

Barr's Buffon.

Buffon's Natural History.

CONTAINING

A THEORY OF THE EARTH,

A GENERAL

HISTORY OF MAN,

OF THE BRUTE CREATION, AND OF

VEGETABLES, MINERALS,

&c. &c.

FROM THE FRENCH.

WITH NOTES BY THE TRANSLATOR.

IN TEN VOLUMES.

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FIG

177

Loris

Javelin Bat



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FIG.

179

Large Headed D.

Shrew D.

BUFFON'S NATURAL HISTORY.

OF CARNIVOROUS ANIMALS.

THE LORIS.

THE Loris (*fig. 176.*) is a small animal found in Ceylon, very remarkable for the elegance of its figure, and for the singularity of its conformation: it has, perhaps, of all animals, the longest body in proportion to its bulk, having nine vertebræ in the loins, whereas other quadrupeds have only five, six, or seven. The length of the body is the natural effect of this structure, and it appears the longer for having no tail; in other respects, it resembles the maki kind, as well in the hands and feet as in the quality of the hair, the

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number of teeth, and the sharpness of its muzzle. Independently of these singularities, which separates this animal from the makis, he has other particular attributes. His head is entirely round; his eyes are excessively large, and very close to each other; his ears are large, round, and, in their insides, have three auricles in the shape of small shells; but what is still more singular, and perhaps unmatched in the whole tribe of animals, is that the female discharges her urine through the clitoris, which is perforated like the sexual organ of the male, and who in these two parts perfectly resemble each other.

Linnaeus has given a short description of this animal, which appears to be exactly conformable to Nature. It is also very correctly delineated by Seba; and evidently appears to be the same as that which Thevenot speaks of in the following terms: "I saw, (says he) in the Mogul country, monkeys which had been brought from Ceylon; they were greatly valued on account of their size, being not bigger than a man's fist. They were different from the common monkey, having a flat forehead, eyes round and large, and of a bright yellow colour, like those of some cats: their muzzle is very pointed: the inside of the ears is yellow,
and

and they have no tail. When I examined them they sat erect on their hind feet, folded the others across, and looked round at the spectators without the least signs of fear."

THE JAVELIN BAT.

AMONG the numbers of the bat species, which were neither named nor known, we indicated some by names derived from foreign languages, and others by denominations drawn from their most striking characters. We have called one the *Horse-shoe Bat*, from the exact resemblance the fore-part of its face bears to a horse-shoe, and the animal in question we have called the *Javelin Bat*, (*fig. 177.*) from a sort of membrane on its nose which perfectly resembles the head of an ancient javelin, or spear. Though this character alone is sufficient to distinguish it from all other bats, yet we may add, that it has scarcely any tail, that its hair and size are nearly like the common bat, but that instead of having six incisive teeth in the lower jaw, it has only four. This
species

species of bat is very common in America, but is never found in Europe.

There is another bat in Senegal, which has also a membrane upon its nose, not in the form of a horse-shoe, or javelin, as in the two bats we have just mentioned, but in the shape of an oval leaf. These three bats, being of different climates, are not simple varieties but distinct and separate species. M. Daubenton has given the description of the Senegal bat, under the name of the *leaf bat*, in the Memoirs of the Royal Academy of Sciences, 1759, p. 374.

Bats which have great affinities to birds, by the power of flying, and the strength of their pectoral muscles, seem to resemble them still more in these membranes, or crests, which they have on their faces. These redundant parts, which, at first sight, seem only to be superfluous deformities, are real characters which fill up the visible shades between these flying quadrupeds and birds; for most of the latter have crests, or membranes, about their beaks and heads, which seem in every respect as superfluous as those of the bats.

SUPPLEMENT.

WE have received from M. Pallas the figures and descriptions of two bats hitherto unknown to naturalists; the first he calls the *cephalote*, or large-headed bat, (*fig. 178.*) from its head being so very large in proportion to its body. This bat M. Pallas says is found in the Malacca islands; and from his finding but one foetus in a female, which was sent to him to Amsterdam, and which he dissected, he concludes they have but one young at a time: this species differs also from all others in the teeth, which in some measure resemble those of the mouse or hedge-hog; it has a short tail, situated between the thighs, a large nose and a broad muzzle; its breast is very similar to that of a bird; it is very near four inches long, and its wings extend above a foot.

The second he calls the *vespertilio soricinus*, or *shrew bat* (*fig. 179.*); this one has no tail, and carries a peculiar membrane on its nose; it is the smallest that is met with without a tail, being not more than two inches in length. This species

species is very common in the warm climates of America, the Carribbee Islands, and Surinam.

At the same time M. Pallas sent us the account of these animals he remarked that we were in an error in our former description of the javelin bat, by confounding it with the American bat, mentioned by Seba, he, from a careful examination, being convinced of their being different species ; and we feel ourselves indebted to this gentleman for the pains he has taken to rectify our mistake.

THE SERVAL.

THIS animal, which was kept alive several years in the royal menagerie, by name of the *tiger-cat*, seems to be the same with that described by the gentlemen of the Academy, under the denomination of *chat-pard* ; and we should have still remained ignorant of its true name if the Marquis de Montmirail had not discovered it in an Italian book of travels which he has translated, and sent the following extract : “ The *maraputé*, which the Portuguese

tugueze in India, called *serval* (says P. Vincent-Marie) is a ferocious animal, larger than the wild cat, and something less than the civet, from which last he differs by his head being rounder and thicker, and his face sinking in about the middle. He resembles the panther in the colour of his hair, which is yellow on the head, back, and sides, and white under the belly ; also by the spots, which are distinct, equally distributed, and a little less than those of the panther. His eyes are very brilliant ; his whiskers are composed of long and stiff bristles ; his tail is short ; his feet large, and armed with long and hooked claws. He is found in the mountains of India ; he is seldom seen on the ground, but remains almost continually on high trees, where he catches birds, which are his principal food. He leaps as nimbly as a monkey, and goes from one tree to another with such address and agility and passes over a great space in so short a time, that he may be said only to appear and disappear : he is ferocious in his nature, but flees at the sight of man, unless irritated, or his nest attacked, when he flies at the offender, and bites and tears nearly like the panther.

Neither captivity, nor good nor bad treatment, will tame or soften the ferocity of this animal.

That



FIG. 180

Occlot



FIG. 181

Jackal

That which we saw in the menagerie was always ready to rush on those who came near him : we could neither take a design nor a description of him, otherwise than betwixt the bars of his cage. He was fed with flesh, like the panther and leopard. This serval, or *maraputé* of Malabar and India, seems to be the same animal as the tiger-cat of Senegal and the Cape of Good Hope, which, according to the testimony of travellers, resembles our cat in its shape, and the tiger (that is the panther or leopard) by the black and white spots of his fur. “ This animal (say they) is four times larger than a cat ; is of a very voracious nature, and feeds on monkeys, rats, and other animals.”

From the comparison which we made of the serval and the *chat pard*, described by the gentlemen of the Academy, we discovered no other difference than the long spots on the back, and the rings on the tail of the latter, which the serval has not. The spots on the back of the serval are closer than those on the other parts of his body ; but these little disagreements are so slight that we cannot doubt of the identity of the species of these two animals.

THE OCELOT.

OCELOT is an abbreviation of *tlalocetotl*, the name of this animal in Mexico, its native country. It is ferocious and carnivorous, and may be ranked with the jaguar and cougar, for it is very nearly the same size, and resembles them in figure and dispositions. A male and female were shewn at the fair of St. Ovide, in September 1764. They came from the neighbourhood of Carthagena, and had been taken from their mother in the month of October, 1763. They became so strong and cruel at the age of three months as to kill and eat the bitch which had nursed them. When we saw them, at a year old, they were about two feet long, and they had then, probably, not attained more than one half, or two-thirds, of their growth. These animals were shewn by the name of the *tiger-cat*, but we have rejected this denomination as precarious and confused, especially as the jaguar, serval, and the margay, or Cayenne cat, were sent to us

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under the same denomination, although those three animals are very different from each other, as well as from the one we are at present treating of.

The first author who mentions this animal in a distinct manner is Fabri. He caused Recchi's designs of it to be engraven, and composed his description from them. He gives also a kind of history of him from the writings and information of Gregoire de Bolivar. I made these observations with a view to throw light on the circumstance which had led all the naturalists into an error, and by which I acknowledge I was also deceived. This circumstance is to know whether the two animals designed by Recchi, the first by the name of *tlatlauhquiocelottl* and the second by that of *tlacoozlotl*, *tlalocelottl*, and afterwards described by Fabri as different species, are not the same animal. They were considered as distinct animals, notwithstanding the resemblance of their figures, because their names, and even descriptions, were different. I then supposed the first might be the same as the jaguar, and therefore gave him the Mexican name of *tlatlauhquiocelottl*, which I am now convinced does not belong to him; and since I have seen both the male and female, I am persuaded,

suaded, that the two described by Fabri, are only the same animal, of which the first is the male, and the second the female. This error could only have been discovered by such a chance as we had of examining both the male and the female together. Of all animals whose skins are spotted, the robe of the male ocelot (*fig. 180*) is certainly the most beautiful, and most elegantly varied. Even the skin of the leopard does not come near it for the liveliness of its colours, and the regularity of its marks; and far less those of the jaguar, panther, and ounce. The colours of the female ocelot are much weaker, and the design less regular; and this apparent difference it was that deceived Recchi, Fabri, and others, and was the occasion of their considering them as different species.

When the ocelot has arrived at its full growth, he is, according to Bolivar, two feet and a half high, and about four feet long. The tail, though of a good length, does not touch the ground when hanging down, and consequently is not more than two feet long. This animal is very voracious, but at the same time exceedingly timid. He seldom attacks the human species, and is terrified at the sight of a dog. When pursued, he flies to the forests, and climbs up a tree for safety, where he also
sleeps

sleeps and watches for small animals, on which he springs when he sees them within his reach. He prefers blood to flesh, and for this reason he destroys a great number of animals; for instead of satisfying his hunger by devouring their flesh, he only quenches his thirst by sucking their blood.

In a state of captivity he preserves his savage nature: nothing can soften his ferocious disposition, nor calm his restless motion, which makes it necessary to confine him constantly in a cage. "After these young animals (says M. de l'Escot) had devoured their nurse, I confined them in a cage, and had them fed with fresh meat, of which they eat from seven to eight pounds a day. The male had a singular superiority over the female, for however hungry the latter might be, she never touched any of the food until he was satisfied, or such pieces as he gave her, having previously rejected them. I several times gave them a live cat, whose blood they sucked until the animal died, but they never eat any of their flesh. I put two live kids on board the vessel for their subsistence, for they neither eat, nor touched boiled nor salted meat."

From the testimony of Gregoire de Bolivar, these animals commonly produce but two young ones

ones at a birth, which M. de l'Escot seems to confirm, by saying, he had killed the mother before the two ocelots we have been speaking of, were taken away.

THE MARGAY.

THE Margay is much smaller than the ocelot. He resembles the wild cat in the size and shape of his body, only his head is more square, his snout and tail longer, and his ears more rounded; his hair also is shorter than that of the wild cat, and he has black streaks and spots on a yellow ground. He was sent us from Cayenne by the name of the *tiger-cat*, and, in fact, he partakes of the nature of the cat, jaguar, and ocelot, animals to which the name of tiger has been affixed in the New Continent. According to Fernandes, when this animal has arrived at its full growth, it is not quite so big as the civet; and, according to Marcgrave, whose comparison seems more just, he is about the size of a wild cat, which he also resembles in his natural habits, living upon fowls and small animals. He is
very

very difficult to tame, and never completely loses his natural ferocity. He varies greatly in his colours, though they are commonly such as we have described. This animal is very common in Guinea, Brasil, and all the other provinces of South America. It is probable that the *pichou* of Louisiana is the same animal, but the species is less common in temperate than in hot climates.

If we recapitulate those cruel animals, whose robes are so beautiful, and whose natures are so malign, we shall find the tiger, panther, leopard, ounce, and serval, inhabit the Old Continent; and the jaguar, ocelot, and margay, natives of the New. These three last appear to be miniatures of the former, and which, having neither their size nor strength, are as timid and cowardly in proportion as the others are bold and intrepid.

There is another animal of this class which the furriers call *Guepard*. We have seen many of their skins, and they have a resemblance to the lynx in the length of the hair; but the ears not being terminated by a brush of hair, the guepard cannot be a lynx. Neither is he a panther nor a leopard; for his hair is not so short as that of those animals, and he differs from all of them by a kind of mane, about four

or

or five inches long on his neck, and between his shoulders. The hair on his belly is also three or four inches long, and his tail much shorter in proportion than that of the leopard, panther, or ounce. He is nearly of the size of the last animal, not being above three feet and a half long. He is of a very pale yellow colour, sprinkled with black spots like the leopard, but closer to each other, and much smaller.

I thought this animal might be the same as that which Kolbe mentions by the name of the *tiger-wolf*. He is common in the countries bordering on the Cape of Good Hope. He remains all the day in the clefts of the rocks, or in holes which he digs in the ground. In the night he seeks for prey, but as he howls when in search of game, he warns men and animals of his approach; so that it is very easy to avoid, or to kill him. The name *guepard*, is apparently derived from the word *leopard*; the mode in which the German and Dutch spell *leopard*. We have also observed there are many varieties in this species, both in respect to the ground colour, and that of the spots; but every *guepard* has the common character of long hairs on the belly, and a mane on the neck.

SUPPLEMENT.

M. de la BORDE, in treating of the tiger-cat of Cayenne, says, he has a skin spotted very much like that of the ounce; that he is smaller than the fox, but whom he much resembles in habits and disposition; that he generally resides in the woods, and lives chiefly on the game which he destroys; as he climbs trees with great facility, he seizes their young in their nests, and upon the branches of trees he lies in wait for his prey; he rather leaps than walks, and yet does not proceed very fast; that at Cayenne they keep these animals chained in their houses; and the utmost degree they seem to be tamed, is to suffer themselves to be stroked on the back; they are there fed with fish or flesh, and will not take any other kind of food; and that they bring forth as well in the winter as summer, and generally two at a time.

M. Colinson mentions another species of tiger-cat as a native of Carolina, and of whom he has given me the following description: "The size of the male was nineteen inches from

from the nose to the tail ; the latter of which was four inches long, and was encircled with eight white rings ; his principal colour was a light brown mixed with grey, with black stripes along his sides ; his belly was inclined to white sprinkled with black spots, as were also his legs, which were very slight ; his ears were very open and covered with hair ; under his eyes were two large black spots, and beneath them a tuft of stiff black hairs. The female was of a less make ; she was more inclined to red, and had no black spots, except a single one on the belly."

THE JACKAL, AND THE ADIL.

WE are not certain whether these two names denote animals of different species ; we only know that the jackal (*fig. 181.*) is larger, more ferocious, and more difficult to be tamed, than the adil ; but in other respects they bear a perfect resemblance. The adil, therefore, may possibly be the jackal become smaller, weaker, and more gentle, than the wild race,

from being tamed and rendered domestic ; for the adil is nearly the same, with respect to the jackal, as the lap-dog, or the little water spaniel, is to the shepherd's dog. However, as this fact is only exemplified in a few particular instances ; as the jackal is not, in general, domestic like the dog, and, as such great differences are seldom found in a free species, we are inclined to believe that the jackal and the adil are really two distinct species. The wolf, the fox, the jackal, and the dog, though they approach very nigh each other, form four distinct species. The varieties in the dog species are very numerous ; the greatest part of which seems to proceed from their domestic state, to which they have been so long subjected. Man has multiplied the race in this species by mixing the great with the small, the handsome with the ugly, the long haired with the short, &c. But there are many varieties in the dog species, independently of those races produced by the care of man, which seem to derive their origin from the climate. The English bull-dog, the Danish dog, the spaniel, the Turkish dog, the Siberian dog, and others, derive their names from the countries of which they are natives ; and there seems to be greater differences between them than between the
jackal

jackal and the adil. The jackals, therefore, may have undergone several changes from the influence of different climates; and which supposition corresponds with the facts we have collected. From the writings of travellers it appears, that there are different sized jackals in all parts, that in Armenia, Silesia, Persia, and in all that part of Asia, called the Levant, where this species is very numerous, troublesome, and very hurtful; they are generally about the size of our foxes; but their legs are shorter, and the colour of their hair is of a glossy and bright yellow; and this is the reason why they have been called the *yellow*, or *golden wolf*. This species seem to have undergone many varieties in Barbary, the East Indies, the Cape of Good Hope, and in other provinces of Africa and Asia. In these hot countries they are large, and their hair is rather of a reddish brown than of a beautiful yellow; and some of them are of different colours. The species of the jackal is spread all over Asia, from Armenia to Malabar; and is found also in Arabia, Barbary, Mauritania, Guinea, and at the Cape of Good Hope. It seems to supply the place of the wolf, which is wanting, or at least, is very scarce in all these hot countries.

However

However, as both the jackal and the adil are found in the same countries; as the species cannot have been altered by a long continuance in a domestic state, and as there is always a considerable difference in the size, and even in the dispositions of these animals, we shall look on them as distinct species, until it be proved that they intermix and produce together. Our presumption on the difference of these two species is the better founded, as it seems to agree with the opinion of the ancients. Aristotle, after having spoken of the wolf, the fox, and the hyæna, gives some obscure intimations of two other animals of the same genus, one by the name of the *panther*, and the other by that of the *thos*. The translators of Aristotle have interpreted *panther* by *lupus canarius*, and *thos* by *lupus cervarius*; that is, the dog-wolf and the stag-wolf. This interpretation sufficiently indicates, that they considered the panther and thos to belong to the same species. But I observed, under the article *lynx*, that the *lupus cervarius* of the Latins is not the *thos* of the Greeks. This *lupus cervarius* is the same as the *chaus* of Pliny, which is our *lynx*, and which has not a single character that agrees with the *thos*. Homer, when painting the valour of Ajax, who singly rushes among a
band

band of Trojans, in the midst of whom Ulysses, wounded, was engaged; compares him to a lion that suddenly springs on a troop of the thos, surrounding a stag at bay, disperses and drives them away as mean and contemptible animals. This word, thos, the commentator of Homer interprets by that of panther, which he says is a kind of weak and timid wolf: thus, the thos and panther have been considered as the same animal by some of the ancient Greeks. But Aristotle seems to make a distinction between them, without, however, giving them any distinct characters. “The thos (says he) have their internal parts like those of the wolf; they copulate like dogs, and bring forth two, three, or four young ones at a time, which are born with their eyes shut. The body and tail of the thos are longer than those of the dog; his legs are shorter, but that does not prevent him from being as swift, and he can spring much further. The lion and the thos are enemies, because they both live upon flesh, and seek their food from the same source; hence disputes arise between them. The thos never attacks, and is but little afraid of the human species. He fights with the dog and the lion, whence the lion and the thos are never seen in the same places. The smallest thos is esteemed
the

the best. There are two species of them, and some authors even make three.*" This is all Aristotle says concerning the thos, and he speaks still less about the panther; for he mentions it but in one single passage in the 35th chapter of the sixth book of his History of Animals, and there says, "the panther produces four young ones at a time, which are born with their eyes shut like young wolves." By comparing these passages with that of Homer, and other Greek authors, it seems almost certain, that the thos of Aristotle is the great jackal, and that the panther is the little jackal, or the adil. We find, that he admits the existence of two species of thos, and that he speaks of the panther but once, and that when treating of the thos. It is therefore very probable, that this panther is the small thos; and this probability seems to become almost a certainty by the testimony of Oppian, who places the panther among the number of small animals, such as the cat and dormice.

Thus, then, the thos is the jackal, and the panther the adil, and whether they make two different species, or but one, it is certain that every thing which the ancients have said of the thos, or panther, applies to the
jackal

* Arist. Hist. Anim.

jackal and the adil, and to no other animal. If, therefore, the true signification of these names have not been known till now, or, if they have been misinterpreted, it is because the translators were unacquainted with these animals, and that our modern naturalists were not better informed.

Though the species of the wolf approaches very near to that of the dog, yet the jackal finds a place between them both. The *jackal*, or *adil*, as Belon remarks, *is an animal between the wolf and the dog*. With the ferocity of the wolf he joins a little of the familiarity of the dog; his voice is a kind of howl mixed with barking and groaning. He is more noisy than the dog, and more voracious than the wolf. He never stirs out alone, but always in flocks of twenty, thirty, or forty. They collect together every day to go in search of their prey. They live principally on small animals, and make themselves formidable to the most powerful by their number. They attack every kind of cattle or poultry almost in the presence of men. They boldly enter stables, sheep-folds, and cow-houses, without any signs of fear, and when they cannot meet with any thing better, they will devour boots, shoes, harnesses, &c. and what they have not time to consume they take away with them. When they cannot
meet

meet with any live prey they dig up the carcasses of men and animals. The inhabitants are obliged to cover the graves of the dead with large thorns, to prevent these animals from scratching and digging up the bodies, for their being buried very deep in the earth is not sufficient to prevent them from accomplishing their purpose. Numbers of them work together in this, and they accompany their labour with a doleful cry ; when they are once accustomed to human bodies they search out burial places, follow armies, and keep close to the caravans. They may be stiled the ravens among quadrupeds, for they will eat the most infectious flesh. Their appetite is so constant, and so vehement, that the driest leather, skins, flesh, excrements, or the most putrified animal, is alike welcome to them. The hyæna has the same taste for putrid flesh, and also digs bodies out of their graves, on which account, though very different from each other, they have often been confounded. The hyæna is a solitary, silent, savage animal, which, though stronger and more powerful than the jackal, is not so obnoxious, and is contented with devouring the dead, without troubling the living, while all travellers complain of the cries, thefts, and gluttony of the jackal, who unites the impudence

prudence of the dog with the cowardice of the wolf, and participating of the nature of each, seems to be an odious animal composed of all the bad qualities of both.*

THE ISATIS.

IF a number of general resemblances, and a perfect conformity of internal parts, were sufficient to constitute unity of species, the wolf, the fox, and the dog, would form but one, for the resemblances are more numerous than their differences, and their internal parts are entirely similar. These three animals, however, form three species, not only distinct but sufficiently distant to admit intermediate ones. The jackal is an intermediate species between the dog and the wolf; and the isatis finds room between the fox and the dog. This animal has till now been regarded as a variety in the fox species, but the description given by Gmelin clearly proves them to be two different species.

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E

The

* There is one remarkable circumstance respecting the skin of the jackal, which Buffon has omitted; it is a great spot of a dark grey colour, formed like a lancet, the point of which is turned towards the tail of the animal; this spot is of a darker brown when the jackal is young. Sparman saw the fetus of a jackal which was of a beautiful colour; but the spot on the back was of a deep brown.

The isatis is very common in all the northern countries adjacent to the frozen sea, and but rarely found on this side the 69th degree of latitude. He perfectly resembles the fox in the form of his body, and the length of his tail; but his head is more like that of a dog. His hair is softer than that of the common fox, and is sometimes white, and sometimes of a bluish ash. His head is short in proportion to his body; it is broad towards the neck, and terminates in a sharp-pointed snout. His ears are almost round. He has five toes and five claws on the fore-feet, and only four on the hind ones. The penis of the male is scarcely thicker than a quill; the testicles are as big as almonds, and so thickly covered with hair that it is difficult to perceive them. The hair on every part of the body is about two inches long, smooth and soft as wool. The nostrils, and under lip, have no hair on them, and the skin is black.

The stomach, intestines, viscera, and spermatic vessels of both male and female, are like those of the dog, and the whole skeleton entirely resembles that of a fox.

The voice of the isatis partakes of the barking of a dog and the yelping of a fox. Those who deal in furs distinguish two animals of
this

this kind, the one white, and the other of a bluish ash-colour; the last are the most valuable. This difference in the colour is not sufficient to constitute two different species, for experienced hunters assured M. Gmelin that they have found in the same litter some of the young ones white and others ash coloured.

The isatis inhabits the northern climates, and prefers those countries which border on the frozen sea and the banks of the rivers which fall into it. They are found in the coldest, most mountainous, and most barren parts of Norway, Lapland, Siberia, and even Iceland. These animals copulate in the month of March, and being formed like the dog they do not separate for some time. The females continue in heat from fifteen days to three weeks, and after that time they retire into the holes, or burrows, which they have previously prepared. They make several passages to these burrows, which they keep very clean, and furnish with moss for their greater convenience. The time of gestation, like that of the bitch, is about nine weeks. They litter about the latter end of May, or beginning of June, and commonly produce from six to eight at a time. Those which are yellow when first littered become white as they grow up, and



FIG. 182

Glutton



184

Kinkajou

FIG.

183

Carajou

and those which are blackish change to an ash. When young their hair is very short. The mother suckles them five or six weeks, after which time she drives them out of the burrow, and teaches them to seek for their own nutriment. By September their hair attains the length of half an inch, and it is then entirely white, excepting a longitudinal brown streak upon the back, and another across the shoulders; it is then called *vulpis crucigera*, or the *cross fox*; but this brown cross disappears before the winter, when the whole body of the animal is white, and the hair about two inches long. In May their hair begins to fall off, and continues to do so until July, by which time they have entirely shed their coats, so that their fur is only valuable in winter.

The isatis lives upon rats, hares, and birds, which he catches with as much subtlety as the fox. He plunges in the water, and traverses the lakes in search of water-fowl and their eggs: and the only enemy he has to dread in the desert and cold countries, is the glutton. As the wolf, the fox, the glutton, and other animals which inhabit the northern parts of Europe and Asia, have passed from one continent to the other, and are to be found in America; we must therefore conclude the isatis is
to

to be met with in the New Continent, and I am inclined to believe that the grey fox of North America, which Catesby has given the figure of, may possibly be the *isatis*, instead of a simple variety in the species of the fox.

THE GLUTTON.

THE body of the Glutton (*fig. 182.*) is thick, and his legs short. He is somewhat of the form of a badger, but nearly as thick again. His head is short, his eyes small, his teeth very sharp and strong, his tail rather short, and covered with hairs to its extremity. He is black along the back, and of a reddish brown on the sides and flanks. His fur is exceedingly beautiful, and much valued. This animal is very common in Lapland, and in all neighbouring countries of the Northern Seas, both in Europe and Asia. He is called *carcajou* in Canada, and in the northernmost parts of America. It is also highly probable that the animal of Hudson's Bay, which Edwards has called the *quick hatch*, or *wolverin*, is the same as the *carcajou* of Canada, or the glutton of the northern

northern part of Europe. That also which Fernandes has mentioned, by the name of *teapeytzcuiltli*, or the *mountain dog*, is, probably, of the glutton species, and which may possibly be dispersed as far as the desert mountains of New Spain.

Olaus Magnus seems to be the first who has mentioned this animal. He says, that it is of the size of a large dog, that his ears and face are like those of the cat; the feet and claws very strong; the hair brown, long, and tough; and the tail bushy, like that of a fox, but much shorter. According to Scheffer, the head is round; the teeth strong and sharp, like those of the wolf; the hair black, the body very broad, and the feet short like those of the otter. La Hontain, who is the first that speaks of the carcajou of North America, says, "Figure to yourself an animal of double the size and thickness of a badger, and you have a perfect resemblance of this animal." According to Sarrazin, who possibly only saw a young carcajou, its body is only two feet long, and its tail eight inches. "It has (says he) a very short and very thick head; its eyes are small; its jaws very strong and furnished with thirty-two sharp teeth." The young bear, or young wolf, of Edwards, which seems
to

to be the same animal, was, according to him, as thick again as a fox ; its back was crooked ; its legs short ; its belly almost trailing on the ground ; and its tail of a middling length tufted towards the end. All agree that this animal is a native of the most northern parts of Europe, Asia, and America. Gmelin is the only one who affirms, that it travels even into hot countries. But this assertion appears very dubious, if not absolutely false. Gmelin, like many other naturalists, has perhaps confounded the hyæna of the South, with the glutton of the North, which bear some resemblance in their natural habits, especially that of voracity ; but in every other respect they are entirely different.

The legs of the glutton are not formed for running ; he cannot even walk except slowly ; but cunning supplies the deficiency of swiftness. He conceals himself to watch for his prey ; and to seize it with greater security he climbs up trees, from which he darts even on the elk and rein-deer, and fastens himself so strongly with his claws and teeth on their backs that all their efforts cannot remove him. The poor animal thus attacked, in vain flies with its utmost speed, in vain rubs himself against trees, to obtain deliverance from this
cruel

cruel enemy ; all is useless ; fastened on his back or loins the glutton persists in digging into his flesh, and sucking his blood, till the animal, fainting with loss of blood, sinks a victim to his tormentor, when the glutton devours his flesh with the utmost avidity and cruelty ; and several authors affirm, that it is almost inconceivable the length of time he will continue eating, or the quantity of flesh he will devour.

The accounts of travellers are doubtless exaggerated ; but if we even retrench a great part of their recitals, there will still remain sufficient to convince us that the glutton is much more voracious than any other beast of prey ; and from this circumstance he has, not unjustly been denominated the *quadruped vulture*. He is more insatiable, and commits greater depredations than the wolf ; and would destroy every animal, is he had sufficient agility, but he is reduced to drag himself heavily along ; and the only animal he is capable of overtaking is the beaver, whom he easily destroys. He even attacks that animal in his hole and devours both him and his young, unless they get to the water, in which case the beaver escapes his enemy by swimming, for the glutton stops his pursuit to feed on the
fish

fish he can find. When deprived of living food, he goes in search of carcases, scratches up the graves, and devours the flesh of dead bodies.

Although this animal is subtle and uses every art to conquer others, he does not seem to have the least instinct for his own preservation. This indifference, which seems to shew imbecility, is perhaps occasioned by a different cause; for it is certain the glutton is not a stupid animal, since he readily finds means to satisfy his perpetual appetite; he does not want for courage, since he attacks every animal indifferently that comes in his way, and does not fly at the sight of man, nor even shew the least mark of fear. But this negligence for his own safety does not arise from an indifference for his preservation, but from a habit of security. He is almost a stranger to men, for being a native and resident of desert countries where they seldom come, when he does meet them, he has no reason to take them for enemies; besides, in every contest with other animals he is certain of conquest; and therefore he moves with confidence, and has not the least idea of fear, which supposes some fore-proved misfortune, or some experience of weakness and inability. We have an example

of this intrepidity in the lion, who never turns his back on man, at least till he has tried his strength ; so the glutton traverses the snow, in his own desart climate, in perfect security. In those regions he reigns supreme, as does the lion in the forests and burning sands ; and if not like him, from superior prowess, he is no less so from the weakness and timidity of those with whom he has to contend.

The isatis is not so strong, but much swifter than the glutton ; he serves the latter as a purveyor, for the glutton follows him in his pursuit of animals, and often deprives him of his prey ; for as soon as he approaches, the isatis, to avoid his own destruction, takes to flight, and leaves to his pursuer what he has not had time to devour. Both these animals burrow under ground ; but in every other habit they differ. The isatis will associate and often go in company ; while the glutton always moves alone, or at most only with his female ; indeed the male and female are frequently found together in their burrows. The most fierce dogs are averse from attacking the glutton, as he defends himself with his teeth and feet, and often mortally wounds them ; but as he cannot escape by flight, when once beset it is not long before he is subdued.

The

The flesh of the glutton, like that of every other voracious animal, is very bad food. He is only hunted for his skin, which makes beautiful fur, not inferior to the sable and black fox. Some of them, when well-dressed, has a more beautiful gloss than any other skin, and is by no means inferior in appearance to a rich damask.

THE STINKARDS.

THESE animals are found in every part of South America ; but they have been very indistinctly described by travellers, and not only confounded with each other, but also placed with animals of a very distinct species. Hernandez has very clearly indicated three of these animals ; the first he calls by its Mexican name *ysquiepatl*, and which is the same animal that Seba has given a figure of in his works, and is called *squash* in New Spain. The second Hernandez also denominates by the same name, (*ysquiepatl*) and which in South America is called the *skink*. The third he styles *conepate*, and which has been mentioned by Catesby, under the

the appellation of the *American pole-cat*, and by M. Brisson, by that of the *striped pole-cat*. Besides those mentioned by Hernandez, there is a fourth kind of these animals called *zorille*, in Peru, and in some parts of the Spanish settlements in India.

We are indebted to M. Aubry for the knowledge of the *squash*, the *skink*, and the *zorille*; the two last may be regarded as originals, as we do not meet with their figures in any other author.

The first of these animals came to M. Aubry under the name of *pekan*, the *Devil's child*, or the *wild cat* of Virginia. I perceived it was not the real *pekan*, but the same animal that Hernandez has described by the name of *ysquiepatl*, and which has been indicated by travellers by the name of *squash*, or *potot*. (fig. 185.) It is about sixteen inches long; its legs are short, its muzzle rather pointed, its ears small, its hair of a deep brown, and its claws black and sharp. It chiefly dwells in the hollows and clefts of rocks, where it brings forth its young. It lives upon small animals, birds, &c. and often steals into a farm yard, where it kills the poultry, but eats only their brains. When it is pursued or offended, it calls up the most diabolical scents to its defence,

fence, and sends forth such a horrid stench, that it is dangerous for men or dogs to approach it. Its urine is apparently infected with this nauseous vapour, but which does not seem habitual to it. “ I had one of these animals sent me from Surinam, (says Seba) which I kept alive in my garden during the summer; I fastened it with a small chain; it never attempted to injure any person; and when properly fed it might be managed like a little dog. It burrowed in the earth with its snout, assisted by its two fore-paws, the claws of which were long, and turned backwards: in the day-time it concealed itself in the hole it had dug; at night it came out, and after having cleaned itself it continued constantly running backwards and forwards, as far as its chain would permit. It only eat as much food as would satisfy its hunger; it never touched flesh nor bread, but seemed principally fond of caterpillars, spiders, worms, &c. One morning, towards the end of autumn, it was found dead, unquestionably from not being able to endure the cold. The hair along its back was of a deep chesnut; its ears were short, the fore-part of its head round, and of a lighter colour than that on the back; on the belly it was yellow. Its tail was of a middling length, covered with a brown and short hair, annulated with

with small rings." Although the description and figure given by Seba agrees with that of Hernandez, we must, however, doubt their both being the same animal, since Seba does not make any mention of its detestable scent; and it is difficult to conceive it possible for him to have kept such a stinking animal a whole summer in his garden, without speaking of the inconvenience that would arise from such a circumstance; and we might suppose that the animal described by Seba was a different one from that mentioned by Hernandez; this suspicion, which at first sight seems to be well founded, must be entirely obviated, when it is known that this animal only sends forth this infectious scent when pursued or offended; and it has likewise been caught and tamed by many people in America.

Among the above four kinds of *stinkards*, which we distinguish by the names of the *squash*, or *potot*, *conepate*, *chinch*, or *skink*, and *zorille*: the two last belong to the warmest parts of South America, and may possibly be no more than two varieties, and not different species. The two first are of the temperate climate of New Spain, Louisiana, Carolina, &c. and seem to be distinct and different species from the others; particularly the *squash*, which has the peculiar character of having
only

only four claws on the fore-feet, whereas all the rest have five. But in other respects these animals are all nearly alike, they have the same instinct, the same offensive scent, and only differ in size, and in the colour and length of the hair. The squash is of a pretty uniform brown colour, and its tail is not tufted like the rest. The coneplate (*fig.* 187) has five white stripes on a black ground, running longitudinally from the head to the tail. The skink, or chinch, (*fig.* 186) is white on the back, and black on the sides, but quite black on the head, excepting a white streak from the nape of the neck to the forehead; its tail is tufted and cloathed with very long white hairs, mixed with some of a black colour.

The zorille, (*fig.* 188) which is also called mauripita, is still smaller, and has a beautiful tail, as bushy as that of the chinch, from which he differs however in the disposition of the colours on his coat. He has several long white streaks, which run longitudinally from the head to the middle of the back, on a black ground, and others which pass transversely over the loins, the crupper, and the insertion of the tail, one half of which is black and the other white, whereas the back of the chinch is nearly all the same colour.

Kalm, speaking of this animal, says, “ one
of



190

FIG.

189

Vison

Pecan



FIG. 191

Canadian Otter

of them came near the farm where I lived. It was in winter, and during the night; the dogs that were upon the watch pursued him until he discharged his urine against them. Although I was in bed, and he at that time had got to some distance, I thought I should have been suffocated, and the cows and oxen, by their lowings, shewed how much they were affected by the stench. About the end of the same year another of these animals crept into our cellar, but did not exhale the smallest scent. A foolish woman, however, perceiving him one night by the shining of his eyes, disturbed and killed him; from that moment the stench began to spread, the whole cellar was instantly filled with it to such a degree that the woman kept her bed for several days, and all the meat, bread, and other provisions in the place, were so infected that they were obliged to be thrown out of doors."

These animals are somewhat like the European pole-cats; they also resemble them in their natural habits, and the physical results of their generation are the same. The pole-cat is the most offensive animal for its scent in this continent; it is only stronger in the stinkards, whose species are very numerous in America, whereas there is only one of the pole-cat race in all the old continent; for I do not believe,
with

with Kolbe, that the animal he calls the stinking otter, and which seems to be a real stinkard, exists as a native at the Cape of Good Hope; and possibly Kolbe, who is not very exact, has borrowed his description from P. Zuchel, whom he has quoted as having seen that animal in Brasil. The animal of New Spain, called by Fernandes the *ortohua*, seems to be the same animal as the Peruvian zorille; and the *tepemaxtle*, mentioned by the same author, may probably be the conapate, which is found in New Spain, as well as in Louisiana and Carolina.

THE PEKAN, AND THE VISON.

THE fur merchants of Canada have long been acquainted with the name of *pekan*, without any knowledge of the animal to which it belongs. Naturalists have not even mentioned its name; and travellers have employed it to denote different animals, particularly stinkards, so that it was impossible to derive any precise knowledge of it from their erroneous

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remarks. The origin of the name of the *vison* is no less difficult to be traced than that of the *pekan*, and it is only said that they belong to two different animals of America. M. Aubry, in his cabinet, has two animals under this denomination, and from which, by his indulgence, we have been enabled to give a sketch of their figures, and the following description :

The *pekan* (*fig.* 189) so strongly resembles the marten, and the *vison* (*fig.* 190) the pole-cat, that we are inclined to consider them as varieties of those two species. They are of the same make and proportion, have the same length of tail, quality of hair, and number of teeth and claws ; from which facts there is certainly sufficient reason to conclude that they are merely varieties, or at least as species approaching so near each other, that it is difficult to point out any real difference, except that the hair of the *pekan* and the *vison* is more soft, brown, and glossy, than that of the marten and pole-cat ; but this difference is common to them as well as to the beaver, otter, and other animals of North America, whose fur is more beautiful than those of the same kind of animals in the north of Europe.

THE SABLE.

ALMOST every naturalist has treated of this animal without knowing any thing more of it than its skin. M. Gmelin is the first who has given its figure and description, from having seen two living ones at the Governor's of Tobolski. "The sable (says he) resembles the marten in his shape and habit of body, and the weasel in the number of his teeth: he has six long incisive teeth, a little turned back, two long canine teeth in the lower jaw, and very sharp small teeth in the upper; he has very large whiskers about the mouth; and his feet are broad, and armed with five claws. These characters were common to these two sables, but one of them was of a dark brown, excepting the ears and throat, where the hair was rather yellow; the other, which was smaller was of a more yellowish tincture, its ears and throat being also much paler. These are the colours they both have in winter, and which they change in the spring, the former becoming of a yellowish brown, the other of a pale yellow. I have often admired, continues M. Gmelin, the agility of these animals.

Whenever

Whenever they perceived a cat they fixed themselves in an erect posture on their hind legs, as if they were preparing for an attack. Their inquietude in the night* was also remarkable, that being the natural time for seeking their prey, whereas in the day, especially after feeding, they generally slept an hour at a time, during which they might be taken up, rolled about, or carried to any distance without the smallest hazard of disturbing them."

These animals inhabit the banks of rivers in shady places, and also the thickest woods: they leap with great ease from tree to tree, and are said to be afraid of the sun; the rays of which tarnish the lustre of their robes in a very short time. It has also, though erroneously, been asserted, that they conceal themselves in holes, and remain torpid during the winter, whereas that is the chief time for hunting them, as their skins are then in the greatest perfection. They live on rats, fish, and wild fruit. They have the same disagreeable odour common to animals of this kind, and which is strongest during their rutting season. They are most numerous in Siberia, being very few in Russia, and still less in Lapland and other northern countries.

* This inquietude and motion during the night is not peculiar to sables: the same thing may be observed in ermines.

countries. The blackest furs are the most esteemed.* The difference of this skin and which so particularly distinguishes it from all others, consists in the fur having no grain, but rubbed any way, is equally smooth and irresistible; whereas the furs of all other animals, rubbed against the grain, give a sensation of roughness from their resistance.

The sable is chiefly hunted by condemned criminals, who are sent to Russia into these dreary and extensive forests; or by soldiers who are sent there on purpose. These unfortunate wretches remain there many years, and are obliged to furnish a certain number of skins annually; they only employ a single ball to kill this animal that they may damage the fur as little as possible; sometimes instead of fire-arms, they make use of the cross-bow and very small pointed arrows. As the success of this hunting requires address and great assiduity, the officers are permitted to encourage the criminals, by allowing them to share among themselves the surplus of the number they are obliged to procure; and this in a few years, frequently amounts to a considerable sum.

Some naturalists have imagined the sable to be the *satherius* of Aristotle, and their conjectures

* Sonnini says that there is a variety of the sable, entirely white; it is very rare. Another variety is equally rare, which has a white or yellow spot under the neck.

jecture seems to be well founded. The fineness of the sable's fur indicates that he often goes into the water ; and some travellers assert, that the greatest numbers are found in small islands; Aristotle calls the *satherius* a water animal, and joins it to the beaver and the otter. We must also presume, that when Athens was in its height of magnificence, these beautiful skins were not unknown to the Athenians, and that the animal which supplied them had some name affixed to him, and we know of no one that can be applied to the sable with greater propriety than that of *satherius*. If it be true that the sable eats fish, and often dwells in the water, he must also have a place among the number of amphibious animals.

THE LEMING.

OLAUS MAGNUS is the first who has taken notice of the Leming ; and all that Gesner, Scaliger, Ziegler, Johnston, and others have said respecting him, is extracted from that author. But Wormius, who made very strict researches, speaks more particularly. “ The
leming

leming (says he) is of the shape of a mouse, but has a shorter tail: his body is about five inches long, and is covered with fine hair of various colours. The extremity of the upper part of the head, the neck and shoulders are black, and the rest of the body is reddish, intermixed with small black spots of various figures excepting the tail, which is brown, and not above half an inch long. Some of them have red hairs about the mouth, resembling whiskers, six of which are considerably longer than the rest. The mouth is small, and the upper lip divided like the squirrel. Two sharp, incisive, and crooked teeth, shoot from the upper jaw, the roots of which penetrate to the orbit of the eyes: in the lower jaw they have teeth conformable to the upper; a little distance from these on each side are placed three grinders. The tongue is pretty large, and extends to the extremity of the incisive teeth. The remains of the food found in the throat of this animal, induces us to imagine he ruminates. The eyes are little and black; the ears round and inclining towards the neck; the legs before are shorter than those behind; the feet are cloathed with hair, and armed with five very sharp and crooked claws; the middle claw is the longest and the fifth is like the spur of a cock,

cock, sometimes placed very high up the leg. The hair on the belly is whitish, bordering a little on yellow, &c."

This animal, though its legs are very short, and its body thick, runs very swiftly. They generally inhabit the mountains of Norway and Lapland, from whence they sometimes descend in such numbers, that the inhabitants look on their arrival as a terrible scourge, which there is no possibility of preventing. They move, for the most part, in the night, and remain still during day. It is in vain that attempts are made to stop their progress, for though thousands are destroyed, myriads seem to succeed. They generally move in lines about three feet from each other, and exactly parallel; and their march is always directed from the north-west to the south-west. Wherever their motions are directed nothing can turn them aside; if a lake, or river, interrupts their progress, they all take to the water and swim over it; even a fire, or a well, does not turn them out of their line of direction; they boldly plunge into the flames, or leap down the well, and are sometimes seen climbing up on the other side. If they are interrupted by a boat, while they are swimming across the river, they mount directly up its sides, and the boatmen, who know how vain resistance

ance

ance would be, calmly suffer the living torrent to pass over, which it does without further damage; and if they meet with a stack of hay or corn, they gnaw their way through. Happily, however, they never enter an house to destroy the provisions, but consume every root and vegetable that they meet, and lay waste every garden, meadow, or field of corn that comes in their way. If a man ventures to attack one of them, the little animal is no way intimidated by the disparity of strength, but furiously flies up at his opponent, and wherever he fastens, it is not easy to make him quit his hold; and when thus attacked they have a kind of bark somewhat like that of little dogs.

An enemy so numerous and destructive, would soon render the countries where they appear utterly uninhabitable, did it not fortunately happen, that the same rapacity that animates them to destroy the labours of mankind, at least impels them to destroy each other. After committing incredible devastations, they at last separate into two armies, opposed with deadly hatred, along the coasts of the larger lakes and rivers. The Laplanders, who observe them thus drawn up, instead of considering their mutual animosities as a happy
VOL. IX. II riddance

riddance of the most dreadful pest, form ominous prognostics from the manner of their engagements: they consider their combats as a presage of war, and expect an invasion from the Russians or Swedes. The two divisions, however, continue their engagements, and from that time they begin to disappear, nor is it well known what becomes of either the conquerors or the conquered. Some suppose that they rush into the sea, others that they kill themselves, as some are found hanging on the forked branches of trees; and others that they are destroyed by the young spring herbage. But it is most probable, that having consumed the vegetable productions of the country, they then fall upon and devour each other. However this may be, they die in such numbers, that their carcasses have been known to infect the air, and to produce malignant disorders. They seem also to infect the plants which they gnaw, as the cattle often die that feed in the places where they passed. In fine weather, they go in droves into the water, but no sooner does the wind rise, than they are all drowned. As the inhabitants know not from whence they come, it is a vulgar opinion that they fall from the clouds with the rain.*

The

* Scheffer's Hist. Lapland, Phil. Trans. &c.

The male is generally larger, and its spots bigger than those of the female. The flesh of the lemmings is horrid food, and their skins, though covered with a very beautiful fur, is of too little consistence to be serviceable.

THE SEA OTTER.

THEVET says, “ the Saricovienne, or Sea Otter, is found by the sides of the river Plata ; it is an amphibious animal, and lives as much in the water as upon land ; it is full as large as a cat, its skin is a very dark grey, nearly black, and is extremely soft ; its feet are webbed like those of water fowls ; and its flesh is very good, and even delicate.”

Naturalists do not seem to have been acquainted with this animal, nor to have known that the *carigucibeju* of Brasil, which is certainly the same, had membranes between the toes, for Marcgrave, who has given a description of it; totally omits this essential character. I am also of opinion that the *guachi*, mentioned by Gumilla, which is a species of otter in South

South America, is the same as the saricovienne. Marcgrave and Desmarchais describe it to be as big as a middling sized dog : that the top of its head is round, and its nose long ; that its teeth and whiskers resemble those of the cat ; that it has small black eyes, round ears, five toes on each foot, with a kind of thumb shorter than the others, and all armed with brown claws ; that its hair, which is short and soft, is black on the body, and has a white spot under the chin ; that its voice is somewhat like that of a young dog ; and notwithstanding it lives principally on crabs and fish, its flesh is very good, and its skin makes an excellent fur.

THE CANADIAN OTTER.

THIS Otter, (*fig.* 191) which is larger than ours, and which must be a native of the north of Europe, as well as of Canada, occasioned me to enquire whether it was not the same animal as that called by Aristotle the *latax*, which, he says, is much larger and stronger than the common otter. But his observations
do

do not entirely agree with the animal in question, and therefore as it perfectly resembles the common otter in other respects, I judged that it was not a particular species, but only a simple variety ; and as the Greeks, especially Aristotle, have taken great care not to give different names, except to distinct species, we are therefore convinced that the *latax* is another animal. Besides, as the otters, like the beavers, are commonly larger, and their hair finer, and of a more beautiful black in America than in Europe ; this Canadian otter ought, in fact, to be larger and blacker than our otter. But in attempting to discover what the *latax* of Aristotle might be, I conjectured that it was the same animal as Belon calls the *marine wolf*.

Aristotle mentions six amphibious animals, of which only three are known to us, namely, the seal, the beaver, and the otter ; the three others, the *latax*, the *satherion*, and the *satyrion*, still remain unknown, because their names are only mentioned without any description of them. In this case, as in all those where we cannot draw any direct induction from a knowledge of the object, we must have recourse to the mode of exclusion : but we cannot make use of that mode with any success, unless we
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are nearly acquainted with every thing; when that is the case, we can conclude a negative from the positive, and this negative hence becomes a positive fact. For example, I believe that by long study, I have attained a knowledge of almost every quadruped. I know that Aristotle could not have had any knowledge of those peculiar to the continent of America. I also know those which are amphibious, and among these I separate those that belong to America, as the tapir, the cabiai, the ondatra, &c. and then there remains only the amphibious animals of our own continent, namely, the hippopotamus, the walrus, or sea-cow, the sea-wolf of Belon, the beaver, the otter, the sable, the water-rat, the Muscovy muskrat, the water shrew-mouse, and we may include the ichneumon, which some have looked upon as an amphibious animal, and styled it the Egyptian otter. I retrench from this number the walrus, or sea-cow, the seal, or sea-cow, which being only met with in the northern seas, was not known to Aristotle; I also retrench the hippopotamus, the water-rat, and the ichneumon, because he speaks of them in another part of his work by their proper names; and I likewise retrench the seal, the beaver, and the otter, which are well known, and the
water

water shrew-mouse, because it is too much like the land one to have received a different name. There then remains the sea-wolf of Belon, the sable, and the Muscovy musk-rat, for the *latax*, the *satherion*, and the *satyrion*. Of these three animals, the sea-wolf of Belon is the only one that is larger than the otter, therefore it alone can represent the *latax*; consequently the sable and the Muscovy musk-rat, must represent the *satherion* and the *satyrion*. It must, however, be perceived that these conjectures, which I believe to be well founded, are not among the number which time can elucidate, unless some Greek manuscripts shall be discovered which are unknown at present, where these names are made use of, and explained by new indications.

THE SEAL, THE WALRUS, AND THE MANATI.

SEAL, Walrus, and Manati, are rather generic denominations than specific names. Under that of the Seal, we shall comprehend, first, the *phoca* of the ancients, which is probably the same animal as the seal; 2. The common

mon seal, which we call the *sea-calf*; 3. The great seal, of which Mr. Parsons has given a figure and description in the Philosophical Transactions, No. 496; and 4. The very large seal, which is called the *sea-lion*, the figure and description of which is given in Anson's Voyages.

By the *walrus* we understand those animals commonly called *sea-cows*, or *sea-horses*. We know of two species of this animal, one found only in the northern seas, and the other only in the southern, which is called *dugan* or *Indian walrus*. And lastly, under that of *manati*, we comprehend those called *lamantans*, or *sea-oxen*, in St. Domingo, and other parts of South America, as well as that of Senegal, and other parts of the coast of Africa, and which seem to be only varieties of the American species.

The seal and the walrus approach nearer to quadrupeds than to cetaceous animals, because they have a kind of feet. But the manatis, which have only two before, are more of the cetaceous tribes than the quadrupeds. But they differ from every other animal by the following striking character. They are the only animals that can equally live in air and water, and consequently the only ones we can properly
term



FIG 192

Seal



194

FIG.

193

Monati

Walrus

term *amphibious*. In man, and the other terrestrial viviparous animals, the *foramen ovale* of the heart, which permits the foetus to live without respiration, is shut at the moment of its birth, and remains closed during life. In these, on the contrary, it is always open, notwithstanding the females bring forth their young on land; and their respiration begins and operates immediately after birth, as it does in every other animal. By means of this perpetual aperture in the septum, subsisting and permitting the communication of the blood from the *vena cava* to the *aorta*, these animals have the advantage of breathing or not at pleasure. This singular property is common to all three; but each has peculiar faculties, which we shall notice as far as possible, in the history of the different species.

THE SEAL.

THE Seal (*fig. 192.*) in general has a round head, like the human species; a broad muzzle like the otter; eyes large and elevated; little or no external ears, having only two auditory

passages on the sides of the head; whiskers about its mouth; teeth somewhat resembling those of the wolf; the tongue forked at the point; the body, hands, and feet, covered with a short and bristly hair; no arms but two membranes, like hands, with five fingers terminated by as many claws; no legs but two feet exactly like the hands, except being larger and turned backwards, as if designed to unite with a very short tail, which they accompany on each side; the body is thickest at the breast from whence it tapers down to the tail like a fish. He is so strange an animal that he appears fictitious, and has served as a model for the poets to form their tritons, syrens, and other sea deities, whom they feigned to have the head of a man, the body of a quadruped, and the tail of a fish. In fact, he seems to reign superior in the mute empire of the sea, by his voice, figure, and intelligence, which he possesses equally with any land animal; he is so far above the order of fishes, that he seems not only to belong to a different order of beings, but to a different world. Hence though of a nature very distant from that of our domestic animals, yet he seems susceptible of a kind of education. He is reared by putting him often in water; he is taught to give a salute with his head and his voice; he will come

when

when called, and he gives many other signs of intelligence and docility.

His brain is proportionably larger than in man : his sensations are as perfect, and his intellects as active, as those of any quadruped ; both are strongly marked in his docility, his social qualities, his strong instinct for the female, his great attention towards his young, and by the expressive modulation of his voice, which is superior to that of any other animal. His body is likewise firm and large ; he is very strong and armed with sharp teeth and claws. He also enjoys many particular and singular advantages. He can, with perfect ease, endure heat or cold ; he feeds indifferently on grass, flesh, or fish ; and he can equally live on ice, land, or in the water. This animal, with the walrus alone, deserves the name of *amphibious*. They alone have the *foramen orale* open, consequently they are the only animals who can exist without respiration, the elements of air and water being equally agreeable. The otter and the beaver cannot properly be termed amphibious, as the air is their real element, for not having this aperture through the septum of the heart, they cannot remain any length of time under the water, but are obliged to quit it,

it, or raise their heads out of it in order to respire.

But these great advantages are counter-balanced by imperfections still greater. The seal may be said to be deprived of the use of his limbs, as his arms, thighs, and legs are almost entirely shut up within his body, while nothing appears without but his hands and feet, which are, it is true, furnished with five fingers or toes, but which are scarcely moveable, being united by a strong membrane, so that they might more properly be called fins than hands and feet, being more adapted for the purpose of swimming than walking. Besides the hind feet are turned backwards, therefore entirely useless upon land, so that when the animal is obliged to move, he drags himself forward like a reptile, and with efforts much more painful, for as he cannot bend himself in an arch, like the serpent, to obtain the support of different parts, and so advance by the reaction of the ground, he would remain like a lump on the earth if it were not for his hands and tail, and with which he seizes any thing within his reach with such dexterity that he drags himself up the steepest shores, rocks, and even shoals of ice, however steep or slippery.

By

By this method he moves with a much greater degree of swiftness than could be expected, and often, though wounded, escapes the pursuit of the hunters.

The seal is a social animal, at least great numbers generally frequent the same places. Their natural climate is the north, but they live in the temperate and even hot countries, for they are seen on the shores of almost all the seas of Europe and even in the Mediterranean; they are found also in the southern seas of Africa and America; but they are infinitely more common and more numerous in the northern seas of Asia, Europe, and America. This species varies in size, colour, and figure, according to the difference of climates. We have seen some of these animals alive, and many of their skins have been sent to us; out of these we have chosen two for our present subject; the first is the common seal of our European sea, of which there are many varieties. We have seen one, the proportions of whose body seemed to differ from any other, its neck being shorter, its body longer, and its claws larger; but these differences are not sufficient to constitute a distinct species. The second is the seal of the Mediterranean and southern seas, which we presume to be the *phoca* of the ancients, and a distinct species, for it differs from
the

the others in the quality and colour of the hair, which is flowing, and almost black, whereas that of the common kind is grey, and of a bristly nature. Its teeth and ears are also different, for it has a very small external ear, which the other has not; its incisive teeth are likewise terminated with two points, while the teeth of the other are smooth and sharp, like those of the dog, wolf, and other quadrupeds. Its arms, or fins, are also situated lower, that is to say, more backward. Nevertheless, these discrepancies are, perhaps, only varieties depending on the climate, and not specific differences; especially as in places where the seals abound, there are numbers of them found larger and smaller, thicker and thinner, and of different colours according to their sex and age.

From a similarity, which appeared at first sight but trivial, and by some fugitive accounts, we were induced to suppose this second seal, or small seal, was the *phoca* of the ancients. We were informed that the one we had was brought from India, and very probably it came from the Levant. It was an adult, as it had all its teeth. It was about a fifth less than the full-grown seals of our ocean, and about two-thirds less than those of the Frozen Sea, for it was not above two feet five inches in length, while
that

that described by Mr. Parsons was seven feet and a half long, though not arrived at its full growth, as it wanted several teeth. Now the characters given by the ancients of their phoca do not denote so large an animal, but agree with the small seal, which they often compare to the otter and beaver.

There is another circumstance mentioned by the ancients as belonging to the phoca, which, though false, could never have been intimated as belonging to our seals, or those of the northern seas. They say that the phoca's hair waves like the sea, and by a natural sympathy follows its motions, lying backward when it flows and forward when it ebbs, and that this remarkable effect remains long after the skin is separated from the animal. Now this could never be attributed to our seals, nor to those of the northern seas, since the hair of both is short and stiff; while, on the contrary, it rather agrees with that of the small seal, which is longer, and of a more supple nature than the hair of the common kind. Besides, Cardan positively asserts, that this property, which had been regarded as fabulous, is found to be a fact in India. Without placing more dependance on this assertion of Cardan's than it deserves, we must allow it indicates that this circumstance belongs to the Indian seal, though possibly

possibly it is nothing more than an electric phenomenon, the effects of which the ancients being ignorant might ascribe it to the flowing and ebbing of the sea. However this may be, the above reasons are a sufficient foundation to presume, that the small seal is the phoca of the ancients ; and there is also great reason to conclude, that it is the same as that M. Ron-delatus calls the *Mediterranean phoca*, the body of which, according to him, is much longer and smaller, in proportion, than our seal. The great seal, described by Mr. Parsons, and which, probably, came from the northern seas, seems to be a different species from the other two, for, notwithstanding it had scarcely any teeth, it was as big again, in all its dimensions, as the common kind. Mr. Parsons, as Mr. Klein judiciously remarks, speaks a great deal on the subject of this animal in a few words, and has given the following observations in the Philosophical Transactions, No. 469, p. 383, 386.

“ A sea-calf was shewn at Charing-cross, London, in the month of February, 1742-3. The figures given by Aldrovandus, Johnston, and others, being designed in profile, lead us into two errors. 1st. They make the legs apparent, though they are not visible externally in any position the animal is placed ; and, secondly,

secondly, the hind feet are represented like two fins, whereas they are two real feet, webbed like those of a water-fowl, each having five toes, composed of three articulations, and ending with darkish-coloured claws. The claws on the fore-feet are very large and broad, nearly like those of a mole, and seem to be designed for the purposes of crawling, and partly for swimming, as between each toe there is a narrow membrane; but the membranes of the hind feet are much larger, and only serve to row the animal along when in the water. It was a female, and died in the morning of the 16th of February, 1742-3. The hairs that were about its mouth were of a horny and transparent substance; its stomach, intestines, bladder, kidneys, ureters, diaphragm, lungs, great blood-vessels, and the parts of generation, were like those of a cow: the spleen was two feet long, four inches broad, and exceedingly thin; the liver was composed of six lobes, each of which was long and thin, like the spleen; the gall bladder was very small; the heart long, and of a soft texture, having a large foramen ovale, and the fleshy parts very considerable. In the lower stomach were about four pounds weight of sharp and angular pieces of flint, which seems as if the animal had

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swallowed them for the purpose of grinding its food. This animal is viviparous, and suckles its young by the mamilla, like quadrupeds, and its flesh is firm and muscular. Although it had attained seven feet and a half in length, yet it was but young, as it had scarcely any teeth; and it had four small holes regularly placed about the navel, which were the preceding signs of four teats to appear hereafter."

Thus it appears there are three kinds of seals, differing from each other. The small black seal of India and the Levant; the common seal of our seas; and the great seal of the northern ocean. To the first of these, therefore, we must refer all that the ancients have written about the *phoca*. Aristotle was acquainted with this animal, for he has described it of an ambiguous nature, an intermediate creature between aquatic and terrestrial animals; that is, an imperfect quadruped, having no external teats for suckling its young, and only very apparent auditory passages; that its tongue is forked, and has a small tail resembling that of a stag. This entirely agrees with the seal; but he is deceived in affirming that it has no gall-bladder. Mr. Parsons, indeed says, that the gall-bladder of the great seal which he describes, was very small; but

M. Daubenton.

M. Daubenton found a gall-bladder in the seal which he dissected proportionable to the size of the liver ; and the gentlemen of the Academy of Sciences, who also met with a gall-bladder in the seal which they dissected, do not speak of its being remarkably small.

Aristotle could not have had any knowledge of the great seal of the Frozen Sea, since in the time he lived all the north of Europe and of Asia was unknown. The Romans considered Gaul and Germany as their north, and the Greeks knew still less of the animals belonging to this part of the world ; it is, therefore, very probable, that when Aristotle speaks of the *phoca* as a very common animal, he only means the Mediterranean seal.

These three species have many properties in common with each other ; the females bring forth in winter, and place their young upon some sand-bank, rock, or small island. When they suckle their young they sit upon their hind legs, and continue to nourish them in this manner for twelve or fifteen days, after which she brings them to the water, accustoms them to swim, and to search for their food ; she carries them on her back when they are fatigued. As each litter does not consist of above two or three, her cares are not much divided, and the education of her little ones is soon completed.

In

In fact, these animals are very sagacious and docile; they understand and naturally assist each other in dangers. The young ones distinguish their mother among a numerous troop; and are perfectly obedient to her call. We are unacquainted with their time of gestation; but if we judge of it from that of their growth, the length of their lives, and the size of the animal, it must be many months; the time from their birth till they attain their full growth being many years, the length of their lives must be proportionably long. I am even inclined to believe that these animals live upwards of a hundred years, for we know that cetaceous animals, in general, live much longer than quadrupeds; and as the seal is the link between both it, ought to participate of the nature of the first, and consequently live much longer than the last.

The voice of the seal may be compared to the barking of an angry dog. When young, they have a shrill note, somewhat like the mewling of a cat. Those that are taken early from their dams mew continually, and often die of hunger sooner than take the food that is offered them. They bark at and endeavour to bite those who injure them, and are more of a courageous than timid nature. Instead of being
terrified

terrified at thunder and lightning, it seems to delight them ; they generally come on shore in tempests and storms, and even quit their icy abodes to avoid the shock of the waves ; at such times they sport in great numbers along the shore ; the tremendous conflict seems to divert, and the heavy rains that fall, to enliven them. They have naturally a disagreeable scent, and which is smelt at a great distance, when there are great numbers together. When pursued they often drop their excrements, which are of a yellow colour, and of a very abominable scent. They have a prodigious quantity of blood, and being also loaded with fat, they are, consequently, very dull and heavy. They usually sleep a great deal, and very sound, and are fond of taking their repose in the sun on flakes of ice, or sides of rocks, and they may be approached very nigh without being disturbed, which is the usual method of taking them. They are very seldom secured with fire-arms, for they do not immediately die, even if shot in the head, but plunge into the sea, and are entirely lost to the hunter ; therefore the general method is to surprise them when asleep, or at a distance from the sea, and knock them on the head with clubs. “ They are not easily killed, and are a long time dying (says an eye-witness), for
although

although mortally wounded, their blood nearly exhausted, and even stripped of their skins, yet they still continue alive; and indeed it is a shocking sight to see them in this condition wallowing and rolling about in their blood. These remarks were made on an animal we killed, about eight feet long; after it was skinned, and deprived of the greater part of its fat, yet it attempted to bite, notwithstanding they had given him many powerful blows over the head and nose. It even seized a cutlass with as much vigour as if it had not been wounded; after which we pierced it through the heart and liver, from whence as much blood flowed as is contained in a young ox*."

The hunting, or perhaps, to speak more properly, the fishing of these animals is not very difficult, and is attended with great profit, the flesh being good food, and the skin exceedingly serviceable. The Americans fill them with air, and make a kind of rafts, or small boats of them: their fat yields a clear and much sweeter oil than that drawn from the porpoise, or other cetaceous animals.

To these three kinds of seals already mentioned we may, perhaps, add a fourth, described in Anson's voyages by the name of the *sea-lion*. These are found in great numbers on the
Magellanic

* Recueil des Voyages du Nord, tom. ii. p. 117, &c.

Magellanic coasts, and at the island of Juan Fernandez, in the South Sea. The sea-lion resembles our seal, which is very common in the same latitudes, but it is much larger, being from eleven to eighteen feet long, and from eight to eleven in circumference, when it has acquired its full growth. They are so fat that when the skin is taken off, the blubber is about a foot thick all round the body, and from a single animal more than ninety gallons of oil may be drawn. They are, at the same time, very full of blood, and which, when deeply wounded, springs out with amazing force. Upon the throat of one of these animals being cut, two hogsheads of blood were taken out, besides what then remained in its body. Their skins are covered with a short hair of a brownish colour, but blackish on the tail and feet. Their toes are united by a membrane, which does not reach to their extremity, and each of them are terminated by a claw. The sea-lion differs from the common seal not only in its size and bulk, but also by other characters. The male has a kind of thick crest, or trunk, hanging from the end of its upper jaw, about five or six inches long. This character is not seen in the females, and forms a very striking distinction between them. The
strong

strong males collect together a flock of females, and permit no other male to approach them. These animals are truly amphibious; they remain all the summer in the sea, and go upon land in the winter; at which season the females bring forth, but never produce above one or two at a litter, which they suckle.

The sea-lions, while they are on land, feed on the herbage which grows by the sides of the sea. They are of a very heavy and drowsy nature, and delight to sleep in the mire. Though very indolent and difficult to waken, yet at those times they commonly fix some as centinels near the place where they sleep; and it is said, that these centinels give loud warnings when any danger is near. Their voices are very loud and of various tones; sometimes grunting like hogs, and sometimes neighing like horses. The males often fight about the females and wound one another desperately with their teeth. The flesh of these animals is not disagreeable to eat; particularly the tongue, which is as good as that of the ox. They are very easily killed, as they cannot defend themselves, nor fly from their enemies: they are so exceedingly heavy, that they move with great difficulty, and turn themselves with still greater. Those that hunt them have only
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to guard against coming too near their teeth, which are very strong, and with which they inflict deadly wounds.

By comparing other observations and accounts, and from the conclusions which may be drawn from them, the sea-lion of South America, appears to be nearly the same animal as that found on the northern coasts of the same continent. The large seal of Canada, spoken of by Denis, by the name of the sea-wolf, and which he distinguishes from the common seals, may possibly be of the same species as these sea-lions. "Their young, says this author, are bigger and longer at their birth than our largest hogs." Now it is certain that our seals are never of that size, even when full-grown. The Mediterranean seal, or the *phoca* of the ancients, is still less; therefore there only remains the seal Mr. Parsons has described, which agrees with that mentioned by Denis. Mr. Parsons does not say whence this great seal was brought: but whether it came from the north of Europe, or from America, it might be the same as the sea-wolf of Denis, or the sea-lion of Anson, for it appears to be of the same size, since though not nearly full-grown it measured seven feet in length. Besides the size, there is the most apparent difference be-

tween the sea-lion and the seal, namely, the male of the first has a large crest on its upper jaw. Now Mr. Parsons did not see the male; he only described the female, which had no crest, and which perfectly resembled the female sea-lion, mentioned by Anson. To these similarities Parsons adds another still more precise; he says, that the great seal which he saw had a stomach and intestines like those of a cow; and the sea-lion also mentioned in Anson's Voyages, is described as an animal which feeds on grass during the whole summer. Hence it is very probable that these two animals are formed alike, or rather they are the same animals, and very different from other seals, who have but one stomach, and which live entirely upon fish.

Rogers had spoken of this animal nearly in the same manner as is done in Anson's Voyages. "The sea-lion (says he) is a very strange creature, and of a prodigious bulk; I have seen some above twenty feet long, which could not weigh less than four thousand pounds. Many of them were sixteen feet long and must weigh two thousand pounds; notwithstanding which, I was surprised at the great quantity of oil drawn from these animals. Its shape is nearly like the sea-calf; but its skin

is as thick as that of an ox ; the hair is short and bristly ; the head disproportionally large ; the mouth very wide ; the eyes of a monstrous size, and the nose, which resembles that of the lion, has terrible whiskers, formed of such exceedingly stiff and bristly hair, that they might be used for tooth-picks. Towards the latter end of June, these animals go upon the island of Juan Fernandes to bring forth their young ; which they do at about a gun-shot distance from the edge of the sea ; there they remain till the end of September, without moving out of the place, and without taking any nourishment : at least, we did not see them eat. I observed some which remained eight days in the same spot, and which would not have stirred then had they not been frightened by the report of a pistol. At the island of *Lobos* in the South Sea, we likewise saw several sea-lions, but a much greater number of seals."

These observations of Woods and Rogers, which agree with what is said in Anson's *Voyages*, seem to be further proofs of these animals living upon grass when they are on land ; for there is but little probability that they should exist three months without any food, and especially during the time they suckle their young. We find in the *Collection of Voyages to the*
South

South Seas, many remarks respecting these animals ; but neither the descriptions nor circumstances appear to be exact : for example, it is said, that in the Straits of Magellan, there are sea-wolves of such an enormous size, that their skins, when stretched out, were six and thirty feet wide ; which is evidently an exaggeration. It is also said, that on the two islands of Port Desire, those animals resemble lions in the anterior part of their body, having a very long mane on their heads, necks, and shoulders. This is a still greater exaggeration ; for the sea-lions have only a little more hair on the neck than on the rest of the body, but which is not above an inch in length. It is likewise said that there are some of these animals above eighteen feet long, many about fourteen, but most commonly not above five. This might induce us to imagine, that there are two species, the one much larger than the other, because the author does not say whether this difference proceeded from the difference in their ages, which, however, was necessary in order to prevent error. “ These animals (says Coreal) keep their mouths always open. It is with great difficulty that two men can kill one of these animals even with a strong lance, which is the best weapon that can be made use

use of for that purpose. One female suckles four or five young ones, and beats away any other young that comes towards her ; from which circumstance I conclude they bring forth four or five young ones at a litter." This presumption seems well founded ; for the great seal, described by Mr. Parsons, had four teats, situate in such a manner as to form a square about the navel. I thought it necessary to collect every circumstance relative to these animals, which are but little known ; and it is much to be wished that some skilful traveller would give us a proper description of them, and particularly of their internal parts, as the stomach, intestines, &c. for, if we could rely on the testimonies of travellers, we should believe that the sea-lions belong to the class of ruminating animals ; that they have several stomachs, and that, consequently, they are of a far distant species from the seal, or sea-calf, which certainly has but one stomach, and must be placed among the carnivorous animals.

 THE WALRUS, MORSE, OR SEA-COW.

THE name of sea-cow, by which the walrus (fig. 193.) is most generally known, has been very wrongly applied,* since the animal it denotes has not the least resemblance to a cow: the denomination of sea-elephant, which others have given it is much better imagined, as it is founded on a singular and very apparent character. The walrus, like the elephant, has two large ivory tusks which shoot from the upper jaw; and its head would entirely resemble that of the elephant if it had a trunk; the walrus, however, not only wants that instrument, which serves the elephant as an arm and hand, but it is deprived of the use of its arms and legs; those members being, like those of the seal, shut up within the skin, so that nothing appears outwardly but its hands and feet. Its body is long and tapering, thickest towards the neck, decreasing by degrees, and is entirely covered with a short hair. The fingers, or toes, of the hands and feet, are covered with a membrane, and

* Perhaps this name, as well as that of *sea-calf*, has been given because the one and the other have a cry which very much resembles the lowing of a cow and of a calf. *Ipsis* (says Pliny, speaking of the sea-calf) *in somno mugitus, unde nomen vitula*

and terminated by short and sharp-pointed claws. On each side of the mouth are large bristles in the form of whiskers; the tongue is hollowed, and the concha of the ears are wanting, so that, excepting the two great tusks, and the want of the cutting teeth both above and below, the walrus perfectly resembles the seal, only being much larger and stronger; the walrus is commonly from twelve to sixteen feet in length, and eight or nine in circumference; whereas the largest seals are not more than seven or eight feet. The former generally frequent the same places as the seals are known to reside in, and they are almost always found together. They have the same habits in every respect; but there are fewer varieties of the walrus than of the seal; and they are more attached to one particular climate, being rarely found except in the northern seas, so that the seal might be known to the ancients, but the walrus could not.

Most travellers who have visited the northern seas of Asia, Europe, and America, have mentioned this animal; but Zorgdrager seems to have spoken most clearly on this subject, for which reason I shall subjoin a translation of his remarks, which were communicated to me by the Marquis de Montmirail.

“ There was formerly great plenty of the
walrus

walrus and seals in the bays of Horisont and Klock, but at present there are very few. Both of them quit the water in the summer, and resort to the neighbouring plains, where they are sometimes seen in troops of from eighty to two hundred, particularly the walrus, who will remain there several days together, till hunger obliges them to return to the sea. This animal externally resembles the seal, but he is stronger and much larger.* Like the seals they have five toes to each paw, but their claws are shorter, and their head shorter and rounder. The skin of the walrus is an inch thick, wrinkled, and covered with very short hair of different colours. His upper jaw is armed with two tusks, about half an ell, or an ell in length, which are hollow at the root, and become larger as the animal grows in years. Some of them are found to have but one tusk, the other being torn out in fighting with each other, or falling out through age. This ivory generally sells for a greater price than that of the elephant, as it is of a more compact and harder substance. His mouth is like that of the ox, and furnished with hairs which are hollow, pointed, and about the thickness of a straw. Above the
mouth

* This must be understood only of the common seal, for the large species of this animal is considerably greater in its dimensions than the walrus.

mouth are two nostrils, through which these animals spout water like a whale, without however making much noise. Their eyes are red, sparking and inflamed during the summer, at which season the water making too powerful an impression on them, they stay more willingly on shore than at any other time. They are in great numbers about Spitzbergen. They are killed with lances, and the profit derived from their teeth and fat fully repays the trouble; for their oil is almost as much valued as that of the whale. Their two teeth are worth as much as all the oil they produce, and are preferred even to ivory. An ordinary sized tooth will weigh three pounds, and in which case the two will sell for eighteen florins, about the value of half a ton of oil, which is commonly drawn from one of them; so that the animal may be said to be worth six and thirty florins. Formerly great numbers of these animals were seen upon land; but the vessels which every year resort to those seas for the whale fishery, have so frightened them, that they are now retired to more sequestered places; and those that remain no longer go on shore in troops, but either continue in the water, or disperse themselves on different parts of the ice. When the hunter comes near a walrus, whether in the water, or on the ice, he darts a

very strong harpoon at him, which, though made expressly for the purpose, often slips over his hard and thick skin; but if it penetrate, they haul the animal with the rope annexed towards the boat, kill him with a very sharp and strong lance, and afterwards tow him to the nearest shore or flat piece of ice; there flay him, and throw his skin away, as it is of no manner of use*. They then separate the teeth with a hatchet, or sometimes cut off the head and boil it to prevent the teeth from receiving any injury; the blubber being cut into long slices, is barrellled up and carried on board the vessels. The walrus is generally heavier than the ox, and as difficult to pursue as the whale; the skin of the latter is also more easily pierced, for a strong and sharp lance is often darted several times at the walrus without penetrating his thick skin. For this reason they always endeavour to wound him in those parts where the skin appears tight, and even take aim at his eyes; the animal, obliged by this motion to turn his head, exposes his breast or throat to the hunter, who immediately strikes
in

* Apparently, Zorgdrager was ignorant that a very good hide is made of the skin of this animal. I have seen coach-harnesses made of them which were very firm and tough. *Hist. of Greenland*; and even at present the skins of the walrus form an important part of the exportation from the coast of Labrador.

in that part, and draws the lance out again as quick as possible, for fear the animal should seize it with his teeth and wound those that attack him either with his teeth or the lance, which sometimes happens. However, an attack seldom lasts long on the ice, for the walrus, whether wounded or not, soon plunges into the sea; consequently the hunters rather attack him upon land. These animals are now rarely found but in the least frequented countries, as the isle of Moffen, at the back of Worland, in the neighbourhood of Horisont and Kloch bays, and other secluded and more distant places; they also take the precaution to sleep on banks of sand, where ships dare not approach them. Those that are met with, instructed by the persecutions they have so often experienced, are so much on their guard, that they always keep pretty near to the water, and immediately plunge in on being approached. I experienced this fact myself, having met with a troop of thirty or forty on the great sand bank at the back of Worland, some of which were quite close to the water, and others at no great distance from it. We waited some hours before we went ashore, in hopes they would advance further on the plain, but as this stratagem did not succeed according to our wishes,

we

we went on board our boats, and landed to the right and left of them ; but we had no sooner set foot on shore, than they all plunged into the water, and dived to the bottom, therefore the most we were able to accomplish was the wounding of a few. Before these animals were so greatly persecuted, they advanced a good way upon the land, so that when it was high tide, they were at a great distance from the sea ; and at low water being at a still greater, they were easily attacked. The hunters would then land, and march up in their front to cut off their retreat to the sea, and which they permitted with indifference ; when thus assailed, each hunter generally killed one before they could regain the water ; and after they had killed several, they made a kind of barrier of their dead bodies, leaving some of the men in ambush to slay those that remained ; and in this manner three or four hundred were often killed. The prodigious quantity of bones spread over the shores, sufficiently prove how numerous these animals were in former times. When wounded they become extremely furious. They sometimes seize the lances, and break them in pieces with their teeth ; or tear them out of the hands of their enemies, and at last, full of rage, put their head betwixt their paws,
or

or fins, and in this manner roll into the sea. When there is a great number of them together, they are so bold as to attack the boats that pursue them, bite the boats with their teeth, and exert all their strength to pierce or overturn them."

By adding to these observations of Zorgdrager those which are in the Collection of Voyages to the North, and what are scattered in other accounts, we have a tolerably complete history of this animal. By these relations we find that this species was formerly much more diffused than at present; they were found in the seas of the temperate zones, in the Gulph of Canada, on the coasts of Acadia, &c. but they are at present confined to the frozen zones, and even in those there are but few in any of those parts which are frequented. There are very few in the Frozen Seas of Europe, and still less in those of Greenland, Davis's Straights, and other parts of North America, the whale fishery having disturbed and driven them away. Towards the end of the 16th century the inhabitants of St. Malo found them in great numbers in the Ramée islands; and it is not a hundred years since the merchants of Port-Royal thought it worth sending to Cape Sable and Cape Fourchu to hunt these animals,

but

but they have now entirely forsaken those climates, and are only to be found in great numbers in the frozen sea of Asia, from the mouth of the Oby to the eastern point of that continent ; they are seldom seen in the temperate, and those found in the torrid zone are of a different species ; they seem averse from the southern seas, and therefore are not met with towards the south pole, although the great and small seals of the north are there in great plenty.

We find, however, that the walrus can live, at least for some time, in a temperate climate. Edward Worst speaks of having seen one alive in England, which was three months old ; that it was put in water for a short time only each day, and that it went upon the ground. He does not say the heat of the air incommoded it, but, on the contrary, that when it was touched it had the appearance of a robust and furious animal, and that it had a very strong respiration through its nostrils. This young walrus was about the size of a calf, and very much like a seal. Its head was round, its eyes large, its nostrils flat and black, which it opened and shut at pleasure. It had no external ears, but only two auditory passages. The mouth was small, and the upper jaw was furnished with whiskers of thick, rough, and cartilaginous hairs ;

hairs ; the lower jaw was triangular, the tongue thick and short, and each side of the mouth armed on the inside with flat teeth. The feet were broad, and the hind part of the body perfectly resembled that of a seal. It might be rather said to crawl with this hind part than to walk ; the fore-feet were turned forward, and the hind ones backward ; they were all divided into five toes, and covered with a strong membrane. The skin was thick, hard, and covered with a short, soft, ash-coloured hair. This animal grunted like a boar, and sometimes cried with a deep and strong voice. It was brought from Nova Zembla, and had not any tusks, but on the upper jaw there appeared two knobs, from whence in time they would arise. It was fed with a sort of gruel made of barley or oatmeal. It followed its master when he offered it food, but always with a seeming reluctance, as it grunted all the time, and would sometimes growl at him with a degree of fury.

This account, which gives a tolerably just idea of the walrus, evinces that it can live in a temperate climate ; however there is no appearance of its being able to endure a strong heat, nor of its having ever passed from one pole to the other. Several travellers have spoken of certain sea-cows they saw in India,
but

but those were of a different species. The walrus is easily distinguished by its long tusks, a character which we find peculiar to that and the elephant.

The genital member of the male has a large bone like the whale. The female brings forth in winter upon land, or on the shoals of ice, and seldom produces more than one, which when born is about the size of a hog of a year old. We do not know how long this animal goes with young, but if we judge by the time of their growth and size, we must suppose it to be upwards of nine months. The walrus cannot continue in the water for a long time together, but is obliged to come on shore to suckle its young, and for other occasions. When they are obliged to climb up steep shores, or large pieces of ice, they make use of their teeth and hands to hold by, and drag along the heavy masses of their bodies. They are said to feed upon the shell-fish which are at the bottom of the sea, and to grub them up with their strong tusks. Others assert that they live on a sea-herb with broad leaves, and that they eat neither flesh nor fish. But I imagine all these opinions have but a weak foundation, it being probable that the walrus, like the seal, lives on prey, especially on herrings,

herrings, and other small fish, for he does not eat at all when upon land, and it is chiefly hunger which obliges him to return to the sea.

THE DUGON.

THE Dugon is an animal which inhabits the African and Indian seas. We have only seen two heads on this subject, which resembled that of the walrus more than any other animal. It had, like that, very deep sockets for the teeth, about the length of half a foot, which might more properly be termed cutting teeth than tusks. They extend not in a direct manner from the mouth, like those of the walrus, but are much shorter and thinner, besides they are situated close to each other in the fore part of the jaw, whereas the tusks of the walrus leave a considerable space between them, and are placed at the side of the upper jaw. The grinders of the dugon likewise differ in number, shape and position, from those of the walrus, therefore we make not the least doubt

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but they are animals of different species. Some travellers have confounded the dugon with the sea-lion. Inigo de Biervillas says, that a sea-lion was killed near the Cape of Good Hope, which measured ten feet in length, and four in circumference. Its head was like that of a calf about a year old; it had a bristly beard; its eyes large and frightful; its ears short, its feet very broad, and its legs so exceedingly short, that its belly dragged upon the ground: he adds, that it had two tusks about half a foot long. This last, however, does not agree with the sea-lion, which has no tusks, but teeth nearly resembling those of the seal; and this difference made me imagine it was not a sea-lion but the animal we call the *dugon*. Other travellers seem to have indicated it by the name of the sea-bear: Spilsberg and Mandelso relate, “ that there are animals on the island of St. Elizabeth, on the coast of Africa, which should rather be denominated sea-bears than sea-wolves, as their hair, colour, and head, greatly resemble those of that animal, the snout only being more pointed; that they also move like the bear, except dragging their hind legs after them; that these amphibious animals have a frightful appearance, and do not shew any fear at the sight of man: their teeth are so very strong

strong as to bite through the shaft of a javelin ; and although their hind legs appear crippled, yet they move with such swiftness that it is very difficult to come up with them." Le Guat speaks of having seen a sea-cow, of a reddish colour, near the Cape of Good Hope ; its body was round and thick, its eyes full and large, long tusks, and its muzzle was turned a little upwards. A sailor assured him that this animal, of which he only saw the fore part of its body, the rest being in the water, had feet. This sea-cow of le Guat's, the sea-bear of Spilsberg, and the sea-lion of Biervillas, seem to be the same animal as the *dugon*, the head of which was sent us from the isle of France, and which, consequently, is to be met with in the southern seas, from the Cape of Good Hope to the Philippine islands : as for the rest we cannot affirm that this animal, which resembles the walrus by its head and tusks, has, like that, four feet. We only presume from analogy, and the testimony of travellers, that they have those members ; but as the analogy is not very great, nor the testimonies of travellers sufficiently precise to decide this point, we shall suspend our judgment thereon till we are able to obtain better information.

THE MANATI.

THIS animal is called in French lamantin, and supposed by some to have derived that name from the lamentable cries it makes, but which is merely fabulous, as it is only a corruption of the real word *manati*, which in the Spanish indicates an animal with hands.

This animal may either be called the last of beasts or the first of fishes, for, in fact, it cannot positively be pronounced either the one or the other. The manati (*fig. 194*) partakes of the nature of the former, by its two forefeet, or hands; but the hind legs, which are almost wholly concealed in the bodies of the seal and walrus, are entirely wanting in the manati; instead of two short feet and a small narrow tail, which the walrus carries in an horizontal direction, the manati has only a large tail, which spreads out like a fan, so that at first sight it seems as if the tail of the first was divided into three parts, and that in the latter they were all united into one; but

but from a more attentive inspection, and particularly by dissection, we find that there is no such union, that there are no vestiges of the bones which form the thighs and legs, and that the tail of the manati is composed of simple isolated vertebræ, like those of cetaceous animals, who have no feet. Therefore this animal partakes of the cetaceous nature in the hinder parts of its body, and of a quadruped by the two fore-feet, or hands, on each side of the breast. Oviedo seems to be the first author who has given any sort of history or description of the manati; he says, "This is a very clumsy and mishapen animal, having the head thicker than that of an ox, with small eyes, and two feet, or hands, placed near the head, which serve him for the purpose of swimming. He has no scales, but is covered with a skin or rather a thick hide: he is a peaceable animal, and feeds upon the herbage by the river sides, which he can reach without entirely quitting the water. To take the manati they row themselves in a boat, or on a raft, as near the animal as possible, and then dart a very strong arrow at him, to the end of which a long cord is fastened: feeling himself wounded he instantly swims away, or plunges

to the bottom; but the cord has a cork, or piece of wood, fastened to the end of it, which serves as a buoy, and directs them which way he takes. When the animal begins to grow weak through the loss of blood, he swims towards the shore; the cord is then wound up, and the animal drawn within arm's length of the boat, where they dispatch him with spears, &c. He is so heavy that he requires two oxen to draw him. His flesh is excellent eating, is much esteemed when fresh, but more so when cut in pieces and pickled; in which state it acquires the flavour of the tunny fish. Some of these animals measure more than fifteen feet in length by six in thickness; the body becomes narrow towards the tail, and then spreads gradually broader towards the end. He has no external ears, but only two holes for the sense of hearing: his skin is tough and hard, an inch thick, of an ash colour, and has a few scattered hairs, or bristles, on it. The female has two paps on her breast, and generally brings forth two young ones at a time, which she suckles."* All these facts
mentioned

* These paps are very prominent during the time of gestation, and of suckling the young; but at other periods they are discernible only by the nipple.

mentioned by Oviedo are true, and it is remarkable that Cieça, and many others after him, should affirm, that the manati leaves the water very often to feed upon land. They have been led into this error, from the analogy of the walrus and seals, which have this natural habit ; but it is certain, that the manati never quits the water, and that he prefers fresh water to salt.

Clusius saw and measured the skin of one of these animals, and found it sixteen feet and a half long, and seven feet and a half broad ; the two feet were very broad, and the claws short. Gomara asserts, that he has sometimes met with them twenty feet long ; and adds, that these animals frequent fresh-water rivers as well as the sea. He says, a young one was reared in a lake in the island of St. Domingo for twenty-six years ; that he was so docile and tame, that he came quietly for the food which was offered to him ; that he was so intelligent as to come out of the water when called, and crawl to the house to receive his victuals ; that he seemed delighted with the human voice ; that he was fond of children, would suffer them to sit upon his back, and carry them from one end of the lake to the other, without plunging them

them into the water ; and that he had no kind of fear. These circumstances cannot all be true ; some of them seem adapted to the fable of the dolphin related by the ancients, for the manati cannot possibly crawl on the ground.

Herrere says little with regard to this animal, and only asserts, that although very large, the manati swims with such facility, that his motion in the water is not heard ; and that he immediately dives to the bottom, on hearing any noise.

Hernandes, who has given two figures of the manati, one in profile, and the other in front, adds very little to what other Spanish authors had said of it ; he only mentions that there is a deformed beast called the *manati*, which inhabits the Atlantic and Pacific oceans ; the descriptions of which he has chiefly taken from Oviedo ; and then adds, that the hands of this animal have five nails like those of a man ; that its navel and anus are wide ; that the vulva of the female is like that of a woman, and the sexual organ of the male like that of a horse ; that the flesh and fat are like those of a hog ; that the ribs and viscera are like those of a bull ; that they copulate on land, the female lying on her back, and that she

she brings forth but one young at a time, which is of a monstrous size at its birth. The copulation of these animals cannot be effected on land, since they are unable to walk, but it is on the contrary performed in shallow water. Binet says, that the manati is as big as an ox, and as round as a tun; that his head is small, and his tail short; that his skin is rough and thick like that of an elephant; that there are some of these animals so large, that one of them will yield more than six hundred weight of good eatable flesh; that his grease is as sweet as butter; that they delight to be near the mouth of rivers, where they browse upon the sea weeds, which grow on the banks; that at some few leagues distant from Cayenne, they are found in such numbers, that a few men expert in darting the harpoon, might get sufficient to load a vessel in one day. Father Tertre, who describes the fishery of the manati, agrees almost in every respect with the authors we have quoted; observing, however, that this animal has only four toes and four claws on each foot, or hand, and adding, that he feeds on a short vegetable which grows on the sea, and which he eats nearly in the same manner as the ox; that having pastured sufficiently, he makes to the rivers and fresh waters, where

he moistens his food ; and that his belly being full, he sleeps with his nose half way out of the water, so that he can be seen at a distance ; that the female brings forth two young at a time, which follow her wherever she goes ; and that when the mother is taken, they are sure of having the young, because they not only keep close to the body when she is dead, but even go continually round the vessel which is carrying her away. This last circumstance appears very suspicious, and is contradicted by other travellers, who assert, that the manati never brings forth more than one at a time ; which is consistent with the nature of all other large quadruped or other cetaceous animals, so that analogy alone is sufficient to prevent our believing that the manati always brings forth two. Oxmelin remarks, that the tail of the manati is placed horizontally like that of the cetaceous animals, and not vertically like those of the scaly brood ; that he has no fore teeth, but only a callosity as hard as a bone, with which he cuts the herbage ; but that he has thirty-two grinders ; that his sight is imperfect, on account of the smallness of his eyes, which have no iris and very little moisture ; that he has an extremely small brain ; but to remedy the defect of sight, he has a very quick ear ;

ear ; that he has no tongue ; that the parts of generation are more like those of the human species than any other : that the milk of the female, which he asserts to have tasted, is very good ; that they produce but one young at a time, which they embrace and hold with their hands ; that the mother suckles it during a year, after which it is able to provide for itself : that this animal has fifty-two vertebræ ; that it feeds like the turtle, but can neither walk nor crawl upon land. All these facts are very exact, and even that of the fifty-two vertebræ ; for M. Daubenton in one he dissected found twenty-eight vertebræ in the tail, sixteen in the back, and six, or rather seven in the neck. This traveller is only deceived with respect to the tongue, which is not deficient in the manati, but affixed to the lower jaw almost to the extremity.

In the Voyage to the American islands, printed at Paris, 1722, we meet with a tolerable good description of the manati, and the manner in which it is taken by the harpoon. The author perfectly agrees with all the principal facts we have already mentioned ; but he observes, “ that this animal is become very rare in the Antilles since the coasts have been inhabited ; and that the one which he saw and measured, was fourteen feet nine inches, from
the

the muzzle to the tail: his head was very thick, with a large mouth and lips, which were furnished with coarse hairs; his eyes small in proportion to his head; and he had only two holes in the sides instead of ears; his neck was very thick and short, and but for the wrinkles occasioned by his motions, it would be impossible to tell his head from his body. Some authors pretend (he adds) that this animal makes use of his hands, or fins, to crawl upon land: I particularly endeavoured to inform myself respecting this fact, but could not hear of any person who had seen him out of water; and indeed, it is impossible for him to walk or crawl, since its fore-feet, or hands, only serve the female to hold the young while they suckle. The female has two round breasts, which I measured; they were each seven inches in diameter, and about four in their elevation: the nipple was about an inch thick; the body was eight feet two inches in circumference; the tail was like a large battle-dore, about nineteen inches long, fifteen inches broad at the widest part, and about three inches thick at its extremity. The skin on the back was about double the thickness of an ox's hide, but much thinner on the belly; it was of a slate colour and of very coarse grain; the hairs, or bristles, were of
the

the same colour as the skin, thinly scattered, but very thick, and long. This animal weighed about eight hundred pounds; and with it the young one was taken, which was nearly three feet long. A part of its tail was roasted, the flesh of which was as good and as delicate as veal. The herb upon which these animals feed is about eight or ten inches long, narrow pointed, tender, and of a fine green colour. This herb is so plenty in many places on the coasts, that the bottom of the sea has the appearance of a verdant meadow, and upon which the turtles also feed, &c." Father Magnin de Fribourg says, that the manati feeds on such grass on the shores, as it is able to reach without quitting the water; that its eyes are not bigger than a filberd nut; that its ears are so narrow, that a needle can scarcely be passed into them; that within the ears are found two small bones, which the Indians wear about their necks; and that its cry resembles the lowing of a cow.

Gumilla states, that there are immense numbers of manati in the Great lakes of Oronooko, "These animals (says he) weigh from five to seven hundred pounds each; they feed upon grass; their eyes are small, and the holes for their ears still smaller. They pasture on the
sea

sea shores when the river is low. The female always brings forth two young ones, which she carries at her paps, and grasps them so strongly with her two hands that they cannot fall off; the milk of the female is very thick. Under its thick skin, four beds, or layers, are met with, two of which are of fat, and the other two of a very delicate and savoury flesh, which, when roasted, has the smell of pork and the taste of veal. These animals, when a storm of rain approaches, leap out of the water to a considerable height." Gamilla seems to be mistaken, as well as Tentre, in asserting that the female brings forth two young at a time; since it is almost a certainty, as has been already observed, that she produces no more than one.

Upon the whole, M. de Condamine, who favoured us with a drawing, which he himself made of the manati in the Amazon river, speaks with greater precision than any other author on the natural habits of this animal. "Its flesh and fat (says he) have a great resemblance to veal. Father Acuna makes its resemblance to the ox still more complete, by giving it horns, which Nature never provided. It is not, properly speaking, amphibious, since it cannot entirely leave the water, having only two flat fins close to the head, about sixteen inches

inches long, and which serve the animal instead of arms and hands. It only raises its head out of the water to feed on the herbage upon the shore. That of which I drew the figure was a female; it was about seven feet and a half long, and its greatest breadth two feet: I have since seen some much larger. The eyes of this animal have no proportion to the size of its body; the orifice of its ears is still less, and only seems like a hole made by a pin. The manati is not peculiar to the Amazon river, being not less common in the Oronooko. It is also found, though less frequently, in the Oyapoc, and many other rivers in the environs of Cayenne, and on the coast of Guiana, and probably in other parts."

This is nearly all the precise matter which we can collect respecting this animal. It were to be wished that the inhabitants of Cayenne, among whom there are several admirers of Natural History, would make some observations on this animal, and give us a description of its internal parts, especially those of respiration, digestion and generation. There seems, though we are not certain, to be a great bone in the genital member, and a foramen ovale in the heart; that its lungs are of a singular conformation;

conformation ; and that it has several stomachs, like ruminating animals.

To conclude : the species of the manati is not confined to the seas and rivers of the New World, but exists also in those of Africa. M. Adanson saw them at Senegal, whence he brought one of their heads, which he presented to me, and at the same time communicated the following description of this animal, which he made on the spot, and which I have thought it proper wholly to transcribe. “ I saw many of these animals, the largest was not more than eight feet long, and weighed about eight hundred pounds. A female, which was five feet three inches long, weighed only one hundred and ninety-four pounds. They are of a dark ash colour, and have hairs scattered over their bodies, very long, and like bristles. The head is conical, and of a middling size, with respect to the bulk of the body. The eyes are round and very small ; the iris is of a deep blue, and the pupil black. The muzzle is almost cylindrical ; its cheeks are nearly of an equal breadth, and the lips are fleshy and very thick. The only teeth they have either in the upper or lower jaw are grinders. The tongue is of an oval form, and joined almost to the end of the
lower

lower jaw. It is remarkable that almost every author and traveller have described this animal with ears. I have not been able to perceive a hole sufficient even to admit a small probe. It has two arms, or fins, placed close to the head, which is not distinguishable from the rest of the body by any kind of neck, nor even any apparent shoulders. These arms are nearly cylindrical, composed of three articulations, the foremost of which is flat, and like the palm of the hand, the fingers of which are only to be distinguished by four claws of a bright brownish red colour; its tail is horizontal, like that of the whale, and is partly of the form of a baker's shovel. The female has two breasts, rather elliptic than round, placed near the arm-pits. The skin is thin on the belly, thick on the back, but thickest of all on the head. The fat is white, and two or three inches thick; the flesh is of a pale red colour, and more delicate than veal. The Iolof negroes call this animal *lereou*; it feeds on herbage, and is to be found at the mouth of the Black Sea."

By this description we find that the manati of Senegal does not differ in any particular from that of Cayenne; and from a comparison made of the head of the Senegal manati with that of a foetus of the Cayenne lamantin by

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M. Daubenton, he presumes that they are of the same species. The testimony of travellers also agrees with our opinion ; Dampier in particular speaks positively, and his observations deserve a place in our history. “ It is not only in Blewfield river, which springs between the rivers Nicaragua and Veraga, that I have seen the manati : I have also seen them in the Bay of Campeachy, on the coast of Bocca del Drago, and Bocca del Toro, in the river of Darien, and in the small southern islands of Cuba : I have heard it said that there are a few found on the north of Jamaica, and many in Surinam river, which is a very low country. I have likewise seen them at Mindanea, one of the Philippine islands, and on the coast of New Holland. This animal is fond of brackish water, therefore he most commonly inhabits those rivers which border on the sea. This is possibly the reason why we never meet with any in the South Seas, where the coast is generally high, and the water very deep near land, except in the Bay of Panama ; but even there the manati is not to be met with ; but the West-Indies being, as it were, a great bay composed of a number of small ones, are generally low land and shallow water, and consequently afford a food which is agreeable to the manati. They are sometimes seen in salt water,

water, sometimes in fresh, but seldom very far from shore. Those which inhabit the sea, and places where there are no rivers that they can enter, come to the mouth of the nearest fresh-water rivers which they find, once or twice in twenty-four hours. They feed on a narrow herbage which grows on the sides of the shores, especially in places where the tides or currents are not very strong. They never go on shore, but always keep in a depth of water where they can swim. Their flesh is sweet, and very good food; their skin is also of great utility. The manati and the tortoise are commonly found in the same parts of the world, and feed on the same herbage.”*

THE NOMENCLATURE OF APES.

IN the history of these animals we shall not follow the pedantic method of schools, which
lays

* A great number of manatis are to be found along the low and marshy coasts, and in the vast lakes of Moyacaré, the most southern part of French Guiana, above the Oya-pok. Small vessels from Cayenne go to the fishery of these animals, and bring their flesh salted, a gross aliment which is kept for the negroes. This fishery, which might become an object of important commerce, should be encouraged; it would require a small establishment upon the coast, and would facilitate the means of acquiring some knowledge of a country now unknown, and which, at the same time that it opened new sources of commerce, would prove also an inexhaustible mine of wealth to Natural History.

lays down arbitrary maxims as real, and falsities as truth; such documents are eagerly imbibed by children, but are judiciously rejected by men, if not founded on solid principles. We shall, therefore, to avoid such imaginary methodical distributions, which have been of no other use than to heap a multiplicity, and even distinct species, of animals into one indiscriminate mass.

What I call an *Ape* is an animal with a flat visage, and without a tail, whose teeth, fingers, nails, and hands, resemble those of the human species, and who also walks upright on its two feet. This definition, drawn from the nature of the animal, and its resemblance to man, will exclude every animal that has a tail, or a long snout, crooked or pointed claws, or whose nature obliges them to walk more willingly on four feet than on two. After this fixed and precise rule, let us examine to what animals the name of Ape can properly be applied. The ancients knew only one; the *pithecos* of the Greeks, and the *simia* of the Latins, is the real ape, and on which Aristotle, Pliny, and Galen, have instituted all their physical comparisons, and founded all their relations of the ape to mankind. But this ape of the ancients, which so greatly resembles man in its external form, and still more in its internal organization,

zation, nevertheless differs from him in an essential point, namely, magnitude. The size of the human species is generally above five feet, while that of the *pithecos* is seldom more than a fourth of that height. Therefore, if this animal had a still greater resemblance to the human species, the ancients would have had reason to regard it only as an *homunculus*, a dwarf, or a pigmy, capable only of attacking small animals, while man knew how to subdue the elephant, and even to conquer the lion.

But since the discovery of the southern parts of Africa and India, another animal of this kind has been found, which possesses this attribute of size ; an ape as tall and as strong as man, and equally as ardent after a woman as its own females ; a species which are sagacious enough to make use of stones to attack their enemies, and sticks to defend themselves, and which resembles the human species still more than the *pithecos*, for, independently of its having no tail, a flat face, arms, hands, teeth, and nails, like those of a man, and, like him, walking erect, it has a kind of visage, with features, approaching to those of mankind : its ears are of the same form ; it has a beard on its chin, and not more hair on its body than man in his natural state. From these resemblances the more polished

polished Indians have not hesitated to associate it among the human species, by the name of *orang-outang*, or wild man of the woods ; while the Negroes, who are really as savage, and almost as ugly, as those animals, and who are not of opinion that civilization exalts our nature, have denominated it *pongo*, which signifies a beast, and has no relation to man. In fact this orang-outang is not only a brute but a very singular one, which man cannot look upon, without contemplating himself, and being convinced that his external form is not the most essential part of his nature.

Here then are two animals, the pithecos and the orang-outang, which must be ranked among the ape kind. There is also a third, to which, though more deformed, we cannot refuse that appellation ; until very lately this animal was scarcely known, it was brought from the East Indies by the name of *gibbon* ; like the other two it walks erect, is without a tail, and has a flat face ; but its arms, instead of being proportioned to its height, are of such extraordinary length, that when it stands erect on its two feet, it touches the ground with its hands, without the smallest inclination of its body.

Next to these apes, we meet with another

race

race of animals, which we shall indicate by the generic name of the *baboon*; and to distinguish them clearly from every other animal of the kind, it is necessary to observe that the baboon has a short tail, a long face, a broad muzzle, with canine teeth, larger in proportion than that of man, and callosities on its rump. By this definition, we exclude from this race all the apes which have no tails, all the monkeys whose tails are as long, or longer than their bodies, and all the makis, loris, and other four-handed animals, that have their muzzles sharp and pointed. The ancients never had a proper name for these animals; Aristotle alone has pointed out one of those baboons by the name of *simia porcaria*, but gives a very imperfect indication of it in other respects. The Italians first called it *babuino*, the Germans *bavion*, the French *babouin*, the English *baboon*, and every modern author, who has written of it in Latin, *papio*. We shall therefore term it baboon, to distinguish it from the other species since discovered in the southern provinces of Africa and India. We are acquainted with three kinds of these animals. 1. The *baboon*, which is found in Arabia, &c. and which, probably, is the *simia porcaria* of Aristotle. 2. The *mandrill*, which is larger than the baboon, whose face is of a bluish colour, and furrowed
with

with deep and oblique wrinkles ; this is a native of Guinea, and the hottest parts of Africa. 3. The *ouanderou*, which is less than the baboon and mandrill ; its head and face is surrounded with a very thick and long hair, and has a large white beard ; it is seen in Ceylon, Malabar, and other southern parts of India. Thus we have precisely defined three species of the ape, and three of the baboon, and all of them very distinctly differing from each other.

But as Nature acts on one regular plan, connected and extended throughout all her works, and as her progress is always by minute degrees, there must be an intermediate species between the ape and the baboon. This intermediate species actually exists, and is, in fact, to be found in the *magot*, which fills up the chasm between the other two. It differs from the first in having a long muzzle and large canine teeth ; and varies from the second, in not having any tail, although there is a small protuberance of skin at that part, which has something of that appearance. This animal, consequently, is neither an ape, nor a baboon, yet, at the same time, partakes of the nature of both. The *magot*, which is a very common animal in Upper Egypt, as well as in Barbary, was known to the ancients. The
Greeks

Greeks and Latins denominated it *cynocephalus*, because its muzzle resembles that of a dog. These animals, then, must be ranged in the following order: *orang-outang*, or *pongo*, is the first ape; the *pithecos*, the second; the *gibbon*, the third; the *cynocephalus*, or *magot*, the fourth ape, or the first baboon. The *papio*, the first baboon; the *mandrill*, the second; and the *ouanderou*, the third. This order is neither arbitrary nor fictitious, but strictly conformable to the steps of Nature.

After the species of apes and baboons, immediately follow the *guenons*, or *monkies*; that is, animals which resemble the two former, but which have tails as long, or longer than their bodies. The word *guenon* was anciently employed, sometimes to denote a small ape, and at others, the female; it has also been used in the sense we now take it, to denote the apes with long tails, and was probably derived from the word *képos*, which the Greeks made use of for that very purpose. Of these *guenons*, or *monkies*, we know of nine species, which we shall distinguish by different names, to avoid confusion, and for the sake of regularity. The first of these is the *macaque*; the second, the *patas*, or *red monkey*; the third, the *malbrouk*; the fourth, the *mangabey*; the fifth the

mone ; the sixth, the *callitrix*, or *green monkey* ; the seventh, the *moustac* ; the eighth, the *tala-poin* ; and the ninth, the *douc*, so called in Cochin-china, of which country it is a native. The ancients knew only two of this class, the *mone* and the *callitrix*, which inhabit Arabia and the northern parts of Africa ; they had not the least idea of any other, for they are only to be found in the southern provinces of Africa and the East Indies, countries absolutely unknown in the time of Aristotle. This great philosopher, and the Greeks in general, were so careful to affix proper names to different animals, that they denominated the ape without a tail, *pithecos*, and the monkey with a long tail, *kébos*, both of which they carefully drew from the most apparent character of these animals. All the apes and baboons which they knew, had a uniform colour ; on the contrary, the monkey which we call *mone*, and the Greeks, *kébos*, has hair of different colours, and is vulgarly called the *variegated monkey* ; this species was the most common of all those animals in the time of Aristotle ; and from this character it obtained the name of *kébos*, which in Greek signifies a variety of colours. Thus all the animals of the ape, baboon, and monkey kind, mentioned by Aristotle, may be reduced to four, the *pithecos*,
thecos,

thecos, the *cynocephalus*, the *simia porcaria*, and the *kébos* ; which we think ourselves sufficiently justified to rank as the *pithecos* or *pigmy*, the *magot*, the *baboon*, and the *mone*, not only because their particular characters perfectly agree with those mentioned by Aristotle, but also, because the other species must have been absolutely unknown to him, since they are natives of those countries into which the Greek travellers of his time had not penetrated.

Two or three ages after Aristotle, we meet with two new names in the Greek authors, *callithrix* and *cercopithecus*, both relative to the long-tailed monkey. In proportion as discoveries were made, in the southern regions of Africa and Asia, we meet with new animals, and other species of monkeys ; and as most of these monkeys likewise were not of various colours like the *kébos*, the Greeks composed the generic name of *cercopithecus*, that is, the *ape with a tail*, to denote all the species of monkeys, or apes with long tails ; and having discovered among them one of a beautiful green colour, they called it *callithrix*, which signifies beautiful hair. This *callithrix* is found in the southern parts of Mauritania, and in the neighbouring countries of Cape Verd,

Verd, and commonly known by the name of the *green ape*.

With respect to the other seven species of monkies, which we have indicated by the names of Macaque, Patas, Malbrouk, Mangabey, Moustac, Talapoin, and Douc, they were unknown to the ancients. The macaque is a native of Congo, the patas of Senegal, the mangabey of Madagascar, the malbrouk of Bengal, the moustac of Guinea, the talapoin of Siam, and the douc of Cochin-China ; all these places were equally unknown to the ancients, and we have been careful to preserve the original names affixed to them in their native countries.

But as Nature always proceeds in a regular and gradual manner, never leaving any chasms, we meet with an intermediate species between the baboon and monkey, like that of the magot between the ape and the baboon. The animal which fills up this interval, greatly resembles the monkey, especially the macaque, but it has a broad muzzle, and short tail, like the baboon. Being ignorant of its proper name, we have called it the *maimon*, to distinguish it from other animals of this kind. It is a native of Sumatra, and is the only animal, as well among the baboon as the monkey species, that has no hair

on its tail ; and upon that account it has been described by the denomination of the *pig-tailed* or *rat-tailed ape*.

Thus we have enumerated all the animals of the old continent, to which the common name of ape has been given, though they are not only of very distant species, but even of very different genera. But what has completed the error and confusion in the arrangement of these animals is, that the names of *ape*, *cynocephalus*, *kébos*, *cercopithecus*, which were invented by the Greeks fifteen hundred years ago, have been given to animals of the new continent, which have been discovered within these two or three centuries. They knew not that the animals of Africa and of the East Indies, were not to be found in the southern parts of the new continent. Animals have been found in America with hands and fingers, and this character alone was thought sufficient to give them the appellation of apes, without considering that for transferring a name it was requisite that the animals should be of the same genus, and to apply it justly, of the same identical species. Now the animals of America, of which we shall form two classes, by the names of *sapajous* and *sagouins*, are very different from all the monkeys of Asia and Africa ; and in the
same

same manner as there are neither apes, monkeys, nor baboons, to be found in the new continent, so likewise there are neither the sapajous nor sagoins to be found in the old. Though we have already mentioned these facts in general, in our dissertation concerning the animals of the two continents, we can here prove it in a more particular manner, and demonstrate, that of seventeen species, to which number we may reduce all the ape species in the old continent, and of twelve or thirteen, to which this name of ape has been transferred in the new, there is not any of them alike, or to be found in both continents, for of the seventeen in the old we must first retrench three or four of the apes, who do not exist in America, and to whom the sapajous and the sagoins have no resemblance. Secondly, we must also retrench three or four of the baboons, which are much larger than the sagoins or the sapajous, and also of a very different form; there remains, therefore, only nine monkeys of the old continent with whom any comparison can be made. Now this species of monkeys, as well as the apes and baboons, have particular and general characters, which entirely separate them from the sapajous and sagoins. The first of these characters consists in the rump being bare, on which

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which are natural callosities peculiar to those parts. The second is the having pouches on each side of the jaw, in which the animal can store its food. The third is in the make of the nostrils, which are narrow, and the apertures placed in the under parts, like those of man. The sapajous and sagoins have not one of these characters. The partition between their nostrils is very thick, and the apertures are placed on the sides of the nose, and not below it. They have hair on their posteriors, and no callosities; they have no pouches on each side of their jaws; and hence these animals differ not only in species but even in genus, since they have not any of the general characters common to the whole tribe of monkeys; and this difference in genus supposes still greater in the species, and demonstrates them to be quite distinct from each other.

The names of ape and monkey, therefore, have been very improperly applied to the sapajous and the sagoins. We must preserve their original names, and instead of ranking them with the apes, we should begin by comparing them together. These two families differ from each other by a very remarkable character. All the sapajous make use of their tails like a finger to hang by, and to procure what they cannot reach with their hands. The
sagoins,

sagoins, on the contrary, cannot make use of their tail in that manner. Their face, ears, and hair, are also different; we may, therefore, very properly divide them into two distinct races.

Avoiding the use of denominations, which can only be applied to the monkey, baboon, or ape, we have endeavoured to indicate the sapajous and the sagoins by the names they bear in their native country. We are acquainted with six or seven species of sapajous, and six of the sagoins, most of which have varieties. We have carefully searched after their names in all authors, and particularly in the writings of observant travellers who have first mentioned them, because, in general, the names which any one of them have in their native country is derived from some particular character, which alone was sufficient to distinguish it from all the rest. With respect to the varieties, which in this class of animals are, perhaps, more numerous than the species, we have endeavoured to refer each to its respective species. We have had in our possession forty of these animals alive, differing from each other in a greater or less degree, and from a particular and attentive examination of which, we think the whole may be reduced to thirty species, viz. three apes, and one intermediate species between them and the baboons;

three

three baboons, and one intermediate species between them and the monkeys; nine monkeys, seven sapajous, and six sagoins; the rest, or at least the greatest part of them, ought to be considered only as varieties. But as we are not absolutely certain that some of these varieties may not be distinct species, we shall endeavour to give all of them proper denominations.

Here, then, let us consider terrestrial animals, some of which so greatly resemble the human form, in a new point of view. The affixing the name of *quadruped* to all these animals has been done unjustly. If the exceptions were few we should not have objected to the application of this term. We are convinced that our definitions and names, however general, do not comprehend the whole; that there exists particular beings, which escape the most cautious definitions, and that intermediate species are constantly discovered. We know that many, though to all appearance holding the middle station, have escaped enumeration, and that the general names under which they are included is incomplete; because Nature should never be considered in the aggregate, but by unities only, because man has invented general names

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only to assist his memory, and because he afterwards weakly regarded those general names as realities; in short, because he has endeavoured to comprehend, under the same denominations, very different animals, and which necessarily required other appellations. I can give both example and proof, without swerving from the class of quadrupeds, which, of all animals, are those best known to man, and to which he was, consequently, the best enabled to give the most precise denominations.

The name of *quadruped* supposes an animal with *four feet*. If it be deficient in two, like the manati; if it have hands and arms like the ape; or if it have wings like the bat; it is not a quadruped: therefore this general denomination is erroneous when applied to either of those animals. In order to speak with precision, there should be truth in the ideas which the words represent; for instance, let us find a word to convey a perfect idea of an animal with two hands; if we had a term to denote a two-handed animal, as well as one with two feet, we might then say, that man alone is biped and bimanous, because he alone has two hands and two feet; that the manati is only *bimanous*; that the bat is only a *biped*; and the ape a *quadrimanous*, or four-handed animal. Let

us now apply these *new* denominations to every particular being with which they agree, and we shall discover, that from the two hundred species of animals to which we have given the common name of *quadrupeds*, there are thirty-five sorts of apes, baboons, monkeys, sapajous, sagoins, and makis, must be retrenched, as they are *quadrimanous*, or four-handed; and that to those thirty-five species we must add the lori, the murine, Virginian and Mexican opossums, and the jerboas, which are also *quadrimanous*, like those above-mentioned, and that, consequently, the list of four-handed animals being at least composed of forty species, the real number of quadrupeds will be reduced one fifth part. If afterwards we take out twelve or fifteen species of bipeds, namely, the bats, whose fore-feet may rather be called wings than feet, and also three or four jerboas, because they can only walk on their hind feet, those before being too short; if we remove also the manati, which has no hind feet, and the different species of the walrus, and the seal, to which animals they are entirely useless, the number of quadrupeds will be found diminished a third more; and if we still subtract those animals which make use of their fore-feet like hands, as the bears, marmots, coatis, squirrels,

rels, rats, and many others, the denomination of quadrupeds will appear to be misapplied to more than one half of these animals. In fact real quadrupeds consist only of whole and cloven-footed animals. When we descend to the digitated class, we find four-handed, or ambiguous quadrupeds, who use their fore-feet in the manner of hands, and which ought to be distinguished or separated from the rest. There are three species of whole hoofed animals, the horse, the zebra, and the ass; and, by adding the elephant, the rhinoceros, the hippopotamus, and the camel, whose feet, though terminated by nails, are solid, and only serve for the purpose of walking, we shall have seven species to which the name of quadruped perfectly applies.

There is a much greater number of cloven-footed than whole-hoofed animals. The oxen, the sheep, the goat, the antelope, the bubalus, the lama, the pacos, the elk, the rein-deer, the stag, the fallow-deer, the roe-buck, &c. are all cloven-footed, and compose all together full forty-species. Thus, we have already fifty animals, ten whole hoofed, and forty cloven-footed, to which the name of quadruped has been rightly applied. In the digitated animals, the lion, tiger, panther, leopard, lynx, cat, wolf, fox, dog, hyæna, civet, badger, weasel, ferret,

ferret, porcupine, hedge hog, armadillo, ant-eaters, and hog, which last constitutes the shade between digitated and cloven-footed tribes, add more than forty other species, to which the name of quadruped also applies in all the rigour of its acceptation; because, though their fore-feet are divided into four or five toes, they never use them as hands; but all the other digitated species who use their fore-feet to hold and carry food to their mouths, are not, in strict propriety, quadrupeds. Those species, which are also forty in number, form an intermediate class between quadrupeds and four-handed animals, and are in fact neither one nor the other. Therefore, to more than a fourth of our animals, the name of quadruped does not apply; and with more than one half it does not agree in all the extent of its acceptation.

The four-handed animals fill up the great chasm between the quadruped and the human species. The two handed are in the distance between man and the cetaceous tribes. The bipeds with wings are the shade between quadrupeds and birds; and the digitated species who use their fore-feet as hands, fill up all the degrees between the quadrupeds and the four-handed kinds. But this subject is too extensive to be here pursued; however useful it might
be

be to give a distinct knowledge of animals, it is still more so by furnishing us with a new proof, that not any of our definitions are precise, nor our general terms exact, when specifically applied to objects, or to beings which they represent.

But why are these definitions and general terms, which seem to be the master-piece of invention, so exceedingly defective? Is this error the defect of human understanding? or rather, is it not an incapacity, or pure inability, of combining, and perceiving a number of objects at one view? Let us compare the works of nature with those of man: let us examine how both operate, and then enquire whether the human mind, however active and extensive, can follow the same route, without being lost either in the immensity of space, the obscurity of time, or in the infinite combinations of beings? Let a man direct his mind to any object if he would avoid being misled, he must walk in a direct line, pass over the least space, and employ the least possible time to accomplish his end. But in this pursuit, what a number of reflections and combinations must he make to avoid those deceitful and fallacious roads which at first offer themselves in such numbers, that it requires

quires the greatest and nicest discernment to choose the true and direct path? This path, however, is not beyond the depth of the human mind; and by this only sure and solid method he arrives at the destined point of view; but if he seeks another point, it can only be obtained by another line. The train of our ideas is a delicate thread, which only extends in length without any other dimensions; while Nature, on the contrary, does not take a single step, without extending on all sides, and passing at once through the three dimensions of length, breadth and thickness; while man attains but one single point, she embraces all, and penetrates into every part of a solid mass. By the power of art, and length of time, our statuaries form a figure which externally resembles the object proposed; each point of this surface requires a thousand combinations. Their genius travels over as many lines as there are lineaments in the figure, and the least false step would deform it. This piece of marble, so perfectly executed that it seems to breathe, is, therefore, only a multitude of points to which the artist arrives by labour and time; for human genius being unable to seize more than one dimension at a time, and our senses reaching no further than surfaces,

surfaces, we cannot penetrate the substance ; while, Nature, on the contrary, designs and enters into the depth of things ; she produces forms almost instantaneously ; she at once expands them in all their dimensions ; as soon as her movements reach the surface, the penetrating powers with which she is animated, operate internally. The smallest atom, when she chooses to make use of it, is obliged to obey her will. Her actions, therefore, extend over all ; she travels above, below, to the right and left, and consequently, she not only encompasses the surface, but every particle of the mass. What difference there consequently is in the result ? What comparison can be made between a statue and an organised body ? But also what inequality in their powers, and how disproportioned the instruments ! Man can only make use of the power he possesses. Confined to a small quantity of motion, which he can only communicate by impulsion, he can only exert himself upon surfaces ; since the power of impulsion in general is only transmitted by superficial contact. He only sees and touches, therefore, the surfaces of bodies, and when he attempts to proceed further, though he opens, divides, and separates, he still touches nothing more than surfaces.

surfaces. To penetrate the interior parts of bodies, he should be possessed of a portion of that power which acts upon the mass, or of gravity, which is Nature's chief instrument. It is, therefore, the defect of instruments which prevents the art of man from approaching that of Nature. His figures, his pictures, his designs, are only surfaces, or imitations of surfaces, because the images he receives by his senses are all superficial, and he is unable to give them the internal parts.

What is true with regard to the arts is the same as to sciences, only that the latter is less confined, because the mind is the instrument, and which in the former is subordinate to the senses. But in the sciences the mind commands the senses, as its only endeavour is to search into objects, and not to operate on them; to compare, and not imitate them. The mind, though thus cramped by the senses, though often abused by their false reports, is, notwithstanding, neither less pure nor less active. Man, who has a natural desire to knowledge, began by rectifying, and demonstrating the errors of the senses. He has treated them as mechanical organs, as instruments, the effects of which must be left to experience. Pursuing still his desire of knowledge, he has travelled

on with the balance in one hand, and the compass in the other, and has measured both time and space. Thus, he has recognized all the exterior parts of Nature's works, but not being able to penetrate her internal parts by his senses, he has drawn his conclusions and formed a judgment of them by analogy and comparison. He discovered that there exists a general force in matter, quite different from that of impulsion; a force which does not come within the compass of our senses, and which, though we are unable to make use of, Nature employs as an universal agent. He has demonstrated, that this force belongs equally to all matter, in proportion to its mass or real quantity; that its action extends to immense distances, decreasing as the space augments. Afterwards, turning his eyes upon living beings, he found, that heat was another force necessary to their production; that light was a matter endowed with an unbounded elasticity and activity; that the formation and expansion of organized beings were the effects of a combination of all these forces; that the extension and growth of animal or vegetable bodies, follow exactly the laws of attraction, and are effected by an increase of all three dimensions at the same time; and that a
mould,

mould, when once formed, must, according to these laws of affinity, produce a succession of others exactly resembling the original. By combining these attributes, common to animal and vegetable Nature, he discovered, that there existed in both an inexhaustible and reversible fund of organic and living substance; a substance as real as the unformed matter; a substance which continues always in its live as the other does in its inactive state; a substance universally diffused, passing from vegetables to animals by means of nutrition, returning from animals to vegetables by the process of putrefaction, and maintaining an incessant circulation for the animation of beings. He also remarked, that these organic particles existed in every organized body; that they were combined in greater or less quantities with dead matter; that they were more abundant in animals where all is full of life, and more scarce in vegetables where the dead matter predominates, and the living seems to be extinct; where the organic matter, overpowered by the rude, has neither progressive motion, sensation, heat, nor life, and is only manifested by its unfolding and re-production. Reflecting on the manner each operates, he discovered, that every living being is a mould that possesses the power of assimilating the substances

substances by which it is nourished ; that growth is an effect of this assimilation, that the unfolding of a living body is not a simple augmentation of bulk, but an extension in every dimension, and a penetration of new matter into every part of the whole mass ; that those parts increasing in proportion to the whole, and the whole in proportion to the parts, the form is preserved, and remains always the same till the growth is completed ; that when the body has acquired all its extent, the same matter heretofore employed in the augmentation, is sent back as superfluous from every part to which it had been assimilated ; and that, by uniting in one common point, it forms a new being, perfectly like the first, and which to attain the same dimensions, requires only to be expanded by the same mode of nutrition. He also observed that man, quadrupeds, cetaceous animals, birds, reptiles, insects, trees, plants, and herbs, were all nourished, unfolded, and reproduced by the same universal law ; and that the manner of their nutrition and generation appearing so different, although dependent on one general and common cause, was because it could not operate but in a mode relative to the form of each particular species of being. To acquire these grand truths, required a succession of
ages,

ages, and gradual investigation, but having obtained so much, he began to compare different objects together ; and to distinguish one from the other, he gave them particular names, and invented general denominations to reunite them under one point of view. He observed, by taking the body of man as the physical model of every living animal, and by comparing and examining every living animal in their several parts, that the form of every thing that breathes is nearly the same ; that the anatomy of a man and an ape are similar ; that every animal has the same organization, the same senses, the same viscera, the same bones, the same flesh, the same motion of the fluids, and the same action in the solids. In all of them he has found a heart, veins, and arteries ; the same organs of circulation, respiration, digestion, nutrition, and secretion ; the same solid structure, erected with the same materials, and put together nearly in the same manner. This plan he found to proceed uniformly from mankind to the monkey, from the monkey to quadrupeds, from quadrupeds to the cetaceous animals, and so on to birds, fish, and reptiles. This plan, I say, when well comprehended by the human understanding, exhibits a faithful picture of animated nature, and affords the most simple and general view
under

under which she can possibly be considered ; and when we extend it by passing from the animal to the vegetable, we shall find this plan, which we at first found varying only by shades, degenerate by degrees from reptiles to insects, from insects to worms, from worms to zoophytes, and from zoophytes to plants ; and though changed in all its exterior parts, nevertheless, still preserving the same character ; the principal features of which are nutrition, expansion, and reproduction. These features are general and common to every organized substance, they are eternal and divine ; and, far from being effaced or destroyed by time, are only renewed and rendered more plain and evident.

If, from this great picture of resemblances, in which the living universe presents itself as but one family, we pass to that of the differences, wherein each species claims a separate place, and a distinct portrait, we shall perceive, that excepting some of the larger species, such as the elephant, the rhinoceros, the hippopotamus, the tiger, and the lion, every other seems to unite with its neighbouring kind, and to form groupes of degraded similitudes, or genera, which our nomenclators have represented in a network of figures, some of which are connected by the feet, and others by the teeth, horns,

horns, hair, and others by still smaller affinities. And even the apes, whose form appears to be the most perfect, that is, approaches nearest to that of man, are represented confusedly, and require very accurate observations to distinguish one from the other, because the privilege of separate species is less owing to form than size. Man himself, although a single species, and infinitely removed from that of all other animals, yet being only of a middle size, has more approximations than the larger kinds. We shall find in the history of the orang-outang that if we were only to attend to the figure, we might look on that animal either as the termination of the human species, or the commencement of the ape; because, except the intellect, he is not deficient in any one thing which we possess, and because, in his body, he differs less from man than from the other animals to which we have given the denomination of apes.

The mind, thought, and speech, therefore, do not depend on the form or organization of the body. Nothing more strongly proves that they are peculiar gifts bestowed on man alone, than that the orang-outang which neither speaks nor thinks, has, nevertheless, the body, the limbs, the senses, the skull, and the tongue exactly similar to man. He can counterfeit every motion of the human species, and yet
cannot

cannot perfectly perform one single act ; which may possibly be owing to a defect of education, or perhaps yet more to an error in our judgment. You unjustly compare, it may be said, an ape, who is a native of the forests, with the man who resides in polished society. To form a proper judgment between them, a savage man and an ape should be viewed together ; for we have no just idea of man in a pure state of nature. The head covered with bristly hairs, or with curled wool ; the face partly hid by a long beard, and still longer hairs in the front, which surround his eyes, destroy his august character, and make them appear sunk in his head, like those of the brutes ; the lips thick and projecting, the nose flat, the aspect wild or stupid ; the ears, body, and limbs are covered with hair ; the nails long, thick, and crooked ; a callous substance like a horn under the soles of the feet ; the breasts of the female long and flabby, and the skin of her belly hanging down to her knees ; the children wallowing in filth, and crawling on their hands and feet ; and the father and mother sitting on their hams, forming a hideous appearance, rendered more so by being besmeared all over with stinking grease. This sketch, drawn from a savage Hot-

tentot

tentot, is still a flattering portrait, for there is as great a distance between a man in a pure state of nature and a Hottentot, as there is between a Hottentot and us. But if we wish to compare the human species with that of the ape, we must add to it the affinities of organization, the agreements of temperament, the vehement desire of male apes for women, the like conformation of the genitals in both sexes, the periodic emanations of the females, the compulsive or voluntary intermixture of the negresses with the apes, the produce of which has united into both species; and then consider, supposing them not of the same species, how difficult it is to discover the interval by which they are separated.

I acknowledge, if we were forced to judge by external appearance alone, the ape might be taken for a variety in the human species. The Creator has not formed man's body on a model absolutely different from that of the mere animal; he has comprehended his figure, as well as that of every other animal, under one general plan, but at the same time that he has given him a material form, similar to that of the ape, he infused this animal body with a divine spirit. If he had granted the same favour, not to the ape, but to the meanest ani-

mal, whose organization seems to us to be the worst of all constructed beings, this animal would soon have become the rival of man. Quickened by his spirit it would have excelled every other animal, by having the power of thought and speech. Therefore, whatever resemblance there may be between the Hottentot and the ape, the interval which separates them is immense, since the former is endowed with the faculties of thinking and speaking.

Who will ever be able to tell in what the organization of an idiot differs from that of another man? yet the defect is certainly in the material organs, since the idiot has a soul like another person. Now, since in mankind, where the whole structure is entirely conformable, and perfectly similar, a difference so trifling as to be entirely imperceptible is sufficient to destroy thought, we must not be astonished that it never appears in the ape, which has not the necessary principle.

The action of the soul in general is distinct and independent of matter. But as it has pleased the Divine Author to unite it with the body, the exercise of its particular actions depends on the state of the material organs; and this dependance is not only apparent from the example of idiots but from persons afflicted with
delirium,

delirium, from infants who cannot think, from healthful men when asleep, and from very old people, after the power of thinking is gone. Even the principle of education seems to consist not so much in instructing the mind, or bringing its operation to perfection, as in modifying the material organs, and putting them into the most favourable condition for exercising the thinking principle. Now there are two kinds of educations which should be carefully distinguished, as their effects are quite different; the education of the individual, which is common both to man and the other animals, and that of the species which belongs to man alone. A young animal, as well from incitement as example, learns in a few weeks to perform all the actions of its parents: a child requires a number of years to attain this degree of perfection, because when born its growth and strength is incomparably less forward than in young animals. In the first years the mind is a void relatively to what it becomes in future. A child, therefore, is much slower in receiving individual education than that of the brute; but for this very reason it becomes susceptible of that of the species. The multiplicity of aids, and the continual cares, which for a long time, the weak state of the infant exact, entertain and increase the attachment of
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of its parents, and while they are attending to the care of the body, they cultivate the mind. The time required to strengthen the first, turns to the profit of the latter. In the generality of animals the corporeal faculties are more advanced in two months than those of an infant in two years ; there is, therefore, twelve times as much time employed in its individual education, without reckoning what is still remaining to acquire after this period, without considering that animals quit their young as soon as they are able to provide for themselves, and that soon after this separation they know each other no more, so that all attachment, and all education, ceases in them at the very moment assistance is no longer necessary. Now this time of education being so short, its effects must be very small ; and it is even astonishing that animals acquire in two months whatever is necessary for their use during the rest of life : and if we suppose a child, in an equal space of time, should become sufficiently formed and strong to leave its parents, and never to return to them for assistance, would there be any sensible difference between this child and the brute animal ? However ingenious and able the parents were, could they be able to prepare and modify its organs in so short a space of time, or to establish the least communication of
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of thought between their minds and his? Could they be able to excite his memory by impressions sufficiently reiterated? Could they even modify or unfold their organs of speech? No, for before the child can pronounce a single word his ear must have received repeated impressions of the sound expressing that word; and, before he can be able to apply or pronounce it properly, the same combination of the word, and the object to which it belongs, must be frequently presented to him. Education, therefore, which alone can expand the powers of the mind, will be unremittingly continued for a length of time; if it should cease, not at the end of two months, as in animals, but even when twelve months old, the mind of the child, which could have received no impression, would remain inactive, like that of an idiot, the defect of whose organs prevents the reception of knowledge. This reasoning would apply with double force if we suppose the child born in a pure state of nature, if it had only a Hottentot mother for its tutoress, and that at the age of two months it was able to separate from her, and live without her care and assistance:—would not this child be worse than an idiot, and entirely on a par with the brutes? But in this state of nature,

ture, the first education, that is, the education of necessity, exacts as much time as in the civilized state, because in both the child is equally weak, and equally slow in its growth, and consequently it has need of the care of its parents for an equal portion of time. In short, it would infallibly perish if abandoned before the age of three years. Now this necessary habitude, so long continued between the mother and the child, is sufficient to communicate to it all that she possesses; and though we should falsely suppose, that this mother, in a state of nature, possesses not any one gift, not even that of speech, would not this long habitude with her child produce a language? Thus this state of pure nature, wherein we suppose man to be without thought and speech, is imaginary, and never had existence. This needful and long intercourse of parents with their children produces society in the midst of a desert. The family understand each other by signs and sounds; and this first ray of intelligence, when cherished, cultivated, and communicated, unfolds, in the process of time, all the buds of thought; and as this habitual intercourse could not sustain itself so long without producing mutual signs and sounds, always repeated and gradually engraven on the memory of
of

of the child, would consequently become constant and intelligible expressions ; though the list of words is short, it still forms a language, which will soon become more extended as the family increases, and will always follow the steps of society in improvement. Society being formed, the education of the child is no longer individual, for then the parents communicate to it not only what they possess from Nature, but also what they have received from their ancestors, and from the society of which they form a part. It is no longer a communication between detached individuals, confined like animals to the transmission of simple faculties, but an institution of which the whole species partakes, and whose produce constitutes the bond and basis of society.

Even among brute animals, though deprived of the thinking principle, those whose education is the longest are also those which seem to have the greatest share of intelligence: the elephant, who takes the longest time in completing its growth, and which requires the assistance of its mother for the whole of the first year, is also the most intelligent animal. The Guinea-pig, which requires only three weeks to accomplish its growth, and be in a generating state, is perhaps, for this reason alone,

one

one of the most stupid animals in Nature. With respect to the ape, with a view to ascertain whose nature we have gone into this investigation, whatever resemblance he may bear to man, yet his affinity to the brutes is evident from the moment of his birth ; he is then proportionably stronger, and more completely formed than the infant, and the time of his growth bears no comparison ; the assistance of his mother is only necessary during a few months ; his education is purely individual, and consequently as sterile as that of other animals.

The ape, therefore, notwithstanding his resemblance to the human form, is a brute, and so far from being second in our species, he is not even the first in the order of animals, because he is not the most intelligent among them ; therefore it is only on account of the corporeal resemblance that prejudice has been formed in favour of the great faculties of the ape. He resembles man it is said both externally and internally, and therefore he must not only imitate us, but also of his own accord, act in the same manner as we do. We have seen that every action which we call human is relative to society : that they depend, at first on the mind, and afterwards on education, the physical principle

ciple of which is the necessity there is for the long intercourse between parents and children : that this intercourse is very short with the ape ; that, like other animals, he only receives an education purely individual, and is not susceptible of any other ; consequently he cannot act like man, since no action of the ape has the same principle, nor the same end. With respect to imitation, which appears to be the strongest and most striking character in the ape kind, and which the vulgar refer to him as a peculiar talent, before we decide, we must examine whether this imitation be spontaneous or forced. Does the ape imitate the human species from inclination, or from possessing an innate capacity of performing those actions without choice or exertion ? I willingly appeal to all those who have observed this animal without prejudice, and I am convinced they will agree with me, that there is nothing voluntary in their imitation. The monkey having arms and hands, makes use of them as we do, but without any idea of copying our example. The similitude of his limbs and organs necessarily produces motions resembling ours ; being formed like man he must be enabled to move like him ; but this similarity of motion by no means proves that he acts from imitation.

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tion. Let us, for instance, construct two pendulums of the same form, and give them an equal motion, would it not be absurd to say that these machines imitate each other? It is the same with respect to the ape, relatively to the body of man; they are two machines, similarly constructed, and by the impulse of Nature move nearly in the same manner: however, parity must not be considered as imitation; the one depends on matter, and the other exists only in reason. Imitation supposes a design of copying; the ape is incapable of forming this design, which requires a train of thought and judgment; for this reason, man, if he choose, can imitate the ape, but the ape cannot have an idea of imitating man.

This parity is no more than the physical part of imitation, and not so complete as the similitude, from which, however, it proceeds as an immediate effect. The ape resembles man more in his body and limbs than in the use he makes of them. By observing the ape attentively we shall perceive that all his motions are sudden, intermittent, and precipitate; and to compare them with those of man we must suppose a different model. Every action of the ape strongly partakes of his education, which is purely animal; and they appear to be
extravagant,

extravagant, ridiculous, and inconsequential, because we judge of them by our own, which is a false comparison. As his nature is vivacious, his temperament warm, his disposition petulant, and none of his affections have been polished by education, all his habitudes are excessive, and more resemble the actions of a lunatic than those of a man, or even those of a peaceable animal: from the same reason we find him indocile, and receiving with difficulty the impressions we wish him to imbibe. He is insensible to kindness, and only to be rendered obedient through fear of chastisement. He may be kept in captivity, but not in a domestic state. Always sullen, stubborn, or making grimaces, he may rather be said to be subdued than tamed; therefore none of this species has ever been domesticated in any part of the world, and consequently is more distant from man than most other animals, for docility supposes some analogy betwixt the giver and the receiver of instruction; a relative quality, which cannot be exercised but when there is a certain number of common faculties in both, which only differ from each other because they are active in the master and passive in the scholar. Now the passive qualities of the ape have less relation to the active qualities

lities of man than those of the dog or elephant, who only require good treatment to receive the kind and even delicate sentiments of a faithful attachment, voluntary obedience, grateful service, and an unreserved and ready attention to the commands of their master.

The ape is, therefore, further removed from the human species in relative qualities, than most other animals: He likewise differs greatly by temperament. The human species can dwell in every climate; he lives and multiplies in the northern as well as in the southern regions; but the ape lives with difficulty in temperate countries, and can only multiply in the hottest parts of the earth. This difference of temperament supposes others in organization, which though concealed, are no less real; it must also have a great influence on his natural dispositions. The excess of heat so necessary to this animal renders all his affections, and all his qualities, excessive; and we need not seek for any other cause to account for his petulance, his lubricity, and his other passions, which seem to be as violent as they are extravagant.

Thus the ape, which philosophers, as well as the generality of people, have regarded as a being difficult to define, and the nature of which

which was at least equivocal, and intermediate between that of man and the brute, is, in fact, no other than a real brute, wearing externally a human mask, but internally destitute of thought, and every other attribute which constitutes the human species : an animal inferior to many others in his relative faculties, and most essentially different from the human race in his nature, temperament, and also in the time necessary to his education, gestation, growth, and duration of life ; that is, in every real habitude which constitutes what we call *Nature* in a particular being.

THE ORANG-OUTANG*, OR THE PONGO, AND
THE JOCKO.

WE shall present the Orang-outang and the Jocko together, because they, possibly, belong to the same species. Of all the ape and monkey kinds, these bear the greatest resemblance to the human form, and consequently, those

* Orang-outang is the name this animal bears in the East-Indies ; *pongo*, its denomination at Lowando, a province of Congo ; and Kukurlacko in some parts of the East-Indies.



FIG. 195

Jocko



FIG. 196

Small Gibbon

those which are most worthy particular notice. We have seen the small orang-outang, or jocko (*fig.* 195.) alive, and have preserved its skin ; but we can only speak of the pongo, or great orang-outang, from the accounts given us by travellers. If their relations might be depended on, if they were not often obscure, faulty, and exaggerated, we should not doubt of its being a different species from the jocko, a species more perfect, and approaching still nearer to the human race. Bontius, who was head physician at Batavia, and who has left some excellent observations on the Natural History of that part of India, expressly says, that he saw with admiration, some individuals of this species walking erect on two feet, and among others a female (of which he gives a figure) who seemed to have an idea of modesty, covering herself with her hand on the appearance of men with whom she was not acquainted ; who sighed, cried, and did a number of other actions, so like the human race, that she wanted nothing of humanity but the gift of speech. Linnaeus, upon the authority of Kjöep and other travellers, says, that even this faculty is not wanting in the orang-outang, but that he thinks, speaks, and expresses his meaning in a whistling tone. He calls him the *Nocturnal Man*,
and

and at the same time gives such a description of him, that it is impossible to decide whether he is a brute or human being. We must, however, remark, that, according to Linnæus, this being, whatever he may be, is not above half the height of a man; and as Bontius makes no mention of the size of his orang-outang, we should imagine them to be the same: but, then, this animal of Linnæus and Bontius would not be the true orang-outang, which is of the size of a very tall man: neither can he be what we call the *Jocko*, which I have seen alive; for although he was of the same size as that described by Linnæus, yet he differed in every other character. I can affirm, from having repeatedly seen him, that he neither spake nor expressed himself by a whistling noise, and that he did not perform a single thing which a well instructed dog could not perform: He differed in almost every respect from the description which Linnæus gives of the orang-outang, and agreed much better with that of the *satyrus* of the same author. I therefore greatly doubt the truth of the description of this *nocturnal man*; I even doubt his existence; and it was probably a white negro, a *Chacrelas*, whom those travellers, which Linnæus has quoted, have but superficially seen, and as blindly described, for the *Chacrelas*, like the
nocturnal

nocturnal man of this author, has white, woolly, frizly hair, red eyes, a weak sight, &c. But then they are men, and do not whistle; nor are they pigmies of only 30 inches in height; they think, speak and act, like other men, and their stature is exactly the same.

Discarding, therefore, this ill-described being, and supposing a little exaggeration in Bontius's relation concerning the modesty of his female orang-outang, there only remains a brute animal, namely, an Ape, of which we have information from authors of more credit; and which is described with the greatest exactness by Edward Tyson, a celebrated English anatomist. This learned gentleman says, that there are two species of this ape, and that the one he gives a description of is not so large as the other called *barris*, or *baris*, by travellers, and *drill* by the English. This *drill* is, in fact, the large orang-outang of the East-Indies, or the pongo of Guinea; and the pigmy described by Tyson is the joeko, which we have seen alive. The philosopher Gassendi having advanced, on the authority of a traveller, named St. Amand, that in the island of Java there was a creature which formed the shade between man and the ape, the fact was positively denied. To prove it, Peiresse produced a letter from M. Noël, a physician,

physician, who lived in Africa, in which it is asserted, that there is found in Guinea a large ape, called *barris*, which walks erect on its two feet, has an appearance of more gravity and sagacity than any of the other species, and has a very strong inclination for women. Darcos, Nieremberg, and Dapper, speak nearly the same of the *barris*. Battel calls it *pongo*, and assures us, “that, excepting his size, he is exactly like a man in all his proportions; but he is as tall as a giant; his face is like that of a man, his eyes deep sunk in the head, and the hair on his brows extremely long; his visage is without hair, as are also his ears and hands; his body is lightly covered with hair. He scarcely differs from man, except not having any calf to his legs; yet he always walks on his hind legs: he sleeps under trees, and builds himself a shelter against the sun and the rains. He lives only upon nuts and fruits, and is no way carnivorous: he cannot speak, and has no more understanding than any other animal of the brute creation. When the people of the country travel in the woods they make fires by which they sleep in the night, and being gone, in the morning this animal comes and sits by it until it goes out, but he has not skill enough to keep the flame alive

by feeding it with fuel. They go together in companies, and if they happen to meet with one of the human species, remote from succour, they shew him no mercy. They even attack the elephants, whom they beat with their clubs, and oblige them to leave that part of the forest which they claim as their own. These creatures are never taken alive, for they are so strong that ten men would not be able to hold one of them. They sometimes destroy the young ones; the mother carries them, she herself being in an erect posture, and they cling to her body with their hands and knees. There are two kinds of this animal, both very much resembling the human race, the one the natives call *pongo*, is taller and thicker than a man; and the other *engeco*, or *jocko*, whose size is much smaller." It is from this passage that I derived the names *pongo* and *jocko*. Battel farther observes, that when one of these animals dies the rest cover his body with leaves and branches of trees. Purchas adds, in a note, that in the conversations he had with Battel he learned that a negro boy was taken from him by a *pongo*, and carried into the woods, where he continued a whole year, and that on his return he said, that they never attempted to do him any injury; that
they

they were generally about the height of the human race, but much larger, and nearly double the bulk of a man. Jobson asserts to have seen, in places frequented by these animals, a sort of habitation composed of interwoven branches, which might serve them at least as a shelter from the heat of the sun. "The apes of Guinea, says Bosman, which are called *smitten* by the Flemings, are of a yellow colour, and grow to a very large size. I have seen some above five feet high. These apes are of a very disagreeable appearance, as well as those of another species, which resemble them in every particular except in size, not being one fourth part so big. They are very easily taught to do almost whatever their masters please." Schouten says, "That the animals which the Indians call orang-outangs are nearly of the same height and figure as man, but that their back and loins are covered with hair, although they have none on the fore part of their bodies; that the females have two large breasts, that their face is coarse, their nose flat, and their ears like those of men; that they are robust, active, bold, and defend themselves against armed men; that they are passionately fond of women, who cannot pass through the woods which they inhabit, without these

these animals immediately attacking and ravishing them." Dampier, Froger, and other travellers, assert, that young girls, about eight or ten years old, are taken away by these animals, and carried to the tops of high trees, and that it is a very great difficulty to rescue them. To all these testimonies we may add that of M. de la Brosse, mentioned in his voyage to Angola, in 1738, wherein he says that the orang-outangs (which he calls *quimpezés*) often attempt to surprise the Negresses, whom, when they succeed, they detain for the purpose of enjoying, feeding them very plentifully all the time. I knew (says he) a Negress at Loango who had lived among these animals for three years. They grow from six to seven feet high, and are of great strength. They build sheds, and make use of clubs for their defence. They have flat faces, broad flat noses, ears without a tip, and their skins are fairer than that of a mulatto, but they are covered on many parts of their bodies with long and tawny-coloured hair: their bellies are extremely tense, their heels flat, rising behind about half an inch: they sometimes walk upright, and sometimes upon all fours. We purchased two of these animals, a male of about fourteen months old, and a female about twelve, &c."

Thus

Thus we have given the most precise and perfect account we could collect of the great *orang-outang*, or *pongo*; and as magnitude is the only striking character in which it differs from the jocko, I must persist in my belief that they are of the same species; for two things are at least possible. 1. That the jocko may be a constant variety; that is, a much smaller race than that of the *pongo*; in fact, they are both of the same climate, they live in the same manner, and consequently ought to resemble each other perfectly, since they equally receive, and are subject to the same influences of earth and sky. Have we not an example of a like variety in the human species? The Laplander and Finlander, though living under the same climate, yet differ almost as much in size, and much more in other attributes, as the jocko differs from the great *orang-outang*. 2. The jocko, or small *orang-outang*, which we have seen alive, as well as those of Tulpius, Tyson, and others which have been transported into Europe, were, perhaps, only young animals which had not attained the whole of their growth. That which I saw was about two feet and a half high, and the *Sieur Nonfouix*, to whom it belonged, assured me that it was not above two years old; therefore,

fore, it possibly might have attained to the height of five feet if it had lived, supposing its growth to be proportionate to that of the human species. The orang-outang described by Tyson, was still younger, as it was not above two feet high, and its teeth were not entirely formed. Those of Tulpus and Edwards were nearly of the same size as that which I saw, therefore it is very probable that these animals, had they been at liberty in their own climate, would have acquired the same height and dimensions which travellers ascribe to the great orang-outang. From these circumstances we shall consider these two animals as belonging to one species, till a more precise knowledge of them shall be obtained.

The orang-outang which I saw walked always upright, even when carrying heavy burthens. His air was melancholy, his deportment grave, his movements regular, his disposition gentle, and very different from that of other apes. Unlike the baboon, or the monkey, whose motions are violent, and appetites capricious, who are fond of mischief, and only obedient through fear, a look kept him in awe. It may be urged that he had the benefit of instruction; but equally so had those with whom I mean to compare him, and yet

yet neither the baboon, nor other apes, could be brought to obey without blows, while a word was enough for him. I have seen this animal give his hand to shew the company to the door that came to see him, and walk about as gravely with them, as if he formed one of the company. I have seen him sit down at table, unfold his napkin, wipe his lips, make use of a spoon or a fork to carry the victuals to his mouth, pour out its drink into a glass, and touch glasses with the person who drank with him; when invited to take tea, he would bring a cup and saucer, lay them on the table, put in sugar, pour out the tea, and leave it to cool before he drank it. All this I have seen him perform without any other instigation than the signs, or the commands of his master, and often of his own accord. He was gentle and inoffensive; he even approached strangers with respect, and appeared rather to solicit caresses than inclined to offer injuries. He was singularly fond of sweetmeats, which every body was ready to give him; and as he had a defluxion upon the breast, together with a cough, so much sugar contributed, no doubt, to shorten his life. He continued at Paris one summer, and died in London the following winter. He would eat almost every thing that was offered, but

but preferred dry and ripe fruits to all other aliments. He would drink wine, but in small quantities, and willingly left it for milk, tea, or any other sweet, or mild liquor. Frederick Henry, Prince of Orange, had one of these animals presented to him, the figure and description of which is given by Tulpinus, and who relates nearly the same circumstances respecting him as we have done. But if we would know what peculiar instincts belong to this animal, and distinguish him from the improvements he had received from his master; we must compare those facts which we have witnessed, with the relations which travellers have given who have seen this animal in a state of nature, and in captivity. M. de la Brosse, who bought two orang-outangs from a negro, and which were but a year old, does not mention their having been educated; on the contrary, he asserts, that they performed many of the above actions by natural instinct. "These animals, says he, sat at table like men, they eat every sort of food without distinction, made use of a knife, a fork, or a spoon, to eat their meat and help themselves; they drank wine and other liquors. We carried them on ship board, and when they were at table, they made signs to the cabin-boy expressive of their wants;

wants; and whenever the boy neglected or refused to give them what they wanted, they became in a passion, seized him by the arm, bit and then threw him down. The male was sea-sick, and required attendance like a human creature: he was even twice bled in the right arm; and every time afterwards, when he found himself indisposed, he held out his arm, as if conscious of having been relieved by that operation."

Henry Grose relates, "that these animals are to be met with to the north of Coromandel; that Mr. Horne, governor of Bombay, had two of them, a male and a female, sent him from a merchant of the name of Vancajee, who lived upon the sea-coast in that country, by Captain Boag, the master of a trading vessel; who, as well as some of his people, gave the following description of them: they were scarcely two feet high, but their form was entirely like the human: they walked erect upon their two feet, and were of a sallow white, without any hairs on any other part than those on which mankind generally have them. Many of their actions perfectly resembled the human, and their melancholy plainly evinced they felt the weight of their captivity. They made their bed very orderly in the cage in which

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they were sent on board the ship. When any person looked at them they hid those parts which modesty forbids to expose. Whether the sea air affected them, or they pined at their confinement, or whether the captain did not provide them proper food, the female first sickened and died, upon which the male shewed all the real signs of grief, and took the death of his companion so greatly to heart that he refused his food, and did not survive her more than two days."

Such was captain Boag's account to Governor Horne, on his return to Bombay; and upon being asked what he had done with their bodies, said he had thrown them overboard, not at the time thinking of preserving them. The governor was so desirous of possessing such a curiosity, that he sent to Vancajee, requesting him to procure more; to which Vancajee replied, he was afraid that would not be in his power, as they were caught upon the skirts of a forest about seventy leagues up the country, but they were so shy and cunning, that the inhabitants were scarcely able to take them, it not happening more than once in a century.

Francis Pyrard relates, "that in the province of Sierra Leona in Africa, there is a species of apes called *baris*, who are strong and muscular,

muscular, and so very industrious, that, if properly fed and instructed, they serve as very useful domestics: they usually walk upright, will pound any thing in a mortar, fetch water from the river in little pitchers, which they carry on their heads; but if the pitchers be not taken off immediately on their return they let them fall to the ground; but when they see them broken, they begin to lament and cry for the loss." Father Jarrie says nearly the same, and almost in the same words. The testimony of Schoutten agrees with Pyrrard's, on the education of these animals. "When taken, he says, they are taught to walk erect on their hind feet, and to make use of those before as hands, for certain works, as rinsing glasses, carrying the beer, and waiting at table, turning the spits, and other domestic business." "I saw at Java (says Guat) a very extraordinary female ape; she was very large, and often walked erect on her hind feet, at which time she hid with her hands the parts which distinguish the sex. She had no hair on her face, except the eye-brows, and her face much resembled those grotesque ones of the Hottentot women which I have seen at the Cape. She made her bed every day with great neatness, slept with her head on a pillow, and covered herself with a quilt.

quilt. When she had the head-ache, she would bind it round with a handkerchief, and it was amusing to see her thus dressed in bed. I could relate a number of other little circumstances which appeared extremely singular, but I own I did not admire them so much as most people ; because I was aware of the design of bringing her to Europe to gratify curiosity, and was therefore inclined to suspect that she had been taught a number of these tricks, which the populace looked upon as natural to the animal. She died in our vessel about the latitude of the Cape. This ape greatly resembled the human species in figure, &c."

Gemelli Carreri speaks of one he saw which cried like a child, walked erect on its hind-feet, and carried a mat under its arm, on which it laid down to sleep. " These apes (he adds) seem in some respects to be more sagacious than men ; for when they no longer find fruits on the mountains, they descend to the sea-shore, where they catch and feed on crabs, oysters, and other shell-fish. There is a species of oyster, called *tactovo*, which weighs several pounds, and often lies upon the shores with its shell somewhat open ; but this animal being sufficiently sagacious to suspect they may close upon him, if he uses his paws, first puts
a stone

a stone between the shells, and then eats the oyster at his pleasure."

"On the coasts of the river Gambia (says Froger) there are apes larger and more mischievous than in any other part of Africa; the negroes are afraid of them, and they cannot travel alone where they frequent, without running a risk of being attacked by these animals, who make use of huge clubs. The Portuguese say that they frequently take away young girls of seven or eight years of age, and carry them up to the highest trees. Most of the negroes regard these animals as foreigners who are come to establish themselves in their country, and that their not speaking arises from a fear of being obliged to work." Another traveller remarks, that at Macacar there are apes which walk upon their hind feet like the human species, that they go in numbers, and that an encounter with them often proves fatal.

Thus we have nearly given every particular circumstance concerning this animal which has been related by travellers who may be the most depended upon. I have given their accounts entire, because every passage is important in the history of a brute which has so great a resemblance to man; and in order

order to determine its nature with the greater certainty, we shall now mention those differences and conformities which divide him from or give him an approximation to the human species. The first external difference is the flatness of the nose, the shortness of the forehead, and the defect of prominence in the chin. The ears are proportionably too large, the eyes too close to each other, and the interval between the nose and the mouth too great: these are the only differences between the face of the orang-outangs and that of man. With regard to the body and limbs, the thighs are proportionally too short, the arms too long; the fingers too small, the palms of the hands too narrow, and the feet rather resemble the hands than the human feet. The parts of generation differ only from those of man, by their having no frænum to the prepuce; but in the females the organs externally are nearly like those of women.

Internally this animal differs from man in the number of its ribs; having thirteen, whereas man has only twelve. The vertebræ of the neck are also shorter, the bones of the pelvis narrower, the haunches more flat, and the orbits of the eyes sunk deeper. There is no spiny apophysis to the first vertebræ of the neck;

neck ; the kidneys are rounder than in the human species, and the ureters have a different figure, as well as the bladder and gall-bladder, which are much longer and narrower. In almost every other part, as well externally as internally, there is so perfect a resemblance to those of the human species, that we cannot compare them without expressing our wonder and admiration, that from such a similar conformation and organization the same effects are not produced. For example, the tongue, and all the organs of the voice, are exactly the same as in man, and yet this animal does not speak; the brain is absolutely of the same form and proportion, and yet it does not think. Can there be a more convincing proof, that matter alone, however perfectly organized, cannot produce either speech or thought, unless animated by a superior principle? or, in other words, by a soul to direct its operations? Man, and the orang-outang, are the only animals which have calfs to their legs, and their posteriors formed for walking erect. They likewise are the only ones which have a broad chest, flat shoulders, and the vertebræ conformable to each other; and the only animals whose brain, heart, lungs, liver, spleen, stomach, and intestines, are perfectly alike, and who have a vermicular

lar

lar appendix. In short, the orang-outang has a greater resemblance to man than even to baboons or monkeys, not only by all the parts which I have indicated, but also by the largeness of the visage, the form of the cranium, the jaws, teeth, and other bones of the head and face; by the thickness of the fingers and thumb; by the shape of the nails; by the articulations of the joints, sternum, &c. So that since we find, by comparing this animal with those which resemble it most, such as the magot, baboon, or monkey, it has a greater conformity with the human than the animal species, which have all been mentioned under the general name of apes, the Indians are excusable for having associated it with man by the name of *orang-outang*, or the *wild man of the woods*. As some of the facts we have mentioned may appear suspicious to those who have not seen this animal, we shall support them by the authority of the two celebrated anatomists Tyson * and Cowper, who dissected it

* The orang-outang bears a greater resemblance to man than to the apes or monkeys; because, 1. The hairs on his shoulders are directed downwards, and those on the arm upwards. 2. His face is broader and flatter than that of the apes. 3. The form of his ears resembles that of man, excepting the cartilaginous part being thin, like the apes. 4. His fingers are much thicker in proportion than the apes. 5. He is, in every particular, formed for walking erect, which

it with a most scrupulous nicety, and have given the results of the comparisons they made of all its parts with the human species. I shall only observe, that the English are not confined, like the French, to one single word to denote animals of this kind: they have, like the Greeks, two different denominations, one for

which apes are not. 6. His posteriors are thicker than those of apes. 7. He has calfs to his legs. 8. His breast and shoulders are broader than those of any ape. 9. His heels are longer. 10. He has a cellular membrane, like man, under the skin. 11. His peritonæum is entire. 12. His intestines are longer than those of apes. 13. The intestinal canal is of different diameters, as in man, and not nearly equal, as in apes. 14. His cæcum has a vermicular appendix, which is not the case in any other ape, nor is the neck of the colon so long as in the latter. 15. The insertions of the biliary and pancreatic ducts have but one common orifice in the orang-outang as well as in man, but in all apes and monkeys they are two inches asunder. 16. The colon is longer than that of the apes. 17. The liver is not divided into lobes as in the apes, but entire, like that of man. 18. The biliary vessels are also the same: as are, 19. The spleen. 20. The pancreas; and 21. The number of lobes in the lungs. 22. The pericardium is attached to the diaphragm, as in man. 23. The cone of the heart is more blunt than in apes. 24. He has no pouches at the bottom of the cheeks, as other apes have. 25. His brain is larger than that of apes, and formed exactly like the human brain. 26. The cranium is rounder, and double the size of that of monkeys. 27. All the sutures of the cranium are similar to those of man, which is not the case in other apes or monkeys. 28. He has the *os cribriforme* and the *crista galli*, which

for those without tails, which they call apes, and the other for those with tails, which they term monkeys. Those which Tyson speaks of by the word *apes* must be the same animals as we have called *pithecos*, or pigmy, and the *cynocephalus*, or Barbary ape. I must also remark, that this author gives some characters of
resemblance

the monkeys have not. 29. He has the *sella equina* exactly the same as in man, while the apes and monkeys have it more prominent. 30. They have the *processus pteregoides* like man, while the others have not. 31. The temporal bones, and the *ossa bregmatis* are the same as in man, but in apes and monkeys these bones are of a different form. 32. The latter have the *os zygomaticus* large, whereas it is small in this animal. 33. The teeth, particularly the grinders, are more like man's than those of the ape or monkey, as also are, 34. The transverse apophyses of the vertebræ of the neck, and the sixth and seventh vertebræ. 35. The vertebræ of the neck are not perforated as in apes, but entire as in man. 36. The vertebræ of the back and their apophyses, are the same as in man; and in the lower vertebræ, there are only two interior apophyses, but in the apes there are four. 37. As in man there are only five lumber vertebræ, but in monkeys there are six or seven. 38. The spinal apophyses of the lumber vertebræ are straight as in man. 39. The *os sacrum* is composed of five vertebræ, as in man, but in apes or monkeys of only three. 40. As in man, the *coccix* is composed of four bones, and not perforated, whereas in apes, it is composed of a greater number of bones, all of which are perforated. 41. In the orang-outang, there are only seven true ribs, and the extremities of the false ribs are all cartilaginous and articulated with the vertebræ; but in apes and monkeys, there are eight true ribs, and the extremities of the

false

resemblance and difference which have not a sufficient foundation. I have therefore thought it necessary to make some observations on those particulars, as we cannot too minutely examine a creature, which, though it has the form of a man, nevertheless belongs to the brute species.

1. Tyson

false ribs are osseous, and their articulations are placed in the intestines between the vertebræ. 42. His iterum is broad like that of man, but which is narrow in monkeys. 43. The bones of the four fingers are thicker than those of apes. 44. The thigh bone is like that of man. 45. The rotula is round, long, and single, but double in the apes. 46. The heel *tarsus* and *metatarsus* are like those of man. 47. The middle toe is not so long as that of the apes. 48. The *obliquus inferior capitis*, *pyriformis*, and *biceps femoris* muscles, are like those of man, but which are different in the apes or monkeys.

The orang-outang *differs* from the human species more than from apes and monkeys: 1. The thumb is proportionally smaller than that of man, but larger than that of the apes. 2. The palm of the hand is longer and narrower. 3. The toes approach those of the ape, by their length. 4. As he does by having the large toe of the foot placed at an inch distance from the next one, and which makes him rather be considered as a four-handed animal than a quadruped. 5. His thighs are shorter than those of man; and 6. His arms are longer. 7. The testicles are not pendulous. 8. The epiloon is larger. 9. The gall-bladder is longer. 10. The kidneys are rounder, and the ureters are also different from man. 11. The bladder is longer. 12. He has no *frænum* to the prepuce. 13. The bone in the orbit of the eye is sunk deeper. 14. He has not the two cavities below

1. Tyson gives, as a particular character of man and the orang-outang, the having the hair on their shoulders inclined downward, and that on the arms upwards. It is true that most quadrupeds have their hair directed downwards, or backwards, but this is not without some exceptions. The sloth and the smallest species of ant-eater have the hair on their anterior parts inclined backward, and that on the crupper and loins directed forwards ; therefore this character

the *tella turica*. 15. The mastoid and styloid processes are extremely small. 16. The bones of the nose are flat. 17. The vertebræ of the neck are short, flat before, and their spinal apophyses are not forked. 18. He has no spinal apophyses in the first vertebræ of the neck. 19. He has thirteen ribs on each side. 20. The *essa ilia* are longer, narrower, and less concave than in man. 21. He also wants the following muscles, which are found in man : the *occipitales, frontales, dilatorius alarum nasi seu elevator labij superioris, interspinales colli glutæi minimi extensor digitorum pedis brevis et transversalis pedis*. 22. The following muscles are sometimes found in man, but not in the orang-outang, the *pyramidales, caro musculosa quadrata*, the long tendon and the fleshy body of the *palmaris*, the *attolens*, and *retrohans oriculam*. 23. The *elevator* muscles of the *claricles* of the orang-outang are like those of the ape, and different from man ; as are also 24. The muscles called, *longus colli, pectoralis, latissimus dorsi, glutæus maximus et medius, psoas magnus et parvus, iliacus, internus, et gasteronamius internus*. And 25. He differs from man in the figure of the *deltoides, pronator, radi teres, et extensor pollicis brevii*.—Tyson's Anat. of the Orang-Outang.

character carries no great weight in comparing the orang-outang with man.

2. The four first differences also in the passage I have quoted are very slight, or ill-founded. The first is the difference of size, which character is very uncertain, especially as the author himself observes that his animal was very young. The second, third, and fourth, are drawn from the form of the nose, the quantity of hair, and other trivial circumstances. It is the same with many others, which may be retrenched; for example, the twenty-first character is drawn from the number of the teeth. It is certain that both this animal and man have the like number of teeth, and if the one in question had only twenty-eight, it ought to be attributed to its youth, for we know that the human race have not more in the early part of their days.

3. The seventh difference is likewise very equivocal; the scrotum of children is in general very tight, and this animal being young ought not to have had them pendulous.

4. The forty-eighth character of resemblance, and the twenty-first, twenty-second, twenty-third, twenty-fourth, and twenty-fifth marks of difference, only denote the presence or shape of certain muscles, which as they
vary

vary in most individuals of the human species, ought not to be considered as essential characters.

5. Every difference and resemblance drawn from parts too minute, such as the apophyses of the vertebræ, or that are taken from the position and magnitude of certain parts, should be considered only as accessory characters; so that Tyson's whole anatomical table may be reduced to the essential differences and resemblances which we have already mentioned.

6. I have thought it necessary to point out other more general characters of this animal, some of which have been omitted by Tyson, and others but badly indicated. First, The orang-outang is the only one of all the apes that has no pouches within his cheeks on each side of the jaw, in which to put the provisions before they swallow them, for the inside of his mouth is perfectly like that of man. Secondly, The gibbon, the Barbary ape, and all the baboon and monkey kind, except the douc, have their posteriors flat, with callosities on them. The orang-outang is the only one which has those parts plump, and without callosities. The douc also has no callosities, but then his posteriors are flat and covered with hair, so that in this respect the
douce

double forms the shade between the orang-outang and the monkeys; as the gibbon and magot form the same knot with respect to the pouches on each side of the jaw. Thirdly, the orang-outang is the only animal who has the calfs of the legs, and fleshy posteriors. This character shews that it is formed much better than any other animal to walk upright; but as its toes are very long, and its heels higher situated than in man, it runs with greater ease than it walks, and there would be occasion for artificial heels higher than those of our shoes to enable it to walk easily for a long time together. Fourthly, though the orang-outang has thirteen ribs, and man only twelve, this difference does not approximate it nearer to the baboon or monkey than it removes it from man, because the number of ribs varies in most of those species, some of them having twelve, others eleven, ten, and so on. So that the only differences between the body of this animal and that of man are reduced to two, viz. the figure of the bones of the pelvis, and the formation of the feet; these, therefore, are the only considerable parts by which the orang-outang bears a greater resemblance to the other apes than it does to the human species.

From

From this examination, which I have made with all the exactness I am capable of, we may form a tolerably correct judgment of this animal. If there were a step by which we could descend from human nature to that of the brutes, and if the essence of this nature consisted entirely in the form of the body, and depended on its organization, the orang-outang would approach nearer to man than to any other animal. Seated in the second rank of beings, if it could not command in the first, it would at least make others feel its superiority. If the principle of imitation, by which he seems so closely to copy the actions of man, were a result of thought or reason, this ape would be at a still greater distance from the brute species, and nearer the human ; but, as we have observed, the interval which separates them is not trifling, and the resemblance in form, conformity of organization, and motions of imitation, which seem to result from those similitudes, neither bring it nearer the nature of man, nor raise it above that of the brutes.

Distinctive Characters of this Species.

The orang-outang has no pouches on the sides of the jaws, no tail, nor any callosities

on the posteriors, which last are plump and fleshy : all his teeth are similar to those of man : his face is flat, naked, and of a swarthy colour ; his hands, feet, ears, breast, and belly, are also naked : the hair on the head descends on the sides of the temples like tresses : on his back and loins there is but a very small quantity of hair* : he is about five or six feet high, and always walks erect on his two hind feet. We have not been able to verify whether the females are subject to periodical courses like women : analogy will scarcely suffer a doubt to arise to the contrary.

THE PITHECOS, OR PIGMY.

ARISTOTLE says, “ there are animals whose nature are ambiguous, and partake, in some measure, of the human and quadruped species ; such as the pithecos, the kebes, and the cynocephali. The kebe is a pithecos with
VOL. IX. A a a tail ;

* According to Pennant this hair is of a reddish colour, and shaggy.

a tail; the cynocephalus is perfectly like the pithecos, but larger, stronger, and has a more pointed muzzle, approaching very near that of a bull-dog, from which it derives its name: its manners are also more ferocious, and its teeth stronger than those of the pithecos, and more resemble those of a dog." It is clear, from this passage, that neither the pithecos nor cynocephalus, mentioned by Aristotle, have any tail; for he says, that the pithecos with a tail, is called *kebe*; and that the cynocephalus resembles the pithecos in every particular, except the muzzle and teeth. Aristotle, therefore, speaks of two apes without tails, the pithecos and the cynocephalus; and of others with tails, which he calls *kebes*. Now, to compare what we at present know with what was known by Aristotle, we shall observe, that we have seen three species of apes without tails, namely, the orang-outang, the gibbon, and the magot, not one of which is the pithecos; for the two first were certainly unknown to Aristotle, being only found in the southern parts of Africa and India, which were not discovered till after his time: besides, they have very different characters from those he ascribes to the pithecos. But the third species, which we call the magot, or
Barbary

Barbary ape, is the cynocephalus of Aristotle, for it possesses all its characters; it has no tail, its muzzle is like that of a bull-dog, and its canine teeth are large and long. This animal is also found in Asia Minor, and in other provinces of the East, and with which the Greeks were well acquainted. The pithecos belongs to the same country, but we have not seen it, and know it only from the relations of travelers, and, although during twenty years, in which we have made the research of these animals our study, this species has not fallen under our inspection, yet we do not doubt but that it as really exists as the cynocephalus. Gesner and Johnston have given figures of this pithecos. M. Brisson mentions his having seen it, and he distinguishes it from the cynocephalus, which he also saw, and confirms Aristotle's remark that these two animals perfectly resemble each other in every respect, excepting the face, which is shorter in the cynocephalus than in the pithecos. We have already observed, that the orang-outang, the pithecos, the gibbon, and the magot, are the only animals to which we can apply the generic name of ape, being the only animals which have no tail, and rather choose to walk on two legs than four. The orang-outang, and the gibbon,
are

are very different from the pithecos and the magot. But, as the two latter perfectly resemble each other, except in the length of the muzzle, and size of the canine teeth, they have been often taken for each other. They have always been mentioned by the common name of ape, even in languages which have one name for apes without tails, and another for apes which have tails. They are both called by the name of *aff* in German, and *ape* in English ; and it is only among the Greeks that we find that each of these animals has a proper name. The word cynocephalus is rather an adjective than a proper substantive, for which reason we have not adopted it.

It appears from the testimonies of the ancients, that the pithecos, or pigmy, was the most gentle and docile of all the ape species that were known to them ; and that it was common in Asia, as well as in Lybia, and in the other provinces of Africa, frequented by the Greek and Roman travellers. Therefore I presume that we must refer the following passages of *Leo Africanus*, and *Marmol* to the pigmy. They say, that the apes with long tails, which are seen in Mauritania, and are called by the Africans *mones*, come from the negro country ; but that those without tails are found in great numbers,

numbers, and are natives of the mountains of Mauritania, Bugie, and Constantine. "These animals, says Marmol, have feet and hands like a man, and, if I may be allowed the expression, a human face; they have an appearance of much vivacity, and seem very malicious. They live upon corn, herbs, and all sorts of fruits, to obtain which they sally forth in large troops, to plunder the gardens or fields; but before they venture out on these expeditions one of the company ascends an eminence, and surveys the country round. If there be no person near, he makes a signal by a cry, for his companions to proceed, remaining himself, however, at his station: but as soon as he perceives any one coming, he sets up a loud cry, and the whole company scamper off with the utmost precipitation, and jumping from tree to tree, retreat to the mountains. It is a great curiosity to see these animals retreat; for the females carry four or five young ones upon their backs, and with this heavy load, leap with great agility from branch to branch; yet great numbers of them are taken, by different snares, notwithstanding all their cunning. When they are angry, they bite furiously, but by coaxing, they are easily tamed. They do great damage to the gardens and fields, because they pluck, pull down, and

and tear up, every thing that comes in their way, whether ripe or not, and often destroy more than they can eat or carry away. Those that are tamed, perform things almost incredible, and imitate almost every human action!" Kolbe relates nearly the same facts with respect to the apes of the Cape of Good Hope: but the description and figure he gives of them, plainly prove they are baboons, having a short tail, a long muzzle, sharp nails, &c. they are also much larger and stronger than the apes of Mauritania. We may therefore presume, that Kolbe only copied this passage from Marmol, and applied the natural habitudes of the Mauritania pigmies to the baboons of the Cape of Good Hope.

The pithecos, the magot, and the baboon, were known to the ancients: these animals are found in Asia Minor, Arabia, Upper Egypt and in all the northern parts of Africa. This passage of Marmol may, therefore, be applied to all the three; but it is clear it does not agree with the baboon, for it says these apes have no tails; and what makes me of opinion that it is not a magot, but a pithecos, is, that the former is not easily tamed, that it commonly produces only two young ones, and not four or five, like that of which Marmol speaks; and

and the latter, being also less, must produce a greater number at a time. Besides the *pithecos*, or pigmy, is more gentle and docile than the magot, or Barbary ape, which is scarcely ever thoroughly tamed. From these reasons I am convinced, that we must not apply this passage in the above author to the magot, but to the *pithecos*; and the same remark may be made to a passage of Rubruquis, who, in his discourse of the apes of Cathay, says, “that they nearly resemble the human form in every particular; that their height is not above a foot and a half, and their body covered all over with hair; that they live in holes; that the natives take them, by putting strong and inebriating liquors in the places they inhabit; that a number of them come together to drink liquors, at the same time making a cry which sounds like *chinchin*, whence they have obtained the appellation of *chinchins*; and that having intoxicated themselves they fall asleep, when the hunter easily surprise and carry them away.” These characters agree with the *pithecos*, and not at all with the Barbary ape. We have seen one of the latter alive, but never heard it pronounce the word *chinchin*. Besides it was above a foot and a half in height, and had a less resemblance to the human form

form than what this author asserts. We have the same reasons for applying ProsperAlpinus's figure and description to the pithecos, rather than to the magot. He asserts, that the small ape without a tail, which he saw in Egypt, was sooner and more easily tamed, and more sagacious, lively, and diverting, than those of any other kind. This plainly distinguishes it from the magot, which is a filthy, sullen, vicious, untractable animal, and is never fully tamed, so that the characters given by Prosper Alpinus to his ape without a tail, do not agree in any respect with the Barbary ape, and can belong to no other animal than the pithecos.

*Distinctive Characters of this Species.**

The pithecos, or pigmy, has no tail; his canine teeth are not proportionably larger than those of man; his face is flat, as are likewise his nails, which are rounded at the top like those of the human species; he walks erect, is about a foot and a half high, and of a gentle and tractable disposition. The ancients assert that the female is subject to a periodical emanation, and analogy leaves us no reason to doubt the fact.

THE

* This ape is about the size of a cat, of an olive brown above, and yellowish beneath. *Pennant.*

 THE GIBBON,* OR LONG-ARMED APE.

THE Gibbon (*fig.* 196) always keeps itself erect, even when it walks on all four feet, its arms being as long as both its body and legs. We have seen one of these animals alive; it was but young, and not more than three feet high; we may therefore presume, that it had not attained its full size, and that when in a free state, it may grow to four feet. It has no appearance of any tail, and the character which evidently distinguishes it from all other apes, is the extraordinary length of its arms.

It

* *Gibbon* is the name by which Mr. Dupleix sent us this animal from the East Indies. I thought at first that this was an Indian word, but in looking over the nomenclature of the monkey tribe, I found in a note of Dalechamp's upon Pliny, that Strabo has described the *cephus* by the word *Keipon*, from which, probably, *Guibon*, *Gibbon*, is derived. The passage of Pliny, with Dalechamp's note, is as follows: "Pompeii magni, primum ludi ostenderunt ex Ethiopia, quas vocant *cephos** quædam pedes posteriores pedibus humanis & cruribus, priores manibus fuere similes; hoc animal postea Roma non vidit."

* *Cephus*, *Strabo*, lib. xv. *Keipon* vocat esseque tradit facie satyro similem. *Dal. Plin. Hist. Nat. lib. viii. cap. 19.* Nota. The *cebus* of the Greeks, the *cephos* of Pliny, which is pronounced *kebus* and *kephus*, might very possibly take its origin from *koph*, or *kophin*, which is the name of an ape in the Hebrew and Chaldean.

It had a circle of white hair all round the face, which gave it a very remarkable appearance: its eyes are large but sunk deep in the head; its face is flat nearly resembling that of a man, and of a tawny colour, and its ears, though well proportioned, are naked. This animal, next to the orang-outang and the pithecos, would approach the nearest to the human form, were it not deformed by the excessive length of its arms; for man in a state of nature would have a strange appearance; his hair and beard, if they were neglected, would encircle his visage not unlike that which surrounds the face of the gibbon.

This ape appeared to be of a gentle and tractable disposition; its motions were neither too rash, nor too precipitate. It was fed on bread, fruit, almonds, &c. and calmly received the food that was presented. It was very averse to cold and wet, and did not live long after being brought into a foreign climate. It is a native of the East Indies, and particularly along the coasts of Coromandel, Malacca, and the islands of Molucca.* This animal is not
to

* P. le Comte says, that he saw at the Molucca islands, a species of ape, walking naturally on his two feet, and using his arms like a man. The face nearly resembled that of a Hottentot, but the body was covered all over with a sort of grey wool. It was exactly like a child, and expressed perfectly

to be met with in the less southern provinces, and there is every reason to conclude that the ape found in the kingdom of Ganaura, on the frontiers of China, ought to be referred to the gibbon, although it is called by some travellers *fefé*. This species varies both in size and colour, for there are two in the royal cabinet, one of which, although adult, is much smaller than the other, and is brown on those parts of the body where the other is black; but as they perfectly resemble each other in every other respect, we have not the least doubt that they both belong to the same species.

Distinctive Characters of this Species.

The gibbon has no tail; there are small callosities on his posteriors; his face is flat, brown, and surrounded with a circle of white hairs; his canine teeth are larger in proportion than those of man; his ears are naked; black, and round; his hair is black, brown, or sometimes grey with age; his arms excessively long; he walks erect, and is about two feet and a half, or three feet high. The female is subject to a periodical emanation.

THE

fectly its wants and its desires. These apes are of a very mild disposition, and to shew their affection to any person whom they know, they embrace them and kiss them with singular transport. One of them which P. le Comte saw was at least four feet high, and very agile.



FIG.198

Large Baboon



FIG.197

Magot

THE MAGOT, OR BARBARY APE.

THIS animal, of all apes which have no tail, is that which can best bear with the temperature of our climate. We kept one for many years. In the summer it remained in the open air with pleasure; and in the winter might be kept in a room without any fire. It was filthy, and of a sullen disposition: it made use of grimace equally to shew its anger, or express its hunger: its motions were violent, its manners awkward, and its physiognomy more ugly than ridiculous. Whenever offended it grinned and shewed its teeth. It put whatever was given to it into the pouches of the cheeks, and commonly eat every thing that was offered, except raw flesh, cheese, or any thing that had undergone a kind of fermentation. When inclined to sleep it was fond of roosting on a wooden or iron bar. It was always kept chained, for, notwithstanding its long domesticity, it was neither civilized nor attached to its keepers. Apparently it had been
badly

badly educated, for I have seen others of the same species who were more sagacious, more obedient, more gay, and so tractable as to be taught to dance, keeping time, and suffer themselves quietly to be clothed.

This ape (*fig.* 197) is two feet and a half, or three feet high, in its erect posture; but the female is not so large as the male. It prefers to walk on all four rather than on two feet. When it sleeps it is almost always sitting; supporting itself on two very prominent callosities on its posteriors; and the anus being placed higher, his body is more inclined when sitting than that of man. It differs from the *pithecos*; first, in the form of its snout, which is thick and long, like that of a dog; whereas, the *pithecos* has a flat visage. Secondly, in having long canine teeth. Thirdly, its nails are neither so flat nor so round; and, fourthly, because it is larger, and of a more sullen and untractable disposition.

There are also varieties to be met with in this species. We have seen some of different sizes, with various coloured hair, and more or less bushy. Even the five animals of which Prosper Alpinus has given us the figures and descriptions, under the name of *cynocephali*, seem to be all magots, differing only in size,
and

and some other characters too slight to form distinct species. The magot seems to be dispersed over every warm climate in the Old Continent, and is found in Tartary, Arabia, Ethiopia, Malabar, Barbary, Mauritania, and as far as the Cape of Good Hope.

It is, probably, this species of ape which Robert Lade speaks of in the following terms :
“ We travelled over a large mountain in the neighbourhood of the Cape of Good Hope, where we diverted ourselves with hunting large apes, which are there in great plenty. I am not able to describe the various arts practised by these animals, while we were in pursuit of them ; nor their swiftness, nor the impudence with which they returned. Sometimes they suffered us to approach so nigh, that I thought myself certain of securing them, but when I made the attempt, the one I meant to seize would make a sudden leap, spring above ten paces from me, climb up a tree with the greatest agility, and then looking down upon us with perfect indifference, seem to derive pleasure from our astonishment. There were some so exceedingly large, that if our interpreter had not assured us that they were not of a ferocious nature, our number would not have appeared sufficient to have protected us from their attacks,

tacks. As it would have been useless to kill them, we made no use of our guns ; but the captain, taking aim at a very large one, which was seated on a tree, after having tired us with a long pursuit, he had no sooner presented his piece but the animal, probably from the remembrance of the execution of some of his companions by the like manner, was so greatly terrified, that it fell almost motionless at our feet, and we had not the least trouble in securing it ; however when it revived we had occasion for all our strength and address to keep it, defending itself by biting those who came near, and we were at last under the necessity of covering its head with our handkerchiefs."

Distinctive Characters of this Species.

The magot has no tail, though he has a small portion of skin, which has some appearance of one. He has pouches on the sides of his jaws, and thick callosities on his posteriors; canine teeth much longer in proportion than those of man ; and the bottom part of the face turned up like that of a bull-dog : his visage is hairy or rather covered with a down : he is of a greenish brown on his body, and a pale yellow on the belly : he walks erect on his hind feet, but oftener on all four. He is about
three

three feet and a half high, and there seems to be some of them still larger. The females have a periodical emanation.

THE PAPION*, OR THE BABOON, PROPERLY
SO CALLED.

IN man the physiognomy may deceive, and the figure of the body does not give an idea of the qualities of the mind; but in the brute creation we may always judge of their dispositions by their looks, and form a just conjecture of their internal qualities from their external form. For example, if we compare the ape and baboon we shall at once decide, that they greatly differ in their dispositions, and that the latter are infinitely more fierce, savage, and malicious, than the former. The orang-outang, which resembles man the most of any, approaches also nearest in intelligence, gentleness of manners, and pliancy of disposition. The magot, which is set further from the human figure, and approaches that of the brutes in form of its face

* This word is derived from *Papio*, which is the name of this animal in modern Latin, and which has been here adopted to distinguish him from the other baboons.

face and canine teeth, is wild, impetuous, and disobedient; but the baboon, which only resembles man in the hands, approaches still nearer, and is, in fact, of the savage tribe, having a tail, sharp nails, and a prominent muzzle. The baboon which I saw (*fig.* 198.) was not so extremely ugly, yet it excited horror. It seemed exceedingly savage and ferocious, continually gnashing its teeth, fretting with rage and furiously restless. It was obliged to be confined in an iron cage, the bars of which it so forcibly moved with its hands, that the spectators were struck with apprehension. It was a squat animal, whose short limbs and compact body indicated vast strength and agility. The long hair with which it was covered seemed to add to its apparent volume; however it is in reality so great, that it could easily overcome more than a single man, unless properly armed.* It constantly appeared excited by that passion which renders the mildest animals furious. It was insolently lascivious, and seemed fond of affecting to gratify its strong desires in public. In some measure we may say that Nature seems to have provided him

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* This probably is of the same species as the animal called *tré tré tré tré* at Madagascar, which is (says Flaccourt) as large as a calf of two years old; the head is round, with the face of a man; the fore and hind feet like an ape; the hair frizzly, the tail short, the ears like those of man: he resembles the *tamach* described by Ambroise Paré; it is a solitary animal, the natives dread it very much.

for this detestable and uncommon kind of impudence ; for in all other animals these parts are somewhat covered with a veil ; but in the baboon they are naked, and more conspicuous from the other parts of the body being covered with hair ; its posteriors are quite naked ; its genitals are pendulous, the anus uncovered, and the tail always elevated ; and instead of feeling any shame it seemed to make a parade of its nakedness, presenting its posteriors oftener to the spectators than its head, particularly in the presence of women, before whom he displayed a matchless impudence, which could proceed only from the most immoderate desires. The magot, and some others of the ape species, have the same strong inclinations, but as they are less in size, and not so petulant, they are more easily corrected, whereas the baboon is quite incorrigible, and totally untractable.

But however violent the desires of these animals may be, they do not breed in temperate climates. The female brings forth usually but one young at a time, which she carries in her arms, and clinging as it were to her breast : she is also subject to periodical emanations. These baboons though mischievous and ferocious, are not carnivorous ; they principally feed upon fruits, roots, and corn. They generally assemble together in companies, for the purpose

of sallying forth to commit their depredations on the neighbouring vineyards or orchards.

Of these animals Kolbe speaks in the following terms:—"The baboons are extremely fond of grapes, apples, and ripe fruit; they assemble together in great numbers, and proceed on their enterprize with previous deliberation. The dogs who are set to watch do not easily conquer them, unless rendered inactive by excess in eating, as they are extremely agile, and make dexterous use of their teeth and claws. On these occasions a part of them enter the inclosure, while some of the company stand on the wall as centinels; the rest are stationed without, at a small distance from each other, and thus form a line, which extends from the inclosure to their place of rendezvous, which is generally in some craggy mountain. Every thing being thus disposed the plunderers within the orchard begin their operations, and throw the fruit of all sorts to them without as fast as they can gather it; or if the wall or hedge be very high, then to those that sit at the top, who, with great address, toss it to those below; and thus the fruit is pitched from one to another all along the line, till it is safely deposited at their head-quarters. They are so dexterous and quick-sighted that they seldom suffer it to fall; and while the business is going forward,



FIG 199

Mandrill



FIG 200

Quanderou

forward, which they conduct with great expedition, a most profound silence is observed among them. The centinels during the whole time continue upon the watch, and if they perceive any person approaching, they instantly set up a loud cry, and at this signal the whole company retreat with astonishing expedition.

Distinctive Characters of this Species.

The papion, or baboon, has a pouch on each side of his cheeks; he has callosities on his posteriors, which are naked, and of a red colour; his tail is crooked, and about seven or eight inches long. The canine teeth are proportionally much thicker and longer than those of men. His muzzle is very thick and long, his ears naked, his body and limbs strong, thick, and short; his genitals are naked, and of a flesh colour, his hair long, bushy, of a reddish brown,* and pretty uniform over the whole body. He walks oftener on four than

ON

* The middle of the face and forehead naked, and of a bright vermilion colour, the tip of the nose of the same: the sides of the nose broadly ribbed, and of a fine violet blue; cheeks, throat, and goat-like beard, yellow; hair on the forehead very long, turned back, and black; head, arms, and legs covered with short hair, yellow and black intermixed; the breast with long whitish yellow hairs; the shoulders with long brown hair. This description is from a stuffed specimen in Sir Ashton Lever's Museum.—*Pennant's Synopsis.*

on two feet. When erect, he is from three to four feet high. There seem to be different sizes of this species; but after the most careful comparison, we could perceive no other differences between them than the size, which does not proceed from their age; for the small baboon seemed to be an adult as well as the large.

THE MANDRILL.

THIS baboon (*fig. 199.*) is an ugly disgusting animal; his nose, or rather two nostrils, are flat, from which constantly issues a thick matter, which he takes care at intervals to lick off with his tongue and swallow. His head is large, and muzzle very long. He is of a squat form, and his posteriors are of a blood red, his anus is placed almost as high as his loins, his face is of a bluish colour, and strongly seamed with wrinkles, which still increases his frightful and loathsome appearance. He is larger than the baboon, but more tame and gentle, and seemed to be more tractable

able and modest, although as disagreeable in every other respect.

This baboon is found on the Gold Coast, and in the other southern provinces of Africa, where the negroes call him *boggo*, and the Europeans *mandrill*. This animal is the largest of all the apes or baboons, the orang-outang excepted. Smith relates, that a female mandrill was given him, which was not above six months old, and had then attained the size of an adult baboon; he adds, that these animals walk always erect; that they sigh and cry like the human species; that they have a violent passion for women, which they never fail to gratify, if they get them within their reach.

Distinctive Characters of this Species.

The mandrill has pouches on the sides of his cheeks, and callosities on his posteriors. His tail is very short, not exceeding two or three inches; his canine teeth are much thicker and longer than those of man. The muzzle is very thick, long, and surrounded on both sides with deep longitudinal wrinkles. His face is flat, naked, and of a bluish colour. His ears, palms of his hands, and soles of his feet, are also naked. His hair is long, of a reddish brown over the body, and grey upon
the

the breast and belly. He walks erect on two feet, but sometimes on all four; he is from four feet to four feet and a half high when upright. The females are also subject to the periodical emanations.

THE OUANDEROU, AND THE LOWANDO.

THOUGH these two animals seem to be but one species, we have preserved the two names which they bear in Ceylon, as they at least constitute two distinct breeds. The body of the ouanderou (*fig.* 200.) is covered with brown and black hairs; he has a large long white head of hair, and a monstrous white beard. The body of the lowando, on the contrary, is covered with whitish hairs, and the hair on his head and beard is black. There is also a third race, or variety, found in the same country, which may, possibly, be the common stock of the other two, because it is of a uniform white colour over the body, head, and beard. These animals are not apes but baboons, of which they have all the characters, as well in shape as in disposition; they

they are of the same savage nature, and even more ferocious. They have a long muzzle, a short tail, and are nearly of the same size as the baboon, but their hind parts seem to be more feeble. The person to whom this animal (from which our figure was taken) belonged, told us it came from South America, and that it was called *cayourassou*. I immediately recollected that this word is a Brazilian term, which is pronounced *sajououassou*, and signifies *sapajou*; consequently, that this name was misapplied, for all *sapajous* have long tails, whereas the animal we are treating of is a baboon with a very short tail. Besides, there is not a single species of baboon existing in America. Errors, with respect to climate, often happen, especially among those who exhibit wild beasts, who, when they are ignorant of the real name of the animal, and the country it is a native of, seldom fail to apply a fictitious denomination, which, whether true or false, equally answers their purpose.

The ouanderous, when not tamed, are so exceedingly savage and mischievous, that they are obliged to be confined in iron cages, where they are often agitated with great fury. But when taken young they are easily tamed, and even seem to be more susceptible of education

cation than any other baboon. The Indians take a pleasure in instructing them, and pretend that the rest of the ape and monkey tribes pay a great deference to these baboons, who are possessed of more gravity and knowledge. In their free state they are extremely wild, and remain constantly in the woods. If we may credit travellers, those which are all white are the strongest and most mischievous. They have a violent passion for women, and are strong enough to ravish them when found alone, and even to that degree that they often kill them.

“ The white monkeys, says Forbin, are sometimes as big as the largest bull-dogs, and are more dangerous than the black. They have a strong desire for women, and often, after having greatly injured them, finish their cruelty with strangling. Sometimes they even come to their houses, but the natives of Macacar, who are very jealous of their wives, take care to prevent the entrance of such hideous rivals into their habitations; and the females, not liking either the manners or figure of such gallants, boldly assist their husbands to oblige their ugly suitors to retire, but which they are not able to accomplish before they have damaged or plundered every thing that lies in their way.”



FIG. 201

Maimon



202

FIG.

203

Macaque

Aionette

Distinctive Characters of this Species.

The ouanderou has pouches on each side of his cheeks, and callosities upon his posteriors. The tail is seven or eight inches long. The canine teeth are much larger and longer than those of man. The muzzle is long and thick; his head is covered with long hair; and he has a great beard of coarse hairs. His body is long and slender behind. There are some among of this species which vary in the colour of their hair; some have it black on the body, with a white beard; and others, white on the body with a black beard. They walk more commonly on four than on two feet, and when erect they are about three feet, or three feet and a half high. The females are subject to a periodical emanation.

THE MAIMON.

THE apes, baboons, and monkeys, form three tribes, with intervals between each, the first of which is filled by the magot, and the second by the maimon: the latter forms the
shade

shade between the baboons and monkeys, as the magot does between the apes and baboons. The maimon resembles the baboons by his thick and large muzzle, and by his short and crooked tail; but he differs from them, and approaches nearer the monkeys, by his gentle disposition and smallness of his size. Edwards has given a figure and description of this animal by the denomination of the *pig-tailed ape*. This particular character is sufficient to distinguish him, for he is the only baboon or monkey that has a naked tail, curled like that of a pig. He is nearly of the same size as the magot, and so strongly resembles the macaque that he might be taken for a variety of that species, if his tail were not entirely different. His face is naked, and of a tawny colour; his eyes are of a chesnut, with black eyebrows. His nose is flat, his lips thin, and furnished with some rough hairs, but too short to form whiskers. His genital parts are concealed within the skin, therefore the maimon, though very spirited and full of fire, has none of that impudent petulance of the baboons. He is gentle, tractable, and even fond. He is found in Sumatra, and probably in some other southern provinces of India; of course it is with difficulty he can endure the cold of our climate.

mate. That which we saw at Paris lived but a very short time; and Edwards says, that which he describes lived only one year in London. "The pig-tailed monkey (says that author) was brought to England in 1752. It was extremely spirited and full of action, and was about the size of our common house-cat. It was a male, and lived under my care only one year. While I had mine, a female of the same species, but much larger, was shewn at Bartholomew-fair, London. I brought the two exiles together to compare them, and the moment they came into each other's presence they testified their mutual satisfaction, and seemed quite transported at the interview."

Distinctive Characters of this Species.

The maimon has pouches on each side of his cheeks, and callosities on his posteriors: his tail is naked, curled up, and about five or six inches in length. The canine teeth are not longer in proportion than those of men: the muzzle is very large; the orbits of the eyes are very prominent above; the face, ears, hands, and feet, are naked, and of a flesh colour. The hair on the body is of a dark olive, and of a reddish yellow on the belly: he sometimes walks erect, and at others upon all fours.

When

When erect he is about two feet, or two feet and a half high. The female is subject to the periodical emanation.

THE MACAQUE, AND THE EGRET.

OF all the guenons, or monkeys, with long tails, the macaque (*fig. 202.*) approaches nearest the baboon. Like them his body is short and compact, his head thick, his muzzle broad, his nose flat, his cheeks wrinkled, and he is also larger and taller than most other monkeys. He is so extremely ugly that he might well be looked upon as a smaller kind of baboon, if his tail were not long and tufted ; whereas that of the baboon, in general, is extremely short. This species is a native of Congo, and other southern provinces of Africa. It is numerous, and subject to many varieties, with respect to its size, colour, and disposition of the hair. The body of that described by Hasselquist was more than two feet long ; and those we have seen were not above one foot and a half. That which we term the *Egret*, (*fig. 203.*) because it has on the top its head a
tuft

tuft of hair, seems to be only a variety of the macaque, which it perfectly resembles, excepting in this and some other slight differences in the hair. Both of them are tractable and docile; but, independently of a disagreeable scent which they diffuse around them, they are so dirty, so ugly, and even so hideous when they grimace, that we cannot look on them without horror and disgust. These monkeys go in troops, especially to plunder orchards of the fruit and plants. Bosman relates, that they take a quantity of millet in each hand, the same under their arms, and some in their mouths, which they go off with, leaping on their hind feet; if pursued they first drop that from under their arms, then that from their hands; and this they do that they may use more speed on their four legs, but they always preserve that in their mouths. This traveller adds, that they examine carefully all they pull, and what does not please them they throw away, and tear up others: so that by this nicety they do much greater injuries than by the quantities they consume or take away.

Distinctive Characters of this Species.

The macaque has pouches on each side of his cheeks, and callosities on his posteriors.

His

His tail is nearly as long as all the rest of the body, being about eighteen or twenty inches in length. His head is large, and his muzzle thick; his visage naked, pale, and wrinkled; his ears are covered with hair; his body short and compact; and his legs short and thick. The hair on the upper part of the body is of a greenish ash colour, and on the breast and belly of a yellowish. He has a kind of crest of hair on the top of his head. He walks on four and sometimes on two feet. The length of his body, including the head, is about eighteen or twenty inches. There appears to be varieties in this species, some larger and others smaller.

The egret seems to be only a variety of the macaque. He is about a third smaller in all his dimensions. Instead of a small crest of hair, which is found on the top of the head of the macaque, this animal has it sharp and pointed. The hair on the forehead of this is black, whereas that of the macaque is greenish. The egret also has a longer tail than the macaque, in proportion to the length of its body. The females are subject to the periodical emanation like women.



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FIG.

207

Margabey

Chinese Bonnet



204

FIG.

205

Malbrouk

Black Banded Putas

THE PATAS.

THIS animal (*fig.* 205.) is a native of the same country, and is nearly of the same size as the macaque; but the body is longer, the face not so ugly, and the hair much finer. He is remarkable for the colour of his hair, which is of so brilliant a red as to make him appear as if he were painted. We have seen two of these animals much varied; the first had a line of black hairs above the eyes, extending from ear to ear. The second differed from the first only by the colour of this line which was white. The hair about the cheeks and under the chin of both was long, which made them large beards: but the colour of the first was yellow, and the other white. This variety seemed to indicate others in the colour of the hair: and I am inclined to think, that the monkey spoken of by Marmol, which is said to be of the colour of the wild cat, and to be a native of Africa, is only a variety of the Patas. These monkeys are not so subtle as the other kinds, but are possessed of an extreme curiosity. "I have seen them, says Brue, descend from the top of very high trees, to the extremities of the branches to view the vessels on the water; they

they admired them for some time and seemed to discourse with each other about what they had seen ; and then quit their stations for their companions, who came after to have the same sight. Some even became so familiar as to throw branches at the Frenchman, who returned their salute by the shots of their muskets; some were killed others wounded, and the rest were thrown into the utmost consternation. One party uttered most hideous cries, while another picked up stones to throw at their enemies, but perceiving at length, how unequal the battle was, they desisted, and prudently retired."

It is to be presumed, that it is this species of monkey which le Maire speaks of. "It is hardly possible to express, says this traveller, the havoc these animals make in Senegal, when the rice, millet, and other grains, on which they feed, are ripe. They assemble together in companies of forty or fifty : one of them remains as centinel on a tree, while the rest commit their depredations. As soon as the centinel perceives any person near, he utters a loud cry, as a signal to the rest, who immediately obey and scamper off with their plunder, leaping from tree to tree with prodigious agility. The females, who carry their young clinging to their breasts, retreat in the same

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manner as the rest, and leap as if they were not incumbered with any burthen."

Distinctive Characters of this Species.

The patas has pouches on each side of his cheeks, and callosities on his posteriors. His tail is as long as both his head and body : the crown of his head is flat. His muzzle, body, and legs, are long. He has black hair on the nose, and a narrow line of the same colour over the eyes, extending the breadth of the face. The hair on the upper parts of his body is of a reddish colour ; and that of the lower, as the throat, breast, and belly, of a yellowish hue. There is a variety in this species, with respect to the colour of the line over the eyes, which is black in some, and white in others. They do not make grimaces when they are angry, like other monkeys. They walk on all fours more frequently than erect. They are from a foot and a half to two feet long, from the muzzle to the origin of the tail. The females are subject to a periodical emanation.

THE MALBROUCK, AND THE BONNET CHINOIS.

MALBROUCK (*fig. 204.*) is the name of this animal in its native country, Bengal, and *Bonnet Chinois* (*fig 207.*) is a term given to

to the long tailed monkey, which has a kind of trencher cap on the crown of the head, like the Chinese bonnets.

These two monkeys seem to belong to one species ; and this species, though somewhat different from that of the macaque, is nevertheless, so far bordering on it, as to make us doubt whether the macaque, the egret, the malbrouck, and the bonnet chinois, are not merely four varieties, or permanent races of the same species. As these animals do not propagate in our climate, we have not been able to acquire any knowledge respecting the unity or diversity of their species, and therefore are obliged to judge only by the difference of their figures, and other external attributes. The macaque and the egret, appeared to us so similar, that we presumed them to be of one and the same species. It is the same with respect to the malbrouck, and the bonnet chinois ; but, as they differ in a greater degree from the two first than between themselves, we thought it best to separate them.

With respect to the diversity of these two species, our presumption is founded, 1. On the difference of their external form ; 2. On the colour and disposition of the hair ; 3. On the difference which is found in the proportion of their skeletons ; and 4. On the first two mentioned

tioned being natives of the southern countries of Africa, and the two that we are now treating of, being natives of Bengal. This last consideration is of as great weight as any of the rest, for we have had sufficient proofs, that in wild animals the distance of climate is a sufficient mark of the remoteness of the species. Besides, the malbrouck and the bonnet chinois, are not the only species or breeds of monkeys which are found in Bengal. By the testimonies of travellers there seem to be four varieties, white, black, red and grey; they likewise tell us that the black kind are more easily tamed than any of the rest. Those we saw were reddish, and appeared very docile and familiar.

“ These animals, according to travellers, plunder whole fields of grain, and plantations of sugar-cane; and while one stands sentinel on a tree, the others load themselves with the booty. If any person appears, the sentinel gives notice by crying *houp, houp, houp*, which the rest perfectly understand, and all at once throw down the plunder which they hold in their left hands, and scamper off upon three legs; if close pursued they also throw down what they have in their right, and save themselves from their pursuers by climbing up trees, which is their general abode. They
leap

leap from tree to tree, and even the females, though loaded with their young ones, leap like the others ; but they sometimes, in their haste, miss their aim and fall. They are very difficult to render in any degree docile, and are never so far tamed as to be suffered to go unchained. Even in their own country they will not produce unless at perfect freedom in the woods. When they cannot procure fruits they feed upon insects, and sometimes go to the sides of the rivers, for the purpose of catching fish and crabs, the latter of which they take by watching the opening of its claws and then putting their tails between ; the crab instantly closes them, when they, with all speed, drag it ashore, and eat it at leisure. They are fond of cocoa-nuts, and are very expert in extracting the juice for drink, and afterwards getting at the kernel, the shell of which is generally made use of as a snare to catch them ; a small hole being made in one of them, the animal who meets with it thrusts his paw in with difficulty, when those who have laid the trap run and seize him before he can disengage himself. They sometimes place bamboos on the tops of trees for the purpose of extracting the *sari*, which drops from them, and which they drink. In the provinces of India, where
the

the Bramins reside, and whose religious tenets do not allow them to kill any animals, the monkeys are almost numberless. They assemble in large troops, come into the towns, and enter the houses with perfect freedom, and hesitate not to take such provisions, fruits, or herbs as they can meet with, and which it is very difficult to preserve from them." There are three kinds of hospitals in the town of Amadabad, which is the capital of Guzarat, for animals, and where not only the lame and sick monkeys but also such as are well, if they chuse to live there, are plentifully supplied with provisions. It is said that the monkeys in the neighbourhood regularly assemble twice a week in the streets of the town, that they go to the tops of the houses, which have a sort of terraces or flat roofs, where they lie in the sun; and that on these days the inhabitants are careful to lay upon these terraces rice, millet, sugar-canes, and other fruits in season; for if by chance they omit to do so, these animals pull off the tiles from the other part of the house, and do great damage to the inside. They do not eat a single thing without smelling at it for a long time, and when they have satisfied their hunger they fill the pouches on the sides of their cheeks for another occasion: they destroy

stroy the nests of birds, and never fail to throw the eggs on the ground when they want appetite or inclination to eat them.

The most formidable enemy these animals have is the serpent; no other animal of the forest being able to surprise them, as they are so exceedingly swift and subtle, that they climb up and seat themselves on the tops of the highest trees. “The apes, says a traveller, have it in their power to be masters of the forest, for neither tigers nor lions are able to dispute the possession with them. The only animal they have to fear is the serpent, which attacks them both night and day. There are some serpents in those forests of a prodigious size, which wind up the trees where the monkeys reside, and when they happen to surprise them sleeping, swallow them whole before they have time to make a defence.”

Distinctive Characters of this Species.

The malbrouck has pouches on each side of his cheeks, and callosities on his posteriors. His tail is nearly as long as both the body and head. The eyelids are of a flesh colour, and the face a cinereous grey; they eyes are large, the muzzle broad and turned upwards; the ears are large, thin, and of a flesh colour. They have a line of grey hairs on them like
the

the mone, but the other parts of their bodies are of a uniform colour, a yellowish brown on the upper and a yellowish grey on the lower. He goes on all fours, and is about a foot and a half long from the muzzle to the insertion of the tail.

The bonnet chinois seems to be a variety of the malbrouck. They differ in the hair on the crown of the head, which in the latter is disposed in the shape of a cap or flat bonnet, and in the tail which is larger. The females of both are subject to a periodical emanation.

THE MANGABEY.*

WE have seen two individuals of this species, both of which were sent to us by the denomination of *Madagascar apes*. They are easily distinguished from all other monkeys by a very apparent character. The mangabey (*fig. 206.*) has its eyelids naked, and of a very striking whiteness. Their muzzle also is large, thick, and long; and they

* This is a precarious name which we have given to this animal, until we know what it is called in its native country. As it is found at Madagascar in the vicinity of *Mangabey*, this name will make it familiar to travellers, who will thus be led to observe it with more precision.

they have a ring round their eyes. Those we are speaking of varied also in colour, the hair of one being of a blackish brown on the head, neck, and upper parts of the body, and white on the belly; and in the other it was much lighter over all the body, with a collar of white hair round the neck and cheeks. Both carry their tails turned backwards, the hair of which is long and bushy. They are natives of the same country as the vari, and as they resemble that animal in the length of the muzzle and tail, in the manner of carrying it, and in the varieties of colour; they seem to fill up the chasm betwixt the makis and guenons, or long-tailed monkeys.

Distinctive Characters of this Species.

The mangabey has pouches on each side of his cheeks, and callosities on his posteriors. His tail is as long as the head and body: he has a prominent ring of hair over his eyes, and his upper eyelids are particularly white. His muzzle is thick and long; his eyebrows are rough and bristly: his ears black, and almost naked. The hair of the upper parts of his body is brown, and those below are grey. There are varieties in this species, some being of an uniform colour, and others having a

circle of white hair round the neck and the cheeks in the form of a beard. They walk on four feet, and are nearly a foot and a half long, from the point of the muzzle to the origin of the tail. The females are subject to the periodical emanation.

THE MONA.*

THIS animal (*fig. 209.*) is the most common of the monkey tribe; we kept one of them alive for many years, which, with the magot, seems to agree best with the temperature of our climate. This alone is sufficient to prove the mona is not a native of the southern countries of Africa and India. In fact, it is met with in Barbary, Arabia, Persia, and other parts of Asia which were known to the ancients, who denoted it by the name of *kebos*, *cebus*, and *cæphus*, because of the variety of
of

* Mona is the name this animal bears in the Spanish and provincial languages. The English word monkey is derived from *monichi*, and both seem to owe their rise to *mona*, or *mq-nima*, the primitive name of these animals.

of its colours. The visage of this animal is of a brown hue, with a kind of white beard, mixed with yellow and a little black. The hair on the top of the head and neck is yellow and black intermixed; that on the back red and black; the belly and the inner parts of the thighs and legs whitish, though the external parts of the two latter are black, and the tail of a deep ash colour, marked with two white spots, one on each side, at its insertion. On its forehead there are some grey hairs in the form of a crescent; from the eyes to the ears there is a black stripe, as there also is from the ears to the shoulders and arms. Some persons have called this animal *nonne*, from a corruption of *mone* or *mona*; others have termed it the old man, from the grey colour of its beard; but the denomination by which the mona is most generally known is that of the *variegated monkey*; and this perfectly agrees with the name of *kebos* given it by the Greeks, and the definition of Aristotle, a monkey with a long tail, and of various colours.

In general the disposition of the monkeys is much more tractable than that of the baboons, and not so sullen as that of the apes. They are extravagantly spirited, but not ferocious, for they become docile through fear the moment
they



FIG. 209

Mona



210

FIG.

208

Moustac

Callirix

they find themselves subjected by restraint. The mona is particularly susceptible of education, and even attached to those persons who take care of him. That which we brought up would suffer himself to be stroked and handled by those he knew, but would not permit this freedom to strangers, whom he would often bite. He was kept chained, appearing very desirous of liberty, for when he either broke his chain, or got loose, he would fly to the fields, but he would suffer himself to be retaken by his master. He ate every thing that was offered him, roasted meat, bread, and grain; but his favourite food was fruits; and he would also search after spiders, ants, and insects. Whenever several pieces were given him together he put them in the pouches on each side of his cheeks. This practice is common to all the baboon and monkey kind, Nature having furnished them with those reservoirs, where they can store a quantity of food sufficient to support them for one or two days.

Distinctive Characters of this Species.

The mona has pouches on each side of his jaws, and callosities on his posteriors. His tail is about two feet long, which is longer by six inches than both his body and head. The
head

head is small and round, and the muzzle thick and short. The colour of his face is a bright tawney ; a stripe of grey hairs on the forehead, another of black from the eyes to the ears, and from the ears to the shoulders and arms. He has a kind of grey beard formed by the hairs on his throat and breast, which is longer than in any other part. His hair is of a reddish black on the body and whitish under the belly. The outside of his legs and thighs are black, and its tail of a dark ash with two white spots on each side of its insertion. He walks on all fours, and his length, from the snout to the origin of his tail, is about a foot and a half. The female is subject to periodical emanations.

THE CALLITRIX, OR GREEN MONKEY.

CALLITRIX is a term made use of by Homer to express in general the beautiful colour of the hair of animals. It was not till many ages after Homer's time, that the Greeks applied this name to some particular kinds of monkeys, and which, from the propriety of such

such application, we must suppose to be the animal in question (*fig. 20.*). The body is of a fine green colour, the neck and belly white, and the face of a beautiful black. He is found in Mauritania, and in Ancient Carthage; so there is reason to suppose he was known to the Greeks and Romans; and that he was one of the long-tailed monkeys, to which they gave the name of *callitrix*. There is also a species of white monkeys in the adjoining provinces of Egypt, both on the side of Ethiopia and of Arabia, which the ancients have also described by the name of *callitrix*. Prosper Alpinus and Pietro della Valle, speak of this white monkey, but we have never seen this species, which, perhaps, is only a variety of the green monkey, or the mona, which is very common in those countries.

The *callitrix*, or green monkey, appears to be known in Senegal, as well as in Mauritania and in the Cape Verd islands. M. Adanson relates, that the woods of Ponor, along the river Niger, are filled with green monkeys. "I discovered these animals, (says this author) only by their breaking off the branches of trees, and throwing them down; for they were so very quiet and nimble in their tricks, that it was scarcely possible to perceive them. I did
not

not walk far, before I killed three of them without in the least terrifying any of the rest : however, when numbers felt themselves wounded, they began to retreat ; some concealing themselves behind large branches, and others descending to the ground and running away ; but the greatest number leaped from the top of one tree to another. During this bustle I kept firing at them and killed about twenty-three in less than an hour, without any of them uttering a single cry, although they several times assembled together, and made an appearance of attacking me."

Distinctive Characters of this Species.

The callitrix has pouches on each side of his cheeks, and callosities on his posteriors. The tail is much longer than both the head and body. The head is small, the muzzle long, and the face and ears are black : instead of eyebrows, he has a narrow stripe of black hairs across the forehead. The body is of a fine green mixed with a little yellow. He walks on four feet ; and the length of his body, including the head, is about fifteen inches. The female is subject to the periodical emanation.



FIG. 212

Douc



211

FIG

215

Talapoin

Sai

THE MOUSTAC.

THE moustac (*fig. 210.*) seems to be a native of the same country as the macaque, because its body is, like that, shorter and more compact than the rest of the monkey tribe. This is, probably, the same animal as those who have been to Guinea call White Nose, from its upper lips being of a white colour, and all the rest of the face of a deep blue. It has also two tufts of yellow hair below its ears, which give it a very remarkable appearance, and as it is but small, it seems to be the most beautiful of the monkey kind.

Distinctive Characters of this Species.

The moustac has pouches on each side of his cheeks, and callosities on his posteriors. The tail is much longer than the head and body, being sometimes nineteen or twenty inches. His face is of a deep blue, with a large broad white mark that goes entirely across the upper lip directly under the nose, which is
naked,

naked, except a slight edging of black hairs both on the upper and under lips. His body is short and compact. There are two tufts of hair, of a bright yellow, below the ears, and another tuft of bristly hair upon the top of the head. The hair on the body is of a greenish cast, and that on the breast and belly of an ash colour. He walks on all fours, and is about a foot and a half long. The female is subject to a periodical emanation.

THE TALAPOIN.

THIS monkey, (*fig.* 211.) though small, is a beautiful animal. Its name seems to indicate that it is a native of Siam, and other eastern provinces of Asia; but though we cannot positively assert this, it is, however, certain that it belongs to the Old Continent, and is not found any where in the New, because it has pouches on each side of its cheeks, and callosities on its posteriors, which characters neither belong to the sagoins nor sapajous,

which are the only animals of the New World that can be compared to the monkeys.

What inclines me to think, independently of its name, that this monkey is more common in the East-Indies than in Africa, is, the travellers affirming that most of the apes in this part of Asia have their hair of a brownish green colour. "The monkeys of Guzarat, they say, are of a greenish brown, with long white beards and eyebrows. These animals, which the Banians suffer to multiply in great numbers, from a religious principle, are so familiar that they enter the houses in such numbers that the fruiterers and confectioners have no little difficulty to preserve their merchandize."

Edwards has given a figure and description of a monkey by the name of the *middle-sized black ape*, which seems to approach nearer to the talapoin than any of the rest. We have made a comparison between the two, and, excepting the size and colour, they have such a resemblance to each other, that there is at least a very great approximation between them, if they are not varieties of the same species. In this case, as we are not certain that our talapoin is a native of the East-Indies, and as that spoken of by Mr. Edwards is described by him

as an animal belonging to Guinea, we shall refer our talapoin to the same climate, or at least suppose that this species is common in the southern parts both of Africa and Asia. It is also probable, that this is the same as the species of black monkeys mentioned by Bosman under the name of *baurdmannetjes*, the skin of which, he informs us, makes a good fur.

THE DOUC.

THE Douc (*fig. 212.*) is the last among that class of animals which we have called Apes, Baboons, and Monkeys. This animal, without belonging to any one of these three precisely, yet partakes of them all. Of the monkeys by the length of his tail; of the baboons by his size; and of the ape by the flatness of his face. By a very particular character he seems to form the shade between the monkey and the sapajous. These two tribes differ from the monkeys, having naked posteriors, and all the sapajous having them covered with hair; and the douc is the only monkey which has hair on the posteriors like
the

the sapajous. He resembles them also in the flatness of the muzzle; but he is infinitely nearer to the monkey than the sapajous, from his long tail, and other very essential characters. Besides, the interval which separates these two families is immense, for the douc, and all the monkeys, are natives of the Old Continent, whereas the sapajous are only found in the New. We might also remark, that as the douc has a long tail like the monkeys, but no callosities on his posteriors, he forms the link which connects the orang-outang and the monkeys, as the gibbon does in another respect, having no tail, like the orang-outangs, but only callosities on the posteriors. Independently of these general relations, the douc has particular characters which render him very remarkable, and distinguish him from the apes, baboons, monkeys, or sapajous, at first sight. His skin, which is variegated with different colours, seems to indicate the ambiguity of his nature, and distinguishes his species in a very evident manner. He has a purple collar about his neck, a white beard, his lips are brown, and he has a black ring round his eyes; his face and ears are red, the top of his head and body grey, and the breast and belly yellow. His legs are white downwards and black upwards.

upwards. His tail is white, with a large spot of the same colour on his loins ; and his feet are black, intermixed with shades of different colours.

This animal, which we were assured came from Cochin-China, seems to be likewise found at Madagascar, and is the same as that indicated by Flacourt by the name of *sifac* in the following terms: “ There is, (says he) another kind of white monkey at Madagascar, which has a brown collar, and is often seen erect on its hind feet : its tail is white, with two brown spots on the flanks : it is larger than the *vari* (maucauco) but less than the *varicossi* (*vari*) and this animal is called *sifac*. It lives upon beans. There are great numbers of them towards Andrivoura, Dambourlomb, and Ranafoulchy.” The brown collar, the white tail, and the spots on the flanks, are characters which clearly indicate that this *sifac* of Madagascar is the same species with the *douc* of Cochin-China.

Travellers inform us that the large apes of the southern parts of Asia produce bezoars in their stomachs, which are superior to those of the goats and gazelles. These large apes are the ouanderou and the *douc* ; to them, therefore, we must refer the production of the bezoar.

bezoar. It is pretended that the bezoars of the ape are always round, whereas the other bezoars are of different figures.

Distinctive Characters of this Species.

The douc has no callosities on his posteriors, and is cloathed all over with hair: his tail is not so long as his body and head: his face is covered with a reddish down: the ears are naked, and of the same colour as the face: the lips are brown, as are the orbits of the eyes. The colour of the hair is very bright and variegated: he has a purple coloured collar round his neck: his forehead, body, arms, and legs, are white, and on the chin is a kind of yellow beard: he is black on the top of the forehead and the upper part of the arms: the parts below the body are of an ash colour: the tail, and under parts of the loins, are white: he as often walks on two feet as on four: he is three feet and a half, or four feet, high when he is upright. I do not know whether the females in this species be subject to the periodical emanation.

CONCLUSION OF THE APES OF THE OLD
CONTINENT.

THE SAPAJOUS AND THE SAGOINS.

WE shall now pass from one continent to the other; all the four-handed animals which we have described, and which we comprehended under the generic names of Apes, Baboons, and Monkeys, belong exclusively to the Old Continent; and all those which remain to be spoken of are only to be found in the New World. We shall first distinguish them by the two generic names of Sapajous and Sagoins. Both these animals have their feet nearly like those of the apes, baboons, and monkeys; but they differ from the apes by having tails, and from the baboons and monkeys by not having a pouch in each cheek, nor callosities on their posteriors; in short, they differ from the apes, baboons, and monkeys, by having a broad division between their nostrils, and the apertures being on the sides and not under the nose; therefore the sapajous and sagoins are not only specifically, but even generically different from the apes, monkeys, and baboons. When compared together they are also found to differ in

in some generic characters, for every sapajou has a long tail, which he can make use of to seize or lay hold of any object. This tail they bend, extend, and curl at pleasure, and by the extremity of which they suspend themselves from the branches of trees to reach whatever they want : the under part of this tail is commonly without hair, and covered with a smooth skin. The tails of the sagoins, on the contrary, are proportionably longer than those of the sapajous, and are weak, straight, and entirely covered with hair, so that they cannot make use of them either to lay hold of any object, or for the purpose of suspending themselves. This difference is alone sufficient to distinguish the sapajou from the sagoin.

We are acquainted with eight sapajous, which probably should be reduced to five species. The first is the *ouarine*, or *gouariba*, of Brasil. This sapajou is as large as a fox, and only differs from that which is called *alouate* in its colour. The *ouarine* has black hair, and the *alouate* red ; and as they perfectly resemble each other in every other respect, I consider them as belonging to the same species. The second is the *coaita*, which is black like the *ouarine*, but not so large : the *exquima* seems to be a variety of this species. The third is the *sajou*,

or

or *sapajou*, properly so called. This is small, has brown hair, and commonly known by the name of the *capuchin monkey*. There is a variety in this species, which we shall call the *grey sajou*, and which only differs from the *brown sajou* by this difference of colour. The fourth is the *sai*, called by some travellers the *howler*; he is larger than the *sajou*, and his muzzle is broader: there are two kinds, which differ only by the colour of the hair, the one being of a reddish brown, and the other of a lighter colour. The fifth is the *samiri*, commonly called the *orange monkey*. This last is the smallest and most beautiful of all the *sapajous*.

We are acquainted with six species of *sagoins*. The first and largest is the *saki*, whose tail is covered with hair so long and so bushy that it has acquired the name of the *fox-tailed monkey*. There appears to be a variety in this species, for I have seen two, both of which appeared to be adult, and yet one was almost twice as big as the other. The second is the *tamarin*, which is generally black, with four yellow feet, but they vary in colour, some being found of an olive brown, spotted. The third is the *ouistiti*, remarkable for large tufts of hair round his face, and an annulated tail. The fourth is

the *marikina*, which has a kind of mane on the neck, and a bunch of hair, like the lion, at the end of the tail, whence it has been called the *small lion*. The fifth is the *pinche*, whose face is of a beautiful black colour, with hairs descending from the top and sides of the head, in the form of long smooth tresses. And the sixth is the *mico*, which is the most beautiful animal of this kind; its hair is of a silver colour, and its face as red as vermilion. We shall now give the history of each of these sapajous and sagoins, most of which have been little known.

THE OUARINE AND THE ALOUATE.

THE Ouarine and the Alouate are the largest four-handed animals belonging to the New Continent: they surpass the size of the largest monkey, and approach that of the baboon. They have prehensile tails and are consequently of the sapajous family, in which they hold a very distinguished rank, not only with regard to

to stature, but also by voice, which resounds like a drum, and may be heard at a very great distance. Marcgrave informs us, " that every morning and evening the ouarines assemble in the woods ; that one among them seats himself on an elevated place, makes a sign with his hand to the rest to seat themselves round him ; that as soon as he sees them all seated, he begins an oration with so quick and loud a voice as to be heard at a great distance, and it might be imagined they were all making a noise together, but during the whole time the rest keep a profound silence ; that when he has ended, he makes a signal to the others to reply, and immediately they all set up a cry together, till such time as by another sign with his hand, he orders them to be silent, and which they instantly obey ; that then the first renews his discourse, or song, which, when finished, and the others have paid the utmost attention to it, the whole assembly break up." These circumstances, of which Marcgrave says, he has many times been an eye-witness, may possibly be exaggerated, and seasoned a little with the marvellous. The whole, probably, is only founded on the frightful noise these animals make ; they have in their throats a kind of bony drum, in the cavity of which the sound
of

of the voice thickens, encreases, and forms a kind of howling reverberation ; upon which account these sapajous have been distinguished from the rest by the name of howlers. We have never seen the ouarine, but we have the skin and the dried foetus of an alouate, in which the instrument of the loud noise he makes, that is to say, the bone of the throat, is very apparent. According to Marcgrave, the face of the ouarine is broad, the eyes black and sparkling, the ears short and round, and a tail naked at the extremity, which holds firmly whatever it encircles ; the hair of the body is black, long, and glossy ; it is much the longest under the chin, and forms a kind of round beard ; the hair on the hands, feet, and a part of the tail, is brown. The female is of the same colour as the male, and only differs from him in being smaller. The females carry their young on their backs, and thus loaded leap from branch to branch and from tree to tree. The young ones clasp the mother round the narrowest part of the body with the hands and arms, and thus remain firmly fastened, while she keeps in motion. These animals are so wild and mischievous, that they can neither be tamed nor subdued ; they bite dreadfully, and although they are not among the carnivorous animals, yet they
excite

excite fear by their frightful voice and ferocious air. As they live only on fruits, grain, and some insects, their flesh is not bad eating. "The hunters, says Oexmelin, bring home in the evening the monkies they have killed in the Cape Gracias-a-Dio; they roast one part of these animals and boil the other; its flesh is very good, and resembles that of the hare, but being of a sweetish flavour, a good quantity of salt must be put to that part which is roasted; the fat is yellow like that of a capon, and is very good. We lived on these animals all the time we remained there, because we could procure no other food, and our hunters brought us every day as many of them as we could eat. My curiosity led me to see the method of hunting them, and I was surprised at their sagacity, not only in particularly distinguishing their enemies, but also in the manner in which they defended and secured themselves. When we approached towards them, they assembled together, set up loud and frightful cries, and threw branches at us which they broke from the trees; some voided their excrements in their hands, and threw them at our heads. I also remarked, that they never forsook each other; that they leaped from tree to tree with an almost imperceptible nimbleness; and that,

though

though they took the most desperate leaps, they seldom fell to the ground ; because they never missed catching hold of the branches either with their hands or tail, which rendered it very difficult to take them, even after they were shot, unless absolutely killed ; for if only wounded, they remain clinging to the branch, where they often die, and do not drop off until they are putrefied. I have seen them hang in this manner for four or five days after death, and it is not uncommon to shoot fifteen or sixteen without being able to get more than two or three. What appeared still more singular, the moment one of them was wounded, the rest assembled round, and clapt their fingers into the wound, as if they were desirous of sounding its depth ; and if the blood flow in any quantity, some of them keep it shut up, while others get leaves, which they chew and thrust into the orifice. I have seen this circumstance several times with admiration. The females bring forth only one at a time, which they carry on their backs in the same manner as the Negresses do their children. When they suckle their young, they take them in their paws, and present the breast to them like a woman. There is no other way of taking the young than by shooting its mother, for she
never

never forsakes it ; but when she is killed, it tumbles to the ground, and then it is easily taken."

Dampier confirms most of these circumstances ; but asserts, that these animals commonly bring forth two at a time, and that the mother carries one under her arm and the other upon her back. The smallest species of sapa-jous do not bring forth many, and it is therefore very probable that the largest produce not more than one or two at a time.

Distinctive Characters of this Species.

The ouarine has the apertures of the nostrils placed on the sides, and not under the nose ; the partition which divides the nostrils is very thick. He has neither pouches on the sides of his jaws, nor callosities on his posteriors, those parts being covered with hair like the rest of the body. His tail is long and prehensile. His hair is long and black, and in his throat is a thick concave bone. He is about the size of a greyhound. The long hair under his neck forms a kind of round beard, and he generally walks on all fours.

The alouate has the same character as the ouarine, and seems to differ from him only in having a larger beard, and a reddish-coloured hair.

hair. I do not know whether the females of this species are subject to a periodical emanation; but from analogy, I should presume the contrary, for I have generally observed, that the apes, baboons, and monkeys, with naked posteriors, alone are subject to this emanation.

THE COAITA, AND THE EXQUIMA.

NEXT to the ouarine and the alouate, the coaita (*fig. 213.*) is the largest of the sapajous. I saw one alive at the Duke of Bouillon's, where, by its familiarity and forward caresses, it deserved and obtained the affection of those who had it under their care; but notwithstanding all the good treatment and attention paid to it, it could not resist the cold of the winter 1764. It died regretted by its master, who was so kind as to send it to me to place it in the Royal Cabinet. I saw another at the Marquis de Montmirail's, the latter was a male, and the former a female, and both were equally tractable and well tamed. This sapajou, by its gentle and docile disposition,

position, differs greatly from the ouarine and the alouate, which are extremely wild and untameable. It also differs from them in not having a bony pouch in the throat. Like the ouarine, its hair is black, but rough. The coaita also differs from them, in having but four fingers and no thumb to the fore paws : by this character and its prehensile tail it is easily distinguished from the monkeys, who have all five fingers and a flaccid tail.

The animal which Marcgrave calls *exquima* is very similar to the *coaita*, and, perhaps, is only a variety of that species. This author seems to have been deceived when he said that the *exquima* was a native of Guinea and Congo. The figure he has given of it, is alone sufficient to demonstrate his error ; for the animal is there represented with a tail curled at the extremity, a character which belongs solely to the sapajous ; consequently, the *exquima* of Marcgrave is not, as he tells us, a monkey of Guinea, but a sapajou with a prehensile tail, which, without doubt, had been transported there from Brasil. The word *exquima*, or *quima*, expunging the article *ex*, ought to be pronounced *quoima*, and then it is not very distant from *quoaita*, which is written *coaita* by many authors. Every circumstance, there-

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fore, concurs to prove, that this *exquima* of Marcgrave was a sapajou of Brasil, and only a variety of the coaita, which it resembles in nature, size, colour, and the prehensile tail. The only material difference consists in the *exquima* having a whitish hair on the belly, and a white beard under the chin, about two inches long. Our coaitas have neither this white hair nor the beard : but what makes me still presume that this difference is not sufficient to constitute two distinct species is the testimonies of travellers, who tell us, that there are both black and white coaitas, and that some of them have beards, and others are without.

“ There are (says Dampier) in the isthmus of America, great numbers of monkeys, some of which are white, but the most of them black ; some have beards, others none : they are of a middling size, and in dry weather when the fruits are in season they are very fat ; their flesh is then extremely good, and we ate great numbers of them, which example was after a time followed by the Indians, who were shy of eating them at first. In the rainy seasons these animals have a quantity of worms in their bowels, and I have seen some of them several feet long.—These monkeys are very droll, and played a thousand grotesque tricks as we traversed

versed the woods ; leaping from branch to branch with their young upon their backs, making faces, chattering, and even seeking opportunities to make water upon our heads. When they are unable to leap from one tree to another, on account of the distance, their dexterity is very surprising ; they form a kind of chain, hanging down by each other's tails ; one of them holding the branch above, the rest swing to and fro like a pendulum, until the undermost is enabled to catch hold of the branches of the other tree, when the first lets go his hold and thus comes undermost in his turn ; and then, by degrees, they all get upon the branches of the tree without ever coming to the ground." All these particulars perfectly agree with our *coaitas*. M. Daubenton, in his dissection of these animals, found a great quantity of worms in their entrails, some of which were from twelve to thirteen inches long. We cannot, therefore, have any doubt but that the *exquima* of Marcgrave is a *sapajou* of the same, or at least of a very proximate species to that of the *coaita*.

We must likewise observe, that if the animal indicated by Linnæus, under the name of *diana*, be, in fact, as he says, the *exquima* of Marcgrave, he has omitted the prehensile tail, which

which is the most essential character, and which alone will decide whether this diana belong to the sapajou or monkey genus, and of course, whether it be found in the Old or New Continent.

Independently of this variety, the characters of which are very apparent, there are other varieties, though less striking, in the species of the coaita. That described by Brisson had whitish hair on all the lower parts of the body, while those which we have seen were entirely black, and had but very little hair on those parts, the skin being plainly seen, which was also of a black colour. One of the two coaitas spoken of by Mr. Edwards was black, and the other brown: they are termed, says he, *spider monkeys*, on account of their tail and limbs being so very long and slender.

Some years ago a coaita was presented to me by the name of *chameck*, which I was informed came from the coast of Peru. I had it measured, and made a description of it, in order to compare it with that which M. Daubenton had given of the coaita, and immediately discovered that this chameck of Peru, a few varieties excepted, is the same animal as the coaita of Guiana.

The sapajous are very sagacious and dexterous: they go in companies, and mutually warn

warn and assist each other. Their tail serves them exactly like a fifth hand ; and they seem even to employ that more than either their hands or feet. Nature by this addition seems to have recompensed them for the want of a thumb. It is asserted that they catch fish with this long tail, and which does not appear incredible, for we have seen one of our coaita's lay hold of a squirrel, which had been put into the same apartment, with his tail, and drag him out. Russel, in his History of Jamaica, speaking of this animal, says, " this creature has no more than four fingers to each of its fore paws : but the top of the tail is smooth underneath, and on this it depends for its chief actions, for the creature holds every thing by it, and flings itself with the greatest ease from every tree and branch by its means. It is a native of the main continent, and a part of the food of the Indians." They have the address to break the shell of the oysters, in order to eat them ; and it is certain that many of them suspend themselves to the tail of each other, either to pass over a brook, or to swing from one tree to another. The females bring forth only one or two young ones at a time, which they always carry on their backs. They feed upon fish, worms, and insects, but fruit is their common food,



213
Coaila

FIG.

214
Brown Capuchin



FIG. 216

Saki

food, and they grow fat when it is ripe, when, it is said, their flesh is good and exquisite eating.

Distinctive Characters of this Species.

The coaita has neither pouches on the sides of his jaws, nor callosities on the posteriors : he has a very long prehensile tail. The partition of the nostrils is very thick, and the apertures are placed on the side, and not under the nose. He has only four fingers on his hands or fore-feet : his hair and skin are black : his face is naked and tawny : his ears are also naked, and of the same form as the human race. He is about a foot and a half long, and his tail is longer than the head and body together ; he walks on all fours.

The exquima is nearly of the same size as the coaita, and, like that animal, has a prehensile tail ; his hair, however, is not black, but variegated. There are some which are black and brown on the back and white on the belly, with a very remarkable beard. These differences, however, are not sufficient to constitute two different species, especially as there are coaitas not entirely black, but which have a whitish hair on the throat and belly.

THE SAJOU.*

WE are acquainted with two varieties in this species, the Brown Sajou, (*fig. 214.*) commonly called the *capuchin monkey*; and the Grey Sajou, which differs from the other only in the colour of its hair. They are of the same size, the same shape, and the same disposition: both are lively, active, and very amusing, by their tricks and nimbleness. We have had them alive; and of all the sapajous they appeared to be those with which the temperature of our climate seemed least to disagree. They live here for many years without much trouble, provided they are kept in a warm room during winter. We can even give examples of their producing in this country. Two were brought forth at Madame de Pompadour's, at Versailles, one at M. de Reamur's, at Paris, and another at Madame de Poursel's, in Gatinois; but these were only single productions, whereas in their own climate they often bring forth two. These sajous are very fantastical

* This word is abridged from *cayouassou* or *sajouassou*; the names by which these animals are called at Maragnon.

fantastical in their tastes and affections: they are extremely fond of some persons, and have as great an aversion for others.

We observed a singularity in these animals, which causes the females to be often taken for the males. The clitoris is prominent outwardly, and is as much seen as the sexual organ of the male.

Distinctive Characters of this Species.

The sajous have neither pouches on the sides of their jaws, nor callosities on their posteriors. Their face and ears are of a flesh colour, with a little down on them. The partition of the nostrils is thick, and their apertures are placed pretty close to each other. Their tail is prehensile, naked underneath at the extremity, and very bushy over every other part. Some have black and brown hair, as well about the face as on all the upper parts of the body. Others are grey about the face, and of a light brown on the body. Their hands are always black and naked. They are but a foot long from the extremity of the muzzle to the insertion of the tail. They walk on all fours.*

* In a description of M. Vosmaer, printed at Amsterdam in 1770, there is an account of a *singular species of the flying American ape*, &c. which, however, appears to be the same animal as our brown sajou.

THE SAI.

OF the Sai (*fig. 215.*) we have seen two which seem to make a variety in the species. The hair of the first was a deep brown, and that of the second, which we have called the *White-throated Sai*, has white hair on the breast, neck, and round the ears, and cheeks; and it differs also from the first, in its face being less hairy; but in other respects they perfectly resemble each other; being of the same disposition, size, and shape. Travellers have described these animals by the name of *weepers*, from their plaintive moan. Others have called them *musk monkeys*, because like the maucauco they have a musky odour. They have likewise been termed macaque, borrowed from the animals so called in Guinea; but the macaque is a monkey with a flaccid tail; while the animals we are speaking of belong to the sapajous, their tails being prehensile. The females have only two teats, and bring forth but one or two at a time. They are gentle, docile,

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and so timid, that their common cry, which resembles that of a rat, becomes a kind of groaning when they are threatened with danger. Their food in this climate is principally snails and beetles, which they prefer to any other ; but in their native country of Brasil, they chiefly live upon grain and wild fruits which they pluck from the trees, from whence they seldom descend till they have stripped their habitation of its treasure.

Distinctive Characters of this Species.

The sai has neither pouches on the sides of his jaws, nor callosities on his posteriors. The partition of the nostrils is very thick, and the apertures are placed on the side, and not beneath the nose. The face is round and flat, and the ears almost naked. The tail is prehensile and naked towards the extremity. The hair on the upper part of the body is a deep brown, and on the lower parts, of a yellowish grey. These animals are not above fourteen inches long, and their tails are longer than the head and body together. They walk always on four feet. The females are not subject to the periodical emanation.

THE SAIMIRI.

The Saimiri is commonly known by the name of the *Aurora*, the *Orange*, or *Yellow Sapajou*. It is very common at Guiana, for which reason many travellers have styled it the *Cayenne Sapajou*. From the gracefulness of its motions, the smallness of its size, the brilliant colour of its coat, the fullness and brightness of its eyes, and its small round visage, the saimiri has ever taken the lead of every other sapajou, and it is, in fact, the most beautiful and pleasing of this tribe; but it is also the most delicate and the most difficult to transport and preserve. From these characters, and particularly from that of the tail, which may be said to be but half prehensile, for though it makes use of it to climb up trees, yet it can neither strongly hold, nor firmly fix itself by it, it seems to form the shade between the sapajous and the sagoins.

Distinctive

Distinctive Characters of this Species.

The saimiri has neither pouches on each side the cheeks, nor callosities on the posteriors. The partition which divides the nostrils is thick, and the apertures are placed on the side and not under the nose. He may be said to have no forehead. His hair is of a bright yellow colour; and he has two flesh-coloured rings round the eyes. His nose is elevated at the root, and flat towards the nostrils. The mouth is small, the face flat and naked, and the ears are garnished with hair and a little pointed. The tail is half-prehensile and longer than the body. He is scarcely more than ten or eleven inches in length. He stands on his hind feet with great ease, but he commonly walks on all fours.

THE SAKI.

THE Saki, (*fig. 216.*) commonly called the *Fox-tailed Monkey*, from its tail being clothed with very long hair, is the largest of the sagoins, being above seventeen inches long when full grown, whereas the largest of the other

other five species is not above nine or ten. The saki has very long hair on its body, and still longer on its tail: its face is red, and covered with a whitish down: it is easy to be known and distinguished from every other sagoin, sapajou, or monkey, by the following characters:

Distinctive Characters of this Species.

The saki has neither pouches on the sides of his jaws, nor callosities on his posteriors. His tail is not prehensile but flaccid, and half as long again as his head and body. The apertures of the nostrils are placed on the side of the nose, and the partition is very thick. The face is brown, and covered with a fine short, whitish down. The hair on the upper parts of the body is of a deep brown, and those of the lower of a reddish white. The hair is very long on the body, and still longer on the tail, extending near two inches beyond the point; this hair on the tail is generally of a deep brown colour. There seems to be a variety in this species with respect to colour, as there are sakis to be met with whose hair is of a reddish yellow colour. This animal goes on all fours, and is about a foot and an half long, from the tip of the nose to the insertion of the tail. The females of this species have not the periodical emanation.



FIG. 217

Oistiki



218

FIG.

219

Marikini

Mico

THE TAMARIN.

THIS is the name which the animal bears in Cayenne: it is called the little black monkey by some, and the great-eared monkey by others. It is much smaller than that which we have just described, and differs from it in many characters, particularly in the tail, which is cloathed only with short hair, whereas that of the saki is furnished with very long. The tamarin has also large ears and yellow feet. It is a pretty and lively animal, and very easily tamed, but so exceedingly delicate as to be unable long to resist the intemperance of our climate.

Distinctive Characters of this Species.

The tamarin has neither pouches on the sides of his jaws, nor callosities on his posteriors. His tail is flaccid, and as long again as his head and body. The partitions between the nostrils are very thick, and the apertures are on the sides, and not under the nose. The face is of a dark flesh colour. The ears are square, large, naked, and of the same colour,
and

and the eyes are of a chesnut. The upper lip is slit, nearly like that of the hare. The body, head, and tail, are covered with a dark brown hair, and the hands and feet with a short hair of an orange colour. The body and legs are well proportioned. He walks on all fours, and measures not above seven or eight inches in length, his head included.

THE OUISTITI.*

THIS animal (*fig.* 217.) is smaller than the tamarin, being not above six inches long, including the head; his tail is more than double that length, and annulated with black and white rings, like that of the maucauco, yet at the same time it is more bushy than that animal's. The face of the ouistiti is naked, and of a flesh colour. He has two very singular tufts of long white hair on the fore part of the ears, which entirely conceals them when we look at the animal full in the face. Mr. Parsons has given a good description of this animal in the Philosophical Transactions; and
Mr.

* So called from a noise made by this animal which has that sound.

Mr. Edwards has given a very good figure of it: he speaks of having seen several of them, and says that the largest did not weigh above six ounces, and the smallest only four and a half: he very judiciously observes, that the supposition of the small Ethiopian monkey, which Ludolph speaks of by the name of *fonkes*, or *guereza*, being the same animal as the ouistiti, has no foundation. It is very certain that neither the ouistiti, nor any other sagoin, is to be met with in Ethiopia; and it is very probable that the *fonkes*, or *guereza*, of Ludolph, is either the *maucauco*, or the *loris*, which are common in the southern parts of the Old Continent. Edwards farther says, that when the ouistiti (*sanglin*) is in good health he has a great deal of hair, and very bushy; that one of those which he saw, and which was healthy, fed upon several things, as biscuits, fruits, herbs, insects, and snails; that being one day unchained, he darted at a little gold fish in a glass globe, which he killed, and devoured with the greatest avidity; that afterwards some small eels were presented him, which frightened him at first, by twisting about his neck, but that he soon conquered and ate them. Mr. Edwards adds a fact which proves that these little animals might be multiplied in the southern parts

parts of Europe. He says that they produced young in Portugal, where the climate is favourable to them. At first they have an ugly appearance, having scarcely any hair on their bodies; and they cling close to the teats of their dam. When they grow a little older they fix themselves on her back or shoulders, and when she is weary of carrying she releases herself by rubbing them off against the wall, which being done, the father, if he is by, will allow them to get upon his back.

Distinctive Characters of this Species.

The ouistiti has neither pouches on the sides of his jaws nor callosities on his posteriors. His tail is flaccid, very bushy, with alternate annulated bars of black and white, or rather brown and grey, and is as long again as the head and body. The partition of the nostrils is very thick, and the apertures are placed at the side. The head is round, and cloathed with black hair above the forehead, and above the nose is a white spot without hair. His face is almost all naked, and of a deep flesh colour. He has a tuft of long white hair on each side of the head before the ears. His ears are round, flat, thin, and naked. His eyes are of a chesnut colour. His body is covered with a soft, grey,

ash-coloured hair ; his throat, breast, and belly, of a light grey, with a slight tincture of yellow. He walks on all fours, and is often not above six inches long. The females are not subject to the periodical emanation.

THE MARIKINA.

THE *Marikina* (fig. 218.) is commonly known by the name of the little Lion Ape. We reject this compound denomination, because the marikina is not an ape but a sagoïn, and no more resembles the lion than a lark resembles an ostrich, there being no affinity between them, except in the long hairs that surround the face of the marikina, and a tuft of hair at the end of his tail. His hair is long, soft, and glossy. His head is round, face brown, eyes red, ears round, and naked, and concealed under the long hairs which surround his face. These hairs are of a bright red, and those on the body and tail of a very pale yellow, approaching a white. This animal has the same manners, the same vivacity, and the same inclinations as the other sagoïns. He seems to be

be of a more robust temperament, for we have seen one which lived five or six years in Paris, without any other particular care than keeping it during the winter in a chamber, wherein there was a fire every day.

Distinctive Characters of this Species.

The marikina has neither pouches on the sides of his cheeks, nor callosities on his posteriors. His tail is flaccid, and nearly as long again as both his head and body. The apertures of the nostrils are on each side of the nose, and the partition which divides them very thick. His ears are round and naked. The hair is long, of a yellowish red colour about the face*, and bright yellow hairs, nearly of an equal length, over every other part of the body; his tail is terminated with a considerable tuft of hair. He walks on all fours, and is not above eight or nine inches long.

THE PINCH.

THIS animal, though very small, is still larger than either the ouistiti, or the tamarin. Including the head and body, he is about

* The face is flat, and of a dull purple colour. *Pennant.*

about nine inches long, and his tail is full eighteen. He is remarkable for a kind of white smooth hair upon the top and sides of the head, more especially as this colour is wonderfully contrasted with that of the face, which is black, shaded by a small grey down. His eyes are black; his tail is of a bright red from its insertion to near the middle, where it changes to a deep brown, and continues so to the end. The hair on the upper parts of the body is of a yellowish brown colour; that on the breast, belly, hands, and feet, is white. The skin is black, even where covered with white hair. His throat is naked and black like his face. This animal, though of a very singular figure, is nevertheless very handsome. His voice is soft, and resembles more the chaunting of a little bird, than the cry of a quadruped. He is very delicate, and cannot be transported from America to Europe, without the greatest precaution.

Distinctive Characters of this Species.

The pinch has neither pouches on the sides of his cheeks, nor callosities on his posteriors. His tail is flaccid, and as long again as his head and body together. The partition of the nostrils is thick, and the apertures are placed at
the

the side, and not under the nose. The face, throat, and ears are black. The hair on the head is white; the muzzle broad, and the face round. The hair on the body long, and of a reddish colour, until it approaches the tail, and then it becomes of an orange; it is white and shorter on the breast, belly, hands, and feet. The tail is of a bright red at its insertion, darker as it proceeds towards the middle, and entirely black at its extremity. He walks on four feet, and is not above nine inches long.

THE MICO.

WE are indebted for the knowledge of this animal (*fig. 219.*) to M. de la Condamine, and shall therefore give his account of it in his Voyage up the river Amazon. “The monkey, of which the governor of Para made me a present, was the only one of its kind that had been seen in the country. The hair on its body was of the most beautiful silvery white colour: and that on its tail was of a glossy chesnut approaching

approaching to black. Its ears, cheeks, and muzzle, were tinged with so bright a vermillion, as to have the appearance of being the work of art. I kept it a year, and it was alive at the time I was writing this account, almost within sight of the French coast; but, notwithstanding the continual precautions that I took to preserve it from the cold, yet the rigour of the season killed it before my arrival. I preserved it in aqua vita, which will prove my description is not exaggerated." By this recital of M. de la Condamine, it is obvious that his description will apply to no other animal than the mico; and that it is a different, and probably, scarce species, since no author or traveller before him has made any mention of it, though it is remarkable for the bright red which animates its face, and for the beauty of its hair.

Distinctive Characters of this Species.

The mico has neither pouches on the side of his cheeks, nor callosities on his posteriors. He has a flaccid tail, which is about half as long again as the head and body. The partition of the nostrils is not so thick as in other sagouins, but their apertures are at their sides. His face and

ears are naked, and of a vermilion colour. The muzzle is short, the eyes are distant from each other; the ears are large; his hair is of a beautiful silver white colour, and of a glossy brown on the tail. He walks on all fours, and is about seven or eight inches long. The females are not subject to the periodical emanation.

ACCOUNT OF SOME ANIMALS NOT EXPRESSLY
TREATED OF IN THIS WORK.

WE have now finished, to the utmost of our ability, the History of Quadrupeds, but in order to render it still more complete, we shall not pass over in silence those of which we have not been able to obtain an exact knowledge. They are but few, and of those few, many must be looked upon as varieties of those species we have before mentioned; yet feeling it as a duty to state all we knew, or could gain a knowledge of, in the animal kingdom, we determined to add the following, and in which we have been as particular as possible.

1. THE WHITE BEAR.

THIS is a noted animal in our most northern climates. Martin and some other travellers mention it, but none of them give a sufficient description of it to enable us positively to pronounce, whether it be a different species from the common bear. Supposing every thing they have written to be fact, then that must be the case: but as we know that the species of the bear varies greatly according to the difference of climate; that there are brown, black, white, and others variegated, the colour becomes a nugatory character in constituting different species; and, consequently, the denomination of *white bear* is insufficient to prove the species different. I have seen two small bears that were brought from Russia entirely white; nevertheless, they were most certainly of the same species as our bears of the Alps. These animals also vary greatly with respect to size; as they live a long time, and become larger and fatter in those parts of the world where they

find ample provision, and are not disturbed, the character drawn from the size is still more equivocal; therefore, we have not a sufficient foundation to assert, that the bear of the northern seas is a particular species, merely because it is white and larger than our common bear. The difference of habits does not seem to be more decisive than that of colour and size. The bear of the northern seas lives upon fish; he never quits the sea coasts, and even often inhabits the floating islands of ice. But if we consider that the bear in general is an animal which feeds indifferently on every thing, and that when pressed with hunger, he has no particular choice, and that he has not the least dread of water, these habits will not appear sufficiently different to conclude that the species is not the same. The fish which the bears of the northern seas feed upon, may rather be termed flesh, as it chiefly consists of the carcasses of whales, seals, &c. and that too in a climate which produces no other animals, nor even grain nor fruits; and where, consequently, the bear is under the necessity of subsisting on the productions of the sea. Is it not probable, therefore, if the bears of Savoy were transported to the mountains of Spitzbergen, not finding any nutriment on
land,

land, they would plunge into the sea to seek for subsistence ?

Colour, size, and method of living, being therefore insufficient, there remains only those essential characters which may be derived from their figure. Now, all that travellers have said of the sea-bear is simply, that his head, body, and hair, are longer than in our bears, and his head much harder. If these differences be real and striking, they would suffice to constitute a different species : but I am doubtful whether Martin examined them with accuracy, and whether the others, who copied from him, have not exaggerated. “ These white bears (says he) are shaped quite otherwise than those in our country ; they have a long head like that of a dog, and the neck is also long ; they bark almost like dogs that are hoarse ; they are not so clumsy, and more nimble than our bears ; they are nearly of the same size ; their hair is long, and softer than wool. It is said, that common bears have a very tender head, but it is quite contrary with the white bear, for though we gave one several blows over the head, he was not in the least stunned, although they were sufficient to have knocked down an ox.*” We may remark from this description, first, that the author does not speak of these bears

* Martin's Voyage to Spitzbergen.

bears as being larger than ours, and that, consequently we ought to suspect the testimony of those who have affirmed, that the sea-bears were thirteen feet long. Secondly, that the hair being as soft as wool does not constitute a specific character, since an animal's going frequently in the water is a sufficient cause for the hair becoming softer, and even more bushy, as is seen by the land and water beaver : those that live upon land, rather than in the water, having a rougher and thinner hair ; and what makes me suspect that the other differences are not real, nor even so apparent as Martin speaks of, is that Dithmar Blefklein, in his description of Iceland, speaks of these white bears, and asserts having seen one of them killed in Greenland, which reared itself on his hind feet like other bears ; but in this recital, he does not say a word which indicates that the white Greenland bear is not entirely like ours. Besides, when these animals find prey upon land, they do not seek for food in the sea : they devour rein-deer, and any other beast they can seize ; they even attack men, and dig up dead bodies. But when almost famished, as they often find themselves in those desert and barren lands, they are obliged to frequent the water, in quest of seals, young walruses, and small whales.

They

They get upon the islands of ice, where they wait for their prey ; and as long as they find abundance of subsistence, they never quit their post ; so that when the ice begins to float in spring, they suffer themselves to be carried away with it, and as they cannot regain the land, nor even quit the ice on which they are embarked for a long time, they frequently perish in the open sea. Those which arrive on the coasts of Norway or Iceland with these floats of ice, are so nearly famished, that they devour, with the greatest voracity, every thing they meet ; and this may have occasioned the prejudice that these sea bears are more fierce and voracious than the common kind. Some authors have been persuaded that the sea-bears were amphibious, like the seals, and that they can remain as long as they please under water ; but the contrary is evident, from the manner in which they are hunted. They can swim but a short time together, nor can they go above the space of a league : they are followed by a small boat, and are soon weary. If they could dispense with respiration they would plunge to the bottom, in order to rest themselves ; but when they dive it is only for a short time, being obliged to rise to the surface of the water for fear of drowning, and then the hunters kill them.

The

The common prey of these white bears is seals, but the walruses, from whom they sometimes take away their young, wound them with their tusks and oblige them to retreat. The whales also drive them from the places they frequent by their weight and magnitude, but they sometimes devour the young whales. All bears are naturally very fat, and the white bears, which feed only on animals loaded with grease, are much more so than the rest. Their fat is also nearly like that of the whale. The flesh of these bears is said not to be bad eating, and their skin makes a very warm and durable fur.

SUPPLEMENT.

I HAVE since received a drawing of a White Bear*, from Mr. Collinson, and if that be perfect, the land and sea-bears are certainly distinct species, the difference in the length of their heads being sufficient to constitute them such. By this drawing it also appears that the feet of the sea-bear are formed like those of dogs, and other carnivorous animals, whereas those
of

* For which see vol. vi. page 270, of this Edition.

of the land-bear are shaped like the human hand. From the assertion of several travellers we also understand, that the former of these bears are much larger than the latter ; Gerard de Veira says, that the skin of one which he killed measured twenty-three feet in length, which is three times the length of a common bear. In the collection of Voyages to the North it is stated that these bears are larger and more ferocious than those of our parts ; but in the same work it is said, that although they are of a different shape, their heads and necks being much longer, and their bodies more slender, yet they are nearly of the same size with the others.

It is generally admitted by travellers that the heads of these sea-bears are so hard that a blow which would fell an ox does not stun them, and that their voice is more like the barking of a dog than that of a common bear. Robert Lade says, that he killed two sea-bears near the river Rupper of a prodigious size, which were so ferocious that they attacked the hunters, wounded two Englishmen, and killed several savages. It is mentioned in the third Dutch Voyage to the North, that a sea-bear was killed by the sailors on the coast of Nova Zembla, whose skin was thirteen feet long.

long. From all which I am inclined to believe that this animal, which has been so frequently distinguished for its ferocity, is a much larger species than the common bear.

2. THE TARTARIAN COW.

M. GMELIN, in the New Memoirs of the Academy at Petersburg, has given a description of this animal, which seems, at first sight, to be quite different from all those which we have spoken of under the article buffalo. "This cow (says he) which I saw alive, and of which I had a drawing made in Siberia, came from Calmuck. It was about the length of two Russian ells and a half; by this standard we may judge of its other dimensions, the proportion of which the designer has well executed. The body resembles that of a common cow: the horns bent inward; the hair on the body and head is black, except on the forehead and spine of the back, where it is white. The neck is covered with a mane, and the rest of the body with very long hair, which descends
to

to the knees, so that the legs appear very short; the back is raised in the form of a hunch; the tail resembles that of a horse, is white, and very bushy; the fore legs are black, the hind ones white, and resemble those of the ox; there are two tufts of long hair upon the hind feet, one before and the other behind, but on the fore-feet there is but one, which is placed on the hind part. The excrements are more solid than those of the common cow; and in discharging its water the animal bends its body backward. It does not low like an ox, but grunts like a hog. It is wild, and even ferocious, for, excepting the man who gives it food, it strikes with its head all those that come near it. It dislikes the company of domestic cows, and when it sees one of them it grunts, which it seldom does on any other occasion." To this description M. Gmelin adds, "that it is the same animal spoken of by Rubruquis in his Travels into Tartary: that there are two species of these animals in that country; the first called *sarluk*, which is the same as he describes; the second *chainuk*, which differs from the other in the largeness of the head and horns, and also by the tail, which resembles that of the horse towards its

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insertion, and terminates like that of a cow : but that they both have the same dispositions."

There is but a single character in all this description which indicates that the Calmuck Cows are of a particular species, which is their grunting instead of lowing, for as to all the rest, they so strongly resemble the bisons, that I do not doubt they are of the same species, or rather the same race. Besides, though the author says that these cows do not low but grunt, yet he acknowledges they do that only very seldom ; and this was, perhaps, a particular affection of the individual he saw, for Rubruquis, and others whom he quotes, do not speak of this grunting ; perhaps the bisons, when they are irritated, have also an angry grunt ; even our bulls, especially in the rutting season, have a hollow interrupted voice, which much more resembles grunting than lowing. I am, therefore, persuaded that this grunting cow (*vacca grunnicus*) of M. Gmellin is no other than a bison, and does not constitute a particular species.

3. THE TOLAI.

THIS animal, which is very common in the country which borders on the Lake Baikal, in Tartary, is a little larger than a rabbit, which it resembles in figure, colour of the hair, taste of the flesh, and in the habit of burrowing in the earth to conceal itself. Their internal structure is also the same, and they differ only in the tail, which is considerably longer than that of the rabbit; it, therefore, seems very probable that it does not really constitute a different species, but is only a variety in that of the rabbit. Rubruquis, speaking of the animals of Tartary, says, "There are rabbits with long tails, which have black and white hairs at the end. There are no stags, few hares, many gazelles, &c." This passage seems to indicate that our short-tailed rabbit is not to be met with in Tartary, or rather that it has undergone some variations in that climate, and especially in the length of the tail; for as the tolai resembles the rabbit in
every

every other respect, I do not think it necessary to consider them as a distinct and separate species.

4. THE ZISEL.

SOME authors, and among the rest, Linnaeus, have doubted, whether the *zisel*, or *ziesel*, (*citillus*) were a different animal from the hamster* (*cricetus*). It is true they resemble each other in many respects, and inhabit nearly the same country; but they differ by a sufficient number of characters to convince us they are really different species. The *zisel* is smaller than the hamster; its body is long and slender like the weasel; whereas that of the hamster is thick like the rat. It has no external ears, but only auditory passages concealed under the hair. The hamster has short ears, but they are very broad and apparent. The *zisel* is of a uniform cinereous grey colour, but the hamster is marked with three large white

* The *hamster* is found in Misnia, Thuringia, and Hanover. The *zisel* is found in Hungary, Austria, and Poland, where it is called *suset*.

white spots on each side of the breast. These differences, joined to that of their not mixing together, though natives of the same country, are sufficient to decide the fact of their being two different species, though they resemble each other in the shortness of their tails and legs, in their teeth, being like those of the rat, and have the same natural habits, such as burrowing in the earth, laying up magazines of provisions, destroying grain, &c. Besides, to leave no doubt on this subject, we shall observe, that Agricola, an exact and judicious author, in his little Treatise of Subterraneous Animals, gives a description of both, and so clearly distinguishes them, that it is impossible to confound them; therefore, we may certainly affirm that the hamster and the zisel are two different species; and, perhaps, as distinct from each other as the weasel and the rat.

5. THE ZEMNI.

THERE is another animal in Poland and Russia, called *ziemni*, or *zemni*, which is of the same genus as the *zisel*, but larger, stronger, and

and more mischievous. It is somewhat smaller than the domestic cat. Its head is large, its body slender, and its ears short and round. It has four large incisive teeth which project out of the mouth, the two in the lower jaw being thrice as long as the two in the upper. The feet are very short, and covered with hair; they are divided into five toes, and armed with crooked claws. The hair is soft, short, and of a mouse colour. The tail moderately large. The eyes small and hidden like those of the mole. Rzaczynski has called this animal the *small subterranean dog*. This author seems to be the only one who has spoken of the zemni, though it is very common in some provinces of the North. Its natural disposition and habits are nearly the same as those of the hamster and zisel. It bites dangerously, eats greedily, and plunders orchards and gardens. It borrows an habitation in the earth, and lives upon grain, fruits, and pot-herbs, which it stores in magazines for its winter support.

6. THE POUCH.

THE same author, Rzaczynski, mentions another animal, called by the Russians *pouch*: it is larger than the domestic rat; its muzzle is long, it burrows, and commits depredations in the gardens, &c. There were such numbers near Suraz and Volhinia, that the inhabitants were obliged to abandon the culture of their gardens. This pouch is possibly the same as what Seba calls the *Norwegian rat*, of which he gives a figure and description.

7. THE PEROUASCA.

THERE is also in Russia and Poland, especially in Volhinia, an animal which the Russians call *perewiaska*, and *przewiaska* by the Polanders, a name we may translate the
girdled

girdled weasel. This animal is not so big as the pole-cat ; it is covered with a whitish hair, transversally striped with a yellowish red, which appears like so many girdles. It lives in the woods, and burrows in the earth ; its skin is sought after and makes a very beautiful fur.

8. THE SOUSLIK.

THERE is found at Casan, and in the provinces watered by the Wolga, and even in Austria, a small animal called *souslik* in the Russian language, which furnishes a beautiful fur. In figure and shortness of tail, it greatly resembles the short-tailed-field-mouse ; but what distinguishes it from the mouse or rat kind, is its coat, which is in every part sprinkled with small spots of a glossy and shining white ; these spots are exceedingly small, and placed at a little distance from each other ; they are more apparent upon the loins, than on the shoulders and head. Mr. Pennant, an English gentleman, thoroughly versed in Natural History, favoured

favoured me with one of these sousliks, which had been sent him from Austria, as an animal naturalists were not acquainted with. I soon recognised it to be the same as that of which I had a skin in my possession, and of which M. Sanchez had furnished me with the following account. “The rats called *sousliks*, are taken in great numbers in the salt vessels in the river *Kama*, which descends from Solikamski, where the salt pits are, and falls into the Wolga above the town of Casan. The Wolga from Simbuski to Somtof, is covered with these salt vessels, in which these animals are taken, as well as in the lands which border on those rivers. They have been named *souslik*, that is, dainty-mouthed, because they are very fond of salt.”

SUPPLEMENT.

WE have since learnt, that these animals generally live in the desert, and burrow in the sides of the mountains where the earth is blackish; that some of them make their holes seven or eight feet long, at the end of which

they form different apartments for storing up provisions for the winter, which consist of ears of corn, peas, lint, and hemp seeds : or if they be not cultivated lands, different kinds of herbs, all of which they keep separate in different parts of their holes, to which they have from two to five entrances, always winding, and the mouths of them sometimes seven feet asunder ; they also dig holes for their habitations separate from their magazines. Besides grain and herbs they feed upon young mice, but are unable to encounter the full-grown ones. The females have from two to five young ones at a time, which are first blind, and without hair ; nor do they begin to see till after the hair appears.

9. THE GOLDEN-COLOURED MOLE.

IT is said that there is in Siberia a mole, called the *golden-coloured mole*, and whose species may probably be different from the ordinary mole, because the Siberian has no tail, and a very short muzzle ; the hair is mixed with red and green, and of a gold shade ;
only

only three toes on the fore-feet, and four on those behind: whereas the common mole has five toes on each foot. We are ignorant of the proper name of this animal, of which Seba has given a figure.

10. THE WHITE WATER-RAT.

THE European Water Rat is found in Canada, but its colour is different; its back is brown, the rest of the body white, and in some few places yellow. The head, muzzle, and extremity of the tail, are white. The hair seems softer and more glossy than that of our water-rat: but they are perfectly alike in every other respect, and no doubt are of the same species. The whiteness of the hair is produced by the coldness of the climate: and, it is highly probable, that in the northern parts of Europe, there are white water rats as well as in Canada.

II. THE GUINEA-HOG.

THOUGH this animal differs from the common hog in some characters, nevertheless I presume it to be of the same species, and that these differences are only varieties produced by the influence of the climate. Of this we have an example in the Siam hog, which also differs from that of Europe, although it is certainly of the same species, since they intermix and produce together. The Guinea hog is nearly of the same figure as ours, and about the same size as the Siam hog, that is, smaller than the wild boar, or our domestic hog. It is a native of Guinea, and has been transported into Brazil, where it has multiplied as in its own native country. It is domestic and quite tame. Its hair is short, red, and glossy: it has no bristles, not even on the back; but the neck and the crupper near the tail, are covered with hair somewhat longer than the rest of the body. Its head is not so big as that of our hog, from which it also differs in the shape of its ears, which are very long, pointed, and turn backwards upon the neck. Its tail is
much

much longer, almost touching the ground, and without hair. This race of hogs, which, according to Marcgrave, originally belonged to Guinea, is also met with in Asia, and particularly in the island of Java, from whence they have been transported to the Cape of Good Hope by the Dutch.*

12. THE WILD BOAR OF CAPE VERD.

THERE is another hog, or wild boar, at Cape Verd, which, by the number of its teeth, and the enormous size of the tusks in the upper jaw, seems to be of a different race, if not of a different species from every other hog, and approaches nearer the babiroussa. These tusks resemble ivory horns more than teeth; they are half a foot long, and five inches round at the base, and bent nearly like the horns of a bull. This character alone would be insufficient however, to constitute a particular species; but what supports this presumption is, that he differs from every other hog

* The hogs, says Kolbe, which have been brought from Java to the Cape of Good Hope, have very short legs, are black, and without bristles; their belly which is very big, hangs almost on the ground. The flesh is very good to eat.

hog in the length of the aperture of his nostrils, the largeness and form of his jaws, and in the number and form of his grinders; nevertheless we have seen the tusks of a wild boar, taken in the forests of Burgundy, which somewhat approached those of the wild boar of Cape Verd. These tusks were about three inches and a half long, and four inches in circumference at the base; they were turned like the horns of a bull, that is, they had a double curvature, whereas the common tusks have only a single one. They likewise seemed to be as solid as ivory; and it is certain that this wild boar must have had the jaws larger than the common kind. Therefore we may presume that this wild boar of Cape Verd is a simple variety, a particular race in the wild boar species.

SUPPLEMENT.

WE have received an engraving of this animal from the celebrated M. Allamand, professor of Natural History at Leyden, and who has also written to M. Daubenton in the following terms:—"I conceive, Sir, that the animal represented

represented in the plate which I sent you, is the same as that which you have treated of under the name of the wild boar of Cape Verd. The one whence it was taken is now living (May 5, 1767) in the menagerie of the Prince of Orange. I frequently visit him, and always receive pleasure from admiring the singular form of his head. It was transmitted by the Governor of the Cape of Good Hope, to whom I have written, requesting him to send me another, but of which I have little hopes, since even at the Cape it was regarded as a monster; yet should I succeed, I will send it to France, that you and M. de Buffon may have an opportunity of examining it. We put a common sow to the one we have, for the purpose of trying whether they would copulate, but the instant she came near him he darted at her, and tore her to pieces." In another letter M. Al-
lamand remarks, that the most material difference between this and the common boar is in their heads, and in this boar's having two very singular protuberances in the form of ears at the side of each eye. The aversion shewn by this animal to the sow, as well as the differences, both external and internal, in the forms of their heads, tends to prove it a distinct species from our hog; yet as it approaches nearer
to

to that than to any other animal, and is found not only near Cape Verd but also in the neighbourhood of the Cape of Good Hope, we shall call it the African boar.

Vosmaër calls it the wild African boar, and very justly distinguishes it from the Guinea hog, the American pecari, and from the Indian babiroussa. This author, in his account, remarks, that, “ M. de Buffon, speaking of the wild boar of Cape Verd preserved in the royal cabinet, says that it had cutting teeth ; but no such teeth appear in the one I have. The animal came to me in a cage, but being informed he was not mischievous, I opened the door, and he came out, without shewing the least sign of rage ; he bustled about in search of food, and greedily devoured whatever was given him. I left him alone for a few moments, and on my return found him busily employed in digging up the floor, in which, although paved with small bricks, closely cemented, he had made a very large hole, and it was not without the assistance of several men that I could make him give over and return to his cage, for he made much resistance, and expressed his resentment by sharp and mournful cries. He appears to have been taken in the woods of Africa when he was very young, for he has grown considerably since

since he was brought here ; he is still alive, and was not much affected last winter, though the frost was very severe. He is far more agile than our hogs. He allows himself to be stroked, and appears fond of rough friction. When made angry he retires backwards, always facing his assailant, and shakes his head very forcibly. After having been confined for any length of time, on being let loose he is very sportive, leaps and pursues the deer, or other animals, and then carries his tail erect, which at other times is pendulous. He has a very strong odour, not disagreeable, yet I do not know any other smell with which it can be compared. He eats all sorts of grain ; while bringing him over they fed him with maize, and as much fresh herbage as they could procure ; but when he had tasted our barley and wheat he preferred them to other food, excepting roots dug out of the earth. He is so fond of rye-bread that he follows any person who holds him a piece of it. He sinks upon the knees of his fore legs when he eats or drinks, and in which position he often rests. He hears and smells very acutely, but from the smallness and situation of his eyes his sight is very limited ; they are placed very high, and near each other, and have two large ex-

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crescences underneath them, so that he cannot perceive the objects which are round him.

His figure is very like that of the common hog, but he appears less, from his back being more flat and his legs shorter; compared with them also, he appears very deformed. His muzzle is large, flat, and hard; the nose is moveable, bent towards the base, and terminates obliquely; the nostrils are large, and distant from each other; the upper lip is hard and thick, very prominent round the tusks, and hangs pendulous over the corners of the muzzle. He has no front teeth, but the gums are smooth and hard. The tusks of the upper jaw are crooked, five inches and a half in length, pointed at the ends, and an inch thick at the base; those of the under jaw are much smaller, and from a constant friction against the upper appear to be cut obliquely. He would not permit us to examine his grinders. His eyes are small, the iris of a deep brown, and the cornea white; the upper eyelids have a brown, stiff, close cilia, longest in the middle, but there are no cilia on the under. The ears are pretty large, rather round, covered on the inside with yellow hair, and bent backwards. Besides the protuberances under the eyes there are two more, one on each side of the head.

The

The skin appears to be thick ; and there are several tufts of hair dispersed over his body. The forehead is covered with brown and white hairs ; from thence is a narrow band of dark grey down to the beginning of the muzzle, where it divides and extends on each side of the head ; the bristles are the longest and closest on the neck and anterior part of the back, they are of a brownish grey, and some of them seven or eight inches long ; they are not thicker than those of the common hog, and split in the same manner ; they have so few on the other part of the back, that it has the appearance of being naked ; there are small white bristles on the flanks, breast, belly, and sides of the head and neck. Their feet are divided into two black pointed hoofs ; the tail is naked, and hangs perpendicularly. The head is of a blackish colour, and the back and belly of a reddish grey. The width and flatness of the nose, together with the length of the snout, the protuberances under the eyes, and the long tusks, give this animal a dreadful aspect. He is about four Rhenish feet in length."

Notwithstanding all these differences which M. Vosmaër has described, and the aversion which M. Allemand states it to have shewn to the common sow, I still have my doubts whether it

it be any thing more than a variety of the European hog ; for we know that this species varies greatly in Asia, Siam, and China ; and these doubts seem to be somewhat supported, by having found about thirty years since, an enormous head of a wild boar that had been killed in our own woods, the tusks of which were nearly as large as those of the Cape boar. To this may be added the information I received from M. Comerson, who says there are wild boars in Madagascar, whose heads are like the common kind from the ears to the eyes, but that under the eyes they have a protuberance, which decreasing gradually to the end of the snout, gives the animal the appearance of having two heads, the one being, as it were partly sunk in the other ; and this information also made me conclude that the animal I have mentioned under the appellation of the wild boar of Cape Verd is the same as what is found in Madagascar.

13. THE MEXICAN WOLF.

AS the wolf is a native of cold climates, he must have passed northerly into America, since he is met with in both continents. We have spoken of the black and grey wolf of North America. It appears that this species is dispersed as far as New Spain and Mexico; and that in this warm climate it has undergone many varieties, without having changed either its disposition or nature, for the Mexican wolf has the same figure, appetites, and habitudes, as the European or North American wolf, and they all seem to be of the same species. The wolf of Mexico, or rather of New Spain, where he is much oftener found than in Mexico, has five toes on his fore-feet, and four on those behind. The ears are long and strait, and the eyes sparkling, like our wolves; but the head is larger, the neck thicker, and the tail not so bushy. Above the mouth there are some thick bristles, as large, but not so stiff as those of the hedge-hog. The body is covered with greyish hair,

hair, marked with some yellow spots. The head is of the same colour as the body, crossed with brown stripes, and the forehead adorned with sallow-coloured spots. The ears are grey, like the head and body. There is a long yellow spot on the neck, a second on the breast, and a third on the belly. The flank is marked with transverse bands from the back to the belly. The tail is grey with a yellow spot in the middle. The legs are striped from top to bottom with grey and brown. This wolf is the most beautiful of the kind, and its fur ought to be valued for its variety of colours.* But in other respects there is not the least indication of its being a different species from the common wolves, which vary in colour from grey to white, and from white to black, without changing the species; and we see, by the testimony of Fernandes, that these wolves of New Spain vary like the European wolf, since even in that country they are not all marked agreeable to the above description, some being found of an uniform colour, and even all white.

* It might have been suspected, from its variety of colours, that this Mexican wolf is a lynx, which species, as well as the wolf, is found in both continents. But it is sufficient to cast one's eyes on the figure which Recchi has given, to discover that it resembles totally the wolf and not at all the lynx.

14. THE ALCO.

We have already observed that there were in Peru and Mexico, before the arrival of the Europeans, domestic animals called *alco*, which were of the same size, and nearly of the same disposition, as our small dogs; and which the Spaniards called *Mexican* or *Peruvian dogs*, from this similitude, and from their having the same attachment and fidelity to their masters. In fact, the species of these animals does not seem to be essentially different from that of the dog; and besides, the term *alco* may probably be a generic and not a specific term. Recchi has left us the figure of one of these *alcos*, which is called *ytzcuinte porzotli* in the Mexican tongue; it was prodigiously fat, and probably degenerated from its domestic state and too great an abundance of food. The head is represented so small, that it has not any proportion to the size of the body; its ears are hanging, which is another mark of domesticity. The muzzle resembles that of a dog; the fore-part of the head is white, and the ears are partly yellow. The neck

is

is so short as to leave no interval between the head and shoulders. The back is curved and covered with yellow hair. The tail is white, short and pendulous, but does not descend lower than the thighs. The belly is large, tense, and marked with black spots ; it has six very apparent tits. The legs and feet are white, and the toes, like those of a dog, are armed with long and pointed claws. Fabri, who has given this description, concludes, after a very long dissertation, that this animal is the same as that called *alco*, and I think his assertion well founded ; but we must not look upon it as conclusive, for there is still another race of dogs in America, to which it applies equally as well. “ Besides the dogs, says Fernandes, which the Spaniards have transported into America, we met with three other species, which resemble ours both in their natures and manners, and which do not essentially differ in figure. The first and the largest of these American dogs is called *xoloiztquintli*. This is frequently three cubits long, and what is particularly remarkable, he is entirely without hair, and only covered with a soft, close skin, marked with yellow and blue spots. The second is cloathed with hair, and in size resembles our little Maltese dogs. He is marked with

with white, black, and yellow. His deformity is singular but not disagreeable. His back is arched, and his neck so exceedingly short, that the head seems to shoot immediately out of the shoulders; in his own country he is called *michuacanens*, from the name of his country. The third, which also resembles our little dogs, is called *techichi*, but his look is dull and savage. The Americans eat his flesh."

From comparing the testimonies of Fabri and Fernandes, it is clear that the second dog the last author calls *michuacanens*, is the same as the *ytzcuinte portzotli*, and that this species of animal existed in America before the arrival of the Europeans; and it must have been the same with the *techichi*. I am therefore persuaded that this word *alco* was a generic name, which equally applied to both, and perhaps to more races or varieties which still remain unknown to us. But with respect to the first, Fernandes seems to be deceived both with regard to the name and subject. No author has spoken of any naked dogs in New Spain. This race, commonly called *Turkish dogs*, comes from the Indies, and other warm climates of the Old Continent; and it is probable that those which Fernandes saw in America, were transported thither, especially as he expressly mentions that

he had seen this species in Spain, before his departure for America. What further proves it to be so is, that this animal had no American name, and Fernandes, in order to give it one, borrowed that of *xoloitzcuintli*, which is the name of the Mexican wolf. Thus of three species or varieties of American dogs, there only remain two, which are indiscriminately called by the name of *alco* ; for independently of the fat *alco*, which served as a lap dog for the Peruvian ladies, there was a lean and melancholy *alco*, used for the purpose of hunting, and it is not impossible that these animals, though very different to all appearance from that of our dogs, nevertheless spring from the same stock. The Lapland, Siberian, and Iceland dogs, may, like the wolves and foxes, have passed from one continent to the other, and afterwards degenerated by the influence of climate and a domestic state. The first *alco*, with a short neck, approaches the Iceland dog ; and the *techichi* of New Spain, is probably the same animal as the *koupara*, or crab dog of Guinea, which resembles the fox in its shape and the jackal in its hair. He is denominated the crab-dog, because he principally feeds upon crabs and other crustaceous animals. I have only seen a skin of one of these Guiana animals, and I am unable to decide

decide whether it be a particular species, or whether it be related to those of the dog, fox, or jackal.

15. THE TAYRA ; OR GALERA.

THIS animal, of which Mr. Brown has given a figure and description, is about the size of a small rabbit, and greatly resembles the weasel or marten. He burrows in the earth, and his fore-feet are very strong, but considerably shorter than those behind. His muzzle is long, a little pointed, and adorned with whiskers ; the under jaw is much shorter than the upper. He has six incisive and two canine teeth in each jaw, without reckoning the grinders. His tongue is rough, like that of a cat. His head is oblong, as are also the eyes, which are at an equal distance from the ears and the extremity of the muzzle. His ears are flat, and resemble those of a man. His feet are strong and made for digging ; the metatarsus is elongated, and he has five toes on each foot. His
tail

tail is long and decreases gradually to a point. His body is oblong, and greatly resembles that of a large rat. He is covered with brown hairs, some of which are pretty long, and others much shorter. This animal appears to be a small species of marten or pole-cat. Linnæus, with some probability, supposed, that the black weasel of Brazil, might be the galera of Mr. Brown, and in fact, the two descriptions sufficiently agree to give us reason to presume it. This black weasel of Brazil is also found in Guiana, where it is called *tayra*, and it is supposed that the word galera is a corruption derived from *tayra*, the true name of this animal.

16. THE PHILANDER OF SURINAM.

THIS animal belongs to the same climate, and is of a similar species to the other opossums. Sibillas Merian, is the first who gave a figure and description of it. Seba considered that of Merian's to be the female, and gave another figure for that of the male, with a kind of description; this animal, he says, has very sparkling eyes, surrounded

rounded with a circle of brown hair. The body is covered with a soft hair, or rather a kind of wool of a reddish yellow colour, which is mostly red on the back, and of a yellowish white on the snout, forehead, belly, and feet: the ears are naked and pretty hard. There are long hairs in form of whiskers on the upper jaw and above the eyes; its teeth are pointed and very sharp. Upon the tail of the male, which is naked, and of a pale red, there are dark red spots, which are not seen on the tail of the female. The feet resemble the hands of the ape; the fore-feet having four fingers and a thumb with short and obtuse nails, while only the thumb, or great toe, of the hind-feet is flat and obtuse, the rest being armed with small sharp claws. The young of these animals grunt somewhat like pigs. The teats of the female resemble those of the murine opossum. Seba justly observes, that in the figure given by Marian, the feet and toes are badly represented. The females produce five or six at a time. The tail is very long and prehensile, like that of the sapajous. The young ones get on the back of their mother, and fix themselves securely by twisting their tail round her's. In this situation, which is familiar to them, they carry them with much swiftness and safety.

17. THE AKOUCHI.

THE Akouchi is common in Guiana, and other parts of South America. It differs from the agouti by having a tail, which the latter has not. The akouchi is generally smaller than the agouti, and its hair is not red, but of an olive colour. These are the only differences we are acquainted with between these two animals, which, however, seem sufficient to constitute two distinct and separate species.

SUPPLEMENT.

BESIDES our former remark that the akouchi was a different species from the agouti from having a tail, the difference in size may also be added, in support of this opinion, as the former does not exceed the size of a young rabbit.

rabbit. The akouchi confines itself solely to large forests ; he feeds upon fruits, and has the same natural habits as the agouti. He is called by the name of agouti in the islands of Grenada and St. Lucia. His flesh is very white, of a good flavour, and he is reckoned among the choicest game of South America ; when pursued they will suffer the dogs to take them rather than attempt their escape by taking to the water. According to M. de la Borde they have but one or two young at a time, but this I doubt. They are very easily tamed, and sometimes, though very seldom, make a cry somewhat like a Guinea pig.

I have been assured by Messrs. Aublet and Oliver, that in Cayenne the hare is called agouti, and the rabbit akouchi, and that the former is the best food ; and they farther add, that the flesh of the armadillos, except the nine-banded is still better ; that the paca is esteemed the best game next to the armadillo, and after them are ranked the agouti and akouchi ; and these gentlemen also assert, that the inhabitants of this country eat the red cougar, and that its flesh nearly resembles veal.

18. THE TUCAN.

FERNANDES gives the name of *Tucan* to an animal of New Spain, whose natural habits approach nearer to that of the mole than to any other animal. It appears to me to be the same animal as that described by Seba, by the name of the American red mole; at least the descriptions given by these two authors agree sufficiently to admit such a presumption. The tucan is perhaps a little larger than our mole; like that it is flat and fleshy, and has such short legs, that its belly touches the ground. The tail is short, its ears small and round; and its eyes so very small, that they are, in a manner of speaking, useless. But it differs from the mole in the colour of its hair, which is of a reddish yellow; and by the number of toes, having only three to the fore-feet, and four to those behind, whereas the mole has five toes on each foot. It seems still farther to differ from the mole by its flesh being good to eat; and in not
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having the same instinct of recovering its retreat when it is once come out, but each time is obliged to burrow a fresh hole: so that in certain soils, which agree with these animals, the holes made by them are so very numerous, and so near each other, that great precaution is necessary to walk in safety.

19. THE FIELD-MOUSE OF BRASIL.

WE call this animal by this name because we are ignorant of the real one it bears in its native land, and because it resembles more the field-mouse than any other animal. It is, however, considerably larger, being about five inches long, from the extremity of the muzzle to the insertion of the tail, which is only two inches, and, consequently, much shorter in proportion than that of the common field-mouse. Its muzzle is pointed, and its teeth very sharp. There are three very broad black stripes on a ground of brown hair, which extend longitudinally from the head to the tail, below which the scrotum appears hanging be-

tween the hind legs. This animal, says Marcgrave, plays with the cats, who never appear inclined to eat them ; and this is another thing which it has in common with the European field-mice, which the cats will kill, but they never eat them.

20. THE APEREA.

THIS animal, which is found in Brasil, is neither a rabbit nor rat, yet seems to partake of both. It is about a foot long by seven inches in circumference. It is of the same colour as our hares, but white upon the belly. It has also, like that animal, a slit lip, large incisive teeth, and whiskers about the mouth and sides of the eyes ; but its ears are rounded like those of a rat, and very short : the fore-legs are not more than three inches long, those behind are a little longer. The fore-feet have four toes covered with a black skin, and furnished with small short claws : the hind feet have only three toes, the middlemost of which is longer than the other two. The aperea has no tail ; its head is a little longer than that of the hare, and

and its flesh is like that of a rabbit, which it resembles in its manner of living. It conceals itself also in holes, yet it does not burrow like the rabbit, but retires into the cavities of rocks, where it is very easily taken. The animal spoken of by Oviedo, and after him Charlevoix and Montfrasier, by the name of *cori*, appears to be the same as the *apereas*. In some part of the West Indies these animals may be reared in houses or warrens, as we do rabbits, and which may be the reason why some are red, white, black, and others of different colours. This conjecture is not without foundation, for Garcilasso expressly says, that there are wild and domestic rabbits at Peru which have no resemblance to those of Spain.

21. THE TAPETI.

THE Tapeti seems to be very similar to, and, perhaps, a variety of that of the rabbit or hare. It is found at Brasil, and other parts of America. It resembles the European rabbit in figure, and the hare by its size and colour, being only somewhat browner. Its ears are very long, and of the same shape as those of
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the hare. Its hair is red on the forehead, and whitish on the throat; some have a circle of white hair round the neck; others are all white on the throat, breast, and belly. They have black eyes, and whiskers like the rabbit, but they have no tail. The tapeti resembles the hare in its manner of living, fecundity, and quality of its flesh, which is excellent food. It lives in the fields, or woods, like the hare, and does not burrow like the rabbit. The animal of New Spain, mentioned by Fernandes by the name of *citli*, seems to be the same as the *tapeti* of Brasil; and possibly both are only varieties of our European hares, which have passed by the north from one continent to the other.

THERE are still some animals which might be added to those in our preceding account, but they are so badly indicated as to be very uncertain; and I rather chose to confine myself to what is known with some degree of certainty, than deliver myself up to conjectures, and treat of fabulous for *existing beings*. Notwithstanding this limitation it will easily be perceived, that our HISTORY OF QUADRUPEDS

DRUPEDS is as complete as could be expected. It comprehends a great number of animals not observed or described before, and not any of those which were before known, have we omitted to take notice of in the course of this work.

The preceding account, though composed of twenty one-articles, yet really contains only nine or ten distinct species, for all the rest are only varieties. The white bear is only a variety of the common kind; the Tartary cow of the bison; the Guinea and Cape Verd hogs of the common hog, &c. therefore, by adding these ten species to about one hundred and eighty before spoken of, the whole number of quadrupeds, whose existence is certain and well ascertained, does not amount to more than two hundred species on the surface of the known world.

SUPPLEMENT TO THE QUADRUPEDS.

THE CRAB-EATER.

THIS animal has been called Crab-eater, or Crab-dog, from his principally living upon crabs. Some travellers have compared him to
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the dog and the fox, but he has much more affinity to the opossums, than whom, however, he is much larger, and the female does not carry her young in a pouch under her belly; therefore the crab-eater appears to be a different species, from any animal heretofore described.

There is a skin of one of these animals preserved in the royal cabinet, which when transmitted to us was very young; it was a male, and measured from the nose to the origin of the tail seventeen inches; the tail rather more than fifteen inches and a half, and which was of a greyish colour, scaly, and naked, gradually tapering to the point. He was about six inches and a half high. He was very short, and at a distance much resembled a terrier, his head being considerably like that of a dog. His eyes were small, the edges of the eye-brows black, and above the eyes there are hairs more than an inch long: he has similar hairs near his ears, and his whiskers were an inch and a half long, and black. He had a large crooked canine tooth on each side the upper jaw, which reached below the under. His ears were brown, naked, and round at the ends. His hair on the body woolly, of a dirty white at the bottom, and dark brown at the ends, which is intermixed with long coarse black hairs; the

the latter increase in length upon the thighs and spine of the back, upon the last of which they are so long as to form a kind of mane from the middle of it to the tail. On the sides and belly the hair is of a yellowish white, inclining more to yellow on the shoulders, thighs, neck, breast and head, mixed in some places with brown; and the legs and feet of a blackish brown. There are five toes on each foot; they are a little bent like those of a rat, the thumb alone being straight; the latter on the hind feet is broad, thick, and at a distance from the toes, as in apes, but on the fore-feet it is not separate from them; and the thumb-nails are flat, while those on the other toes are crooked, and extend beyond the points.

I have been assured by M. de la Borde that these animals are very common in the marshy places at Cayenne, and of whom he speaks in the following terms: "These animals are very dexterous in climbing trees, upon which they remain much longer than upon the ground, especially in day-time. They have very fine teeth, and defend themselves from the dogs. Their principal food is crabs, and yet they are always fat. If they cannot get the crabs out of the holes with their feet, they then make use of their tails, as a kind of hook; but
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the crabs sometimes lay hold of it, and make the animal cry out; his cry resembles that of a man, and is heard at a great distance, tho' its common voice is like the grunting of a pig. The females bring forth in the hollows of old trees, and generally have four or five young at a time. The natives of the country eat their flesh, which is not unlike that of the hare. They are easily tamed, and then are fed in the houses like dogs and cats, with any kind of victuals; from which it is certain that their taste for crabs is not exclusive."

There is said to be another species of crab-eater in Cayenne, which differs from that we have described in the shape and proportions of its body, in the structure of its feet and claws, and in its tail being entirely covered with hair; and which besides seizes the crabs with its paws only.

ANONYMOUS ANIMAL.

THIS animal, which we shall call *anonymous*, until its real name shall become known, has some similarities to the hare, and
others

others to the squirrel. We had the following account of it from Mr. Bruce: "On the south side of the lake anciently called *Palus Tritonides*, in Lybia, there is a very singular animal; it is from nine to ten inches in length; its ears are nearly half as long as its body, and proportionally broad, which is the case with no other quadruped, except the long-eared bat. Its muzzle resembles that of the fox, and yet it seems to approach nearer to the squirrel. It lives on the palm-trees, and feeds upon their fruit. It has short claws, and is a beautiful animal. Its colour is white, intermixed with a little grey and a bright yellow. Only the middle of the inside of the ears is naked, the other parts being garnished with large white hairs, and are covered with brown hair intermixed with yellow. The tip of the nose is black; the tail yellow, and black at the end; the tail is pretty long, but differently formed from that of the squirrel; and all its hair, as well on the body as the tail, is very soft.

MADAGASCAR RAT.

WE have seen a figure of a small animal from Madagascar, which was taken from one alive in the possession of the Countess of Marsan. To me it seemed to approach nearer the species of the palm-squirrel than that of the rat; I was assured that it frequented the palm-trees; but I have not been able to procure further information concerning this animal. From its claws not projecting we may infer that it constitutes a species different from that of the rat, and approaches nearer to that of the palm-squirrel. The Dutch voyagers mention rats on the south-west coast of Madagascar, which they say live in the palm-trees, and eat the dates, and describe them to have long bodies, sharp muzzles, short legs, and long spotted tails; which characters so perfectly agree with those in the animal which we are now speaking of, that we are induced to consider them as the same species.

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The one which the Countess of Marsan had, lived several years; it was extremely brisk in its movements, and its cry was nearly similar to that of the squirrel, but weaker. Its manners were also like the squirrel, for it carried its food to its mouth with its fore-paws, and erected its tail; but it could never be tamed; it would bite desperately: it was fed with fruits and almonds; it only came out of its cage at night, and it felt no inconvenience from our winters, being kept in a chamber with a small fire.

OF THE DEGENERATION OF ANIMALS.

WHEN man began to disperse himself from climate to climate, his nature underwent several alterations; in the temperate countries, which we suppose to be near where he was originally produced, these alterations were but slight; but they increased in proportion as the distance was greater; and after many centuries had passed away, after continents had been traversed,

traversed, and generations degenerated by the influence of different climates, he ventured to the extremes, and habituating himself to the scorching heats of the south, and the frozen regions of the north, the changes have become so great, that there is room to imagine the Negro, the Laplander, and the White, different species; were it not certain that there was but one man originally created, and, that the White, the Laplander, and the Negro, can unite and propagate the great family of the human kind. Thus their colours are not original, their dissimilitude being only external and superficial. It is the same being which is tintured with black under the torrid zone, and rendered tawny, with contracted limbs, by the rigour of the cold under the polar circle. This fact is alone sufficient to demonstrate that there is more strength, extent, and flexibility, in man than in any other being; for vegetables, and almost every animal, are confined to particular soils and climates. This extension of our nature depends less on the properties of our bodies than those of our minds. By the last, man has been enabled to seek those things which are necessary for the delicacy of the body; by that he has found out the means of bearing the inclemencies

inclemencies of the weather, and of conquering the barrenness of the earth. He may be said to have subdued the elements : by a single ray of his intellect he produced the element of fire, which before did not exist on the surface of the earth : he has cloathed, sheltered, and lodged himself, thus providing against every external attack : he has compensated by his reason for every deficiency ; and although not so strong, so large, nor so robust, as many animals, yet he has found means to conquer, subdue, enslave, and deprive them of those spaces which Nature seems to have resigned for their use.

The earth is divided into two great continents : and though this division is more ancient than all human structures and monuments, yet man is still older, for he is found the same in both. The Asiatic, the European, and the Negro, propagate alike with the American. Nothing proves more strongly that they have issued from one source than the facility with which they re-unite with the common stock. The blood is different, but the germ is the same. The skin, the hair, the features, and the size, have varied, but the internal form has not changed. The type is general and common, and if it should ever
happen,

happen, by some revolution not to be foreseen, but within the possibility of things, that man should be obliged to forsake those climates which he has possessed himself of, and return to his native country, he would in time resume his original features, his primitive size, and his natural colour. But the mixture of races would produce the same effect in a much shorter time. The conjunction of a white male with a black female, or a black male with a white female, equally produce a mulatto, whose colour is brown, that is, a mixture of black and white. The mulatto intermixing with a white, produces a second mulatto not so brown as the former; and if this second mulatto unites with a white, the third mulatto will have no more than a slight tincture of the brown, which will entirely disappear in succeeding generations. Thus, by this mixture with a white, one hundred and fifty, or two hundred years is sufficient to bleach the skin of the Negro; but it would, perhaps, require many centuries to produce this effect by the influence of climate alone. Since the Negroes were transported to America, which is about two hundred years, not the smallest shade of difference is perceivable in the colour of those families which have preserved themselves from mixture.

mixture. It is true the climate of South America being hot enough to give the natives a brown tint, we ought not to be astonished that the Negroes retain their colour in that part of the world. Indeed, to make a proper experiment of the change of colour in the human species, some individuals of this black race should be transported from Senegal to Denmark, where the people have generally fair skins, golden locks, and blue eyes; and where the difference of blood, and opposition of colour, are the greatest. We must keep these Negroes with their females apart from the inhabitants, and scrupulously prevent all crossing of their breed. This is the only method of learning how much time it would require to change a Negro into a White, or a White into a Black, by the influence of climate.

This is the greatest alteration that the atmosphere has made on man, and yet this is only superficial. The colour of the skin, hair, and eyes, varies solely according to the influence of climate. The other changes, such as that of size, features, and the quality of the hair, do not seem to depend on this cause alone, for among the Negro race, the greatest part of whom have frizzled wool on their heads, a flat nose, and thick lips, we meet with whole
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nations with long and real hair, and regular features. Again, if we compare, among the white race, the Dane with the Calmuck Tartar, or only the Finlander with the Laplander, who are so near each other, we shall find as much difference between them, with respect to size and features, as there is among the Negroes; consequently we must subjoin some other cause to that of the climate to account for these alterations, which are stronger than the former. The most general and direct cause is the quality of the food, for it is principally through the aliments that man receives the influence of the soil which he inhabits, the air and atmosphere acting more superficially. While the latter alter the external surface by changing the colour of the skin, food acts upon the internal form by its properties, which are constantly relative to those of the earth by which it is produced. Even in the same country we find strong differences between men who occupy the high lands, and those who live in the low. The inhabitants of the mountains are always better made, more spirited, and handsomer than those of the valley: therefore, in countries far distant from the original climates, where herbage, fruit, grain, and the flesh of animals, differ both in quality and substance,

substance, the men who feed on them must undergo greater changes. These impressions are not suddenly made. Time is required for man to receive the tincture of the atmosphere, and still more for the earth to transmit its qualities to him. Ages, joined to a constant use of the same nutriment, is necessary to influence the form of the features, the size of the body, the substance of the hair, and to produce those internal alterations which, being afterwards perpetuated by generation, have become the general and constant characters, by which the races, and even the different nations, which compose the human race, are distinguished.

In brute animals these effects are quicker and greater; for, partaking more of the nature of the soil than man, and their food being more uniform and unprepared, the quality is more decisive, and, consequently, its influence stronger; and because as the animals cannot clothe nor shelter themselves, nor make use of the element of fire, they remain constantly exposed to the impressions of the air, and inclemencies of the climate. For this reason every animal has chosen its zone and country according to its nature; for the same reason they remain there, and instead of extending or dispersing themselves, like the human race,

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they generally continue in those places which are most agreeable to their constitutions. When driven by man, or carried away, or forced by any revolution of the globe to forsake their native country, their nature undergoes such great and strong alterations, that they are no longer to be known, except by attentive inspection, experiment, and analogy. If to these natural causes of alteration in free animals we add that of the empire of man over those which he has reduced to slavery, we shall be surprised to see how far tyranny is able to degrade and disfigure Nature; we shall perceive on all the animals which are reduced to slavery, the stigmas of their captivity, and the impressions of their fetters; we shall find that those wounds are deeper, and more incurable, in proportion to their antiquity; and that in the state wherein we have reduced domestic animals it would perhaps be impossible to reinstate them in their primitive form, and to restore to them those other natural attributes of which we have deprived them.

Thus, the temperature of the climate, the quality of the food, and the evils arising from slavery, are the three causes of the changes and degeneration of animals. The effects of each deserve to be particularly considered,
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and their relations, when viewed in detail, will present a picture, in the foreground of which we shall see Nature such as she is at present, and in the distant perspective what she was before her degradation.

Let us compare our sheep with the muflon, from whom they spring. This last, large and swift as a stag, armed with defensive horns and hoofs, and covered with a rough hair, dreads neither the inclemency of the sky, nor the voracity of the wolf. He not only escapes his enemies by his swiftness, but can even stand against them by the strength of his body, and the solidity of the weapons with which his head and feet are furnished. What a difference from our sheep, who scarcely have any power to subsist in flocks, and who cannot defend themselves even by numbers ; who are unable to withstand the rigors of our winters without shelter, and who would all perish if it were not for the care and protection of man? In the hottest climates of Africa and Asia, the muflon, who is the common father of all the races of sheep, seems to have suffered less degeneration than in any other country ; for, though reduced to a domestic state, he has preserved his stature and his hair, and has only suffered a loss in the size of his weapons. The sheep of Senegal and India are
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the largest of all domestic sheep, and those whose nature has experienced the least degradation. The sheep of Barbary, Egypt, Arabia, Persia, Armenia, &c. have undergone greater changes; they are, relatively speaking, with regard to the human species, improved in some respects, and vitiated in others; but improvement and degeneration are the same thing with regard to Nature, as they both imply an alteration from the original formation. Their coarse hair is changed into fine wool; their tail, loaded with a lump of fat, has become so large and inconvenient a bulk, that the animal drags it along with pain and difficulty; and while thus charged with superfluous matter, and adorned with a beautiful fleece, their strength, agility, and weapons are diminished; for these broad and long-tailed sheep are scarcely half the size of the muflon; they cannot fly from danger, nor make resistance against an enemy; and are in continual need of the care and assistance of man to preserve and multiply their species. The degeneration of the original species is still greater in our climates. Of all the qualities belonging to the muflon, our ewes and rams retain nothing but a small portion of vivacity, and even that yields to the voice of the shepherd. Timidity, weakness, resignation, and stupidity, are the only sorrowful remains of their degraded nature.

nature. If we would restore their strength and size, our Flanders sheep should be united with the muflon, and be no longer suffered to propagate with the inferior species ; and if we would devote this species to the more useful purposes of affording good meat and fine wool, we must imitate some of our neighbours in propagating the Barbary race of sheep, which, being transported into Spain and England, has been attended with such great success. Strength and magnitude are the masculine attributes ; plumpness and beauty of the skin are feminine qualities. If we would have fine wool, therefore, our rams should be supplied with Barbary ewes : and if the restoration of size be the object, the muflon should be given to our sheep.

The same effect might be produced in our goats. We might change the nature of their hair, and render it as useful as the finest wool, by intermixing them with the goats of Angora. The goat species, although greatly degenerated, is less so in our climate, than that of the sheep ; and in the warm countries of Africa and India, it appears to be still more degenerated. The smallest and weakest goats, are those of Guinea, Juda, &c. and yet in those countries we find the largest and strongest sheep.

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The species of the ox, of all domestic animals, seems to be that on which its food acts with the greatest influence. It attains a prodigious size in those countries where the pasture is rich and nourishing. The ancients called the oxen of Ethiopia and some provinces of Asia by the name of *bull-elephants*, because in those countries they nearly approached the size of the elephant. The great plenty of herbage, and its succulent quality, produced this effect, proofs of which we have in our own climate. An ox fed on the tops of the verdant mountains of Savoy or Switzerland acquires twice the bulk of our oxen ; though the oxen of Switzerland, like ours, are shut up in the stable during the greatest part of the year. The difference arises from their being admitted to free pasture as soon as the snow is melted ; whereas in our provinces they are not permitted to enter the meadows till after the crop of grass reserved for the horses is carried off ; they are, therefore, neither amply fed nor properly nourished, and it would prove extremely useful to the nation in general, if a regulation were made to abolish these useless pastures, and to encourage enclosures. Climate also has great influence on the nature of the ox. In the northern parts of both continents, it is covered with a long soft hair resembling

sembling wool ; and on its shoulders is a large hunch, which deformity is found in all the oxen of Asia, Africa, and America. Those of Europe alone have no hunch. The last, are the primitive race to which the hunched race ascend by intermixture in the first or second generation. What still further proves this hunched race to be only a variety of the first, is its being subject to great degradations. There is an uncommon difference in their size. The little zebu of Arabia is not more than a tenth part the size of the bull-elephant.

In general, the influence of food is greater, and produces more sensible effects on those animals which feed on herbage and fruits. Those that live only upon flesh, vary less from that cause than from the influence of climate ; because flesh is an aliment, already assimilated to the nature of the carnivorous animal that devours it ; whereas grass being the first product of the earth, possesses all its properties, and immediately transmits the terrestrial qualities to the animal.

Thus the dog on which food seems to have but slight influence, is, of all carnivorous animals, the most various species ; it seems to follow exactly the difference of climate
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in its degradation ; it is naked in the warmest climates ; cloathed with a thick and coarse hair in the northern regions, and adorned with a beautiful silken coat in Spain and Syria, where the mildness of the air changes the hair of most animals into a sort of silk. But independently of these external varieties, which are produced by the influence of climate alone, the dog is subjected to other alterations which proceed from its condition, its captivity, or its state of society with respect to man.

The augmentation, or diminution, of its size, is caused by the care taken to unite the great with the small individuals. The shortness of the ears and tail proceeds also from the hand of man. Dogs which have had their tails and ears cut for a few generations transmit those defects wholly, or partly, to their descendants. I have seen dogs whelped without tails, which I at first took for individual monsters ; but I am since assured that this breed exists, and is perpetuated by generation. The long and hanging ear, which is the most general and certain mark of domestic slavery, is it not common to almost every dog ? Among thirty different races of which the species is at present composed, only two or three have preserved their primitive ears ; the shepherd's dog, the wolf-dog,

dog, and the dog of the north, alone have erect ears. The voice of these animals has also undergone strange alterations. The dog seems to owe its vociferous nature to man, who, of all beings, uses his tongue the most. In a state of nature the dog is almost dumb, and seldom even howls, except when pressed with hunger; it acquired the faculty of barking by intercourse with men in polished societies, for when transported to extreme climates, where the people are uncultivated, as the Laplanders, or Negroes, he ceases to bark, assumes his natural howling, and often becomes absolutely dumb. Dogs with erect ears, particularly the shepherd's dog, which is the least degenerated, is also that which makes the least use of his voice, passing a life of solitude in the country, and having no intercourse but with sheep and a few simple peasants, he is, like them, of a serious and silent disposition, though at the same time very active and sagacious: of all dogs this has the fewest acquired qualities, and the most natural talents; it is also the most useful to preserve good order, and to protect the sheep; and it would prove more advantageous to increase this breed than to extend that of other dogs, who are of no other service but for our

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amusement, and whose numbers are so great, that there is not a town or village where a number of families might not be fed with the aliments consumed by these animals.

The domestic state has greatly contributed to vary the colour of animals, which was originally, in all, either brown or black. The dog, the ox, the goat, the sheep, and the horse, have imbibed all kinds of colours. The hog has changed from black to white; and pure white, without any spot, seems to mark the last degree of degeneration, and which is commonly accompanied with imperfections or essential defects. In the race of white men, those who are remarkably so, and whose hair beard, and eye-brows, are white, are often deaf, and also have red and weak eyes. In the black race, the fairest negroes are of a nature still more weak and defective. All those animals which are absolutely white have the defects of being hard of hearing and having red eyes. This kind of degeneration, though more common in domestic animals, is sometimes seen in the wild species; as in the elephant, stag, fallow-deer, monkies, moles, and mice, in all of which this colour is always accompanied with either a greater or a less weakness of body and dulness of sensation.

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But of all animals the camel seems to have the greatest and deepest impressions of slavery made upon him. He comes into the world with prominences on his back, and callosities on the breast and knees; these callosities are formed by the continual friction on those parts, as is plain from their being filled with pus and corrupted blood. As he never travels without being heavily loaded, the pressure of the burden has prevented the free extension and uniform growth of the muscular parts of the back, and produced a swelling in the surrounding flesh; the camel likewise being constrained at first to rest or sleep in a kneeling posture, in time it becomes habitual; and from supporting the whole weight of his body, for several hours in the day, on his breast and knees, the skin of those parts is rubbed off by pressing against the earth, and by degrees they become hard and callous. The lama, which passes his life, like the camel, under the pressure of heavy burdens, and likewise rests on his breast and knees, has similar callosities, which are perpetuated by generation. The baboons and monkeys, which, whether sleeping or waking, are generally in a sitting posture, have also callosities on their posteriors. This callous skin is even adherent to the bones, against which

which it is continually pressed by the weight of the body. But the callosities of the baboons and monkeys are of a dry and healing nature, as they do not proceed from the oppression of any superabundant weight, but, on the contrary, are only the effects of natural habits, for these animals remain longer in a sitting than in any other posture. The callosities of the monkey are like the double skin on the sole of a man's foot. This is a natural callosity, which our habit of walking or standing renders thicker and harder, according to the greater or lesser degree of friction we effect by exercise.

Wild animals not being immediately subject to the empire of man, are not liable to such great alterations as the domestic kinds. Their nature seems to vary according to different climates, though they are no where degraded. If they were at liberty to chuse their climate and food these alterations would be still less ; but as they have at all times been hunted and exiled by man, or even by those quadrupeds which have greater strength, and are more ferocious, the greatest part of them have been obliged to quit their native country, and to live in climates less favourable to their constitutions. Those which had sufficient flexibility
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of nature to accommodate themselves to their new situation have dispersed to great distances, whereas others have no resource but to confine themselves within the neighbouring desarts of their native country. There is no species of animal, except man, universally spread over the face of the terrestrial globe. Some, and indeed great numbers, are confined to the southern parts of the Old Continent, and others to the southern parts of the new ; while others, though fewer in number, are confined to the cold regions of the north ; and, instead of extending themselves towards the south, they have passed from one continent to the other by roads which have hitherto remained unknown to us. There are other species which inhabit particular mountains or valleys, and the alterations of their nature are so much the less apparent the more they are confined to a small-space.

Climate and food having little influence on wild animals, and the empire of man still less, their principal varieties proceed from another cause. They are relative to the combination of their number in individuals, as well in those which produce as in those which are produced. In those species, like that of the roe-buck, where the male attaches himself to
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one female, and never changes, the young ones demonstrate the fidelity of their parents by their entire resemblance to them. In those species, on the contrary, where the females often change the male, as in the stag, for instance, there are a number of varieties ; and as there is not in nature a single individual which perfectly resembles another, the number of varieties in animals is in proportion to the greater or less frequency of their produce. In species where the female produces five or six young ones, three or four times a year, the number of varieties must necessarily be greater than in those where the produce is annual, and a single one. The inferior species, therefore, which produce oftener, and in greater numbers than the larger, are subject to more varieties. Size of body, which seems only to be a relative quality, nevertheless possesses positive attributes in the laws of Nature. The large species is as fixed as the small is changeable. We shall be convinced of this fact by enumerating the varieties which take place in the large and small animals.

In Guinea the wild boar has very long ears, turned backwards. In China he has a large pendant belly, and very short legs. At Cape Verd, and in other places, his tusks are very
large

large and crooked like the horns of an ox. In a domestic state, and in cold and temperate climates, his ears are somewhat pendent, and his bristles are white. I do not place the peccari, nor the babiroussa, among the varieties of the wild boar, because neither belong to that species, although they approach very near to it.

We find that the stag, in dry, hot, and mountainous countries, such as Corsica and Sardinia, has lost above half his original size; his hair has become brown, and his horns blackish. In cold and wet countries, as in Bohemia, and at the Ardennes, his size is greatly increased, his coat and horns are become almost black, and his hair is so greatly lengthened as to form a kind of beard on his chin. In North America the horns of the stag are extended and branched by crooked antlers. In a domestic state his coat changes from a yellow to a white; and when not at perfect liberty, or in large parks, his legs are deformed and crooked. I do not reckon the axis among the varieties of the stag; it approaches nearer that of the fallow-deer, and is, perhaps, only a variety of it.

It would be a difficult point to determine the original species of the fallow-deer. It is not in any part of the globe entirely domestic,
nor

nor absolutely wild. It varies indifferently from a yellowish brown to a pied, and from a pied to a white. His horns and tail, in different races, are longer or shorter, and his flesh is good or bad, according to the soil and climate. Like the stag he is found in both continents, and he seems to be larger in Virginia, and the other temperate provinces of America, than in Europe. It is the same with the roe-buck; he is of a larger size in the New than in the Old Continent; but in other respects, his varieties are confined to some differences in the colour of the hair, which changes from a yellow to a deep brown. The smallest roe-bucks are generally of a fallow colour, and the largest brown. The roe-buck and fallow-deer, are the only animals common to both continents, and which are larger and stronger in the New than in the Old.

The ass has undergone but few changes, even though subjected to the most rigid servitude, for his nature is so stubborn, that it equally resists ill treatment, and the inconveniences of a foreign climate and coarse food. Though he is a native of hot countries, he can live and even multiply without any assistance from man in temperate climates. Formerly there were onagres, or wild asses, in the desarts of Asia Minor, but at present there are very few, and
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are only to be found in numbers in the desarts of Tartary. The Daurian mule, called *czigithai* by the Mongol Tartars, is, probably, the same animal as the onagre of the Asiatic provinces; as the former differs only from the latter by the length and colour of the hair, which, according to Mr. Bell, seems to be undulated with brown and white.* These *czigithais* are found in the forests of Tartary, even to the 51st, and 52d degree of latitude. They must not be confounded with the zebra, whose colours are more bright, and quite otherwise disposed; besides the zebra forms a particular species, as different from that of the ass, as from the horse. The only remarkable degradation of the ass is that the skin, in a domestic state has become more pliant and lost those small tubercles which are found scattered over the onagre, and of which the people of the Levant make what is known here by the name of *Shagreen*.

The hare is of a flexible, yet firm nature, for though dispersed over almost every climate of the Old Continent, yet it continues nearly the

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same,

* Perhaps Mr. Bell, who says he only saw the skins of these animals, may have seen the skins of the zebra instead. For other travellers do not mention that the *czigithais* or *onagres* of Dauria are streaked with brown and white like the zebra; besides, there are in the cabinet at St. Petersburg, skins of the zebra and skins of the *czigithais*, both of which are shewn to travellers.

same, its skin only becoming rather whiter during the winter in very cold climates, but it resumes its natural colour in summer, which only varies from a fallow to a reddish hue. The qualities of the flesh vary also, for the red hares are always the best eating. But the rabbit, though not of so flexible a nature as the hare, being less diffused, and seemingly confined to particular countries, is, nevertheless, subject to more variations; because the hare is in every part of the world wild, whereas the rabbit is almost every where half domesticated. The wild rabbits have varied in their colours, from fallow to white or black; they have also varied in size, and in the quantity and quality of their fur. This animal, which is originally a native of Spain, has acquired a long tail in Tartary, and a thick bushy coat in Syria. Black hares are often found in cold countries. It is asserted also that in Norway, and some other northern regions, there are hares with horns. Klein has given figures of two of these horned hares. It is easily seen, from an inspection of these figures, that the horns resemble those of the roebuck. This variety, if it exist, is only individual, and probably appears in those places alone where the hare cannot meet with grass, and is obliged to feed on the bark, buds, and leaves of trees.

The elk, whose species is confined to the
northern

northern part of the two continents, is only less in America than in Europe, and we see by the enormous horns found under the ground in Canada, Russia, Siberia, &c. that these animals were formerly much larger than they are at present. This difference of size proceeded perhaps from the perfect tranquillity which they enjoyed in the forests; and, not being disturbed by the human species, which had not at that time penetrated into those climates, they were at liberty to chuse their residence in those spots where the air, soil, and water agreed best with their constitutions. The rein-deer, which the Laplanders have rendered domestic, is, on this account, more changed than the elk, which has not yet been reduced to slavery. The wild rein-deer are larger, stronger, and their hair is blacker than the domestic kind: the last have varied in the colour of their hair, and also in the size of their horns. The lichen, or the rein-deer liverwort, constitutes the principal food of these animals, and seems, by its quality, to contribute greatly to the nutritive growth of the horns, which are proportionally larger in the rein-deer than in any other species; and it is, perhaps, this same nutriment which in this climate produces horns on the head of the hare, in the same manner as it does upon that of the female rein-deer; for in every other climate, there are no horned hares,

hares, nor any female animal that is furnished with horns like the male.

The elephant is the only quadruped on which a domestic state has never had any influence, because in that state it will not propagate, and consequently cannot transmit to its species those defects which its servile condition might occasion. The varieties in the elephant are only slight, and almost individual: its natural colour is black; some of them, however, are red, and others white, but those are very few in number. The size of the elephant also varies, according to the longitude rather than the latitude of the climate. Under the torrid zone, where it is, as we may say, shut up, and under the same line, in the eastern parts of Africa, it attains fifteen feet in height; whereas in the western parts of the same country it only arrives to the height of ten or eleven feet, which proves, that though great heat is necessary to the full expansion of its body, yet excessive heat reduces it to less dimensions. The rhinoceros seems to be of a more uniform and less variable size, and only differs in its own breed by that singular character which distinguishes it from every other animal, namely, the great horn on its nose. This horn is single in the Asiatic rhinoceros, and double in the African.

I shall not speak here of the varieties which are found in every species of carnivorous animals, as they are extremely slight ; because all animals which feed on flesh are the least dependent on man ; and besides, this nutriment being already prepared by Nature, they receive scarcely any of the qualities of the soil they inhabit ; besides, being endowed with strength and weapons, they have the power of chusing their own climate : consequently the three causes of change, alteration, and degeneration, of which we have spoken, can have but very slight and trivial effect on them.

After this glance at the variations peculiar to each species, a more important consideration presents itself, that of the change of the species themselves ; that ancient and immemorial degeneration made in each family, or in every genus, under which we may comprehend the proximating species. Among all terrestrial animals there are only a few detached species, which, like the human, at once compose both species and genus. The elephant, the rhinoceros, the hippopotamus, and the giraffe, form genera, or simple species, which propagate only in a direct line, and have no collateral branches ; every other appears to form families, in which one principal trunk is generally to be recognized, and
whence

whence issues several different branches, so much the more or less numerous as the individuals in each species are barren or prolific.

Under this point of view, the horse, the zebra, and the ass, are all of the same family. If the horse is the source, or principal trunk, the zebra and the ass will be collateral branches. The number of their resemblances being infinitely greater than that of their differences, we may look on them as constituting only one genus, the principal characters of which are clearly announced, and common to all three. They are the only animals which have solid hoofs without any appearance of toes or nails. Though they form three very distinct species they are not absolutely separated, since the male-ass will produce with the mare, and the horse with the she-ass; and it is probable that if we were to tame the zebra, and mollify his savage nature, it would likewise produce with the horse and the ass.

This mule, therefore, which has hitherto been regarded as a vitiated production, as a monster composed of two different natures, and consequently incapable of reproduction, is not so base as might be imagined from the above prejudice, since it is not really unprolific, and its sterility depends on certain external and peculiar circumstances. It is well known that
mules

mules produce in warm countries, and we have some examples of their producing even in our temperate climates. But we do not know whether this generation ever proceeded from the union of a male with a female mule, or whether the production were not effected by the junction of a male with a mare, or a male-ass with a mule. There are two kinds of males, the first is the great mule, which proceeds from the junction of a male-ass with a mare, and the small mule, proceeding from the horse and the she-ass, which we shall call *bardeau*, to distinguish it from the other. The ancients were acquainted with both, and distinguished them by two different names; they called the first *mulus*, and the second *hinnus*. They assert that the *mulus* produced with the mare, an animal called *ginnus**, or *hinnus*; that the she-mule conceived very readily, but seldom brought the foetus to perfection: and that, though they have had frequent examples of mules bringing forth, yet such productions were looked on as prodigies. But what is a prodigy of nature, except an event which happens

* The word *ginnus* is used by Aristotle in two senses: the first to denote in general an imperfect animal, an abortion, a dwarf animal, proceeding sometimes from the horse and the ass; and the second to signify the particular produce of the mule and the mare.

pens more rarely than some others? The he-mule, therefore, can engender, and the female conceive, and bring forth, in certain circumstances: hence it is only required to know what these circumstances are, and to acquire further information concerning degeneration by a mixture of species, and consequently on the unity and diversity of each genus. To succeed in these enquiries, the he-mule must be joined with a she-mule, a mare, and a she-ass; the same should be done with the bardeau, and then the result of these six copulations ought to be carefully marked. The females of the ass, mule, and bardeau, should also be paired with a horse.

These experiments, however simple, have never yet been tried with a view to explain the nature of generation. I regret that it has not been in my power to try them, as I am persuaded consequences would result from them, which at present we only conjecture, and speak of as presumptions. I imagine, for example, that of all the above copulations, that of the great mule with the female bardeau, (the animal produced by the horse and ass) and that of the male-bardeau and she-mule might possibly not succeed: that the junction of the he and she-mule, and that of the male and female-bardeau,

bardeau, might sometimes be attended with success, though not often. That the he-mule would produce with the mare with greater certainty than with the she-ass, and the male-bardeau with more certainty with the she-ass than with the mare; and that the horse and he-ass might possibly produce with both the she-mules, but that the ass would be more successful than the horse. These experiments should be made in a country at least as warm as the south of France; and the age of the mules should be seven, the horses five, and the asses four years, because those different periods are necessary before those three animals acquire their full vigour.

These then are the analogical reasons on which the above presumptions are founded. In the common course of nature, it is not the males but the females which constitute the unity of species. We know from the example of the sheep, which propagate alike with the ram, or the goat, that the female has much more influence than the male, on the specific qualities of the production, since the only issue from these two different males are lambs, that is, individuals which have a specific resemblance to the mother. Thus the mule resembles the mare more than she does the ass,

and the bardeau more the she-ass than the horse; therefore *the mule ought to produce more certainly with the mare than with the she-ass, and the bardeau still more so with the she-ass than with the mare, so the horse and he-ass might possibly produce with both the she-mules*; because being females, though somewhat vitiated, each retains more specific qualities than the male-mules; *but the he-ass should produce with them more certainly than the horse*; because it is observed, that the he-ass possesses stronger prolific powers than the horse, even with the mare, for the first corrupts and totally destroys the generation of the latter. We may be convinced of this fact by first taking a stallion to a mare, and the next morning, or even some days after, serving her with a male-ass, and her production will always be mules, and not horses. This fact, of which every circumstance deserves attention, seems to indicate, that the ass and not the horse, is the stock, or principal root of the family, since the first predominates by its prolific powers over the latter even with its own female, especially as, if the ass is first given to the mare and the horse afterwards, the latter does not destroy the generation of the former, for even then the production is still
a mule.

a mule. On the other hand, the like effect does not happen when the he-ass precedes the horse, with the she-ass, for the latter never destroys the operation of the former. With respect to the copulation of mules among themselves, I have presumed it to be sterile, for we can expect nothing else from two natures already debased by generation, and which by their union cannot fail of being still more debased, than a production entirely vitiated, or absolutely none at all.

By the mixture of the mule with the mare, of the bardeau with the she-ass, and the horse and he-ass with she mules, we should obtain individuals which would ascend towards the original species; they would be only half mules, and, like their parents, would not only have power to engender with their primitive species, but perhaps have the faculty of propagating among themselves; for being but half debased, their production would not be more vitiated than the first mules; and if the union of these half mules were sterile, or their productions rare, it appears almost certain, that by bringing them a degree still nearer their original species, the individuals which would result from such a union, and which would be no more than a fourth part debased, would produce among themselves and form a new stem, which would
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be precisely neither that of the horse nor the ass. Now as every thing possible has been accomplished in time, and either does exist, or has existed in Nature, I am inclined to think that the prolific mule spoken of by the ancients, and which in the days of Aristotle existed in Syria, beyond Phœnicia, might be a race of these half or quarter mules, which have been produced by the commixtures here spoken of: for Aristotle expressly says, that these prolific mules perfectly resembled the barren mules. He also very clearly distinguishes them from the onagres, or wild asses, which he mentions in the same chapter: consequently we can only refer these animals to mules which were but little vitiated, and preserved their reproductive faculties. The *czigithai*, or prolific mule of Tartary, of which we have before spoken, may also possibly not be the onagre, or the wild ass, but only this Phœnician mule, the race of which perhaps still remains. The first traveller who is able to compare them, will confirm or destroy this conjecture. The zebra itself, which even bears a greater resemblance to the horse than the ass, might probably have the same origin; the constrained regularity of his colours, alternately disposed in black and white stripes, seems to indicate that they proceed from two different species,

which

which in their mixture have separated as much as possible; for Nature, in none of her works, is so abrupt, or so little shaded as on the coat of the zebra, where it suddenly and alternately changes from white to black, and from black to white, without any intermediate shade throughout the whole extent of the animal's body.

But however that may be, it is certain from what we have said, that mules in general, which have always been accused of sterility, are nevertheless neither really nor universally so; and that this sterility is only manifested in that particular kind of mule proceeding from the connection of the ass and the horse; for the mule produced by the he-goat and the ewe, is as prolific as its parents, and most mules which proceed from different species of birds, are not barren; therefore it is only in the particular nature of the horse and ass, that we must seek for the causes of the infecundity of the mules produced by them; and instead of supposing barrenness a general and necessary defect in every mule, it, on the contrary, should be limited to that mule alone which proceeds from the ass and the horse, and this limitation should be further restricted, as these mules prove prolific in certain circumstances,

stances, especially when brought a degree nearer their original species.

The mule, produced by the horse and the ass, has its organs of generation as complete as other animals; nothing seems wanting either in the male or female. The males have a great plenty of seminal liquor; and being never suffered to copulate, they are often so pressed for a discharge, that they frequently rest upon their bellies for that purpose. These animals are, therefore, provided with every thing necessary for the purpose of generation: they are even very ardent, and consequently, very indifferent in their choice. The males have nearly an equal vehement desire for the female mule, the she-ass, and the mare. There is, therefore, no difficulty in procuring the copulation, though it requires particular attention and care to render it prolific. A too strong ardour is often attended with sterility; and the female mule is at least as ardent as the she-ass. Now it is known that the latter rejects the seminal liquor of the male, and that to make her retain it, blows must be given, or cold water thrown over her crupper, to calm the convulsive emotions of desire which subsist after copulation, and which occasion this rejection. The she-ass, and the female

female mule, therefore, incline to sterility by their over-heat. The asses incline to it from another cause; for as they are originally natives of hot climates, cold opposes their generation, and this is the reason they are allowed to couple in summer only. If their union is permitted at any other time, and particularly in winter, it is seldom attended with impregnation. The season necessary to the success of their generation is as much so for the preservation of their production. If the young ass is not brought forth in warm weather it either languishes or dies; and as the time of the gestation with the ass is only once a year, she produces at the season she conceives: this sufficiently proves how necessary warmth is, not only for the fecundity but also for the life of these animals. This strong ardour of the female is the occasion of the male being given her almost immediately after she has brought forth, for she is seldom suffered to rest above seven or eight days between her delivery and copulation; weakened by the birth she is then less ardent, and from there not having been a sufficient interval allowed to strengthen the parts, the conception is more certain than when she is in full vigour. It is pretended, that in this species, as in that of the cat, the temperament of the female is more ardent than that of the male. However
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the he-ass is a great example of vigour, for he can cover females several times each day successively. He has been known to indulge his passions to so great an excess, as to die on the spot, after eleven or twelve reiterated efforts, almost without interval, and without refreshment, except a few draughts of water. This heat, which consumes the animal, is too strong to be lasting; the he-ass soon becomes unfit for service, and this, probably, is the reason of its being said the female is stronger and longer-lived than the male. It is certain, that with the proper care and management we have laid down, she will live thirty years, and bring forth every year of her life; whereas the male, when not kept from the females, abuses his strength to so great a degree as to lose the total power of engendering in a very few years.

The he and she-ass, therefore, both incline to sterility by common and also by different qualities. The horse and the mare have the same tendency. The mare may receive a stallion nine or ten days after she has brought forth, and she will produce five or six years successively, but after that time she becomes barren. To preserve her fecundity an interval of a year should be allowed between each birth, and instead of giving her the stallion immediately after she has foaled, she should be kept
until

until she shews some external signs of heat. The mare seldom proves prolific after she is twenty years old ; while the horse sometimes preserves the power of engendering until the age of thirty. The seminal liquor is less abundant, and less stimulating in the horse than in the ass ; for the former often copulates without emitting, especially if the mare be presented to him before he seeks her. Besides, his most vigorous efforts are not always successful ; for there are some mares naturally barren, and others whose fecundity is but trifling. There are also stallions which, though vigorous to all appearance, have but little power. To these particular reasons we can add a more evident and general proof of the small degree of fecundity there is in the horse and ass. Of all domestic animals, although they are the most carefully attended to, they are the least in number. In the ox, the sheep, the goat, and particularly the hog, dog, and cat, the individuals are ten, and, probably, a hundred times more numerous than those of the horse and ass. Thus their want of fecundity is proved by facts, and we must attribute the sterility of the mules to all the above causes, as they proceed from a mixture of these naturally unprolific species. In those species, on the contrary, which, like the sheep and goat, are

numerous,

numerous, and, consequently prolific, the mules proceeding from their intermixture, are not barren but ascend to the original species in the first generation, whereas, two, three, or perhaps four generations, are required to reinstate the mule produced by the horse and the ass, to the same degree and perfection of nature.

It has been asserted, that another kind of mule is produced from the copulation of the bull with the mare. Columella is, I think, the first who has spoken of it. Gesner quotes the words of Columella, and adds, that he found these mules in Grenoble, and which are called in French *jumars*. One of these jumars I had brought to me from Dauphiny, and another from the Pyrenees. By the inspection of the external parts, as well as by the dissection of the internal, I discovered that they were only bardeaus, or mules produced between the horse and the she-ass. I think myself, therefore, authorized from this experiment, and from analogy, to suppose this kind of mule does not exist, and that the word jumar is only a chimerical name without any real object. The nature of the bull is too distant from that of the mare, to admit of their engendering together, the one having four stomachs, horns, cloven feet, &c. and the other being whole-hoofed, with no horns, and only
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one stomach. The organs of generation are likewise so very different, there is not the least reason to suppose they can copulate with any degree of pleasure or success. If the bull were to produce with any species besides his own, it would be with the buffalo, which resembles him in conformation and natural habits; yet we have never heard of any mules being produced by the junction of these two animals. What is related of the copulation and production of the stag and cow, is nearly as suspicious as the story of the jumars, though the stag is much less distant, in its conformation, from the nature of the cow, than the bull is from that of the mare.

END OF THE NINTH VOLUME.