks on its known fondness for mistletoe berries. "Iris red."

15. **Polioptila cærulea** (Linn.) *Scl.* BLUE-GRAY GNAT-CATCHER.—Eight specimens, representing the following localities: Chiricahua Mountains (two ♂, two ♀, April 1-6); Tombstone (♂, April 5); Cienega Station (♂, April 16); Tucson (♂, April 20); Santa Rita Mountains (♂, May 20).

16. **Polioptila plumbea** Baird. BLACK-CAPPED GNAT-CATCHER.—This Gnatcatcher was observed at Tucson, Camp Lowell, and near Yuma, specimens being taken in all these localities. A female shot at the first-named point on April 23 had evidently finished laying, but a nest found June 27 near Camp Lowell contained a perfectly fresh egg, while another taken at Yuma, July 15, had a single egg of its owner and one of the Dwarf Cowbird. These dates indicate that the species breeds at least twice during the season.

The Yuma nest, although a delicate structure, will not compare with that of *P. cærulea*. It entirely lacks the exterior coating of lichens so effectively employed by the commoner bird, and in its general appearance closely resembles the Redstart's well-known domicile, being similarly felted of soft bark-strips and hemp-like vegetable fibres. It is lined with down from plants, a few feathers, and the hair of some small quadruped. Externally it measures 2.25 in width by 1.55 in depth; internally 1.45 by 1. The egg is pale greenish-blue, coarsely and very evenly spotted with reddish-brown. Its measurements are .53 × .42. This nest was placed in a bunch of mistletoe, at a height of about eight feet from the ground. It is accompanied by the male parent, who revealed its position by repeatedly entering the mistletoe.

and showing other signs of anxiety respecting its contents. The position of the Camp Lowell nest is not mentioned.

Juv., first plumage, ♀ (No. 619, Yuma, July 15). Crown pale cinereous; rest of upper parts faded brown. The wings are uniform with the back, but all the primaries and secondaries have a broad white edging on their outer webs. The tail is dull black, with white areas on the outer rectrices corresponding in extent and purity with those of the adult. Beneath, pale ashy white.

A study of the large series of Gnatcatchers collected during the past season confirms the views which I lately advanced (this Bulletin, Vol. VI, p. 101) regarding the affinity of *P. plumbea* and *P. "melanura,"* and also affords additional evidence of the assumed specific distinctness of *P. californica*. The Yuma examples of *P. plumbea* are quite as typical as those taken at Tucson and Camp Lowell, while seven specimens of *californica*, collected at Riverside after Mr. Stephens' return to that place, still further attest the constancy of most of the characters which I assigned to the latter bird. That relating to the brown edging of the secondaries will, however, have to be abandoned, for *plumbea* proves to be similarly characterized when in worn breeding dress; the supposed shorter tail of *californica* also is now shown to be an inconstant feature. All of the three young males taken at Riverside have black lateral crown-stripes like those of immature *plumbea*.

267, ♂ ad., Tucson, April 23. Length, 4.60; extent, 5.80; wing, 1.85; tail, 2.15; bill (from nostril), .25; tarsus, .67. "Iris dark brown;" lores ashy mixed with black; eyelids white.

500, ♂ ad., Tucson, June 7. Length, 4.60; extent, 5.80; wing, 1.81; tail, 2.12; bill (from nostril), .25; tarsus, .65. Lores ashy mixed with black; upper eyelid white.

564, ♂ ad., Camp Lowell, June 22. Length, 4.55; extent, 5.80; wing, 1.84; tail, 2.19; bill (from nostril), .25; tarsus, .70. Lores black; both eyelids white.

567, ♂ ad., Camp Lowell, June 22. Length, 4.40; extent, 5.60; wing, 1.84; tail, 2.16; bill (from nostril), .26; tarsus, .70. Lores and superciliary line white mixed with black.

581, ♂ ad., Camp Lowell, June 24. Length, 4.40; extent, 5.80; wing, 1.98; tail, 2.20; bill (from nostril), .28; tarsus, .70. Lores ashy.

618, ♂ ad., Yuma, July 15. Length, 4.40; extent, 5.80; wing, 1.90; tail, 2.15; bill (from nostril), .26; tarsus, .68. Lores, with broad superciliary lines meeting across the forehead, white.

621, ♂ juv., first plumage, Yuma, July 16. Length, 4.40; extent, 5.60; wing, 1.76; tail, 2.13; bill (from nostril), .26; tarsus, .72. Sides of head ashy white; ill-defined, black, lateral crown-stripes partially concealed.

272, ♀ ad., Tucson, April 23. Length, 4.50; extent, 5.50; wing, 1.78; tail, 2.21; bill (from nostril), .27; tarsus, .68. "Had just finished laying."

458, ♀ ad., Camp Lowell, May 31. Length, 4.50; extent, 5.50; wing, 1.86; tail, 2.13; bill (from nostril), .26; tarsus, .68.

601. ♀ ad., Camp Lowell, June 27. Length, 4.60; extent, 5.50; wing, 1.74; tail, 2.18; bill (from nostril), .27; tarsus, .70. "Taken with the nest and one fresh egg."

619. ♀ juv., first plumage, Yuma, July 15. Length, 4.40; extent, 5.60; wing, 1.86; tail, 2.12; bill (from nostril), .26; tarsus, .70.

566. — juv., first plumage, Camp Lowell, June, 22. Length, 4.40; extent, 5.60; wing, 1.85; tail, 2.22; bill (from nostril), .27; tarsus, .68.

For comparison I add measurements of the seven specimens of *P. californica* above mentioned.

656. ♂ juv., fall plumage, Riverside, Sept. 16. Length, 4.55; extent, 5.70; wing, 1.67; tail, 2.20; bill (from nostril), .29; tarsus, .75.

658. ♂ juv., fall plumage, same locality and date. Length, 4.70; extent, 5.80; wing, 1.89; tail, 2.21; bill (from nostril) .26; tarsus, .75.

688. ♂ juv., fall plumage, Riverside, Sept. 23. Length, 4.50; extent, 5.90; wing, 1.73; tail, 2.11; bill (from nostril), .30; tarsus, .75.

657. ♀ juv., fall plumage, Riverside, Sept. 16. Length, 4.60; extent, 5.80; wing, 1.85; tail, 2.14; bill (from nostril), .30; tarsus, .72.

686. ♀ juv., fall plumage, Riverside, Sept. 23. Length, 4.45; extent, 5.90; wing, 1.92; tail, 2.17; bill (from nostril) .30; tarsus, .75.

687. ♀ juv., fall plumage, same locality and date. Length, 4.50; extent, 5.80; wing, 1.85; tail, 2.20; bill (from nostril), .28; tarsus, .70.

655. ♀ juv., fall plumage, Riverside, Sept. 16. Length, 4.45; extent, 5.75; wing, 1.86; tail, 2.15; bill (from nostril), .28; tarsus, .75.

17. **Regulus calendula** (Linn.) Licht. RUBY-CROWNED KINGLET.—"Common among the Chiricahua Mountains, especially in deciduous timber. I think a few summer and breed."

The following specimens are identical with eastern ones:

28. ♂ ad., Cave Creek, Chiricahua Mountains, March 8. Length, 4.60; extent, 6.50; wing, 2.32.

122. ♂ ad., Morse's Mill, March 28. Length, 4.20; extent, 6.90; wing, 2.38.

18. **Lophophanes inornatus** (Gamb.) Cass. PLAIN TITMOUSE.—Mentioned in Mr. Stephens' notes as rare on the foothills of the Chiricahua Mountains, but no specimens are included in his collection.

19. **Lophophanes wollweberi** Bonap. WOLLWEBER'S TITMOUSE.—This species was abundant in the Chiricahua Mountains, where a fine series was collected. They were usually seen in flocks of six or eight, and often associated with other small birds. They were rarely met with excepting in the groves of "scrub oaks," but their food appeared to be wholly insects. A single pair taken in the Santa Rita Mountains in May are unaccompanied by any special remarks.

20. **Parus meridionalis** ScL. MEXICAN CHICKADEE.—In a late number of the Bulletin (Vol. VI, p. 252) I briefly

announced this important addition to the North American fauna. The series obtained by Mr. Stephens comprises nine specimens, all of which were taken near Morse's Mill. They occurred upon the sides or summits of the surrounding mountains, at elevations varying from seven to ten thousand feet, and were usually found in pairs, although they not unfrequently associated with other birds, among which are mentioned *Psaltriparus plumbeus*, *Lophophanes wollweberi*, *Sitta pygmæa*, and *Peucedramus olivaceus*. They were for the most part silent, but occasionally uttered a "chee-wee-wee," as well as notes resembling those of *P. montanus*.

Previous writers have compared this species with *P. atricapillus*, but to me it seems nearer related to *P. montanus*. With the latter it agrees in certain peculiarities of size and proportions, while the general coloring and markings of the two are so similar that almost the only appreciable points of difference are presented by the white forehead and head-stripes of *montanus*. These characters are, of course, enough to instantly separate the birds, but their importance is somewhat weakened by the fact that one of my specimens of *meridionalis* (No. 124) possesses a head-stripe which, though ill-defined and considerably shorter, is nevertheless similar in appearance and position to that of *montanus*. While it would be rash to argue any varietal affinity on the strength of this single specimen, the outcropping of such a well-marked characteristic certainly shows a close relationship between the two species, unless indeed No. 124 be regarded as a hybrid.

65, ♂ ad., Morse's Mill, March 18. Length, 5.20; extent, 8.50; wing, 2.74; tail, 2.60. "Iris dark brown. Stomach contained insects."

82, ♀ ad., Morse's Mill, March 21. Length, 5.10; extent, 8.10; wing, 2.73; tail, 2.62.

83, ♂ ad., same locality and date. Length, 5.10; extent, 8.50; wing, 2.90; tail, 2.69.

99, ♀ ad., Morse's Mill, March 24. Length, 4.70; extent, 7.90; wing, 2.63; tail, 2.42.

100, ♂ ad., same locality and date. Length, 5.10; extent, 8.60; wing, 2.76; tail, 2.65.

104, ♂ ad., Morse's Mill, March 25. Length, 5.10; extent, 8.30; wing, 2.75; tail, 2.40.

105, ♂ ad., same locality and date. Length, 5.10; extent, 8.20; wing, 2.66; tail, 2.56.

124, ♂ ad., Morse's Mill, March 29. Length, 5.10; extent, 8.70; wing, 2.85; tail, 2.68.

125, ♂ ad., same locality and date. Length, 5; extent, 8.20.

21. ***Psaltriparus plumbeus* Baird.** LEAD-COLORED TIT.
—Of the eight specimens of this species which are included in the collection, seven were taken in the Chiricahua Mountains, the

remaining one being from the Santa Rita Mountains. Mr. Stephens does not appear to have found it elsewhere, and in his notes characterizes it as rather uncommon. It was oftenest seen among the oaks of the foot-hills, where it associated with Wollweber's Titmouse, the Ruby-crowned Kinglet, and several other small birds.

22. **Auriparus flaviceps** (*Sundev.*) *Baird.* YELLOW-HEADED TIT.—Mr. Henshaw while in Arizona met with but few specimens of this curious little species. He attributed their apparent rarity to the lateness of the season at which his observations were made, and doubtless this explanation is the true one; for during the past spring Mr. Stephens found them in abundance both at Cienega Station and Tucson. Nevertheless it is probable that some individuals pass the winter in Arizona, for one of my specimens is dated November 29, and another was killed early in March. A nest taken at Tucson contained three fresh eggs on April 20.

23. **Sitta carolinensis aculeata** (*Cass.*) *Allen.* SLENDER-BILLED NUTHATCH.—This Nuthatch was common in the pine forests of the Chiricahua Mountains, but the notes do not mention its occurrence elsewhere.

24. **Sitta pygmæa** *Vig.* PYGMY NUTHATCH.—Equally common with the preceding species in the same locality.

25. **Certhia familiaris mexicana** (*Gloger*) *Ridgw.* MEXICAN CREEPER.—Various writers have attributed the Mexican Creeper to our fauna, either on purely inferential grounds, or from a misconception, which at one time prevailed, regarding the relationship of the form found in California; for up to the present time no undoubted specimens of *mexicana* have been taken within our boundaries. It accordingly gives me much pleasure to announce the actual occurrence in Arizona of this well-characterized race, of which the specimen mentioned below is perfectly typical. It is the only Creeper which Mr. Stephens met with during the past season, but in the previous year two others, which I have not examined, but which he considers identical with this, were taken in the same locality. All the Arizona specimens obtained by Mr. Henshaw were referred to our eastern form.

66, ♀ ad., Morse's Mill, Chiricahua Mountains, March 18. Length, 4.80; extent, 7.10; wing, 2.45; tail, 2.25; culmen, .50. "Iris dark brown."

26. **Campylorhynchus brunneicapillus** (Lafr.) Gray. CACTUS WREN.—I notice little of special interest among the notes accompanying the eight skins which Mr. Stephens collected. He found the bird abundant in all suitable localities, and took several nests and sets of eggs. The unsophisticated young were easily shot, but the adults, even when breeding, were shy and hard to secure.

27. **Salpinctes obsoletus** (Say) Caban. ROCK WREN.—Mr. Stephens makes no mention of finding this species in Arizona during the past season, but he sends me a single specimen taken December 25, 1880, on the San Pedro River.

28. **Thryomanes bewicki leucogaster** Baird. WHITE-BELLIED WREN.—The collection includes five specimens of this form, which was apparently met with only in the Chiricahua Mountains and about Tucson. In the former locality it was common along the banks of streams where, however, it kept so closely hidden among the weeds and brush that it was oftener heard than seen. The examples before me are typical.

29. **Troglodytes aedon** Vieill. HOUSE WREN.—The only House Wren taken is absolutely indistinguishable from many of my Massachusetts specimens, and I accordingly refer it here. Furthermore, I fail to find the characters supposed to distinguish var. *parkmani*, in any of the several California specimens included in my series. If the latter form really possesses any constant differential characters, I believe they have yet to be defined.

169, ♀, near Tombstone, April 6. Length, 4.80; extent, 6.40; wing, 2.10. "Iris dark brown. Shot among low brush. Not common."

30. **Anthus ludovicianus** (Gm.) Licht. AMERICAN TIT-LARK.

271, ♀ ad., Tucson, April 23. Length, 6.50; extent, 10.60. "Bill brown, paler at base below; legs brown." Several seen in marshes along the stream.

31. **Helminthophila luciae** (Coop.) Ridgw. LUCY'S WARBLER.—Although this diminutive *Helminthophila* has been known to ornithologists for nearly twenty years, few specimens have found their way into the cabinets of private collectors, and up to the present time the species has remained a very rare one. On this account the acquisition of a good series of skins was among the main objects of Mr. Stephens' trip, and the success which rewarded his labors is very gratifying.

The first specimen was shot April 15 at Cienega Station, where, during the succeeding three days, six more were obtained. They frequented large willows along the banks of a stream and, like Kinglets, spent much of their time searching for food at the extremity of the branches. Although active and restless, they were not at all shy. The only note heard here was a sharp "tseep." On April 18 Mr. Stephens reached Tucson, where almost the first birds met with were Lucy's Warblers. During the early part of his stay they were more abundant among the mesquites than any other species, and their "tseeping" could be heard on every side. They were continually in motion, flying from tree to tree, and occasionally visiting some low brush in the vicinity. By the 28th their numbers became perceptibly diminished, but many remained to breed in the surrounding country. The presence of the species at Camp Lowell is attested by a single young specimen, barely large enough to fly, which was taken there on June 1st, but which is unaccompanied by any special remarks. An adult male from the Santa Rita Mountains, however, comes to me with the following comments, under date of May 19:—"This is the only one of the species which I have seen here. It was near the banks of a stream below the mouth of a cañon, where there were a few mesquites interspersed among the oaks. I watched it for some time. It lingered among the mesquites, seeming to prefer them to the oaks, in which, however, it occasionally alighted for a moment."

In addition to the above, Mr. Stephens' notes supply some very important information regarding the previously doubtful nesting habits of this species. A female taken April 25, proved on dissection to be about to lay, but no eggs were actually taken until May 8, when a full set of five was found near Tucson. After that date many nests containing either eggs or young were examined. Their sites were variable; the characteristic place, like that of the specimen discovered by Captain Bendire, was behind the loosened bark of a large tree, but use was frequently made of old Woodpecker's nests, knot-holes, and in short all sorts of crevices. A brood of nearly fledged young (one of which is before me) was actually taken from the deserted domicile of a Yellow-headed Titmouse, which had been appropriated by the new tenant without any apparent repairs or alterations. Among *Helminthophile* this Wren-like mode of nidification is, I believe, peculiar to this species.

I have the Tucson nest just alluded to. It is composed outwardly of twigs and weed-stalks; inwardly of hemp-fibres; while there is a scanty lining of horse-hairs and feathers. Like most *hole* nests it is rather flat, and the rim is thin in places where the walls of the cavity encroached on the space within. The eggs are white, handsomely wreathed about the larger ends with reddish-brown and umber spots, a few of which are also scattered over their general surfaces. They measure respectively .58X.46; .58X.46; .62X.46; .60X.47. The notes accompanying this set are as follows:—"Nest about six feet above the ground in a crevice nearly covered by bark. The bottom of the hole contained an old nest; over this were droppings of wood-rats, and the whole filled the cavity nearly to its top. The tree (a mesquite) stood within twenty feet of a frequented road. Female sitting. Eggs fresh; one had been broken and crowded in behind the nest by the parent bird." None of the other sets found by Mr. Stephens contained more than three eggs and the present clutch is probably an exceptionally large one.

Fuv., first plumage (♀ No. 471, Camp Lowell, June 1).—Wing-coverts and inner secondaries broadly tipped and edged with pale brownish-fulvous. Primaries and rectrices edged and tipped with hoary white. Rump and upper tail-coverts yellowish-chestnut. No chestnut on the crown. Otherwise colored like the adult.

Among a number of adults before me the range of individual variation is very limited, and is chiefly confined to the females. While it is true that some of the latter are indistinguishable from the brightest males, the majority have the rump and crown-patches considerably duller, the chestnut being either diluted in shade, or mixed with the color of the back. In No. 206 the crown-patch is concealed, the chestnut being restricted to the basal portion of the feathers.

225, ♂ ad., Tucson, April 18. Length, 4.40; extent, 6.70.

229, ♂ ad., Tucson, April 19. Length, 4.40; extent, 6.80.

231, ♂ ad., Tucson, April 19. Length, 4.40; extent, 7; wing, 2.35; tail, 1.93.

232, ♂ ad., Tucson, April 19. Length, 4.30; extent, 6.80; wing, 2.35; tail, 1.95.

253, ♂ ad., Tucson, April 21. Length, 4.40; extent, 6.70; wing, 2.21; tail, 1.87.

254, ♂ ad., Tucson, April 21. Length, 4.30; extent, 6.70; wing, 2.21; tail, 1.95.

255, ♂ ad., Tucson, April 21. Length, 4.50; extent, 7.10; wing, 2.23; tail, 1.93.

280, ♂ ad., Tucson, April 25. Length, 4.40; extent, 7; wing, 2.25; tail, 1.95.

- 299, ♂ ad., Tucson, April 28. Length, 4.40; extent, 6.70.
 326, ♂ ad., Tucson, May 4. Length, 4.30; extent, 7; wing, 2.20; tail, 1.93.
 340, ♂ ad., Tucson, May 7. Length, 4.40; extent, 7; wing, 2.21; tail, 1.93.
 410, ♂ ad., Santa Rita Mountains, May 19. Length, 4.10; extent, 6.90; wing, 2.22; tail, 1.82.
 516, ♂ ad., Tucson, June 10. Length, 4.30; extent, 7; wing, 2.12; tail, 1.85.
 524, ♂ juv., first plumage, Tucson, June 11. "Taken from nest, which also contained a young *Molothrus ater obscurus*."
 197, ♀ ad., Cienega Station, April 15. Length, 4.10; extent, 6.40; wing, 2.12; tail, 1.78. "Iris dark brown; bill black above, bluish beneath; legs black."
 206, ♀ ad., Cienega Station, April 16. Length, 4.40; extent, 6.50; wing, 2.17; tail, 1.80.
 208, ♀ ad., Cienega Station, April 16. Length, 4.20; extent, 6.60; wing, 2.09; tail, 1.82.
 217, ♀ ad., Cienega Station, April 17. Length, 4.30; extent, 6.70; wing, 2.21; tail, 1.84.
 218, ♀ ad., Cienega Station, April 17. Length, 4.10; extent, 6.60; wing, 2.10; tail, 1.85.
 228, ♀ ad., Tucson, April 19. Length, 4.30; extent, 6.70; wing, 2.10; tail, 1.85.
 230, ♀ ad., Tucson, April 19. Length, 4.30; extent, 6.70; wing, 2.07; tail, 1.84.
 256, ♀ ad., Tucson, April 21. Length, 4.20; extent, 6.60.
 260, ♀ ad., Tucson, April 22. Length, 4.30; extent, 6.60; wing, 2.08; tail, 1.85.
 261, ♀ ad., Tucson, April 22. Length, 4.30; extent, 6.70; wing, 2.25; tail, 1.92.
 279, ♀ ad., Tucson, April 25. Length, 4.30; extent, 6.70; wing, 2.10; tail, 1.82. "About to lay."
 433, ♀ ad., Tucson, May 25. Length, 4.50; extent, 6.50. "With nest and three eggs; set completed."
 449, ♀ ad., Tucson, May 29. Length, 4.40; extent, 6.90; wing, 2.11; tail, 1.77. "With nest and three eggs; set completed."
 439, ♀ juv., first plumage, Tucson, May 26. Nearly feathered, but unable to fly. "Taken from a deserted nest of *Auriparus flaviceps*."
 471, ♀ juv., first plumage, Camp Lowell, June 1. Length, 4.20; extent, 6.60; wing, 2.10; tail, 1.71. Fully feathered.

32. ***Helminthophila celata lutescens* Ridgw.** WESTERN ORANGE-CROWNED WARBLER. — A few were seen late in April near Tucson.

Although not perfectly typical of *lutescens*, both of the Orange-crowned Warblers obtained by Mr. Stephens are clearly referable to that race. They are not quite as yellow beneath as Nicasio (California) specimens, but they come within a shade of it, and are brighter by many shades than any of the same sex among my eastern examples; while in the vividness of the

olive-green on the upper parts, they fully equal any of the California females. The supposed difference in the tail markings of these races does not hold in the series before me, for a male from Nicasio has the edging on the inner webs of the rectrices quite as broad and pure as that of any of the Florida ones. The loss of this character, however, would be of little consequence, as the two forms could be readily separated by the wide difference in their general coloring. Mr. Henshaw considers his Arizona specimens true *celata*, and *lutescens* is now for the first time announced from that Territory.

290, ♀ ad., Tucson, April 26. Length, 5; extent, 7.30; wing, 2.45; tail, 2.10. "Iris dark brown; bill black, lighter at base below; legs dark brown. Not common."

291, ♀ ad., same locality and date. Length, 4.70; extent, 7.10; wing, 2.37; tail, 2.09. Same remarks.

(To be continued.)

NOTES ON THE OS PROMINENS.*

BY FREDERIC A. LUCAS.

My attention was first directed to this bone by Dr. Shufeldt's article in this Bulletin for October, 1881, and subsequently by Mr. Jeffries' paper in the number for January, 1882. With the view of ascertaining in what birds the os prominens is present, and what is its use, I have since examined quite an extensive series of birds. Lack of time has prevented as extended an examination as could be wished for; and as regards discovering any special use for this sesamoid, it must be confessed that the results of the investigation are not wholly satisfactory, being rather negative than positive in their character. But such as they are, they are submitted, in the hope that they may prove of service to some better skilled physiologist.

Through a lack of good material Dr. Shufeldt failed to discover the existence of the os prominens in any of the Owls, but it would seem to be specially characteristic of the *Bubonidæ*, since it is present in one particular shape, and with a constant mode of articulation, in the following species of that family: *Ketupa ceylonensis*, *K. javanensis*, *Bubo ignavus*, *B. bengal-*

*The name "os prominens," proposed by Dr. Shufeldt, has been adopted by me because it seems eminently proper that so large a sesamoid, frequently equalling the patella in size, should receive a distinctive appellation.