

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.*

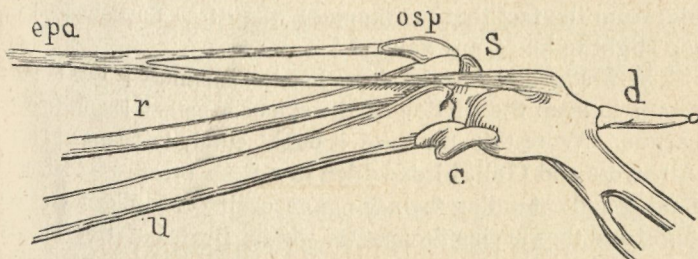
BY FREDERIC A. LUCAS.

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.

ensis, *B. virginianus*, *Scops brasilianus*, *S. asio*, *Nyctea scandiaca*, *Ninox albigularis*, *Asio otus*, *Syrnium nebulosum*, and *S. uralense*. It is not present in *Strix flammea* or *S. perlata*, and should it prove to be present in other genera of the *Bubonidæ* than those noted above, it may serve as an additional, though trivial, point of distinction between the families *Bubonidæ* and *Strigidæ*.

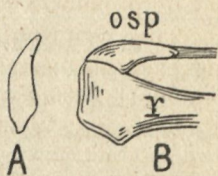


Left wing of *Bubo virginianus*, from below (reduced one third).
r, radius; *u*, ulna; *c*, cuneiform; *s*, scapho-lunar; *osp*, os prominens;
epa, tendon of extensor patagii longus.

The accompanying cut, drawn from a fresh specimen of *B. virginianus*, explains the form and position of the os prominens.

It will be noticed that it is situated on the anterior surface of the distal end of the radius, and runs almost parallel with that bone, instead of standing erect as in the *Falconidæ*. The radial portion of the tensor patagii longus terminates in the os prominens, and is not continued to the first metacarpal.

Apart from the Owls above noted, this bone has been found in *Otogyph calvus*, *Heterospizias meridionalis*, *Buteo melano-leucus*, *B. pennsylvanicus*, *B. lineatus*, *Circus gouldi*, *Asturina pucherani*, and *Haliæetus albicilla*.



A. Os prominens of *Otogyph calvus*, full size.
 B. " " " *Bubo virginianus*, seen from above to show
 articulation with radius, full size.

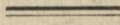
It is absent in *Polyborus tharus*, *Milvago chimango*, and the following peculiar forms which were examined to see if they would throw any light upon the subject: *Nyctibius*, *Strigops*, *Nestor*, *Megapodius*, *Ocydromus*, and *Atagen*. Neither was any trace of it to be found in two specimens of *Pandion haliaetus* from N. Africa and the Duke of York group. Dr. Shufeldt's theory that the os prominens is for the purpose of extending the wing area struck me, as it did Mr. Jeffries, as being untenable, from the fact that the increase of surface thus obtained was too slight to be of any value.*

The first proposition of Mr. Jeffries' summary is that the bone serves to keep the friction of the extensor patagii longus from the carpus. Were this the case it ought surely to be present in the Albatross and Gull, birds which in a fresh breeze are continually flexing and extending their wings according to the direction of their flight and the varying force of the wind. But in both these birds the os prominens is absent,† and moreover, as we see in the Owls, it may be so situated as not to prevent the friction of the ulnar portion of the tendon. Second, that it serves only to a limited extent to increase the power of the extensor patagii longus to abduct the thumb, is shown by the fact that in the majority of cases that tendon is inserted in the first metacarpal. The exceptions to this, so far observed by me, are in *Otogyps calvus* and *Haliaetus albicilla*, where there is a strong tendon running from the os prominens to the first phalanx of the thumb. The third proposition has already been considered, and the fourth (that it protects the carpus) must be rejected, both for the reason given by Mr. Jeffries, and because as we see it in Owls it frequently does not lie over the carpus at all. Only in *Otogyps calvus* does the os prominens seem to exist as a simple sesamoid, and in that bird it is imbedded in the tendon of the extensor patagii longus, and glides over the scapho-lunar. Were I to venture a suggestion it would be that

* The English Sparrow, which is but an indifferent flyer, can be deprived of one-half of the secondaries and one-fourth of the primaries of both wings, in the long axis of the pinion, without apparently impairing its flight. See Pettigrew.

† I find that this statement must be modified in regard to Gulls, if not retracted altogether, for since this paper was written I have found the os prominens in *Larus glaucus* and *L. dominicanus*. It is present as a small, elongated, trihedral prism, imbedded in the tendon of the extensor patagii longus, and playing over the flattened surface of the scapho-lunar.

by its serving as a point of attachment for the tensor patagii longus, that tendon is freed from all duties save that of "puckering up" the anterior margin of the wing; but, as stated before, that theory is by no means entirely satisfactory to me.



A LIST OF BIRDS FROM THE LOWER MISSISSIPPI VALLEY, OBSERVED DURING THE SUMMER OF 1881, WITH BRIEF NOTES.

BY O. P. HAY.

DURING the summer of 1881 the writer and two companions spent a little more than a month in the South, especially in the State of Mississippi, travelling and studying its zoölogy. Our primary object was to collect fresh-water fishes; and to this we devoted the greater part of our time and efforts. Incidentally, however, we collected and made observations on other animals. Hence this list of birds and the few notes concerning them. I did not intend to publish this list until I had opportunity to make additions to it; but the recent publication by Dr. F. W. Langdon of his field-notes on birds observed by him, early in the spring, at a point a little farther south, has made it seem proper that I should contribute my little toward making known the ornithology of this region.

Our observations and collections were made of course under difficulties, and no attempt was made to secure nests and eggs, or, in any special manner, notes on the breeding habits of birds. Still, on account of the season when our trip was made, this list may be of some value as indicating that the birds observed are summer residents. The number of species recorded is not large, but I include only birds that I am reasonably sure were seen. In nearly all cases the birds were shot, and identified by means of descriptions. Others were seen, but as they were not identified with certainty, they are not included in the list.

The birds noted as found at Memphis, Tenn., were really seen in Arkansas just across the river from Memphis. Most of our other notes were obtained at Vicksburg and Jackson, Miss.