

' The hair of the patira is not so hard as that
' of the wild boar, or domestic hog, but is soft
' and flexible like that of the pecari. The patira,
' when tamed, follows his master, and allows
' himself to be handled by those with whom he
' is acquainted; but strangers he threatens with
' his head and teeth.'

The TERNAT BAT*, the lesser
TERNAT BAT†, and the VAM-
PIRE, or SPECTRE‡.

THOUGH the two Ternat bats appear to
be distinct species, we have placed them
together, because of their great resemblance; for
they differ only in magnitude and colour. The
larger,

* The bats, or winged quadrupeds, are distinguished from all
other animals, by having long toes on the fore-feet, connected by
thin broad membranes, extending to the hind-legs.

The great or Ternat bat has large canine teeth, four cutting
teeth above, and an equal number below, a sharp black nose,
and large naked ears. The tongue is pointed, and terminated
by sharp aculeated papillæ. The exterior toe is detached from
the membrane, and the claw is strong and hooked. There are
five toes on the hind-feet; the talons are very crooked, strong,
and compressed sidewise. It has no tail; the membrane is
divided behind quite to the ramp. The head is of a dark fer-
ragineous colour: On the neck, shoulders, and under-side, the red
is much lighter and brighter. On the back, the hair is shorter,
dusky and smooth. The membranes of the wings are dusky.
They vary in colour; some are entirely of a reddish brown,
others dusky. This now described was one foot long, and the
extent of the wings, from tip to tip, was four feet. But they
are found vastly larger; *Pernat's Synopsis of Quad.* p. 359.

La Rouffette, vulgairement le Chien-Volant.

Vespertilio ingens; *Gloss. Exot.* p. 94.

Vespertilio; *Goss. Hist. Avium.* p. 772.

Canisvolans Ternatensis orientalis; *Scha.* vol. i. p. 91. tab. 57.

fig. 1, 2.

Vespertilio vampyrus, *baso simoëci*, *membrana inter femora*
divisa; *Linn. Zool. Nat.* p. 46.

Vespertilio

larger, whose hair is of a reddish brown colour, is nine inches long from the end of the muzzle to the

Vespertilio cynocephalus Ternatanus; *Klein. Quad.* p. 61.

Pteropus rufus aut *niger*, *auriculis brevibus acutiusculis*; *Brisson. Quad.* p. 153, 154. No. 2.

The great bat from Madagascar; *Edw. Hist. of Birds*, part iv. p. 180.

† La Rougette; Le chien-volant à col rouge.

Pteropus fuscus, *auriculis brevibus acutiusculis*, *collo superi- ore rubro*. La Rousette à col rouge; *Brisson. Regn. Anim.* p. 154.

Note, M. Brisson has separated with propriety the Ternat bats from the common bat. Linnaeus is wrong, when he says, that all bats have four cutting teeth in each jaw. This character is true in the Ternat bats; but the common bats have four cutting teeth in the upper jaw, and six in the under; and, consequently, according to Linnaeus's method of classing by the number and arrangement of the teeth, these animals cannot belong to the same genus.

‡ The vampire or spectre has a long nose, large teeth, and long, broad, upright ears. At the end of the nose there is a long conic erect membrane, bending at the end, and flexible. The hair on the body is cinereous, and pretty long. The wings are full of ramified fibres. The membrane extends from hind leg to hind leg. It has no tail; but from the rump extend three tendons, terminating at the edge of the membrane. By Seba's figure, the extent of the wings is two feet two inches, and from the end of the nose to the rump, seven inches and a half; *Pennant's Synops. of Quad.* p. 363.

The spectre is an American animal, mentioned under the vague names of the *great American bat*, or *the flying dog of New Spain*.

Canis volans maximus, *auritus*, ex *Nova Hispania*; *Seba*, vol. 1. p. 92. tab. 58. fig. 1.

Vespertilio cynocephalus maximus, *auritus*, ex *Nova Hispania*; *Klein. Quad.* p. 62.

Vespertilio spectrum, *caudatus*, *naso infundibuliformi lanceolato*; *Linnaeus. Syst. Nat.* p. 46.

Pteropus auriculis longis, *patulis*, *naso membrana anteriorum inflexa recto*; *Brisson. Regn. Anim.* p. 154.

Andira

the extremity of the body; and the wings, when extended, are three feet from tip to tip; and the lesser, whose hair is of a cinereous brown colour, exceeds not five and a half inches in length, and the wings extend not above two feet; and it has on the neck a half-collar of a lively red, mixed with orange, of which there is no vestige in the larger kind. Both belong nearly to the same warm climates of the Old World, being found in Madagascar*, Mauritius, Ternat, the Philippines, and other islands of the Indian Archipelago, where they seem to be more common than on the adjacent Continents.

In the warm countries of the New World, there is another flying quadruped, the American name of which we have not learned. We shall call it *vampire*, because it sucks the blood of men and other animals when asleep, without occasioning pain sufficient to waken them. This American animal is of a different species from the two Ternat bats, both of which are peculiar to Africa and the South of Asia. The vampire is smaller than either of the Ternat bats. The first, when it flies, appears to be of the size of a pigeon; the lesser Ternat bat is of the size

Andira guaco, *vespertilio cornutus*; *Piss. Brasil.* p. 190. *Margrave*, *Brasil.* p. 213.

* Is the island of Madagascar, &c. the bats are as large as hens, and so numerous that they frequently darken the air. Their cry is frightful; *Voyage de Madagascar*, par le P. F. p. 83. 245.

of

of a crow, and the largest is as big as a large hen. Both Ternat bats have well formed heads, short ears, and rounded muzzles, nearly resembling that of a dog. The muzzle of the vampire, on the contrary, is longer; its aspect is equally hideous as that of the most ugly bats; its head is ill shaped; and its ears are large, open, and very erect. It has a deformed nose, the nostrils being of the shape of a funnel, with a membrane above them, which is elevated like a horn or painted crest, and adds greatly to the deformity of its countenance. Hence it is apparent, that this species is totally different from the Ternat bats. The vampire is not more remarkable for its deformity than its mischief. Of this we have the recent and authentic testimony of M. de la Condamine: 'The bats,' says he, 'which suck the blood of horses, mules, and even of men, if they do not sleep under the shelter of a house or tent, are a common scourge to most of the warm countries of America. Some of them are of a monstrous size. At Borja, and several other places, they have entirely destroyed the cattle which had been introduced there by the missionaries, and begun to multiply*.' These facts are confirmed by several other historians and travellers. P. Martyr†, who wrote soon after the conquest of South

* Voyage de la Riviere des Amazones, par M. de la Condamine, p. 171.

† In Dariene, novi orbis regione, Hispani noctu vesperilionum moribus

South America, says, that, in the Isthmus of Darien, there are bats which suck the blood of men and cattle, when asleep, to such a degree as to weaken and even kill them. This fact is likewise affirmed by Jumilla*, as well as Don George Juan, and Don Antoine de Ulloa†. Though it appears, from these authorities, that the blood-sucking bats are very common in all South America, we have never hitherto been able to procure a single individual. But Seba has given a figure and description of this animal, whose nose is so extraordinary, that it is surprising such a conspicuous deformity should not have been taken notice of by travellers. The

moribus torquebantur, quæ si dormientem forte momorderint, quæpiam, exhausto sanguine trahunt in vitæ discrimen, et mortui fuisse nonnullos ex ea tabe compertum est; Petrus Martyr, Oceani decadis tertius lib. 6.

* In South America, the bats are incredibly troublesome. There are two kinds, one of the size of those we see in Spain; the other so large, that the wings extend three quarters of a yard. Both are dexterous blood suckers, and fly about during the night in quest of men and cattle. If those who are obliged to sleep on the ground do not cover themselves from head to foot, which is very inconvenient in these warm regions, they are certain of being pierced by the bats. With regard to those who sleep in houses, with their front only uncovered, they are infallibly bit; and, if these animals strike a vein, the unfortunate person often passes insensibly from sleep to death by the loss of blood, so subtle is the wound inflicted: Besides, by fanning the air with their wings, they refresh the sleeper whom they mean to deprive of life; Hist. Nat. de l'Orinoco, par le Père Jumilla, tom. iii. p. 100.

† Bats are very numerous at Carthage; they bleed the inhabitants so dexterously, and without wakening them, as to infect them extremely; Biblioth. Raisonnée, tom. xlv. p. 409.

strange animal described by Seba, may not be the vampire or blood-sucker. Seba's figure may be erroneous; and the deformed nose may be only an accidental monstrosity, though there are examples of similar and permanent deformities in other species of bats. Time alone can remove these uncertainties.

Both the Ternat bats are in the Royal cabinet, and were brought from the Isle of Bourbon. They are peculiar to the Old Continent, and are no where so numerous in Africa and Asia, as the vampire is in America. These animals are larger, stronger, and perhaps more mischievous than the vampire. But their destruction is executed by open force, both during the day and the night. They kill poultry and small birds: They attack men, and often wound them in the face. But no traveller mentions their sucking the blood of men or cattle, when asleep.

The ancients had an imperfect knowledge of these winged quadrupeds, which are a kind of monsters; and it is probable, that, from such whimsical models of nature, they had conceived the idea of harpies. The wings, the teeth, the claws, the cruelty, the voracity, the filthiness, and every other deformity and destructive quality ascribed to the harpies, correspond very well with our Ternat bats. Herodotus* appears

* Herodot. lib. iii. It is singular, that Pliny, who has related so many marvellous stories, should here accuse Herodotus

pears to point them out, when he says, that there were large bats which were extremely troublesome to the people who gather cassia around the marshes of Asia; and that they were obliged to cover their bodies and faces with leather, to defend themselves against the dangerous bites of these animals. Strabo* speaks of large bats in Mesopotamia, whose flesh made good eating. Among the moderns, Albertus, Isidorus, and Scaliger, mention these large bats, in a vague manner. Linscot, Nicolas Matthias†, and Francis Pyrard‡ have made more particular mention of them; and Olier Jacobus|| has given a short description, and a figure of them.

Lastly,

detest of falsehood, and treat the fact of bats attacking men, as a mere fable of antiquity.

* In Mesopotamia, inter Euphratis conversiones, est maxima vesperilionum multitudo, qui longe majores sunt quam in ceteris locis. Capienter, et in esum conduntur; Strabo, lib. xvi.

† Nicolas Matthias, in a work printed at Visurgbourg. in Sweden, says, p. 123. that these large bats fly in flocks during the night; that they drink the juice of the palm-trees in such quantities as render them intoxicated, and make them fall, as if they were dead, at the roots of the trees; that he seized one in this condition, and having nailed it to a wall, it gnawed and rounded the nails with its teeth, as if they had been filed. He adds, that its muzzle resembles that of a fox.

‡ In the island of St. Lawrence and in the Maldiva Islands, there are bats as large as crows; Voyage de Pyrard, tom. i. p. 38. 132.—In Malabar, the bats fly at noon day; they are as large as cats, and people eat them without reluctance; Biblioth. Raisonnée, tom. xxxii. p. 194.

|| There are two of these bats in the *Museum Regium Hag-*
siae, 1696, p. 12. tab. 5. fig. 3. He says, that each of them were

Lastly, descriptions and good figures of these animals, which correspond with our specimens, are to be found in Seba and Edwards.

The Ternat bats are carnivorous animals, and so voracious, that they eat every thing; for, when flesh or fish fail them, they feed upon vegetables, and fruits of all kinds*. They drink the juice of the palm-tree; and it is easy to intoxicate and seize them, by placing near their retreats vessels filled with palm-water, or some other fermented liquor. They attach and suspend themselves to the trees by their claws. They generally fly in flocks, and more frequently in the night than the day. They avoid places frequented by men, and dwell in the deserts, particularly in uninhabited islands. They copulate with ardour. The sex in the male is

were of the size of a large crow; that they were a foot long; and that the length of the penis was two inches. He adds, after Linscot, that they were eaten by the Indians, who thought them as delicate as partridges.

* In the Manilla islands, we find an infinity of large bats hanging attached to each other upon the trees. They take flight in the evening, and go in quest of food to the distant woods. They sometimes fly in flocks, and so close, that they darken the air with their wings, which are often six palms in extent. They know how to distinguish, in the thickest woods, the trees which bear ripe fruit. These they devour, during the night, making a noise that may be heard at the distance of two miles, and return at day-break to their retreats. The Indians, who see these animals eating their best fruits, make war against them, not only to gratify revenge, but to feed upon their flesh, which they say tastes like that of a rabbit; *Hist. Gen. des Voyages, par M. l'Abbé Prevost, tom. x. p. 189.*

very

very conspicuous. The penis is not concealed in a sheath, like that of quadrupeds, but hangs out of the body, like that of the monkey*. The sex of the females is also very apparent. They have only two paps placed on the breast, and they produce few at a litter, but oftener than once a-year. The flesh of these animals, when young, is not bad to eat; the Indians compare the taste of it to that of a partridge or rabbit.

All travellers through America agree, that the large bats of the New Continent have the faculty of sucking the blood of sleeping men and cattle, without waking them. The travellers into Asia or Africa, who mention the Ternat bats, take no notice of this singular fact. Their silence, however, amounts not to a complete proof, especially as these creatures have so many other resemblances to the American vampires. We therefore thought it worthy of examination, whether the Ternat bats (for we have not been able to procure the tongue of a vampire), could possibly suck blood, without occasioning a pain sufficient to waken a sleeping person. If they cut the flesh with their teeth, which are as large as those of other quadrupeds of the same size, a man in the most profound

* In hoc animali uterque sexus dignoscebatur: Nam eorum aliquot, qui mihi conspecti sunt, fatis longam extrinseque penem habebant, quales fere simiarum est; *Carol. Clesii Exotic. tom. ii. p. 94.*

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sleep,

sleep, and particularly cattle, whose sleep is less profound, would be instantly roused by the pain. The same thing would happen, if the wound was made by their claws. Hence it must be with their tongue alone that they are enabled to make such small apertures in the skin as to permit the blood to be extracted from the veins, without occasioning a great degree of pain. Upon examination, M. Daubenton discovered that the tongue of the Ternat bats was pointed, and armed with very hard, minute, sharp papillæ, which are bended backwards: These may be insinuated into the pores of the skin, and penetrate so far as to make a stream of blood flow by the constant suction of the tongue. But it is fruitless to reason upon a fact, all the circumstances of which are not understood, and some of them, perhaps, exaggerated or unskillfully related.

S U P P L E M E N T.

I Find, from a note communicated by M. Commerçon, that he had seen, in the isle of Bourbon, millions of these large or Ternat bats, which, in the evenings, fly in flocks like crows, and perch upon trees, particularly the *vaccuun*, to eat the fruit. He adds, that, when taken young,

young, they make good food, the taste of the flesh resembling that of the hare, and being equally black.

The late M. de la Nux, since the publication of my work, sent me, from the same island, some excellent remarks upon what I had written concerning these animals. His letter, of which the following are extracts, is dated October 24, 1772:

'In your letter of the 8th March 1770, you declare that you are equally happy to be informed of truth, or to have your own errors corrected, and invite me to communicate my thoughts and remarks with the utmost freedom. I accept of the invitation, and am only afraid lest I should tire you by prolixity. With regard to the great or Ternat bats, to combat errors which have been long received, requires a variety of evidence. These animals, it would appear, have only been examined with the eye of fear: They have been regarded as ugly and monstrous; and, therefore, without farther examination than a bare inspection of their figure, they have received a character, manners, and habits, which do not belong to them; as if mischievousness, ferocity, and dirtiness, were inseparable from ugliness of aspect.'

M. de la Nux remarks, that, in my description, p. 283. both the size and number of the great Ternat bats are exaggerated; that there

is nothing frightful in their cry; that it resembles the hoarse noise made by a man when he opens his mouth, contracts the wind-pipe, and makes several forcible expirations and respirations; and that, when these animals are at rest on a tree, they make a gentle kind of murmuring, which is not disagreeable.

'P. 61. Pliny with reason,' continues our author, 'treats the narrative of Herodotus as fabulous. The Ternat bats, at least in the islands, instead of attacking men, uniformly avoid men. They bite cruelly, but only when defending themselves from blows, or when they are seized; so that, whoever is wounded by them, must ascribe his misfortune to his own want of address, and not to the ferocity of an animal that has no such quality.'

'P. 286, 287. Notes. Here the size of the great Ternat bat approaches nearer to the truth. . . . *In Malabar, the bats fly at noon-day.* This is true of the larger, but not of the lesser Ternat bats. The former fly not in troops during the day, but singly, when they mount very high, which greatly diminishes their apparent magnitude. They fly long without stopping, and I believe that they can pass from the isle of Bourbon to the isle of France, a distance of at least thirty leagues, in a very short time. They never hover, like birds of prey. But, in the great elevation of
perhaps

'perhaps two hundred fathoms above the surface of the earth, the motion of their wings, which is rapid when near the ground, appears to be very slow.'

'Strictly speaking, the great Ternat bats live not in society. When in quest of food, they unite into flocks or companies more or less numerous. These companies associate by accident upon the trees whose flowers or fruits are agreeable to their palates. They may be observed arriving successively, and laying hold of the trees by the claws of their hind feet, where they rest for a long time, if not disturbed. There are always some, however, which detach themselves from time to time, and join the company. But, when a bird of prey passes above the tree, when they hear the noise of thunder, or of a musket, or when they spy any person in their neighbourhood, they all take wing at once. It is on such occasions that they are seen, during the day, flying in companies, which, though numerous, never obscure the air, because they cannot fly close enough to produce this effect: The expression is at least hyperbolic. But to say, that *an infinity of large bats may be seen attached to each other upon the trees*, is not only false, but absurd. They are too peevish to hold each other, in this manner, by the hand; and, if we examine their figure, the impossibility of such a concatenation will be apparent. They rest
on

on the branches above, below, or at each other's sides; but always remain separate.

With regard to the lesser Ternat bats, they never fly in the day: They live in society, to the number sometimes of more than four hundred, in the hollow trunks of large corrupted trees, from which they depart not till the dusk of the evening, and return before day-break. It is firmly believed in this island, that, whatever numbers these societies consist of, there is never more than one male found among them: But I cannot attest this fact. I shall only remark, that these sedentary animals acquire a great degree of fatness, and that, when this colony was first established, many people, whose taste and stomach were not too nice, collected vast quantities of bat grease for food. I have seen the time when a *tree of bats*, as it is termed, was no inconsiderable treasure. It is easy to shut up the entrance of their retreats, to take them out alive one by one, or to suffocate them with smoke, and in either way to ascertain the number of males and females of which the society is composed. I know nothing more of this species. I return to the notes. . . . Another hyperbole: p. 288. *They know how to distinguish, in the thickest woods, the trees which bear ripe fruit. These they devour during the night, making a noise that may be heard at the distance of two miles.* . . . In reading this passage, we are led to ascribe the noise to the act of masti-

cation.

cation. The noise that is heard at a great distance, both in the night and the day, is that which is natural to the animals when in a passion, and when disputing about their food; for it must not be imagined that the large Ternat bats eat during the night only. They have a fine eye, as well as an acute scent. They see very well in the day; and it is not surprising that they should distinguish, in the woods, ripe fruit and grain as well as flowers. Besides, the bananas of every kind, of which they are very fond, the peaches and other fruits cultivated by the Indians, are not in the thickest parts of the woods. . . . *The flesh of these animals*, p. 289. *is not bad.* . . . True, if the reluctance excited by their figure could be overcome. When about five months old, they are fat, and as good of their kind as the Guiney hen, or young wild boar; but, when old, they are hard, though pretty fat during the fruit-season, which continues all the summer and a part of autumn. The males, especially when aged, acquire a strong, disagreeable flavour. . . . Neither is it correct to say, in general, that these animals are eaten by the Indians. It is well known, that the Indian neither eats nor kills any animal. Perhaps they are eaten by the Moors and Malayans. It is certain, that many Europeans eat them. Hence it is true, that bats are eaten in India, though not by the Indians. In this island, both species are eaten.

T 4

After

' After this examination, I proceed to the history of these animals, which likewise requires to be rectified. My proofs shall be drawn solely from my own observation, and from what has been alledged by those writers whom our Historian of Nature has followed.

' Both the great and lesser Ternat bats are natives of the isles of France, of Bourbon, and of Madagascar. I have resided in the isle of Bourbon upwards of fifty years. When I arrived in the month of September 1722, these animals were very common in districts already settled, where they are now become rare. The reasons are obvious: 1. The forests were then at no great distance from the settlements; and they cannot subsist but in forests. 2. The great Ternat bats are viviparous, and bring forth one young only each year. 3. For the sake of their flesh and their grease, they are hunted, during the whole summer, autumn, and part of winter, by the Whites with muskets, and by the Negroes with nets. Besides these causes of diminution in the species, they abandon the neighbourhood of our settlements, and retire into the interior parts of the island, where they are exposed to constant destruction by the chequered coloured Negroes.

' The season of their amours here is in the month of May, which is about the middle of our autumn, and the females bring forth a month after the vernal equinox. Hence the time

' time of their gestation is from four and a half to five months. Of the precise time the young take in acquiring their full growth, I have no knowledge: But I know that they appear to be perfect at the winter solstice, which is nearly eight months from their birth. Besides, no small bats are seen, except in April and May, when the old are easily distinguished from the young, by the more vivid colour of the latter. The old ones become gray, though I know not at what period; and it is then that their flesh is hard, and has so strong and disagreeable a flavour, that the fat alone, with which they are well provided from the end of spring to the beginning of winter, is eaten by the Negroes.

' It is certain, that these animals feed upon no kinds of flesh, but solely on bananas, peaches, and other fruits, which our forests produce abundantly in different seasons. They are likewise very fond of the juices of certain umbellated flowers, particularly those of our slinking tree, the nectarium of which is very short. These flowers abound in January and February, which is the middle of our summer, and allure into the lower parts of the island vast numbers of bats; and, it is probable, for the purpose of sucking the nectaria of umbellated flowers of different species, that their tongue is furnished with so many sharp papillæ. The skin of the mango fruit is resinous, and is never touched by the bats. When confined in a cage, they have

' have been made to eat bread, sugar-canes, &c.
 ' I know not, however, whether they were made
 ' to eat flesh either raw or roasted. But suppos-
 ' ing they had, it is not in a state of slavery that
 ' I am considering them; for bondage changes
 ' the manners, characters, and habits of all ani-
 ' mals. Man has nothing to apprehend from
 ' these bats, either personally, or for his poultry.
 ' It is impossible for them to seize even the smal-
 ' lest bird. They cannot, like a falcon, swoop
 ' down upon their prey. If they approach too
 ' near the ground, they fall down, and are in-
 ' capable of resuming their flight till they climb
 ' upon any elevated object they first meet with,
 ' supposing it should be the body of a man*.
 ' When on the ground, they trail their bodies
 ' slowly along, and make their stay in that situa-
 ' tion as short as possible. As they are by no
 ' means adapted for running, how is it practi-
 ' cable for them to seize birds on the branches
 ' of trees? The slow and awkward manner in
 ' which they move towards the end of a branch,
 ' in order to catch the wind in their wings,
 ' shows that every attempt of this nature would
 ' be abortive. When about to fly, these animals
 ' cannot, like birds, dart at once into the air.

* I saw a young Ternat bat fly into my house in the dusk of the
 evening, and fall down at the feet of a Negress about eight years
 of age. It instantly began to climb up the child's body, who was
 luckily very near me. I quickly relieved her, lest the claws of
 its wings should have scratched her shoulders or face.

' To

' To disengage their claws from the place to
 ' which they are attached, they are obliged to
 ' beat the air several times with their wings; and,
 ' however full their wings may be when they
 ' quit their station, their weight is apt to make
 ' them sink. In order to raise themselves, they
 ' traverse the concavity of a curve line. But the
 ' place from which they depart is not always
 ' commodious for the free play of their wings.
 ' They may be restrained by the vicinity of
 ' branches; and, when thus situated, they pro-
 ' ceed to the part of the branch from which they
 ' can take wing without any risk. It frequently
 ' happens, that, when a numerous flock rest upon
 ' trees of twenty or thirty feet high, and are sur-
 ' prised by a peal of thunder, or the firing of a
 ' gun, several of them fall to the ground before
 ' they receive a sufficient quantity of air to sup-
 ' port them. In this case, they instantly climb
 ' the first tree they meet with, in order to resume
 ' their flight as soon as possible. Let us suppose
 ' that a traveller, hunting animals of which he
 ' has no knowledge, whose figure and aspect
 ' strike him with terror, is suddenly surrounded
 ' with a number of large bats; that he is en-
 ' tangled by one or two of them climbing up his
 ' body; that, by roughly endeavouring to disen-
 ' gage himself, he irritates the animals, and is
 ' scratched, or even bit by them; would not a
 ' scene of this kind give rise to the notion, that
 ' these bats were ferocious, rushing upon men,
 ' in

' in order to wound or devour them, while the
 ' whole affair is only a fortuitous rencounter of
 ' animals of different species, who are equally
 ' afraid of each other? I say more: The forest is
 ' absolutely necessary to the existence of these
 ' bats, to which they are led by the instinct of
 ' self-preservation, and not by any savage or
 ' ferocious disposition. When to all these facts
 ' I add, that neither the great nor lesser Ternat
 ' bats ever fix upon carrion, and that naturally
 ' they do not eat upon the ground, but require
 ' to be in a hanging posture when they feed, I
 ' think I have said enough to eradicate the pre-
 ' judice which represents them as carnivorous,
 ' voracious, destructive, and cruel animals. When
 ' I farther add, that their flight is as heavy and
 ' noisy, especially when near the ground, as that
 ' of the vampire ought to be light and silent, I
 ' shall have, by this last character, removed the
 ' one species to a considerable distance from the
 ' other.

' Because the great Ternat bats are sometimes
 ' observed flying near the surface of the water,
 ' like the swallow, they have been represented as
 ' feeding upon fish. But this flesh is equally
 ' disagreeable to them as all other kinds; for, I
 ' repeat it, that they live entirely on vegetables.
 ' It is solely for the purpose of bathing that they
 ' frequent the waters; and, if they fly nearer the
 ' surface of the water than the earth, it is owing
 ' to the fewer interruptions presented by the
 ' former

' former to the motion of their wings. To this
 ' circumstance the natural cleanliness of these
 ' animals must be ascribed. I have seen, and I
 ' have killed numbers, and never discovered the
 ' smallest degree of dirtiness upon any of them.

' The great bat is by no means a beautiful
 ' animal. When seen nigh, its movements are
 ' all disagreeable. There is only one point of
 ' view, a single attitude, in which all its natural
 ' deformity disappears, and in which it may be
 ' observed with pleasure. When perched on a
 ' tree, it hangs with its head down, and its
 ' wings folded, and placed exactly on each side
 ' of the body. In this situation, the vibrating
 ' wings which constitute its deformity, as well
 ' as the hind paws, by the claws of which it is
 ' suspended, are concealed. We see only a
 ' roundish, plump, pendulous body, covered
 ' with deep brown hair extremely clean and
 ' smooth, terminated by a head whose physiog-
 ' nomy is vivacious, and by no means disagree-
 ' able. This is their only attitude of repose, in
 ' which they remain a long time during the
 ' day. They are seen to best advantage at an
 ' elevation above the earth from forty to sixty
 ' feet, and at the distance of about one hundred
 ' and fifty feet. Now, figure to yourself a
 ' large tree, whose branches are garnished with
 ' one hundred and fifty or two hundred of such
 ' objects, having no other motion but what is
 ' communicated to them by the branches, and
 ' you

‘ you will have an idea of a picture, which I
 ‘ have regarded as curious, and contemplated
 ‘ with pleasure. In the richest cabinets of natural history, the great Ternat bat is always
 ‘ shown with its wings fully extended, which
 ‘ is its most ugly attitude. This position may
 ‘ answer one purpose. But some of them ought
 ‘ to be viewed at a side, or from above, in their
 ‘ natural state of repose. The one represented
 ‘ in your work is not just; for these animals
 ‘ never rest on the ground with their four feet.
 ‘ I shall finish my notes, by remarking, that
 ‘ both species afford a wholesome nourishment;
 ‘ for, though their flesh is often devoured to excess, it was never known to be hurtful. Neither
 ‘ should this fact excite surprise, when it is considered that these animals feed entirely on ripe
 ‘ fruits, the juices, flowers, and perhaps the exudations of a number of trees. The last I was
 ‘ induced to believe from a passage in Herodotus.
 ‘ But I have not been able to ascertain the truth
 ‘ of it by actual observation.’

THE SENEGAL BAT*.

THE Count de Buffon's description of this bat is precisely the same with that given in the
 note.

* This bat has a long head; the nose is a little pointed; the ears are short and pointed; the head and body are of a tawny brown mixed with ash-colour; the body is paler; the

note. The author adds, that this animal has twenty-eight teeth, two incisive in the upper jaw, six in the under, and two canine and eight grinders in each jaw. The upper cutting teeth are thick, long, and sharp, and distant from one another about a line and a half, and the under ones are furnished with lobes*.

This bat was brought from Senegal by M. Adamson of the Royal Academy of Sciences.

THE BULL-DOG BAT†.

THE muzzle of this bat is very thick, the lips long, and the nose well formed. The ears are broad and round, their edges touching each other under the front; they have a fold forward, which extends from the auditory canal to the edge of the concha, two lines distant from the place where the two ears touch each other, and there is a concavity on the internal face of the concha on each side of the fold. The crown and hind part of the head, the top and sides of the neck, the shoulders, the back, and the

two last joints of the tail extend beyond the membrane; its length, from nose to rump, is above four inches, and the extent of the wings twenty-one inches; the membrane of the wings and tail is black; Pennant's *Synops. of Quad.* p. 366.

Choué-fouris étranger; Buffon.

* The principal characters of this bat are described in the Memoirs of the Royal Academy of Sciences, ann. 1759, under the name of the *Marmotte volante*.

† Pennant's *Synops.* p. 366.

crupper,