

I repeat this because several physiologists and lecturers on comparative anatomy still adhere to the old doctrine of the presence of air in the bones of all birds; and on asking a celebrated physiologist whether he believed that the bones of birds contained air; his reply was, "Has a bird a brain?"

Professor Owen, in the Lectures on Birds that he is now delivering at the Government School of Mines, as reported in 'The Medical Times and Gazette,' May 24, 1862, p. 537, says,—“In the swift Humming-birds and in other birds of flight, the air permeates the interior of every bone of the skeleton.”

Brisson and Lesson, as quoted by Sir W. Jardine, state that “the tongue of the Humming-bird is composed of two muscular tubes, joined together for the greater part of their length, towards the tip broadened or swelling, and, according to Lesson, terminated in a spoon-like point on the upper surface. They assist in retaining the different substances, which are immediately conveyed to the opening of the œsophagus by the contractility of the tubes.” Sir W. Jardine says “that he has confirmed this statement, as far as the examination of the moistened parts would allow.” He adds, “Our own examination of the tongue of the *Trochilus moschatus*, relaxed with warm water, gave the appearance of a fimbriated opening at the tip, having the exterior margin of each fork set with recurved, sharp-pointed, pliable spines, as if to assist its viscosity in securing any substance seized by them.”

It is possible that in the different species of *Trochilidæ* the tongue, like the beak and tail-feathers, may differ somewhat; but I believe it will be found that the cylinders are not hollow, and that the recurved spines spoken of by Sir W. Jardine are shreds of the membranous part of the tongue detached by maceration. The somewhat feather-like tongue of these birds is probably used chiefly for dipping into the nectar, and for detaching the small insects upon the flowers, the rapid motion of the organ enabling the bird to obtain a large supply of nourishment in a short time.

The examination of recent specimens will be necessary to decide the question as to the tubular character of the tongue; but there is one thing tolerably certain, viz. that the food of these birds is chiefly insects, and does not consist of the nectar of flowers only, as was formerly supposed.

12. ON THE CAPACITY OF THE ŒSOPHAGUS AND OTHER PARTS OF THE INTESTINAL CANAL OF PYTHON RETICULATUS. BY EDWARDS CRISP, M.D., F.Z.S., ETC.

The recent death of a specimen of *Python reticulatus* in the Society's Gardens enables me to speak of some parts of its structure, especially in relation to the question as to the habit of the Viper (*Vipera berus*) of swallowing its young.

This, as is well known, is denied by many: the late Professor Henslow believed that it was “physically impossible;” and a recent

writer on the subject, Dr. Bree of Colchester, the author of the 'Birds of Europe,' thinks "that the young Vipers would be killed by the gastric juice of the stomach."

In 1855 I read a communication to this Society (P. Z. S. 1855, p. 191) on the large size of the œsophagus of the Viper, as compared with that of the stomach; and I showed the alimentary tube of this reptile distended with air, and stated at that time that I had positive evidence that the Viper did swallow its young. The information I have received since that period enables me now to speak even with greater certainty upon this matter.

The physical obstacle spoken of I have been unable to discover; and the death and dissolution of the young by the gastric juice is an impossibility, because they do not enter the stomach. This will be shown by an account of the length and capacity of the alimentary tube of the Ophidian in question, the *Python reticulatus*,—the intestinal canal of the Viper, I may remark, being of about the same proportionate size.

This reptile, the exact cause of the death of which I was unable to determine, measured 15 feet in length; and I may add that I had an opportunity of examining, about the same time, a Python (*P. molurus*) that died on board a ship in the docks. The latter was nearly as long as the *Python reticulatus*. I could discover no important difference in their visceral anatomy: they were both females.

I will only allude briefly to a few points in the anatomy of the *Python reticulatus*. The ovaries were 6 feet 2 inches in length, and they each contained twenty-five ova, varying from the size of a pea to that of a nut. The trachea measured 2 feet 10 inches in length: the rings amounted to 437; they were nearly approximated at the upper part, but widely separated in the centre and lower portion.

The gall-bladder contained $2\frac{1}{2}$ ounces of bile; two cystic ducts proceeded from it, and these were united by cross ducts so as to form a network of ducts between the gall-bladder and the intestine. I know not whether this has been before described.

The œsophagus measured 6 feet in length, and contained 473 ounces of water; the stomach was 18 inches long, and held 74 ounces of water. The small intestines were 9 feet 6 inches in length, and contained 204 ounces of water. The large intestines measured 2 feet 11 inches, and contained 142 ounces. Total length 20 feet 4 inches; capacity of the whole alimentary tube 744 ounces.

I have measured the capacity of the alimentary tube of many of the serpents, and the length and size of the œsophagus are great in all; so that in the poisonous Ophidians which swallow their young there would be no possibility of the latter coming in contact with the gastric juice, as they could readily be received into the upper part of the œsophagus.



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