

this latter bird having been kindly furnished me by Professor Henry A. Ward. Dr. Shufeldt's very figure of *Tachycineta* shows at a glance that the expanded ends of the maxillo-palatines have been broken off, and I have yet to learn that doubling the size of a drawing doubles its accuracy.

I should have been very glad to have found myself in error concerning *Panyptila*, as it would have given me another, although slight, point of resemblance between the Swifts and Hummingbirds.

The material in the National Museum has already taught me that the sternum may be notched or entire in Auks of the same species, and the same thing will be found to occur in the Loons; also, if my memory is not treacherous, in other water fowl. The reason for this is, it seems to me, very evident, while the fact itself has no bearing whatever on the present case. That Dr. Shufeldt is aware of this is shown by his haste to remark that "Of course in recording what I have just done in the preceding paragraph, I by no means wish it to be understood that I in any way underrate the significance of the 'notching' of the xiphoidal end of the sternum, in the *vast majority* of birds." I would also note that the entirety of the posterior margin of the sternum was but one of *four* good characters pointed out. Since Dr. Shufeldt places but little reliance on the structure of the bony palate as a taxonomic character, has had his faith in the sternum shaken, and rejects the modifications of the limbs (aside from the modification of the phalanges, on which he lays considerable stress!), it would seem that but little of the skeleton was left on which to found comparative distinctions.

That the 'osteologist-in-chief' is not conversant with a large amount of ornithological literature is unluckily too true, and he has always regarded it as a great misfortune. Still, had my commentator been less engrossed by the footnotes, he might have inferred from a paragraph almost at the very outset, that I was not *entirely* ignorant of Dr. Parker's opinions on the subject under consideration.

In conclusion, allow me to express my surprise at the concluding paragraph of Dr. Shufeldt's letter, the sarcastic tone of which leads me to infer that he prefers to evolve opinions which do *not* compare favorably with those held by living masters in morphology.

Very respectfully,

FREDERIC A. LUCAS.

Washington, D. C., Jan. 25, 1887.

#### The Sense of Smell in *Cathartes aura*.

TO THE EDITORS OF THE AUK:—

*Sirs:*—In his article in the January number of this Journal, Mr. Ira Sayles has added another instance to the already long list of fallacious 'proofs' of the remarkable power of scent in the American Vultures. Ignoring the fact that there is certainly room for some difference of opinion as to what constitutes a remarkable power of smell, he sets aside as utterly



worthless the experiments of Audubon, Bachman, and Darwin, and offers his own chance observations as proof that these able and careful observers were entirely wrong as regards both their methods and conclusions. It seems almost superfluous to say that our critic can scarcely have read the original accounts of the experiments he condemns, or he would neither accuse so thoughtlessly nor explain so easily.

As to the anatomical evidence introduced, it may be remarked that such an argument from structure to function is often extremely unsafe, even for the accomplished anatomist, and the danger is greatest where the experience is least. True, Owen has shown that the Turkey Buzzard has well-developed olfactory nerves; but in the same paper (*P. Z. S.*, V, 1837, p. 34, 35) where he records this, he states that the same nerves were found to be fully as well developed in the Goose, while even in the Turkey they were fairly developed, although only about one sixth as large. Furthermore, this distinguished anatomist, a part of whose testimony Mr. Sayles finds so "entirely satisfactory," closes his paper with the remark, that "The above notes show that the Vulture has a well-developed organ of smell, but whether he finds his prey by that sense alone, or in what degree it assists, anatomy is not so well calculated to explain as experiment." Again, according to Owen (*Comp. Anat. and Phys. Vert.*, II, 132), the olfactory nerves are relatively largest, among birds, in the Apteryx; yet this bird appears to use its power of smell mainly for the detection of the worms which form its daily food, and for which it probes in the ground, thus apparently using its keen scent only at very short distances,—hardly more indeed than the length of its own bill.

Turning now to the personal observations of Mr. Sayles, let us consider the evidence which he calls "positive," yet which I regard as entirely inconclusive. In the first place, the data given us are very incomplete, and several of the most important points recorded were observed merely by chance, and before any significance was attached to them; and one can scarcely help questioning the accuracy of many of the details of such observations, especially when it is remembered that the occurrences narrated took place more than a dozen years ago, and we are not informed whether the narrator writes from memory or from notes taken at the time. It is doubtful whether, under the most favorable circumstances, the movements of Buzzards could be fairly watched at a distance of "more than two miles," and we are not even told how this distance was determined. Again, as the observations were simply accidental, it is more than possible that single Buzzards had already reached the place unobserved by our critic, but *not* without attracting the attention of the distant flock, which responded in the usual manner. In order to account for the coming of these first few individuals we have only to assume that the dogs had carried out and left exposed a few fragments of offal, which would readily be detected by any sharp-sighted Buzzard which chanced to be passing, or which may have been in the habit of visiting the plantation every morning.\*

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\*In March, 1886, the writer received from S. E. Cassino & Co., the publishers of the 'Standard Natural History,' a lengthy criticism of his statements about the power of



Finally, the fact that the birds failed to find the source of the stench, and "gave up the search" after staying about "for an hour or two," is totally irreconcilable with the possession of such powers of scent as would enable them to detect the same odor at a distance of more than two miles.

If the space can be spared, I should be glad, in a future number of 'The Auk,' to discuss this subject further, and to give a brief *résumé* of the evidence on both sides of the question.

Respectfully,

Washington, D. C., March 4, 1887.

WALTER B. BARROWS.

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## NOTES AND NEWS.

DR. JOHN M. WHEATON, one of the original members of the A. O. U. and well known as an ornithologist, died at his residence in Columbus, Ohio, January 28, after protracted illness from consumption, at the age of forty-six. Dr. Wheaton has for many years been an occasional contributor to current ornithological literature; his principal work, however, was a report on the Birds of Ohio, published in 1882, in the fourth volume of the Geological Report of the State of Ohio.\* His unrivalled collection of the birds of Ohio is now at the State University. Dr. Wheaton was born at Columbus, and was educated at Davison University; he afterward studied medicine, graduating from the Starling Medical College in 1884, and immediately after entered the army as an assistant surgeon. In 1867 he was made Professor of Anatomy in the Starling Medical College, which position he held till his death. He was also a trustee of the college, and secretary of the board. He was a successful physician, a teacher of recognized ability, and held in high esteem by all who knew him. He leaves a wife and a son nine years of age. Dr. Wheaton's death is the first that has occurred among the Active Members of the A. O. U.

CONGRESS has appropriated \$12,000 for carrying on the work of the Department of Economic Ornithology and Mammalogy for the year ending June 30, 1888. Now that the adjournment of Congress has brought some relief to the Government Printing Office, it is hoped that some of the long-expected special reports of the Department will soon be put in type.

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scent in Vultures, as published in Volume IV of that work. The criticism, which was by Mr. Sayles, embodied all the facts since published by him in 'The Auk,' and much additional matter on various subjects. In connection with the particular instance cited above, it was there distinctly stated that a flock of Buzzards was no unusual sight on the plantation, and that nothing was thought of it in this case until they were seen wheeling about the *open wood-shed* (the italics are mine) where, during the night, the pot of offal had been upset by the dogs.

\* For a review of this work see Bull. Nutt. Orn. Club, Vol. VIII, p. 110.



Barrows, Walter Bradford. 1887. "The Sense of Smell in Cathartes Aura." *The Auk* 4, 172–174. <https://doi.org/10.2307/4067143>.

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