

tively claimed by Mr. Ridgway) I find that of Massachusetts specimens captured during the migrations, my series includes five that fall within the extremes assigned to *bicknelli*, to which, necessarily, they, with the Mt. Washington examples, must now be referred.

While it is perhaps unsafe to base any very positive conclusions on the material at present available, there seems every reason to believe that this small race will prove a reasonably constant one, at least as represented along the southern borders of its breeding range. However this may be, the long-disputed question of the character of the relationship borne by *T. aliciae* to *T. swainsoni*, is, as Mr. Bicknell has pointed out, at length definitely settled. Those who from the first have maintained their specific distinctness have surely good reason to exult in this final victory.

Our satisfaction at the acquisition of this Thrush, new specifically to the summer fauna of New England, and, as a variety, previously unrecognized from within its limits, can scarcely fail to be tempered with chagrin that so interesting a stranger has all this time existed among us undetected. Yet when we pause to reflect, there is the consolation—barren though it be—that our higher mountains have never been adequately explored by ornithologists; and who can say that they do not hold further surprises? With their Alpine flora and cold climate they offer conditions favorable to the requirements of many northern-breeding birds, and it is by no means improbable that several such, at present known only as migrants through New England territory, may eventually be found to pass the summer in their remote fastnesses. At all events the field is well worth further investigation.

NOTES ON AN HERMAPHRODITE BIRD.

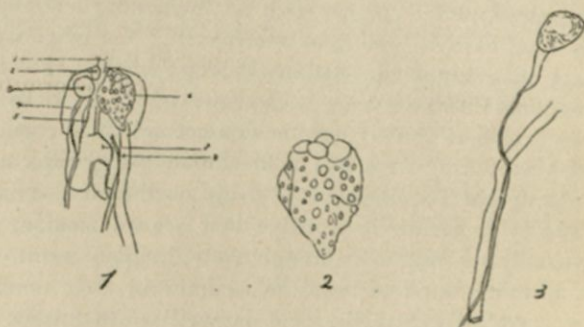
BY J. AMORY JEFFRIES.

A short time ago I received the body of a Green-tailed Towhee (*Pipilo chlorurus*), which forms the subject of the following description. The bird was shot by Mr. Brewster, at Colorado

Springs, on May 16, 1882. In plumage it resembled females of the species, but on dissection to determine the sex, both an ovary and a testicle were found; the one on the left the other on the right side. After examination by Mr. Brewster and Mr. J. A. Allen, the body was placed in water to prevent its drying, no alcohol being at the time procurable. Two days later the body was transferred to a small quantity of alcohol, in which it remained until presented to me.

When opened to determine the sex the body was cut on one side and the cloaca cut off from the rectum and the ducts, besides more or less injury being done to the mesenteries. Below follows a description of the anomalous organs, the kidneys, female and male structures.

The kidneys, of the usual structure found among the Sparrows, were perfectly normal in their anterior halves; the posterior halves, however, were anomalous. The left kidney was much diminished in width at the expense of the inner portion; the right kidney, on the contrary, was much wider than usual and extended



across the vertebral column and apparently—the specimen was somewhat broken—joined the left kidney by an isthmus.* From the posterior border of the isthmus depended a lobe in front and to the left of the vertebral column. Accordingly while the aorta (1, Fig. 1) and the pelvis (5) of the kidneys are to be seen in the anterior parts, these structures are posteriorly covered to a considerable degree. The substance of the kidneys was perfectly normal and with a smooth surface. The ureters were normal in every respect.

* This condition is sometimes found in man, where it is known as the horse-shoe kidney.

The supra-renal bodies (2, Fig. 1) were of fair size for an adult bird, and were wedged in between the heads of the kidneys and the aorta.

The ovary (6, Fig. 1 and Fig. 2) was entirely normal in position and appearance, and presented the usual resemblance to a bunch of grapes. It measured about .35 by .24 of an inch, the ova varying from .07 of an inch down. In all there were about forty ova easily visible to the eye. These, as shown by the microscope, were perfectly normal, and were fully as large as the ova of females of the species shot at the same time. The ovary was hung from the body, directly below the head of the left kidney, by the usual peritoneal foulds, and also separated by a median fould, the mesentery, from the right side.

The oviduct, normal in appearance and position, was but slightly convolute and not dilated. So sexual action had not fully commenced.

No vas deferens was to be found on the left side.

The testicle (3, Fig. 1 and Fig. 3), much shrunken on account of its maceration and sudden plunge into alcohol, was the least preserved part of the whole body. It was in its usual position on the right side, and was perfectly distinct from either the kidney or suprarenal body. Through the outer tunic a few convolutions could be seen.

The vas deferens extended from the testicle back in front of the right kidney and outside the pelves to the middle part of the right ureter. Here it crossed and became internal, but recrossed and again became external before reaching the cloaca. Near the kidney it was good sized, but shortly tapered down to a thread in very close connection with the wall of the ureter. The vas deferens was perfectly normal in structure for a bird before rut, but abnormal in relation to the right ureter.

There was no trace of an oviduct on the right side.

Since almost all the cases of reported lateral hermaphroditism have been, at one time or another, explained away as abnormal growths, or remains of the Wolffian bodies, I deemed it best to subject the testicle to a microscopic examination. The tunica albuginea, though by no means thick, was quite strong and composed of connective tissue. From its inner surface hung a few small threads, probably vessels and trabeculæ. The tunic was pierced at the vertebral surface by the vas deferens, vessels and

nerves. The substance of the testicle had evidently undergone considerable loss and by no means filled up the tunica albuginea.

When picked to pieces the substance of the gland was found to consist of rather small coiled tubes—the tubuli seminiferi,—blood-vessels and nerves. The tubes were naturally much decayed and went to pieces at the slightest touch. They stained but poorly with any reagent. The tubules were carefully examined with a high power for spermatozoa. No satisfactory evidence of their existence could be discovered, though two or three bodies which may have been developing spermatozoa were found. The histology of the tubules themselves seemed perfectly normal.

The blood-vessels, which entered with the vas deferens, branched and split up into capillaries which extended out to the surface of the organ.

In closing the description I would say that great care was taken to guard against all possible mistakes of identification, caused by diseased growth, remains of embryonic structures, or malformations, also that the testicle did not present the slightest resemblance to a modified *right* ovary; the true nature of the gland was undoubted.

There can therefore be no doubt but that the specimen is a perfect example of lateral hermaphroditism, the left side being like that of a normal female, and the right very much like that of a normal male, the abnormal condition of the kidney very likely explaining the slight change in relations of the genital and urinary ducts. That no spermatozoa were found does not prove the testicle to have been functionless, since the period of rut had not commenced. This of course assuming that no spermatozoa were found—a point I cannot positively assert—and that spermatozoa would have been found had they existed in the gland. Considering the decayed state of the gland, I doubt if the latter condition would hold good.

Similar cases are very rare and but three have, so far as I know, been reported for birds, while Quain's *Anatomy** in referring to man, reads as follows: "Extremely rare forms referable to the possible coexistence of the productive parts of testicle and ovaries in the same individual, usually combined with more or less of the foregoing kinds of malformation." This

* Quain's *Anatomy*, Eighth Edition, Vol. II, p. 825.

statement is thus worded on account of the doubt connected with many of the descriptions. There are, however, three cases reported as occurring in hens which are comparable. The first case, that reported by Bechstein,* was a chicken with a testicle on the right side and an ovary on the left, that is much like the Pipilo. The two cases reported by Simpson † were less perfect. One was simply a female bird with a half developed vas deferens on the right side, the other had a vas deferens on each side. In both cases there were slight mixtures in the habits and plumage of the two sexes.

In the Pipilo each side was perfect after its sex and showed no resemblance to the other sex, thus separating it from the second example given by Simpson. The natural explanation is that the two generative mounds took on the two sexes and that the accessory structures followed the master organs. So the Wolffian duct remained on one side and the Mullerian on the other.

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

BY WILLIAM BREWSTER.

(Concluded from Vol. VII, p. 212.)

122. **Antrostomus nuttalli** (Aud.) Cass. NUTTALL'S WHIP-POOR-WILL.—Although these Whip-poor-wills were common in many of the localities visited but few specimens were taken, a fact largely owing to their nocturnal habits. They were oftenest heard in rocky places, especially among foot-hills. One killed near Tombstone, on the evening of April 8, frequently alighted on the ground to pick up beetles.

123. **Chordeiles acutipennis texensis** (Lawr.) Ridgw. TEXAN NIGHTHAWK.—Represented in the collection by nine specimens from the following localities: Santa Rita Mountains,

* Naturgeschichte der Voegel, Bd. II, p. 1219.

† Article, Hermaphroditism, Todd's Ency. of Anatomy and Physiology.