like tongue, was described by Oviedo in his *Sumario de la Natural Historia de las Indias,* first published at Toledo in 1527 (chap. 42),@@1 and, to quote the translation of part of the passage in Willughby’s *Ornithology* (p. 129), “there is no bird secures her young ones better from the *Monkeys,* which are very noisom to the young of most Birds. For when she perceives the approach of those Enemies, she so settles her self in her Nest as to put her Bill out at the hole, and gives the *Monkeys* such a welcom therewith, that they presently pack away, and glad they scape so.” Indeed, so remarkable a bird must have attracted the notice of the earliest European invaders of America, the more so since its gaudy plumage was used by the natives in the decoration of their persons and weapons. In 1555 Belon *(Hist. Nat. Oyseaux,* p. 184) gave a characteristic figure of its beak, and in 1558 Thevet *(Singularitez de la France Antarctique,* pp. 88-90) a somewhat long descrip­tion, together with a woodcut (in some respects inaccurate, but quite unmistakable) of the whole bird, under the name of “Toucan,” which he was the first to publish. In 1560 Gesner *(Icones Avium,* p. 130) gave a far better figure (though still somewhat incorrect) from a drawing received from Ferrerius, and suggested that from the size of its beak the bird should be called *Burhynchus* or *Ramphestes.* This figure, with a copy of Thevet’s and a detailed descrip­tion, was repeated in the posthumous edition (1585) of his larger work (pp. 800, 801). By 1579 Ambroise Paré *(Œuvres,* ed. Malgaigne, iii. p. 783) had dissected a Toucan that belonged to Charles IX. of France, and about the same time Léry *(Voyage fait en la Terre du Bresil,* chap. xi.), whose chief object seems to have been to confute Thevet, confirmed that writer’s account of this bird in most respects. In 1599 Aldrovandus *(Ornithologia,* i. pp. 801-803), always ready to profit by Gesner’s information, and generally without acknowledgment, again described and repeated the former figures of the bird; but he cor­rupted his predecessor’s *Ramphestes* (which was nearly right) into *Ramphastos,* and in this incorrect form the name, which should certainly be *Rhamphestes* or *Rham- phastas,* was subsequently adopted by Linnaeus and has since been recognized by systematists. Into the rest of the early history of the Toucan’s discovery it is needless to go.@@2 Additional particulars were supplied by many succeeding writers, until in 1834 Gould completed his *Monograph* of the family@@3 (with an anatomical appendix by Sir R. Owen), to which, in 1835, he added some supplementary plates; and in 1854 he finished a second and much improved edition. The latest systematic compendium on Toucans is Cassin’s “ Study of the Ramphastidæ,” in the *Proceedings* of the Philadelphia Academy for 1867 (pp. 100-124).

By recent systematists 5 genera and from 50 to 60 species of the Family are recognized; but the characters of the former have never been satisfactorily defined, much less those of numerous subdivisions which it has pleased some writers to invent. There can be little doubt that the bird first figured and described by the earliest authors above named is the *R. toco* of nearly all ornithologists, and

as such is properly regarded as the type of the genus and therefore of the Family. It is one of the largest, measuring 2 feet in length, and has a wide range throughout Guiana and a great part of Brazil. The huge beak, looking like the great claw of a lobster, more than 8 inches long and 3 high at the base, is of a deep orange colour, with a large black oval spot near the tip. The eye, with its double iris of green and yellow, has a broad blue orbit, and is surrounded by a bare space of deep orange skin. The plumage generally is black, but the throat is white, tinged with yellow and commonly edged beneath with red; the upper tail-coverts are white, and the lower scarlet. In other species of the genus, 14 to 17 in number, the bill is mostly particoloured—green, yellow, red, chestnut, blue, and black variously combining so as often to form a ready diagnosis; but some of these tints are very fleeting and often leave little or no trace after death. Alternations of the brighter colours are also displayed in the feathers of the throat, breast, and tail-coverts, so as to be in like manner characteristic of the species, and in several the bare space round the eye is yellow, green, blue, or lilac. The sexes are almost alike in coloration, and externally differ chiefly in size, the males being largest. The tail is nearly square or moderately rounded. In the genus *Pteroglossus,* the “ Aracaris” (pronounced Arassarí), the sexes more or less differ in appearance, and the tail is graduated. The species are smaller in size, and nearly all are banded on the belly, which is generally yellow, with black and scarlet, while except in two the throat of the males at least is black. One of the most remarkable and beautiful is *P. beauharnaisi,* by some authors placed in a distinct genus and called *Beauharnaisius ulocomus.* In this the feathers of the top of the head are very singular, looking like glossy curled shavings of black horn or whalebone, the effect being due to the dilatation of the shaft and its coalescence with the consolidated barbs. Some of the feathers of the straw-coloured throat and cheeks partake of the same structure, but in a less degree, while the subterminal part of the *lamina* is of a lustrous pearly-white.@@4 The beak is richly coloured, being green and crimson above and lemon below. The upper plumage generally is dark green, but the mantle and rump are crimson, as are a broad abdominal belt, the flanks, and many crescentic markings on the otherwise yellow lower parts.@@5 The group or genus *Selenodera,* proposed by Gould in 1837 (*Icones Avium,* pt. 1), contains some 6 or 7 species, having the beak, which is mostly transversely striped, and tail shorter than in *Pteroglossus.* Here the sexes also differ in coloration, the males having the head and breast black, and the females the same parts chestnut; but all have a yellow nuchal crescent (whence the name of the group). The so-called Hill-Toucans have been separ­ated as another genus, *Andigena,* and consist of some 5 or 6 species chiefly frequenting the slopes of the Andes and reaching an eleva­tion of 10,000 feet, though one, often placed among them, but perhaps belonging rather to *Pteroglossus,* the *A. bailloni,* remark­able for its yellow-orange head, neck, and lower parts, inhabits the lowlands of southern Brazil. Another very singular form is *A. laminirostris,* which has affixed on either side of the maxilla, near the base, a quadrangular ivory-like plate, forming a feature unique in this or almost in any Family of Birds. The group *Aulaco- rhamphus,* or “Groove-bills,” with a considerable but rather un­certain number of species, contains the rest of the Toucans.

The monstrous serrated bill that so many Toucans possess was by Buffon, after his manner, accounted a grave defect of Nature, and it must be confessed that no one has given what seems to be a satisfactory explanation of its precise use, though on evolutionary principles none will now doubt its fitness to the bird’s require­ments. Solid as it looks, its weight is inconsiderable, and the perfect hinge by which the maxilla is articulated adds to its efficiency as an instrument of prehension. Swainson (*Classif. Birds,* ii. p. 138) imagined it merely “to contain an infinity of nerves, disposed like net-work, all of which lead immediately to the nostrils,” and add to the olfactory faculty. This notion seems to be borrowed from Trail *{Trans. Linn. Society,* xi. p. 289), who admittedly had it from Waterton, and stated that it was “ an admirable contrivance of nature to increase the delicacy of the organ of smell; ” but Sir R. Owen’s description shews this view to be groundless, and he attributes the extraordinary develop­ment of the Toucan’s beak to the need of compensating, by the additional power of mastication thus given, for the absence of any of the grinding structures that are so characteristic of the in­testinal tract of vegetable-eating birds—its digestive organs possess­ing a general simplicity of formation. The question is one worth deciding, and would not be difficult to decide by those who have the opportunity. The nostrils are placed so as to be in most

@@@1 The writer has only been able to consult the reprint of this rare work contained in the *Biblioteca de Autores Españoles* (xxii. pp. 473- 515), published at Madrid in 1852.

@@@2 One point of some interest may, however, be noticed. In 1705 Plot (*N. H. Oxfordshire,* p. 182) recorded a Toucan found within two miles of Oxford in 1644, the body of which was given to the repository in the medical school of that university, where, he said, “it is still to be seen.” Already in 1700 Leigh in his *Lancashire* (i. p. 195, Birds, tab. 1, fig. 2) had figured another which had been found dead on the coast of that county about two years before. The bird is easily kept in captivity, and no doubt from early times many were brought alive to Europe. Besides the one dissected by Pare, as above mentioned, Joh. Faber, in his additions to Hernandez’s work on the Natural History of Mexico (1651), figures (p. 697) one seen and described by Puteus (Dal Pozzo) at Fontainebleau.

@@@3 Of this the brothers Sturm in 1841 published at Nuremberg a German version.

@@@4 This curious peculiarity naturally attracted the notice of the first discoverer of the species, Poeppig, who briefly described it in a letter published in Froriep’s *Notizen* (xxxii. p. 146) for December 1831.

@@@5 Readers of Mr Bates’s *Naturalist on the River Amazons* will recollect the account (ii. p. 344) and illustration there given of his encounter with a flock of this species of Toucan. His remarks on the other species with which he met are also excellent.