

OBSERVATIONS
ON
THE ANATOMY OF THE TOUCAN.

THE organs of digestion in the Toucan present a general simplicity of structure, which accords with its geographical position and power of assimilating both animal and vegetable food, so abundantly provided by Nature in a tropical climate. The amplitude of the œsophagus and general width of the intestinal canal correspond to the magnitude of the beak. There is no lateral dilatation or crop, nor is the gizzard so encroached upon by its muscular parietes as to render such a reservoir for the alimentary substances necessary. The intestinal canal is equally devoid of lateral pouches, or *cæca*: the gastric glands are of a simple form, and are disposed, for the extent of an inch, around the termination of the œsophagus. The communication of the gizzard with the *proventriculus* is free, and readily permits regurgitation to take place. This act has been observed in two living species of Toucan (*Ramphastos Erythrorhynchus* and *Ramph. Ariel*, Vigors); and as the substances so regurgitated were, after undergoing a second mastication, again swallowed, it may be compared to the rumination of herbivorous quadrupeds.

The intestinal canal does not exceed the length of the body, including the bill. The general structure of the digestive apparatus of the Hornbill agrees with that of the Toucan.

The liver of the Toucan is composed of two lobes, of unequal size, joined by a small band, the margins of the lobes being more rounded than usual. There is no gall-bladder, and in this deficiency the Toucan manifests an affinity to the *Picidæ* and *Psittacidæ*, among the *Scansores*; while the Hornbill, on the contrary, resembles the *Corvidæ* in the large development of its biliary receptacle. A small hepatic duct enters the duodenum near its commencement; and a second duct, about two lines in diameter, passes to a more distant part of the intestine, where it terminates close to the insertion of the two pancreatic ducts.

The kidneys are composed of three lobes, of which the middle one is the smallest; their length is $1\frac{1}{2}$ inch; their surface is convoluted, though in a less marked degree than in reptiles. Between the anterior extremities of these glands, in a female specimen of *Ramphastos Ariel*, was situated the ovary, of a triangular shape, and apparently healthy in structure. The *ova* were like minute granules, and disposed in a convoluted manner. The supra-renal glands were imbedded in the posterior part of the ovary. The oviduct was as large as a crow-quill; it commenced by the usual fimbriated and wide aperture, was slightly tortuous at the commencement, and then continued straight to the *cloaca*.

Among the varied forms of tongue which birds present, that of the Toucan is one of the most remarkable. Its length from the aperture of the *glottis*, in a full-grown *Ramphastos Toco*, was six inches. The posterior ridge, or backward-projecting process, was broad and finely notched; it was situated about 4 lines from the *glottis*. Anterior to this process the tongue is soft and minutely papillose for the extent of 4 lines, and here, most probably, the sense of taste resides: the rest of the organ consists of a transparent horny *lamina*,