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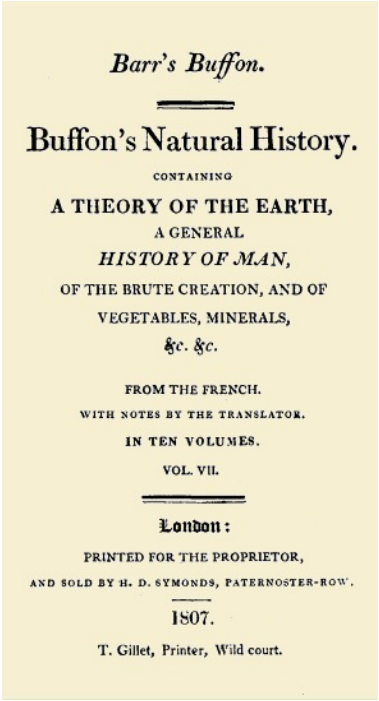
Barr's Buffon.

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.
VOL. VII.

London:
PRINTED FOR THE PROPRIETOR,
AND SOLD BY H. D. SYMONDS, PATERNOSTER-ROW.
1807.
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[1]

BUFFON'S

NATURAL HISTORY.

OF CARNIVOROUS ANIMALS.

OF TIGERS.

As the word Tiger is a generic name, given several animals of different species, it is proper to begin with distinguishing them from each other. Leopards and Panthers have often been confounded together, and are called Tigers by most travellers. The Ounce, a small species of Panther, which is easily tamed, and used by the Orientals in the chace, has been taken for the Panther itself, and described as such by the name of Tiger. The Lynx, and that called the Lion's provider, have also sometimes received the name of Panther, and sometimes Ounce. In Africa, [2] and in the southern parts of Asia, these animals are common; but the real tiger, and the only one which ought to be so called, is scarce, was little known by the ancients, and is badly described by the moderns. Aristotle does not mention him; and Pliny merely speaks of him as an animal of prodigious velocity; *tremendæ velocitatis animal*;[A] adding, that he was a much more scarce animal than the Panther, since Augustus presented the first to the Romans at the dedication of the theatre of Marcellus, while so early as the time of Scaurus, this Ædile sent 150 panthers, and afterwards 400 were given by Pompey, and 420 by Augustus, to the public shews at Rome. Pliny, however, gives no description of the tiger, or any of its characteristics. Oppian and Solinus appear to be the first who observed that the tiger is marked with long streaks, and the panther with round spots. This, indeed, is one of the characteristics which distinguishes the true tiger from a number of animals that have been so called. Strabo, in speaking of the real tiger, gives Megasthenes as his authority, for saying that in India there are tigers twice as large as the lion. The tiger then stands described by the ancients as an animal that is fierce and swift, marked with [3] long stripes, and exceeding the lion in size; nor has Gesner, nor the other modern naturalists, who have treated of the tiger, added any thing to these observations of the ancients.

[A] Pliny Nat. Hist. lib. viii. cap. xviii.

In the French language all those skins of which the hair is short, and are marked with round and distinct spots, are called tiger-skins, and travellers sharing in this error, have called all animals so marked by the general name of tigers; even the academy of sciences have been borne away by this torrent, and have adopted the appellation to all, although by dissection they found

them materially different.

The most general cause, as we intimated in the article of the lion, of these ambiguous terms in Natural History, arose from the necessity of giving names to the unknown productions of the New World, and thus the animals were called after such of the old continent to whom they had the smallest resemblance. From the general denomination of tiger to every animal whose skin was spotted, instead of one species of that name, we now have nine or ten, and consequently the history of these animals is exceedingly embarrassed, writers have applied to one species what ought to have been ascribed to another.

To dispel the confusion which necessarily results from these erroneous denominations, [4] particularly among those which have been commonly called tigers, I have resolved to give a comparative enumeration of quadrupeds, in which I shall distinguish, 1. Those which are peculiar to the old continent, and were not found in America when first discovered. 2. Those which are natives of the new continent, and were unknown in the old. 3. Those which existing alike in both continents, without having been carried from one to the other by man, may be considered as common to both. For which purpose it has been necessary to collect and arrange the scattered accounts given by the historians of America, and those who first visited this continent as travellers.

ANIMALS OF THE OLD CONTINENT.

AS the largest animals are the best known, and about which there is the least uncertainty, in this enumeration they shall follow nearly according to their size.

Elephants belong to the Old World; the largest are found in Asia, and the smallest in Africa. [5] They are natives of the hottest climates, and, though they will live, they cannot multiply in temperate ones; they do not propagate even in their own countries after they are deprived of their liberty. Though confined to the southern parts of the old continent their species is numerous. It is unknown in America, nor is there any animal there that can be compared to it in size and figure. The same remark applies to the Rhinoceros, which is less numerous than the elephant; he is confined to the desarts of Africa, and the forests of southern Asia; nor has America any animal that resembles him.

The Hippopotamus inhabits the banks of the large rivers of India and Africa, and is less numerous than the Rhinoceros. It is not found in America, nor even in the temperate climates of the Old Continent.

The Camel and Dromedary, so apparently similar, yet in reality so dissimilar, are very common in Asia and Arabia, and in all the eastern parts of the ancient continent. The name of camel has been given to the Lama and Pacos of Peru, which are so different from the camel as by some to have been called *sheep*, and by others *camels* of Peru; though the pacos has nothing in common with the European sheep but the wool, and the lama resembles the camel only by the length of its [6] neck. The Spaniards formerly carried camels to Peru; they left them first at the Canaries, whence they afterwards transported them to America; but the climate of the new world does not seem favourable to them, for though they produced, their numbers have always remained very small.

The *Giraffe* or *Camelopard*, an animal remarkable for its height, and the length of its neck and fore legs, is a native of Africa, particularly Ethiopia, and has never spread beyond the tropics in the temperate climates of the old continent.

In the preceding article we have seen that the lion exists not in America, and that the puma of Peru is an animal of a different species; and we shall now find that the tiger and panther belong also to the old continent, and that the animals of South America, to whom those names have been applied, are also different. The real tiger is a terrible animal, and more, perhaps, to be dreaded than the lion himself. His ferocity is beyond comparison; but an idea of his strength may be drawn from his size; he is generally from four to five feet high, and from nine to fourteen in length, without including his tail; his skin is not covered with round spots, but with black stripes upon a yellow ground, which extend across the body, and form rings from one end of the tail to [7] the other. These characteristics alone are sufficient to distinguish him from all the animals of prey belonging to the new continent, as the largest of them scarcely ever exceed the size of our mastiffs. The leopard and panther of Africa and Asia, though much smaller than the tiger, are larger than the rapacious animals of South America. Pliny, whose testimony cannot be doubted (since panthers were daily exposed, in his time, at the theatres in Rome), indicates their essential characteristics, by saying, their hair is whitish, diversified throughout with black spots, like eyes, and that the only difference between the male and female were the superior whiteness of her hair.

The American animals, which have been called tigers, have a greater resemblance to the panther, and yet their difference from that species is very evident. The first is the *Jaguara*, or *Janowra*, a native of Guiana, Brasil, and other parts of South America. Ray, with some propriety,

calls the animal the Pard, or Brasilian lynx. The Portuguese call him Ounce, because they had first, by corruption, given that name to the lynx, and afterwards to the small panther of India; and the French, without his having the smallest affinity, have called him tiger. [8] He differs from the panther in size, in the position and figure of the spots, in the colour and length of the hair, which is frizzled when young, and never so straight as that of the panther, differing also in disposition, being more savage, and cannot be tamed; still, however, the jaguar of Brasil resembles the panther more than any other animal of the new world. The second we call Cougar, by contracting the Brasilian name *cougouacou-ara*, and which the French, with still less propriety, have called the Red Tiger. From the real tiger it differs in all, and from the panther in most respects, its hair being red, and without spots; and in the form of its head, and length of his muzzle, it differs also from them both. A third species, which has also been called tiger, though equally remote, is the *Jaguarette*, which is nearly of the size of the jaguar, and resembles him in natural habits, but differs in some exterior characters. He has been called black tiger, because his hair is black, interspersed with spots of a still blacker hue. Besides these three species, and perhaps a fourth, which is smaller, that have been named after the tiger, there is another American animal, which appears to have a greater right to it, namely, the *Cat-pard*, or mountain cat, which resembles both the cat and the panther. Though smaller than either of the above three animals, it is larger [9] than the wild cat, which it resembles in figure, but its tail is much shorter, and it differs also by having its hair diversified with black spots, long upon the back and round upon the belly. These four American animals have, therefore, very improperly been named tigers. The cougar and cat-pard I have seen alive, and am convinced they are of different species, and still more so from the tiger or panther; and as for the puma and jaguar, it is evident, from the testimony of those who have seen them, that the former is not a lion, nor the latter a tiger, and therefore, without scruple, we may pronounce, that neither the lion, tiger, nor even the panther, exist in America, any more than the elephant, rhinoceros, hippopotamus, camel, or the camelopard. All these species require a hot climate for propagation, and as none of them exist in the northern regions, it is impossible they should have had any communication with America. This general fact is too important not to be supported by every proof; we shall, therefore, continue our comparative enumeration of the animals of the old continent with those of the new.

It is generally known, that upon horses being first transported into America they struck the natives with surprise and terror; and that this animal has thriven and multiplied so fast, as to [10] have become almost as numerous there now as it is in Europe. It is the same also with the ass, which has thriven equally in these warm climates, and from which mules have been produced, that are more serviceable than the lamas for carrying heavy loads over the mountainous parts of Chili and Peru. The Zebra is also an animal of the old continent, and which, perhaps, has never been even seen in the new; it seems to require a particular climate, and is found only in that part of Africa which lies between the Equator and the Cape of Good Hope.

Oxen were unknown in the islands and on the continent of South America. Soon after the discovery of these countries, the Spaniards transported bulls and cows to them from Europe. In 1550 oxen were employed, for the first time, in tilling the ground in the valley of Cusco. On the continent these animals multiplied prodigiously, as well as in the islands of St. Domingo, Cuba, Barlovento, &c. and in many places they even became wild. The species of horned cattle found at Mexico, Louisiana, &c. which is called the *wild ox* or Bison, is not produced from the European oxen. The bison existed in America before our race was carried thither; and from the latter he is so different as to authorize the opinion of his being a different species. He has a rise between his [11] shoulders, his hair is softer than wool, is longer before than behind, is curled upon the neck and along the spine of the back; he is of a brown colour, and faintly marked with some whitish spots; he has also short legs, which, like the head and neck, are covered with long hair; and the male has a long tail with a tuft of hair at the end, like that of the lion. These differences seem to be sufficient grounds for considering the ox and bison of different species, yet I will not pretend to determine they are so, because the only characteristic which identifies animals to be of the same species, is their propagating and producing similar individuals, and which fact has never been determined between the bison and the oxen of Europe. M. de la Nux, a member of the royal council of the isle of Bourbon, has favoured me with a letter, in which he says, the hunched-back ox of that island propagates with the common horned cattle; and of great advantage would it be, if persons who live in remote countries would follow the example of this gentleman, in making experimental observations upon animals. Nothing could be more easy than for the inhabitants of Louisiana, to try if the American bison would copulate with the European cow. It is probable they [12] would produce together, and in that case it would be ascertained that the European ox, the hunched-backed species of the isle of Bourbon, the East India bull and American bison, form only one species. M. de la Nux proved by experiments, that the hunch is not an essential characteristic, since it disappeared after a few generations; and I have myself discovered that the protuberance upon a camel’s back, which, though as in the bison, is very common, is not a constant characteristic, and is probably owing to the healthful state of the body, as I once saw a sickly camel which had not the smallest appearance of a lump. As to the other difference, namely, the hair being more long and soft, that may be entirely owing to the influence of the climate, as is the case with goats, hares, and rabbits. With some appearance of probability, it may be supposed, (especially if the American bison produces with the European cow) that our oxen may have found a passage over the northern districts to those of North America, and having afterwards advanced into the temperate regions of this New World, they received the impressions of the climate, and in time became bisons. But till the essential fact of their producing together be fully confirmed, I think it right to conclude that our oxen belong to the old continent, and existed not in America [13] before they were carried thither.

To sheep America has no pretensions; they were transported from Europe, and have thriven both in the warm and temperate climates; but, however prolific, they are commonly more meagre, and their flesh less juicy and tender than those in Europe. Brasil seems to be the most favourable to them, as it is there alone that they are found loaded with fat. Guinea sheep, as well as European, have been transported to Jamaica, and they have prospered equally well. These two species belong solely to the old continent. It is also the same with goats, and those we now meet with in America in such great numbers, all originated from goats introduced from Europe. The latter has not, however, multiplied so fast at Brasil as the sheep. When the Spaniards first carried goats to Peru they were so rare as to be sold for 110 ducats a piece; but afterwards they multiplied so prodigiously as to be held of little value but for their skins; they produce there from three to five kids at a time, while in Europe they seldom have more than one or two. In all the islands they are equally numerous as on the continent. The Spaniards transported them even into [14] the islands of the South Sea; and in the island of Juan Fernandez their increase became prodigious. But proving a supply of provisions to the free-booters who afterwards infested those parts, the Spaniards resolved to extirpate them, and for that purpose put dogs upon the island, who, multiplying in their turn, not only destroyed all the goats in the accessible parts, but became so fierce as to attack even men.

The hogs which were transported from Europe to America succeeded better, and multiplied faster, than the sheep or goat. The first swine, according to Garcilasso, sold still dearer than the first goats. Piso says the flesh of the ox and sheep is not so good at Brasil as in Europe, but that of the hog, which multiplies very fast, is better; and Laet, in his History of the New World, affirms that it is preferable at St. Domingo, to what it is in Europe. In general it may be remarked, that of all domestic animals which have been carried from Europe to America, the hog has thriven the best and most universally. In Canada and in Brasil, which includes the warmest and coldest climates of the new world, hogs multiply, and their flesh is equally good; while the goat, on the contrary, multiplies in warm and temperate climates only, and cannot maintain its species in [15] Canada without continual supplies. The ass multiplies in Brasil, Peru, &c. but not in Canada, where neither mules nor asses are to be seen, although numbers of the latter have been transported thither in couples. Horses have multiplied nearly as much in the hot as in the cold countries throughout America; but have diminished in size, a circumstance which is common to all animals transported from Europe to America; and what is still more singular, all the native animals of America are much smaller in general than those of the old continent. Nature in their formation seems to have adopted a smaller scale, and to have formed man alone in the same mould. But to proceed in our enumeration:—The hog, then, is not a native of America, but was carried thither; and he has not only increased in a domestic state but has even become wild, and multiplied in the woods without the assistance of man. A species of hog has also been transported from Guinea to Brasil, which has likewise multiplied; it is much smaller, and seems to form a distinct species from the European hog; for although the climate of Brasil is favourable to every kind of propagation, these animals have never been known to intermingle.

Dogs, whose races are so varied, and so numerously diffused, were not found in America, [16] unless in a few rude resemblances, which it is difficult to compare with the species at large. At St. Domingo, says Garcilasso, there were little animals called *gosques*, not unlike little dogs; but there were no dogs like those of Europe. He adds, that the latter, on being transported to Cuba and St. Domingo, had become wild, and diminished the number of cattle which had become wild also; that they committed their devastations in troops of ten or twelve, and were more destructive than wolves. According to Joseph Acosta, there were no real dogs in the West Indies, but only an animal resembling small dogs, called by the Peruvians *alcos*, which attach themselves to their masters, and seem to have nearly the same dispositions as the dog. If we may believe Father Charlevoix, who quotes no authority, “The *goschis* of St. Domingo were little mute dogs, which served as an amusement to the ladies, and were also employed in the chace of other animals. Their flesh was good for eating, and they were of great benefit to the Spaniards during the first famines, which these people experienced, so that they would have been exhausted, had there not been numbers of them afterwards brought from the continent. Of this animal there were several [17] sorts; of some the hair was straight, others had their bodies covered with a wool exceedingly soft; but the greatest number had only a thin covering of tender down. In colours they exceeded the varieties in the European dogs, forming an assemblage of all colours, the most lively not excepted.”

If this species of the goschis ever existed, especially as described by Father Charlevoix, why have other authors never mentioned it? why does it no longer exist? or if in existence, by what means has it lost all its beautiful peculiarities? It is most likely that the goschis of Charlevoix, and of which he never found the name but in Father Pers, is the gosques of Garcilasso; and it is also probable that these gosques of St. Domingo, and the alcos of Peru, are the same animal; for certain it is, that of all American animals this has the most affinity to the European dog. Several authors have considered it as a real dog; and Laet expressly says, that when the West Indies were discovered they in St. Domingo employed a small dog in hunting, but which was absolutely dumb. We observed, in the history of the dog, that he loses the faculty of barking in hot countries, but instead thereof they had a kind of howl, and are not like these American animals, perfectly mute. [18] European dogs have thriven equally well in the hot and cold climates of America, and of all animals they are held in the highest estimation by the savages; but they have undergone essential changes, for in hot countries they have lost their voice, in cold ones they have decreased in size, and in general their ears have become straight. Thus they have degenerated, or rather returned to their primitive species, the shepherd’s dog, whose ears are erect, and who barks the least. From whence we may conclude, that the dog belongs to the old continent where

their nature has been developed in the temperate regions only, and where they appear to have been varied and brought to perfection by the care of man, for in all uncivilized countries, and in very hot or cold climates they are ugly, small, and almost mute.

The Hyæna, which is nearly the size of the wolf, was known to the ancients, and I have myself seen a living one. It is remarkable for having an opening between the anus and tail, like the badger, and from which issues a humour that has a strong smell; also for a long bristly mane which runs along its neck; and for a voracity which prompts it to scrape up graves and devour the most putrid bodies.

This horrid animal is only to be found in Arabia, and other southern provinces of Asia; it does [19] not exist in Europe and has never been found in the New World.

The jackall, which of all animals not excepting the wolf makes the nearest approach to the dog though differing in every essential characteristic, is very common in Armenia and Turkey, and is very numerous in several other provinces of Asia and Africa; but it is absolutely unknown in the new world. It is about the size of the fox, and of a very brilliant yellow; this animal has not extended to Europe, nor even the northern parts of Asia.

The Genet, being a native of Spain, would doubtless have been noticed had he been found in America, but that not being the case, we may consider him as peculiar to the old continent; he inhabits the southern parts of Europe, and those of Asia under the same latitude.

Though it has been said the Civet was found in New Spain, I am of opinion it was not the African, or Indian Civet, which yields the musk that is mixed and prepared with that of the animal called the Hiam of China; this civet I conceive to belong to the southern part of the old continent, has never extended to the north, and consequently would not have found a passage to the New World.

Cats as well as dogs were entire strangers to the New Continent, and though I formerly [20] mentioned that a huntsman had taken to Columbus a cat which he had killed in the woods of America, I am now convinced that the species did not then exist there. I was then less aware of the abuses which had been made in names, and I acknowledge I am not yet sufficiently acquainted with animals to distinguish them with precision in the fictitious and misapplied denominations given them by travellers. Nor is this to be wondered at, since the nomenclators, whose researches were directed to this object, have rendered it more dark and intricate by their arbitrary names and arrangements. To the natural propensity of comparing things which we see for the first time, with those already known, and the almost insuperable difficulty of pronouncing the American names being added, we are to impute this misapplication of names which have since been productive of so many errors. It is much more easy, for example, to call a new animal, a *wild boar*, than to pronounce its name at Mexico, *quab-coya-melt*; to call another *American fox*, than to retain its Brasilian appellation, *tamandua-guacu*; to give the name of *Peruvian sheep*, or *camel*, to those animals which in the language of Peru are called *pelon ichiath oquitli*. It is the [21] same with almost all the other animals of the New World, whose names were so strange and barbarous to the Europeans, that they endeavoured to apply others to them, from the resemblance they had to those of the old continent, but they were often from affinities too remote to justify the application. Five or six species of small animals were named hares, or rabbits, merely because their flesh was palatable food. They called *cow* and *elk* an animal without horns, although it had no affinity to either, except a small resemblance in the form of the body. But it is unnecessary at present to dwell upon the false denominations which have been applied to the animals of America, because I shall endeavour to point out and correct them when we come to treat of each of those animals in particular.

We find, then, that all our domestic animals, and the largest animals of Asia and Africa were unknown in the New World; and the same remark extends to several of the less considerable species, of which we shall now proceed to make a cursory mention.

The gazelles, of which there are various kinds, and of which some belong to Arabia, others to the East Indies, and some to Africa, all require a hot climate to subsist and multiply, they [22] therefore never extended to the northern climates, so as to obtain a passage to America; it appears, indeed, that the African gazelle, and which Hernandes, in his History of Mexico calls *algazel ex Aphrica* must have been transported thither. The animal of New Spain, which the same author calls *temamaçame*, Seba *cervus*, Klein *tragulus*, and Brisson the gazelle of New Spain, appears to be a different species to any on the old continent.

It is natural to conclude, that the Chamois Goat, which delights in the snow of the Alps, would not be afraid of the icy regions of the north, and thence might have passed to America, but no such animal is found there. This animal requires not only a particular climate, but a particular situation. He is attached to the tops of the Alpine, Pyrenean, and other lofty mountains, and far from being scattered over distant countries, he never descends even to the plains at the bottom of his hills; but in this he is not singular, as the marmot, wild goat, bear, and lynx, are also mountain animals, and very rarely found in the plains.

The buffalo is a native of hot countries, and has been rendered domestic in Italy; he resembles less than the ox, the American bison, and is unknown in the new continent. The wild goat is found [23] on the tops of the highest mountains of Europe and Asia, but was never seen on the Cordeliers. The Musk-animal, which is nearly the size of a fallow-deer, inhabits only a few particular countries of China and Eastern Tartary. The little Guinea Deer, as it is called, seems also

confined to the provinces of Africa and the East Indies. The Rabbit, which comes originally from Spain, and has been diffused over all the temperate climates of Europe, did not exist in America; for the animals of that continent which are so called, are of a different species, and all the real ones were transported thither from Europe. The Ferret, brought from Africa to Europe, was unknown in America; as were also our rats and mice, which having been carried there in European ships, have since multiplied prodigiously.

The following then are nearly all the animals of the old continent, namely, the elephant, rhinoceros, hippopotamus, camel, dromedary, giraffe, lion, tiger, panther, horse, ass, zebra, ox, buffalo, sheep, goat, hog, dog, hyæna, jackall, genet, civet, cat, gazelle, chamois goat, wild goat, Guinea deer, rabbit, ferret, rat, mouse, loir, lerot, marmot, ichneumon, badger, sable, ermine, jerboa, the maki, and several species of monkeys, none of which were found in America on the [24] first arrival of the Europeans, and which consequently are peculiar to the Old World, as we shall endeavour to prove in the particular history of each animal.

ANIMALS OF THE NEW WORLD.

THE animals of the New World were not more known to the Europeans, than were our animals to the Americans. The Peruvians and Mexicans were the only people on the new continent, which were half civilized. The latter had no domestic animals; and those of the former consisted of the lama, the pacos, and the alco, a small animal which was domestic in the house like our little dogs. The pacos and the lama, like the chamois goat, live only on the highest mountains, and are found on those of Peru, Chili, and New Spain. Though they had become domestic among the Peruvians, and consequently spread over the neighbouring countries, their multiplication was not abundant, and has even decreased in their native places, since the introduction of European cattle, which have succeeded astonishingly in all the southern countries of the American continent. [25]

It appears singular that in a world, occupied almost entirely by savages, whose manners somewhat resembled those of the brutes, there should be no connection, no society existing between them and the animals by which they were surrounded; and this was absolutely the case, for there were no domestic animals, excepting where the people were in some degree civilized. Does not this prove that man, in a savage state, is nothing more than a species of animal, incapable of ruling others; and possessing only individual faculties, employs them for procuring his subsistence, and providing for his security, by attacking the weak, and avoiding the strong, but without entertaining any idea of real power, or endeavouring to reduce them to subjection? Every nation, even those which are but just emerging from barbarism, has its domestic animals. With us the horse, the ass, the ox, the sheep, the goat, the hog, the dog, and the cat; in Italy the buffalo; in Lapland the rein-deer; in Peru the lama, the pacos, and the alco; in the eastern countries, the dromedary, the camel, and various species of oxen, sheep, and goats; in the southern ones the elephant; all these animals have been reduced to servitude, or admitted into [26] society; while the savage, hardly desirous of the society of his female, either fears or disdains that of other animals. Of these species, rendered domestic, it is true, not one existed in America; but if the savages, with whom it was peopled, had anciently united, and had communicated to each other the mutual aids of society, they would have rendered subservient the greatest part of the animals of that country, most of them being mild, docile, and timid, few mischievous, and scarcely any formidable. Their liberty, therefore, has been preserved solely from the weakness of man, who has little or no power without the aid of society, upon which even the multiplication of his species depends. The immense territories of the new world were but thinly inhabited; and, I believe it may be asserted, that on its first discovery, it contained not more than half the number of people that may now be reckoned in Europe. This scarcity of men allowed every other animal to multiply in abundance; every thing was favourable to their increase, and the number of individuals of each species was immense; but the number of species were comparatively few, and did not amount to more than a fourth, or a third of those of the old continent. If we reckon 200 [27] species of animals in the known world we shall find that more than 130 of them belonged to the old continent, and less than 70 to the new; and if we except the species common to both continents, that is, such as by their natures are capable of enduring the rigours of the north, and might have passed from one to the other, there will not remain above forty species peculiar to, and natives of, America. Animated nature, therefore, is in this portion of the globe less active, less varied, and even less vigorous; for by the enumeration of the American animals we shall perceive, that not only the number of species is smaller, but that in general they are inferior in size to those of the old continent; not one animal throughout America can be compared to the elephant, rhinoceros, hippopotamus, dromedary, buffalo, tiger, lion, &c. The Tapir of Brasil is the largest of all the South American animals, and this elephant of the new world exceeds not the size of a very small mule, or a calf at six months old; with both which animals he has been compared, although he does not resemble either. The Lama is not so big as the tapir, and appears large only from the length of his neck and legs; and the Pacos is much smaller still. The Cabiai, [28] which, next to the tapir, is the largest of the South American animals, is not bigger than a common-sized hog; he differs as much as any of the preceding from all the animals of the old continent; for although he has been called the water-hog, he has essentially different

characteristics from that animal. The Tajacou is smaller than the cabiai, and has a strong external resemblance to the hog, but differs greatly in his internal conformation. Neither the tajacou, cabiai, nor the tapir, are to be found in any part of the old continent; and the same may be said of the *Tamanduacuacu*, or *Ouariri*, and of the *Ouatiriou*, which we have called Ant-eaters. These last animals, the largest of which is below mediocrity, seem confined to the regions of South America. They are remarkable in having no teeth, their tongue is long and cylindrical, and their mouth is so small that they can neither bite nor hardly take hold of any thing; they can only procure subsistence by putting out their long tongue in the way of the ants, and drawing it in when loaded with them. The sloth, which is called *ai*, or *hai*, by the natives of Brasil, on account of the plaintive cry of *ai*, which it continually sends forth, seems likewise to be confined to the new continent. It is smaller than either of the preceding ones, being not more than two feet long, [29] and is scarcely so quick in his motion as the turtle; it has but three claws on each foot, its fore legs are longer than its hind ones, it has a very short tail, and no ears. Besides, the sloth and armadillo are the only quadrupeds, which have neither incisive nor canine teeth, but whose grinders are cylindrical, and round at the extremities, nearly like those of some cetaceous animals.

The Curiacou of Guiana is an animal of the nature and size of our largest roe-bucks; the male has horns, which he sheds every year, but the female has none. At Cayenne it is called the Hind of the Woods. There is another species, called the little cariacou, or hind of the fens, which is considerably smaller than the former, and the male has no horns. From the resemblance of the names I suspected that the cariacou of Cayenne might be the caguacu, or cougouacou-ara, of Brasil, and comparing the accounts given by Piso and Marcgrave of the latter with the cariacou I had alive, I was persuaded they were the same animal, yet so different from our roe-buck as to justify our considering them distinct species.

The tapir, cabiai, tajacou, ant-eater, sloth, cariacou, lama, pacos, bison, puma, juguar, coujuar, juguarat, and the mountain-cat, &c. are therefore the largest animals of the new continent. The [30] middle-sized and small ones are the cuandus, or gouandous, agouti, coati, paca, opossum, cavies, and armadillos; all which I believe are peculiar to the new world, although our latest nomenclators speak of two other species of armadillos, one in the East Indies, and the other in Africa; but we have only the testimony of the author of the description of Seba’s cabinet for their existence, and that authority is insufficient to confirm the fact, for misnomers frequently happen in the collections of natural objects. An animal, for example, is purchased under the name of a Ternat, or American bat, and another under that of the East India Armadillo; they are then announced by those names in a descriptive catalogue, and are adopted by our nomenclators; but when examined more closely the American bat proves to be one of our own country, and so may the Indian or African armadillo be merely an armadillo of America.

Hitherto we have not spoken of Apes, their history requiring a particular discussion. As the word *Ape* is a generic term applied to a number of species, it is not surprising that it should be said they abound in the southern parts of both continents; but it is for us here to enquire whether [31] the apes of Asia and Africa be the same animals as those so called in America, and whether from among more than thirty species of apes, which I have examined alive, one of them is alike common to both continents.

The Satyr, Ourang-outang, or Man of the Woods, as it is indiscriminately termed, seems to differ less from man than from the ape, and is only to be found in Africa or the south of Asia. The Gibbon, whose fore legs, or arms, are as long as the whole body, even the hind legs included, is a native of the East Indies alone. Neither of these have tails. The ape, properly so termed, whose hair is greenish, with a small intermixture of yellow, has no tail, belongs to Africa, and a few other parts of the old continent, but is not to be found in the new. It is the same also with the Cynocephali-apes, of which there are two or three species; neither of them having any tails, at least they are so short as scarcely to be perceivable. All apes which are without tails, and whose muzzles, from being short, bear a strong resemblance to the face of man, are real apes; and the species above-mentioned are all natives of the old continent, and unknown in the new; from whence we may pronounce that there are no real apes in America.

The Baboon, an animal larger than the dog, and whose body is pursed up like that of the [32] hyæna, is exceedingly different from those we have noticed, and has a short tail: it is equally endowed with inclination and powers for mischief, and is only to be met with in the desarts of the southern parts of the old continent.

Besides these without tails, or with very short ones, (which all belong to the old continent) almost all the large ones with long tails, are peculiar to Africa. There are few even of the middling size in America, but those called little long-tailed monkeys are very numerous, of which there are several species; and when we give the particular history of these animals, it will appear the American monkeys differ very much from the apes of Asia and Africa. The Maki, of which there are three or four species, has a near resemblance to the monkeys with long tails, but is another animal, and peculiar also to the old continent. All the animals, therefore, of Asia and Africa, which are known by the name of apes, are equally as strange in America as the rhinoceros or tiger; and the more we investigate this subject, the more we shall be convinced that the animals of the southern parts of one continent did not exist in the others and the few found in them must have been carried thither by men. Between the coasts of Brasil and Guinea, there are [33] 500 leagues of sea; and between those of the East Indies and Peru, the distance exceeds 2000 leagues: It appears, therefore, that all those animals which from their nature are incapable of supporting cold climates, or, if supporting, cannot propagate therein, are confined on two or

three sides by seas they cannot cross, and on the other by lands so cold they cannot live in them. At this one general fact, then, however singular it may at first appear, our wonder ought to cease, namely, that not one of the animals of the torrid zone of one continent, are natives of the torrid zone of the other.

ANIMALS COMMON TO BOTH CONTINENTS.

BY the preceding enumeration it appears, that not only the quadrupeds of the hot climates of Asia and Africa, but many of those in the temperate climates of Europe, are strangers in America; but we find many there of such as can support cold and propagate their species in the regions of [34] the north; and though there is an evident difference in them they cannot but be considered as the same animals; and this induces us to believe, they formerly passed from one continent to the other by lands still unknown, or possibly long since buried by the waves. Of the contiguity of the two northern provinces, the proof thus drawn from Natural History is a stronger confirmation than all the conjectures of speculative Geography.

The Bears of the Illinois, of Louisiana, &c. seem to be the same with ours; the former being only smaller and blacker. The stag of Canada, though smaller than ours, differs only in the superior loftiness of his horns, number of antlers, and length of his tail. The roe-buck, found in the south of Canada, and in Louisiana, is also smaller and has a longer tail than that of Europe. The Orignal is the same animal as the Elk, but not so large. The rein-deer of Lapland, the fallow-deer of Greenland, and the Caribou of Canada, appear to be one and the same animal. Brisson has indeed classed the latter with the *cervus Burgundicus* of Johnston, but which animal remains unknown, and possibly received that name from accident or caprice.

The hares, squirrels, hedge-hogs, otters, marmots, rats, shrew-mice, and the moles, are [35] species which may be considered as common to both continents; though there is not one perfectly similar in America, to what it is in Europe; and it is very difficult, if not impossible, to pronounce whether they are in reality different species, or mere varieties rendered permanent by the influence of the climate.

The Beavers of Europe seem to be the same as those of Canada. These animals prefer cold countries, but can subsist and propagate in temperate ones. In the islands of the Rhone in France, there still remain a few of the number which formerly subsisted there; and they seem more desirous of avoiding a too populous than a too warm country. They never form their societies but in desarts remote from the dwellings of men; and even in Canada, which can be considered as little more than a vast desart, they have retired far from any human habitation. The Wolf and Fox are common to both continents. They are met with in all parts of North America, and of both species; there are some entirely black. Though the Weasel and Ermine frequent the cold countries of Europe, they are very rare in America, which is not the case with the pine-weasel, marten, and pole-cat. The Pine-weasel of North America seems to be the same with that [36] of the northern parts of Europe. The Vison of Canada has a strong resemblance to our Marten; and the streaked Pole-cat of North America, is perhaps a mere variety of the European kind. The Lynx of America is, to all appearance, the same with that in Europe. Though it prefers cold countries, it lives and multiplies in temperate ones, and is seldom seen but in forests and on mountains. The Seal, or sea-calf, seems to be confined to the northern regions, and is alike to be found on the coasts of Europe and North America.

Such, with a few exceptions, are all the animals common to the old and new world; and from this number, inconsiderable as it is, we ought, perhaps, to deduct one third, whose species, though similar in appearance, may be different in reality. But admitting the identity of species, those common to both continents are very small in number, compared with those peculiar to each; and it is also evident, that such only as can bear cold, and can multiply in these climates, as well as in warm ones, are to be found in both. From which there cannot remain a doubt but that the two continents are, or have been contiguous towards the north, and that the animals common [37] to both, found a passage over lands which at present are to us unknown. There is reason to believe, from the discoveries made by the Russians to the north of Kamtschatka, that the lands of Asia and America are contiguous, while the north of Europe appears always to have been separated from the latter by seas too considerable for any quadruped to have crossed; nevertheless, the animals of North America have a stronger resemblance to those of the northern parts of Europe than to those of the north of Asia. Neither the Argali, Sable, Mole of Siberia, nor Chinese Musk, are to be found at Hudson’s Bay, or any other north-west part of the new continent; while in the north-east parts we not only find the animals common to the north of Europe and Asia, but even such as appear to be peculiar to Europe. But it must be acknowledged, that the north-east parts of Asia are so little known that we cannot attempt to affirm, with certainty, whether the animals of the north of Europe are to be found there or not.

We have already remarked, as a striking singularity, that the animals in the southern provinces of the new continent are small, in comparison with those of the warm regions of the old; the elephant, &c. of the latter being some of them eight and ten times larger than the tapir, [38]

&c. of the former. And this general fact, as to size, is further corroborated, by all the animals which have been transported from Europe having become less, and also those common to both continents being much smaller in America than those of Europe. In this new world, then, there must be something in the combination of the elements, and other physical causes, which opposes the aggrandisement of animated nature; there must be obstacles to the development, and perhaps to the formation of the principles of life. Under this sky, and on this vacant land, even those which, from the benign influence of other climates, had received their full form and complete extension, lose both, and become shrivelled and diminished. These extensive regions were thinly inhabited by a few wandering savages, who, instead of acting as masters, had no authority in it: for they had no controul over either animals or elements; they had neither subjected the waves nor directed the motions of rivers, nor even cultivated the earth around them; they were themselves nothing more than animals of the first rank, mere automatons, incapable of correcting Nature, or seconding her intentions. Nature, indeed, had treated them [39]
more as a stepmother than as an indulgent parent, by denying to them the sentiment of love, and the eager desire to propagate their species. The American savage, it is true, is little less in stature than other men, yet that is not sufficient to form an exception to the general remark—that all animated nature is comparatively diminutive in the new continent. In the savage the organs of generation are small and feeble; he has no hair, no beard, no ardour for the female; though more nimble than the European, from being habituated to running, he is not so strong; possessed of less sensibility, yet he is more timid and dastardly; he has no vivacity, no activity of soul, and that of the body is less a voluntary exercise than a necessary action occasioned by want. Satisfy his hunger and thirst and you annihilate the active principle of all his motions; and he will remain for days together in a state of stupid inactivity[B]. Needless is it to search further into the cause for the dispersed life of savages, and their aversion to society. Nature has withheld from them the [40]
most precious spark of her torch; they have no ardour for the female, and consequently no love for their fellow-creatures. Strangers to an attachment the most lively and tender, their other kindred sensations are cold and languid: to their parents and children they are little more than indifferent; with them the bands of the most intimate of all society, are feeble, nor is there the smallest connection between one family and another; of course they have no social state among them; cold in temperament, their manners are cruel, their women they treat as drudges born to labour, or rather as beasts of burthen, whom they load with all the produce of the chace, and whom they oblige, without pity or gratitude, to perform offices repugnant to their natures, and frequently beyond their strength. They have few children, and to those they pay little attention. The whole arises from one cause; they are indifferent because they are weak, and this indifference to the female is the original stain which defaces nature, prevents her from expanding, and, while it destroys the seeds of life, strikes at the root of society. Man, therefore, forms no exception; for Nature, by retrenching the faculty of love, has diminished him more than [41]
any other animal. Before we examine the causes of this general effect, it must be acknowledged, that although Nature has reduced all the quadrupeds of the new world, yet she has preserved the size of reptiles, and enlarged that of insects; for although there are larger lizards and larger serpents at Senegal than in South America, yet in these animals the difference is not near so great as in the quadrupeds; the largest serpent at Senegal is not twice as large as the great adder of Cayenne, whereas the elephant is ten times as big as the tapir, which is the largest animal of South America. In no part are the insect tribes so large as in South America. At Cayenne, the spiders, caterpillars, and butterflies, surpass all the insects of the old continent, not only as to size, but in richness of colours, delicacy of shades, variety of forms, number of species, and the prodigious multiplication of individuals. The toads, frogs, and other creatures of this kind, are also very large in America. Of the birds and fish we shall say nothing; for since they possess the power of migrating from one continent to the other, it would be almost impossible to distinguish which properly belongs to either, but insects and reptiles, like quadrupeds, are [42]
confined nearly to the spot in which they came into existence.

[B] Mr. Vaillant says, that the Hottentots will sleep for two or three days together, either from hunger or excess in eating; for, when hungry, indolence has suggested to them the expedient of sleeping instead of the labour of seeking for food, and that by tying a bandage round their bellies they can do so for the above space, without experiencing any consequent inconvenience.

Let us now then enquire why, in this new world, the reptiles and insects are so large, the quadrupeds so small, and the men so cold. These effects must depend on the quality of the earth and atmosphere, on the degrees of heat and moisture, on the situation and height of mountains, on the quality of running and stagnate waters, on the extent of forests, and, in a word, on the state in which inanimate nature presents itself in that country. In the new world there is much less heat and more moisture than in the old. If we compare the heat and cold, in each degree of latitude, we shall find a very great difference; that at Quebec, which is under the same degree of latitude as Paris, the rivers are covered with ice for months in the year, and the grounds with snow several feet thick; the air, indeed, is so cold, that the birds fly off at the approach of winter, and return not till invited by the warmth of spring. This difference of heat under the same latitude in the Temperate Zone, though considerable, is perhaps less so than the difference of that under the Torrid Zone. At Senegal, we are scorched, while at Peru, situate under the same line, we enjoy the benign influence of a temperate climate. In such a situation is the continent of [43]
America placed, and so formed, that every thing concurs to diminish the action of heat. There we find the highest mountains and greatest rivers in the known world; these mountains form a chain which seems to terminate the length of the continent towards the west, while the plains and low grounds are all situated on this side of the mountains, from whose base they extend to the sea, which separates the American from the European continents. Thus the east wind, which

constantly blows between the tropics, does not reach America until it has traversed a vast extent of ocean, and has consequently been greatly cooled; and for this reason it is much less warm at Brasil and Cayenne, for example, than at Senegal and Guinea, where this east wind arrives, charged with the heat of all the burning sands and desarts which it necessarily passes in traversing both Asia and Africa.

In treating of the different colours of men, particularly negroes, it appeared to be demonstrated that the strong tincture of brown or black depends entirely on the situation of the country; that the negroes of Nigritia, and those of the west coast of Africa are the blackest, because those countries are so situated as to contain more heat than any other part of the globe, [44] from the east wind not reaching them until it had passed immense tracks of land; that the American Indians, under the line, are only tawny, and the Brasilians brown, though under the same latitude as the negroes, because the heat of the climate is not so great, and the east wind has been cooled with the water, and loaded with humid vapours. The clouds which intercept the sun, and the rains which refresh the earth, are periodical, and continue several months at Cayenne, and other countries of South America. The first cause renders all the east coasts of America more temperate than either Asia or Africa; this wind arriving in a cool state begins to assume a degree of heat in traversing the plains of America, but which is checked by the enormous chain of mountains of which the western part of the new continent is composed, so that it is less hot under the line at Peru and Cayenne, and the natives are of a less dark complexion. If the Cordeliers were reduced to a level with the adjacent plains, the heat would be excessive in the western territories, and there would soon be men as black at Chili and Peru, as on the western coasts of Africa. It is evident then that diminution of heat in the new continent is [45] owing entirely to situation; and we shall now make it appear, that there is a much greater degree of moisture in America. The mountains being the most lofty of any upon the globe, and directly facing the east wind, they stop and condense the vapours of the air, and thus give rise to a number of springs, which, by their junction, form the greatest rivers in the world. In proportion, therefore, to its extent there are more running waters in the new continent than in the old, and which are augmented by their confined situations; for the natives having never checked the torrents, directed the rivers, nor drained the marshes, immense tracts of land are covered by the stagnant waters, by which the moisture of the air is increased and the heat diminished. Besides, the earth being every where covered with trees and coarse weeds, it never dries, but constantly produces humid and unwholesome exhalations. In these gloomy regions, Nature remains concealed under her old garments, never having received a new attire from the cultivation of man, but totally neglected, her productions languish, become corrupted, and are prematurely destroyed. It is principally then from the scarcity of men in America, and from most of them living like the brutes, that the earth has been neglected, remains cold, and is unable to produce the [46] active principles of Nature. To develope the seeds of the largest animals and enable them to grow and multiply, requires all the heat which the sun can communicate to a fertile soil; and for a reason directly opposite it is, that insects, reptiles, and all the little animals which wallow in the mud, whose blood is watery, and whose increase depends on putrefaction, are more numerous and large in the low, humid, and marshy lands of the new continent.

When we reflect on these very striking differences between the old and new continents, we can hardly help supposing that the latter is, in fact, more recent, and has remained buried under the ocean longer than the rest of the globe; for, the enormous western mountains excepted, which seem to be monuments of the most remote antiquity, it has all the appearance of being a land newly sprung up. We find sea-shells in many places under the very first stratum of the vegetable earth, formed into masses of lime-stone, though usually less hard and compact than our free-stone. If this continent is in reality as ancient as the other, why did so few men exist on it? why were the most of that few wandering savages? why did the Mexicans and Peruvians, who [47] alone had entered into society, reckon only 200 or 300 years from the first man who taught them to assemble? why had they not reduced the lama, pacos, and other animals, by which they were surrounded, into a domestic state? As their society was in its infancy, so were their arts; their talents were imperfect, their ideas unexpanded, their organs rude, and their language barbarous. The names of their animals[C], of which we have subjoined a few as a specimen, were so difficult to pronounce, that our only astonishment is, how the Europeans should have taken the trouble to write them.

[C] *Pelon ichiati oquitli*—the lama.

Tapiierete, in Brasil; *maniporous*, in Guinea—the tapir.

Macatlchichiltic temamacama—the antelope of New Spain.

Quauhtla coymatl—the Mexican hog.

Tlacoozclotl—the mountain cat.

Tlaclaughqui ocelotl, in Mexico—the jaguar.

Hoitzlaquatzin—the porcupine of New Spain.

Xoloitzchuintli—the Mexican wolf.

Thus every circumstance seems to indicate, that the Americans were new men, or rather men who had been so long estranged from the rest of their species that they had lost all idea of the world from which they had issued; that the greatest part of the American continent was new land, unassisted by man, and in which Nature had not had time to establish all her plans, or to [48] display their full extent; that the men are cold and the animals diminutive, because the ardour of

the former, and the largeness of the latter, depend on the heat and salubrity of the air; and that, in the course of a few centuries when the lands are cultivated, the forests cut down, the rivers confined within proper channels, and the marshes drained, this very country will become the most fruitful, healthy, and opulent in the world; as it appears already in every part which has been cultivated by man. We mean not to infer that large animals would then be produced, for the tapir and cabiai will never attain the size of the elephant or hippopotamus, but those which may be transported there will no longer diminish. By degrees man will fill up the vacuums in these immense territories, which, when discovered, were perfect desarts.

The first writers who recorded the conquests of the Spaniards, to heighten the glory of their arms exaggerated the number of their enemies; but is it possible for any reasonable man to credit that there were millions of inhabitants at Cuba and St. Domingo, when those writers admit there was neither a monarchy, a republic, nor scarcely any society among them; and that in these two neighbouring islands, situated at but a little distance from the continent, there were only five [49] species of animals, the largest of which was not bigger than a rabbit? Than this fact, as affirmed by Laet, Acosta, and Father du Tertre, in their different histories, no stronger proof can be adduced of the empty and desart state of this new-discovered world.

M. Fabry, who travelled for fifteen months over the western parts of America, beyond the Mississippi, assured me that he sometimes did not meet a single man for the space of 300 or 400 leagues; and all our officers who went from Quebec to the Ohio, and from that river to Louisiana, agree that it is not uncommon to travel upwards of 100 leagues without seeing a single family of savages. From these testimonies it is plain, that the most agreeable countries of this new continent were little better than desarts; but what is more immediately necessary to our purpose, they prove that we should distrust the evidence of our nomenclators, who set down in their catalogues animals as belonging to the new world which solely belong to the old, and others as native of particular districts where in fact they never existed; and in the same manner they have classed some animals as natives of the old world, which belong exclusively to America.

I do not pretend to affirm positively that none of the animals which inhabit the warm climates [50] are not common to both. To be physically certain of this it is necessary they should have been seen; but it is evident, with respect to the large animals of America, that none of them are to be found in the old continent, and very few of the small ones. Besides, allowing there to be some exceptions, they must relate to a trifling number of species, and in no degree affect the general rule which I intend to establish, and which seems to me to be our only certain guide to the knowledge of animals. This rule, which leads us to judge of them as much by climate and disposition as from figure and conformation, will seldom be found wrong, and it will enable us to avoid and discover a multitude of errors. If, for example, we mean to describe the hyæna of Arabia, we may safely affirm that it does not exist in Lapland; but we will not say with Brisson, and some others, that the hyæna and the glutton are the same animal; nor with Kolbe, that the crossed-fox, which inhabits the northern parts of the new continent, is found at the Cape of Good Hope, as the animal he mentions is not a fox, but a jackall. But it is not my object at present to point out all the errors of nomenclators; my intention is solely to prove that their blunders would [51] have been less had they paid some attention to the differences of climates; if the history of animals had been so far studied as to discover, which I have done, that those of the southern parts of each continent are never found in both; and lastly, if they had abstained from generic names, which have confounded together a number of species, not only different, but even remote from each other.

The true business of a nomenclator is not to enlarge his list, but to form rational comparisons in order to contract it. Nothing can be more easy than, by perusing all the authors on animals, and by selecting their names and phrases, to form a table which however will always be long, in proportion as the enquiry is superficial; while nothing can be more difficult than to compare them with that judgment and discernment which is necessary to reduce that table to its proper dimensions. I said before, and now repeat, that in the whole known part of the globe there are not above 200 species of quadrupeds, including among them 40 species of apes. To each of these, therefore, we had only to appropriate a name; and to retain 200 names, only a very moderate exertion of memory is required; for what purpose then are quadrupeds formed into classes and [52] genera, which are nothing more than props to serve the memory in the recollection of plants, which are so very numerous, and often so very similar. But instead of a list of 200 quadrupeds we have volumes heaped upon volumes full of intricate names and phrases. Why introduce an unintelligible jargon, when we may be understood by pronouncing a simple name? Why change terms merely to form classes? When a dozen animals are included under the name, for example, of *the Rabbit*, why is the Rabbit itself omitted, and must be sought for under the genus of *the Hare*? Is it not absurd and ridiculous to form classes in which the most remote genera are assembled together; to put in the first, for example, man and the bat; the elephant and scaly lizard in the second; the lion and ferret in the third; the hog and the mole in the fourth; and the rhinoceros and the rat in the fifth? Ideas so vague and ill-conceived can never maintain their ground. These works are destroyed by their own authors, one edition contradicting another, and neither of them approved but by children, or by such as are always the dupes of mystery, mistaking the appearance of method for the reality of science. By comparing the fourth edition of Linnæus's Systema Naturæ with the tenth, we find man is no longer classed with the bat, but [53] with the scaly lizard; that the elephant, hog, and rhinoceros, instead of being classed as before with the scaly lizard, mole, and rat, are all three huddled together with the shrew-mouse. In the former he had reduced all quadrupeds to five classes, but in the latter he divides them into seven. From these alterations we may form some idea of those introduced among the genera, and how

the species have been jumbled and confounded. According to the same author there are two species[D] of men, the man of day and the man of night, and that these are so very distinct that they ought not to be regarded as varieties of the same species. Is not this adding fable to absurdity? and were it not better to remain silent with respect to matters of which we are ignorant, than to found essential characters, and general distinctions upon the grossest error? But to whatever length criticisms of this kind might be extended, I shall proceed no farther, especially as it does not form my principal object, having already said enough to put every reader on his guard, against the general as well as particular errors which abound so much in the works of nomenclators.

[D] *Homo diurnus sapiens; homo nocturnus trogloditus.*

[54] In drawing general conclusions, from what has been advanced, we shall find that man is the only animated being in whose nature there is sufficient strength, genius, and flexibility, to subsist and multiply in all the different climates of the earth. It is evident that no other animal possesses this grand privilege, for, far from being able to multiply in every part of the globe, most of them are confined to certain climates, and even particular districts. In every respect man is the work of heaven, while many animals are the mere creatures of the earth. These of one continent exist not on another, and if there are a few exceptions, they are so changed and diminished as hardly to be known. Can a stronger proof be given that the impression of their form is not unalterable? that their nature, less permanent than that of man, may in time be varied, and even absolutely changed? that from the same cause those species which are least perfect, least active, and furnished with the fewest engines of defence, as well as the most delicate and the most cumbrous, have already, or will disappear, for their very existence depends on the form which man gives to the surface of the earth, or permits it to retain.

[55] The prodigious Mammoth, whose enormous bones I have often viewed with astonishment, and which were at least six times bigger than those of the largest elephant, exists no longer; although its remains have been found in Ireland, Siberia, Louisiana, and other places remote from each other. Of all species of quadrupeds this was certainly the largest and strongest, and since it has disappeared, how many smaller, weaker, and less remarkable, must have perished, without having left any evidence of their past existence? How many others have been improved or degraded by the great vicissitude of the earth and waters, by the culture or neglect of nature, by their long continuance in favourable or repugnant climates, that they are no longer the same! and yet, next to man, quadrupeds are beings whose nature is most fixed, and whose form most permanent. Birds and fishes vary more: those of insects are subject to greater variations still; and if we descend to plants, which ought not to be excluded from animated nature, we shall be astonished at the celerity and facility with which they vary and assume new forms.

[56] It may not be impossible, then, without inverting the order of nature, that all the animals of the new world originated from the same stock as those of the old; that having been afterwards separated by immense seas or impassable lands, they, in course of time, underwent all the effects of a climate which was new to them, and which must also have had its qualities changed by the very causes which produced its separation; and that they, in consequence, became not only inferior in size, but different in nature. But these circumstances, if true, ought not to prevent us from considering them now as animals of different species. From whatever causes these changes may have proceeded, whether produced by time, climate, or soil, or whether originating with the creation, they are not the less real. Nature is, indeed, in a perpetual fluctuation. It is sufficient for man to watch her in his own time, to look a little backward and forward, by way of forming a conjecture of what she might have been formerly and what she may hereafter be.

As to the utility to be derived from this comparison of animals, it is evident, that independent of correcting the errors of our nomenclators, our knowledge of the animal creation will be enlarged, rendered less imperfect and more certain; that we shall be in less hazard of attributing to American animals, properties which belong to those of the East Indies, because they may have the same name; that in treating of foreign animals, from accounts given by travellers, we shall be more able to distinguish names and facts, and to refer them to their true species; and, in fine, that the history in which we are now engaged will be less erroneous, and perhaps more luminous and complete.

Engraved for Barr's Buffon.

FIG. 102. ***Black Cougar***

FIG. 101. ***Tiger***

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[57]

THE TIGER.

IN the class of carnivorous animals, the lion stands foremost, and he is immediately followed by the tiger, who, possessing all the bad qualities of the former, is a stranger to his good ones. To pride, courage, and strength, the lion adds dignity, clemency, and generosity, while the tiger is ferocious without provocation and cruel without necessity. Thus it is throughout all nature where rank proceeds from the superiority of strength. The first class, sole master of all, are less tyrannical than their immediate inferiors, who, denied unlimited authority, abuse those powers which they possess; thus the tiger is more to be dreaded than the lion. The latter often forgets [58] that he is the sovereign, or strongest of animals; with an even pace he traverses the plains and forests; man he attacks not unless provoked, nor animals but when goaded by hunger. The tiger, on the contrary, though glutted with carnage, has still an insatiate thirst for blood; his rancour has no intervals. With indiscriminate fury he tears in pieces every animal he comes near, and destroys with the same ferocity a fresh animal as he had done the first. Thus he is the scourge of every country he inhabits; and of the appearance of man or his weapons, he is fearless. He will destroy whole flocks of domestic animals if he meets with them, and all the wild animals that come in his way. He attacks the young elephant and rhinoceros, and will sometimes brave the lion himself.

The form of the body usually corresponds with the nature and disposition. The noble air of the lion, the height of his limbs in exact proportion to the length of his body, his large thick mane, which covers his shoulders and shades his face, his determined aspect, and solemn pace, seem to announce the dignity and majestic intrepidity of his nature. The tiger has a body too long, limbs disproportionally short, naked head, and haggard eyes; strong characteristics of desperate malice [59] and insatiable cruelty. He has no instinct but an uniform rage, a blind fury, so undistinguishing that he not unoften devours his own progeny, and even tears the dam in pieces if she offers to defend them. Would he were to gratify his thirst for blood to its utmost, and by destroying them at their birth extinguish the whole race of monsters which he produces!

Happy is it for other animals that the species of tiger is not numerous, and that it is chiefly confined to the warmest provinces of the East. They are found in Malabar, Siam, Bengal, and in all the countries inhabited by the elephant and rhinoceros. It is, indeed, said, that they accompany the latter for the purpose of eating their dung, which serves to purge them. Be this as it may, they are often seen together at the sides of lakes and rivers, where they are probably compelled to go by thirst, having often occasion for water to cool that fervor they so constantly endure. It is also a convenient situation to surprise his victims, since the heat of the climate

compels all animals to seek for water several times a day; here he chooses his prey, or rather multiplies his massacres, for having killed one animal, he often proceeds to the destruction of [60] others, tearing open their bodies, and swallowing their blood by long draughts; for which their thirst seems never to be appeased.

When, however, he has killed a large animal, as a horse, or buffalo, he does not devour it on the spot, for fear of being disturbed, but drags it off to the forest, which he does with such ease, that the swiftness of his course seems scarcely retarded by the enormous load which he trails after him. From this circumstance we might judge of his strength, but we shall have a more just idea of it by considering his bodily dimensions. Some travellers have compared him for size to the horse, others to the buffalo, and others merely say he is larger than the lion; but we have accounts more recent, which deserve the utmost confidence. I have been assured by M. de la Lande-Magon that he saw a tiger in the East-Indies fifteen feet long; allowing that he includes the tail, and granting four feet for that, the body would still be more than ten. It is true that the skin preserved in the Royal Cabinet of France is not more than seven feet from the tip of the nose to the insertion of the tail; but this tiger had been taken very young, and was afterwards always [61] confined in a very narrow apartment, where the want of exercise, and space to range in, restraint and, perhaps, not having proper nourishment, not only its life might have been shortened, but the growth of its body prevented. From the dissection of animals of every species that have been reared in houses or court-yards, we find that their bodies and members for want of exercise, never attain their natural dimensions, and that the organs which are not used as those of generation, are so little expanded as to be scarcely perceivable.

The difference of climate alone is capable of producing the same effects as confinement and want of exercise. None of the animals of hot countries produce in cold ones, even though well fed, and at full liberty; and as reproduction is a natural consequence of full nutrition, it is evident that when the former does not operate the latter must be incomplete; and that, in such animals, cold of itself is sufficient to restrain the powers of the internal mould, and to diminish the growth, since it destroys the active faculties of reproduction. It is not, therefore, surprising that the tiger above alluded to should not have acquired its natural growth; yet from a bare view of its stuffed skin, and an examination of its skeleton, we may form an idea of its formidable strength as an [62] animal. Upon the bones of the legs there are inequalities which denote muscular ligatures stronger than those of the lion. These bones are also to the full as strong, though shorter; and, as already intimated, the height of the tiger’s legs bear no proportion to the length of his body. Thus that velocity which Pliny ascribes to him and which the word *tiger* seems to imply, ought not to be understood of his ordinary movements, or the celerity of his continued course; for it is evident, that as his legs are short and he can neither walk nor run so fast as those animals which have them proportionally longer; but this prodigious swiftness, may with great propriety, be applied to the extraordinary bounds he is capable of making without any particular effort, for if we suppose him to have the same strength and agility in proportion with the cat, which he greatly resembles in conformation, and which in an instant will leap several feet, we must allow that the bounds of a tiger, whose body is ten times as large, must be immense. It is not, therefore, the quickness of his running, but of his leaping that Pliny meant to denote, and which from the impossibility of evading, when he has made a spring, still renders him more formidable.

The tiger is, perhaps, the only animal whose spirit cannot be subdued. Neither force nor [63] restraint, violence nor flattery, can prevail, in the least, on his stubborn Nature. He is equally indignant at the gentle and harsh usage of his keeper; and time instead of mollifying his disposition, only serves to increase his fierceness and malignity. With equal wrath he snaps at the hand that feeds as that which chastises him. He roars at the sight of every object which lives, and seems to consider all as his proper prey; he seems to devour beforehand with a look, menacing it with the grinding of his teeth, and, regardless of his chains, makes efforts to dart upon it, as if to shew his malignity when incapable of exerting his force.

To complete the idea of the strength of this terrible animal we shall quote Father Tachard’s account of a combat between a tiger and three elephants, at Siam, of which he was an eye-witness; he says, “a lofty palisade of bamboo cane was built, about a hundred feet square, into which inclosure three elephants were introduced, for the purpose of fighting a tiger. Their heads, and part of their trunks, were covered with a kind of armour like a mask. As soon as we arrived at the place a tiger was brought forth, of a size much larger than any we had seen before; he was [64] not at first let loose, but held by two cords, so that he could not make a spring; one of the elephants approached and gave him three or four blows on the back with his trunk, with such force as to beat him to the ground, where he lay for some time without motion, as if he had been dead, although this first attack had greatly abated his fury, he was no sooner untied, and at liberty, than he gave a loud roar, and made a spring at the elephant’s trunk, which was stretched out to strike him; but the elephant drew up his trunk with great dexterity, received the tiger upon his tusks, and tossed him up into the air. This so discouraged him that he no more ventured to approach the elephant, but made several turns round the palisade, making several efforts to spring at the spectators. Shortly after a second, and then a third elephant was set against him, each of which gave him such blows that he once more lay for dead, and they certainly would have killed him had not an end been put to the combat.” From this account we may form some idea of the strength and ferocity of the tiger; for this animal, though young, and not arrived at his full growth, though reduced to captivity, and held by cords, yet he was so formidable to three such [65] enormous foes, that it was thought necessary to protect those parts of their bodies which were not defended by impenetrable skin.

The tiger, of which an anatomical description was made by the Jesuits at China, and communicated by Father Gouie to the Academy of Sciences, seemed to be the true species,[E] as does also that which the Portuguese have distinguished by the name of Royal Tiger. Dellon expressly says, in his Travels, that tigers abound more in Malabar than in any other part of the East Indies; that their species are numerous, but that the largest, which is as big as a horse, and called by the Portuguese the Royal Tiger, is very rare. To all appearance, then, the Royal Tiger is not a different species; he is found in the East Indies only; and, notwithstanding what has been said by Brisson, and others, is an utter stranger at Brasil. I am even inclined to think that the real tiger is peculiar to Asia, and the inland parts of the south of Africa; for though the generality of travellers, who have frequented the African coasts, speak of tigers as very common, yet it is very [66] plain, from their own accounts of them, that they are either leopards, panthers, or ounces. Dr. Shaw says, that the lion and panther hold the first rank at Tunis and Algiers, and that in those parts of Barbary the tiger is an animal unknown. This observation seems founded in truth, for they were Indian, and not African, ambassadors, who presented Augustus, while at Samos, the first tiger the Romans had ever seen; and it was also from the Indies that Heliogabalus procured those tigers, with which, in order to represent the god Bacchus, he proposed that his car should be drawn.

[E] This tiger was streaked, and had been slain, with four others, in the field, by the Emperor, it weighed 265lbs; but one of them weighed 400; when dissected, one-third of its stomach was full of worms, and yet it could not be said the animal had begun to putrify. *Hist. Acad.* 1669.

Thus the species of the tiger has always been more rare and less diffused than that of the lion. The female, like the lioness, however, produces four or five cubs at a time. She is fierce at all times, but, upon her young being in danger, her fury becomes excessive. She then braves every danger to secure them, and will pursue the plunderers of them with such ferocity, that they are often obliged to drop one to secure the rest; this she takes up and conveys to the nearest cover, and then renews the pursuit, and will follow them to the very gates of towns, or to the ships in which they may have taken refuge; and when she has no longer hopes recovering her young, she expresses her agony by the most dismal howls of despair. [67]

The tiger testifies his anger in the same manner as the lion; he moves the skin of his face, shews his teeth, and roars in a frightful manner; but the tone of his voice is very different; and some travellers have compared it to the hoarse croak of certain large birds; and the ancients expressed it by saying, *Tigrides indomitæ raucant, rugiuntque Leones*.

The skins of these animals are much esteemed, particularly in China; the Mandarins cover their seats and sedans with them, and also their cushions and pillows in winter. In Europe, though scarce, they are of no great value; those of the panther and leopard being held in much greater estimation. The skin is the only advantage, trifling as it is, which man can derive from this dreadful animal. It has been said that his sweat is poisonous, and that the hair of his whiskers is more dangerous than an envenomed arrow; but the real mischiefs he does when alive are sufficient, without giving imaginary ones to parts of his body when dead; for certain it is, the Indians eat the flesh of the tiger, and that they neither find it disagreeable nor unwholesome, and if the hair of his whiskers, taken in the form of a pill, do destroy, it is that being hard and sharp it [68] produces the same effect in the stomach as a number of small needles would.

THE PANTHER, OUNCE, AND LEOPARD.

IN order to avoid an erroneous use of names, to prevent doubt, and to banish ambiguity, it may be necessary to remark that, in Asia and Africa, there are, beside the tiger, whose history we have just given, three other animals of the same genus, but which not only differ from him, but also from each other. These are the Panther, Ounce and Leopard, which have been confounded together by naturalists, and also with a species of the same kind peculiar to America; but to prevent confusion, we shall, in the present instance, confine ourselves solely to those of the old continent.

Engraved for Barr's Buffon.

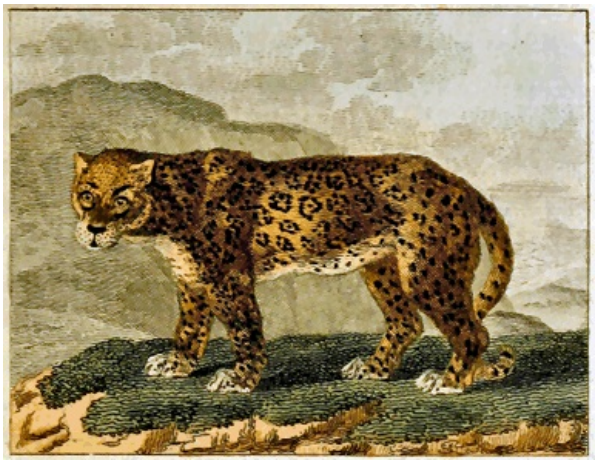

FIG. 107. ***Panther***

FIG. 108. ***Caracal***

The first of these species is the Panther, (*fig. 107*) which the Greeks distinguished by the name [69]
of Pardalis, the Latins by that of Panthera, and Pardus, and the more modern Latins by Leopardus. The body of this animal, when it has attained its full growth, is five or six feet long, from the tip of the nose to the insertion of the tail, which is above two feet long. Its colour is of a yellow hue, more or less dark on the back and sides, and whitish under the belly; it is marked with black spots which are circular, or in the form of a ring, and in which rings there are generally lesser spots in the centre of the same colour; some of these are oval, others, circular, and are frequently above three inches in diameter; on the face and legs the black spots are single, and on the tail and belly they are irregular.

The second is the Little Panther of Oppian, which the ancients have distinguished by no particular name, but which modern travellers have called Ounce, corrupted from the name of lynx or lunx. To this animal we shall preserve the name of Ounce, because, in fact, it seems to have some affinity to the lynx. It is much less than the panther, its body being only about three feet and a half long, which is nearly the size of the lynx; its hair is longer than that of the panther, as is also its tail, which sometimes measures three feet, although its body is one-third less than that of the panther, whose tail never exceeds two feet and an half. The colour of the ounce is whitish grey upon the back and sides, and still more white under the belly; the back and sides of [70]
the panther are always yellow, but the spots are nearly of the same size and form in them both.

The third species was unknown to the ancients, being peculiar to Senegal, Guinea, and other southern countries which they had not discovered; and which we, following the example of travellers, shall call Leopard a name which has been improperly applied to the panther. The Leopard is larger than the ounce, though considerably smaller than the panther, being only four feet in length, the tail measures from two to two feet and a half. On the back and sides the hair is of a yellow colour, under the belly it is whitish; it has black annular spots like those of the panther and ounce, but smaller and less regularly disposed.

Each of these animals, therefore, forms a different species. Our furriers call the skins of the first species panther skins; those of the second, which we call ounce, African tiger skins; and those of the third, or leopard, very improperly tiger skins.

Oppian knew the panther and ounce, and was the first who observed there were two species of the former, the one large and the other small. Though alike in the form of their bodies and the [71]
disposition of the spots, yet they differed in the length of their tails, which in the small species was longer than in the large ones. The Arabians have named the large panther Nemer, and the small one Phet or Phed; which last seems to be a corruption of Faadh, the present name of this animal in Barbary. “The Faadh,” says Dr. Shaw, in his Travels, “resembles the leopard, (he should have expressed it panther) in having similar spots, in other respects they however differ, for the skin of the faadh is more dark and coarse, and its disposition is also less fierce.” Besides we learn from a passage of Albert, commented on by Gesner, that the phet, or phed of the Arabs, is called in the Italian, and some other European languages Leuaza, or Lonza. It is beyond a doubt then,

that the little panther of Oppian, the phet or phed of the Arabians, the faadh of Barbary, and the onza, or ounce of the Europeans, is the same animal; and probably also is the Pard or Pardus of the ancients, and the Panthera of Pliny; since he mentions its hair is white, whereas, as we have observed, that of the great Panther is yellow. It is, besides, highly probable that the little panther was simply called pard or pardus, and that, in process of time, the large panther obtained the [72] name of leopard, or leopardus, from a notion that it was a mongrel species, which had aggrandized itself by an intermixture with that of the lion. As this could only be an unfounded prejudice, I have preferred the primitive name of panther to the modern compound one of leopard, which last I have applied to another animal that has hitherto been mentioned by equivocal names only. The ounce therefore differs from the panther, in being smaller, having a longer tail, also longer hair, of a whitish grey colour; while the leopard differs from them both, by having a coat of a brilliant yellow, more or less deep, and by the smallness of his spots, which are generally disposed in groups, as if each were formed by three or four united.

Pliny, and several after him, have said, that the coat of the female panther was whiter than that of the male. This may be true of the ounce, but no such difference have we ever observed in the panthers belonging to the menagerie of Versailles, which were designed from life; and if there be any difference between the colour of the male and female it can be neither very permanent nor sensible; in some of the skins we have, indeed, perceived different shades, but which we rather ascribed to the difference of age or climate than of sex. [73]

The animals described and dissected by the Academy of Sciences, under the name of Tigers, and that described by Caius, in Gesner, under the name of Uncia, are of the same species as our leopard; and of this there cannot remain a doubt, after comparing the figure, and the description which we have given, with those of Caius and M. Perrault. The latter, indeed, says, that the animals so dissected and described by the gentlemen of the Academy, under the name of tigers, were not the ounce of Caius; but the only reasons he assigns are, that the ounce is smaller, and has not white on the under part of its body. It may also be observed, that Caius, who does not give the exact dimensions, says, generally it was bigger than the shepherd’s dog, and as thick as the bull-dog, though shorter in its legs; how, therefore, Perrault should assert the ounce of Caius to be smaller than the tigers dissected by the gentlemen of the Academy I am at a loss to conceive, for those animals measured only four feet from the nose to the tail, which is the exact length of the leopard we are now describing. On the whole, then, it appears, that the tigers of the Academy, the ounce of Caius, and our leopard, are the same animal; and not less true do I [74] conceive it that our panther is the same with the panther of the ancients, notwithstanding the distinctions which have been attempted to be made by Linnæus, Brisson, and other nomenclators, as they perfectly resemble each other in every respect but size, and that may safely be ascribed to confinement and want of exercise. This difference of size at first perplexed me, but after a scrupulous examination of the large skins sold by the furriers with that of our own, I had not the smallest doubt of their being the same animals. The panther I have described, and two other animals of the same species kept at Versailles, were brought from Barbary. The two first were presented to the French King by the Regency of Algiers, and the third was purchased for his Majesty of an Algerine Jew.

It is particularly necessary to observe, that neither of the animals we are now describing can be classed with the pardus of Linnæus, or the leopardus of Brisson, as they are described with having long spots on the belly, which is a characteristic that belongs neither to the panther, ounce, or leopard, and yet the panther of the ancients has it, as well as the pardus of Gesner, and the panthera of Alpinus; but from the researches I have made I am convinced that these three [75] animals, and perhaps a fourth, which we shall treat of hereafter, and which have not these long spots on the belly, are the only species of this kind to be found in Asia and Africa, and therefore we must hold this character of our nomenclators as fictitious, especially when we recollect, that if any animals have these long spots, either in the old or new continent, they are always upon the neck or back, and never on the belly. We shall merely observe further, that in reading the ancients we must not confound the *panther* with the *panthera*, the latter is the animal we have described, but the panther of the scholiasts of Homer and other authors, is a kind of timid wolf, perhaps the jackall, as I shall explain when I come to the history of that animal.

After having dissipated the cloud under which our nomenclators seem to have obscured Nature, and removed every ambiguity, by giving the exact description of the three animals under consideration, we shall now proceed to the peculiarities which relate to them respectively.

Of the panther, which I had an opportunity of examining alive, his appearance was fierce, he had a restless eye, a cruel countenance, precipitate motions, and a cry similar to that of an [76] enraged dog, but more strong and harsh; his tongue was red and exceedingly rough, his teeth were strong and pointed; his claws sharp and hard; his skin was beautiful, of a yellow hue, interspersed with black spots of an annular form, and his hair short; the upper part of his tail was marked with large black spots, and with black and white ringlets towards the extremity; his size and make was similar to that of a vigorous mastiff, but his legs were not so large.

Engraved for Barr’s Buffon.

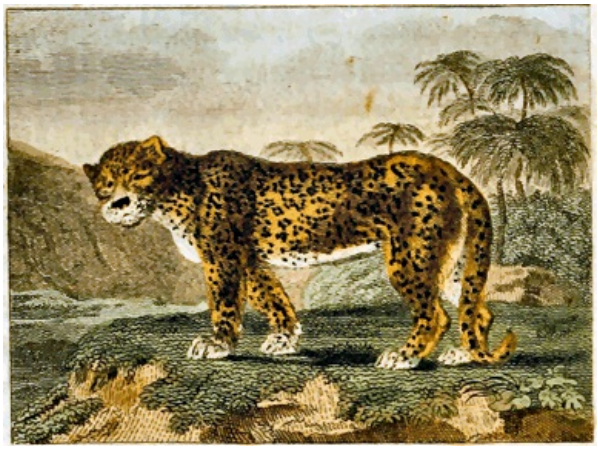

FIG. 103. ***Leopard***

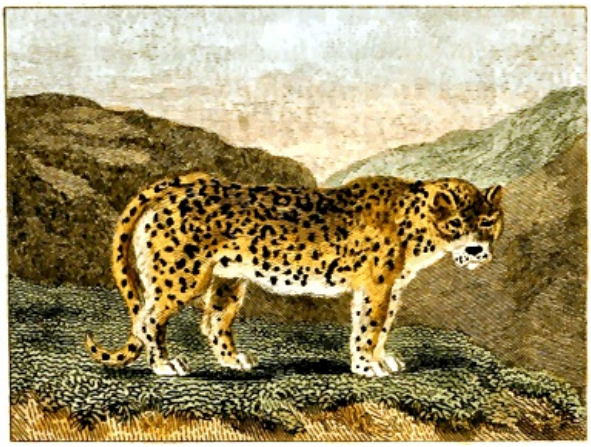

FIG. 104. ***Ounce***

All our travellers confirm the testimonies of the ancients as to the large and small panther, [77]
that is, our panther and ounce. It appears that there now exist, as in the days of Oppian, in that part of Africa which extends along the Mediterranean, and in the parts of Asia which were known to the ancients, two species of panthers, the largest of which has been called panther or leopard, and the smaller ounce, by the generality of travellers. By them it is universally allowed that the ounce is easily tamed, that he is trained to the chace and employed for this purpose in Persia, and in several other provinces of Asia; that some ounces are so small as to be carried by a horseman on the crupper, and so mild as to allow themselves to be handled and caressed.[F] The Panther appears to be of a more fierce and stubborn nature; when in the power of man, and in his gentlest moments, he seems rather to be subdued than tamed. Never does he entirely lose the ferocity of his disposition; and in order to train him to the chace, much care and precaution are necessary. When thus employed, he is shut up in a cage and carried in one of the little vehicles of the country; as soon as the game appears, the door is opened, and he springs towards his prey, generally overtaking it in three or four bounds, drags it to the ground and strangles it; but if disappointed of his aim he becomes furious, and will even attack his master, who to prevent this dangerous consequence usually carries with him some pieces of flesh or live animals, as lambs or kids, one of which he puts in his way to appease the fury arising from his disappointment.

[F] A particular account of this practice is related in Tavernier's Travels; Chardin's Travels in Persia; Gesner's Hist. Quad. Pros. Alp. Hist. Egypt. Bernier dans le Mosul, &c.

The species of the ounce (*fig. 104*) seems to be more numerous, and more diffused than that of [78]
the panther; it is very common in Arabia, Barbary, and the southern parts of Asia, Egypt, perhaps, excepted.[G] They are even known in China, where they are distinguished by the name of *hinen-pao*.[H] The ounce is employed for the chace, in the hot climates of Asia, because dogs are very rarely to be found unless transported thither, and then they very soon lose not only their voice but their instinct.[I] Besides the panther, ounce, and leopard, have such an antipathy to dogs, that they attack them in preference to all other animals.[J] In Europe our sporting dogs have no enemy but the wolf; but in countries full of tigers, lions, panthers, leopards, and ounces, which are all more strong and cruel than the wolf, to attempt to keep dogs would be in vain. As the scent of the ounce is inferior to that of the dog, he hunts solely by the eye; with such vigour does he bound, that a ditch, or a wall of several feet high, is no impediment to his career; he often climbs trees to watch for his prey, and when near, will suddenly dart upon them; and this [79]
method is also adopted by the panther and leopard.

[G] Maserier affirms that there are neither lions, tigers, nor leopards in Egypt. *Descrip. Egypt, Tom. II.*

[H] A kind of leopard or panther found in the province of Pekin; it is not so ferocious as the ordinary tigers. *Thevenot.*

[I] Vide Voyage de Jean Ovington, *Tom. I. p. 278.*

[J] The leopards, says le Maire, are deadly enemies to dogs, and devour all of them they meet.

The Leopard, (*fig. 103*) has the same manners and disposition as the panther; but in no part does he appear to have been tamed like the ounce; nor do the Negroes of Senegal and Guinea, where he greatly abounds, ever make use of him in the chace. He is generally larger than the ounce, but smaller than the panther; and his tail, though shorter than that of the ounce, is from two to two feet and a half in length. This leopard of Senegal and Guinea, to which we have particularly appropriated the name of *leopard*, is probably the animal which at Congo is called the *Engoi*; and perhaps also the *Antamba*[K] of Madagascar. I quote these names, from a persuasion that an acquaintance with the denominations applied to them in the countries which they inhabit would increase our knowledge of animals.

[K] The antamba is a beast as large as a dog; it has a round head, and, in the opinion of the Negroes, resembles the leopard; it devours both men and cattle, and is only to be found in the most unfrequented parts of the island. *Flacourt's Voyage.*

The species of the leopard seems to be subject to more varieties than that of the panther and the ounce. I have examined many leopards' skins which differed from each other, not only in the [80] ground colour, but in the shade of the spots which last are always smaller than those of the panther or the ounce. In all leopards' skins, the spots are nearly of the same size and the same figure, and their chief difference consists in their colour being deeper in some than in others; in being also more or less yellow, consists also the difference in the hair itself; but as all these skins are nearly of the same size, both in the body and tail, it is highly probable they belong to the same species of animals.

The panther, ounce, and leopard, are only found in Africa, and the hottest climates of Asia; they have never been diffused over the northern, nor even the temperate regions. Aristotle speaks of the panther as an animal of Asia and Africa, and expressly says, it does not exist in Europe. It is impossible, therefore, that these animals, which are confined to the torrid zone of the old continent, could ever have passed to the new world by any northern lands; and it will be found, by the description we shall give of the American animals of this kind, that they are a different species, and ought not to be confounded with those of Africa and Asia, as they have been by most of our nomenclators.

These animals, in general, delight in the thickest forests, and often frequent the borders of [81] rivers, and the environs of solitary habitations, where they surprise their prey, and seize equally the tame and wild animals that come there to drink. Men they seldom attack, even though provoked. They easily climb trees in pursuit of wild cats and other animals, which cannot escape them. Though they live solely by prey, and are usually meagre, travellers pretend that their flesh is not unpalatable; the Indians and negroes eat it, but they prefer that of the dog. With respect to their skins, they are all valuable, and make excellent furs. The most beautiful and most costly is that of the leopard, which, when the colours are bright, not unfrequently sells for eight or nine guineas.

THE JAGUAR.

THE jaguar (*fig. 105*) resembles the ounce in size, and nearly so in the form of the spots upon his skin, and in disposition. He is less ferocious than the panther or the leopard. The ground of his colour, like that of the leopard, is a bright yellow, and not grey like that of the ounce. His tail [82] is shorter than that of either; his hair is longer than the panther's, but shorter than that of the ounce; it is frizzled when he is young, but smooth when at full growth. I never saw this animal alive, but had one sent me entire and well preserved in spirits, and it is from this subject the figure and description have been drawn; it was taken when very young, and brought up in the house till it was two years old, and then killed for the purpose of being sent to me; it had not therefore acquired its full growth, but it was evident, from a slight inspection, that its full size would hardly have equalled that of an ordinary dog. It is, nevertheless, an animal the most formidable, the most cruel, it is, in a word, the tiger of the new world, where Nature seems to have diminished all the genera of quadrupeds. The Jaguar, like the tiger, lives on prey; but a lighted brand will put him to flight, and if his appetite is satisfied, he so entirely loses all courage and vivacity, that he will fly from a single dog. He discovers no signs of activity or alertness but when pressed with hunger. The savages, by nature cowardly, dread his approach. They pretend he has a particular propensity to destroy them, and that if he meets with Indians and Europeans [83] asleep together, he will pass the latter and kill the former. The same thing has been said of the leopard, that he prefers black men to white, that he scents them out, and can distinguish them as well by night as by day.

Almost all the authors who have written the History of the New World, mention this animal, some by the name of tiger or leopard, and others under the names given them at Brasil, Mexico, &c. The first who gave a particular description of him were Piso and Marcgrave, who called him jaguara, instead of janouara, his Brasilian name. They also speak of another animal of the same

genus, and perhaps of the same species, under the name of jaguarette; but, like those two authors, we have distinguished them from each other, because there is a probability of their being different species; but whether they are really so, or only varieties of the same species, we cannot determine, having never seen but one of the kinds. Piso and Marcgrave say, that the jaguarette differs from the jaguar, by its hair being shorter, more glossy, and of a different colour, being black, interspersed with spots of a still deeper black. But from the similitude in the form of his body, in his manners, and disposition, he may, nevertheless, be only a variety of the [84] same species, especially as, according to the testimony of Piso, the ground colour of the jaguar, as well as that of the spots, vary in different individuals; he says that some are marked with black, and others with red or yellowish spots; and with regard to the difference of colour, that is, of grey, yellow, or black, the same is to be met with in other species of animals, as there are black wolves, black foxes, black squirrels, &c. If such variations are not so common among wild as tame animals, it is because the former are less liable to those accidents which tend to produce them. Their lives being more uniform, their food less various, and their freedom less restrained, their nature must be more permanent, that is, less subject to accidental alterations and changes in colour.

The jaguar is found in Brasil, Paraguay, Tucuman, Guiana, in the country of the Amazons, in Mexico, and in all parts of South America. At Cayenne, however, this animal is more scarce than the cougar, which they denominate red tiger, nor is the jaguar so common now in Brasil, which appears his native country, as it was formerly. A price has been set upon his head, so that many of them have been destroyed, and the others have withdrawn themselves from the coasts to the inland parts of the country. The jaguarette appears to have been always more scarce, or at least to have inhabited those places which were distant from the haunts of men, and the few travellers who mention him appear to have drawn their accounts entirely from Marcgrave and Piso.

Engraved for Barr's Buffon.

FIG. 105. ***Jaguar of New Spain***

FIG. 106. ***Cougar***

[85]

SUPPLEMENT.

M. Le BRUN had a female Jaguar of New Spain (*fig. 105*) sent him in the year 1775; it appeared very young, and was much less than the one described in the original work, this measuring one foot eleven inches long, and the former two feet five inches; there was a great resemblance between them, and the differences only such as are common to the varieties of the same species. The ground colour of the one we are now speaking of was a dirty grey intermixed with red: the spots were yellow, bordered with black; its head yellow, and ears black, with a

white spot on the external part.

Among a number of excellent remarks made by M. Sonnini de Manoncour, respecting the [86]
jaguars of Guiana, he says, “the hair of the young jaguar is not frizzled, as stated by M. de Buffon, but perfectly smooth, and with regard to their only equalling the size of an ordinary dog, I have had the skin of one that measured near five feet from the nose to the tail, which was two feet long; and from the tracks I have seen of these animals I have little doubt of the American tigers being as large as those of Africa, except the royal tiger, the largest animal to which that name is given; for the panther, which M. de Buffon considers the largest, does not exceed five or six feet when full grown, and it is certain that some of these animals exceed those dimensions. When young their colour is a deep yellow, which becomes lighter as they advance in years. He is not by any means an indolent animal; he constantly attacks dogs, commits great devastation among flocks, and in the desarts is even formidable to men. In a journey I made through these forests, we were tormented with one for three successive nights, and yet he avoided all our attempts to destroy him; but finding we kept up large fires, of which they are much afraid, he at last left us with a dismal howling. At Cayenne the natives have an idea that the jaguar would rather destroy them than the whites, but it is not so with the savages, with whom I have travelled through the [87]
desarts, and never found them to have any particular terror; they slept as we did, with their hammocks suspended, making a little fire under them, which often went out before the morning; and, in short, took no particular precautions, where they knew themselves surrounded with those animals. (This, observes M. Buffon, is a strong proof that they are not very dangerous animals to men.) The flesh of the jaguar is not good. All the animals of the new continent fly from him, not being able to withstand his power: the only one capable of making any tolerable resistance is the ant-eater, who, on being attacked, turns on his back, and often preserves himself by the strength of his long claws.”

THE COUGAR.

THE Cougar, (*fig. 106*) is longer but less thick than the jaguar; he is more agile, more slender, and stands higher on his legs; he has a small head, long tail, and short hair, which is nearly of [88]
one entire colour, namely, a lively red, intermixed with a few blackish tints, particularly on his back. He is neither marked with stripes like the tiger, nor with spots like the panther, ounce, or leopard. His chin, neck, and all the inferior parts of his body are whitish. Though not so strong as the jaguar he is as fierce, and perhaps more cruel. He appears more ravenous, for having once seized his prey, he kills it, and without waiting to tear it to pieces, he continues to eat and suck alternately, until he has gorged his appetite and glutted his blood-thirsty fury.

These animals are common in Guiana. They have been known formerly to swim over from the continent to Cayenne, in order to devour the flocks; insomuch that they were at first considered as the scourge of the colony; but by degrees the settlers lessened their numbers, and by continually hunting them have compelled the remainder to retire far from the cultivated parts of the country. They are found in Brasil, Paraguay, and in the country of the Amazons; and there is reason to believe that the animal, described by some travellers, under the name of the Ocorome, in Peru, is the same as the cougar, as well as that in the country of the Iroquois, which has been considered as a tiger, though it is neither striped like that animal, nor spotted like the panther. [89]

The cougar, by the lightness of his body, and length of his legs, seems to be more calculated for speed, and climbing of trees, than the jaguar. They are equally indolent and cowardly, when glutted with prey; and they seldom attack men unless they find them asleep. When there is a necessity for passing the night in the woods, the kindling a fire is the only precaution necessary to prevent their approach.[L] They delight in the shades of forests, where they hide themselves in some bushy tree, in order to dart upon such animals as pass by. Though they live only on prey, and drink blood more often than water, yet it is said their flesh is very palatable. Piso says, it is as good as veal; and Charlevoix, and others, have compared it to mutton. I think it is hardly credible that the flesh can be well tasted; and therefore prefer the testimony of Desmarchais, who says, the best thing about this animal is his skin, of which they make horse-cloths, his flesh being generally lean and of a disagreeable flavour.

[L] The Indians on the banks of the Oronoka, in Guiana, light a fire during the night in order to frighten away the tigers who dare not approach the place at long as the fire remains burning.

[90]

SUPPLEMENT.

MR. COLINSON mentions another species of cougar, which is found on the mountains of

Carolina, Georgia, Pennsylvania, and the adjacent provinces, and which, from his account, seems to differ very much from that just described; his legs being shorter, and his body and tail much longer, but in colour, and in the shape of the head, they have a perfect resemblance.

M. de la Borde describes three species of rapacious animals at Cayenne; first, the jaguar, which they call tiger; the second, the cougar, or red tiger; (the former is about the size of a large bull-dog, and the latter much smaller) and the third they call black tiger, which we have termed black cougar. (*fig. 102*) “Its head, continues M. de la Borde, is somewhat like that of a common cougar; it has long black hair, a long tail, and large whiskers, but is much less than the other. The skin of both the jaguar and cougar are easily penetrated even with the arrows of the Indians. [91] When very hard set for food, they will attack cows and oxen; in this case they spring upon their backs, and having brought them to the ground, they tear them to pieces, first opening their breasts and bellies, to glut themselves with their blood; they then drag pieces of flesh into the wood, covering the remainder with branches of trees, and keeping near to feed upon it, until it begins to putrify, when they touch it no more. They will keep near a flock of wild hogs, for the purpose of seizing the stragglers, but cautiously avoid being surrounded by them. They often seek for prey on the sea-shore, and devour the eggs left there by the turtles: they also make prey of the caïmans, or alligators, lizards, and fishes; to take the former, they use the craft of lying down by the edge of the water, which they strike so as to make sufficient noise to attract his attention, who will come towards the place, and no sooner puts his head above water, than his seducer makes a certain spring at him, kills and drags him to some convenient place where he may devour him at leisure. It is said by the Indians that the jaguar decoys the agouti in the same manner, by counterfeiting his cry. They sometimes eat the leaves and buds of the Indian figs; [92] they are excellent swimmers, and cross the largest rivers. They seldom have more than one young at a time, which they hide in the trunks of hollow trees. They eat their flesh at Cayenne, and, when young, it is as white as that of a rabbit.”

The cougar is easily tamed, and rendered nearly as familiar as domestic animals.

THE LYNX.

THE gentlemen of the Academy of Sciences have given a very accurate description of the Lynx, and have discussed with equal ingenuity and erudition the circumstances and names relative to this animal, which occur in the writings of the ancients. They have shewn that the lynx of Ælian is the same animal which they have dissected and described under the name of Lupus-cervarius, and justly censure those who have taken it for the Thos of Aristotle. This discussion is enriched with observations and reflections equally interesting and pertinent; it is a pity, [93] therefore, they had not adopted its real name of lynx, instead of that which is the same that Gaza gave to the *thos* of Aristotle. Having, like Oppian, intimated that there are two species or races of the lynx, the one large, which chaces the stag and fallow-deer, and the other smaller, which scarcely hunts any thing but the hare, they appear to have confounded the two species together, namely, the spotted lynx, which is commonly found in the northern countries; and the lynx of the Levant or Barbary, whose skin is of an uniform colour. I have seen both these animals alive, and they closely resemble each other in many particulars. They have both long stripes of black hair at the extremities of their ears. This very circumstance, by which Ælian first distinguished the lynx, belongs, in fact, to these animals only, and perhaps it was this which induced the Academy to consider them as the same species. But, independently of the difference of colour and spots upon the hair, it will appear extremely probable that they belong to two distinct species.

Klein says, that the most beautiful lynx belongs to Africa and Asia in general, and to Persia in particular; that he had seen one at Dresden, which came from Africa, which was finely spotted, [94] and of a considerable height; that those of Europe, especially from Prussia, and other northern countries are less pleasing to the eye, that their colour is little, if at all, inclined to white, but rather of a reddish hue, with spots confused and huddled together. Without absolutely denying what M. Klein has here advanced, I must declare I could never learn from any other authority that the lynx is an inhabitant of the warm climates of Asia and Africa. Kolbe is the only writer who mentions the lynx as common at the Cape of Good Hope, and as perfectly resembling that of Brandenburg in Germany; but I have discovered so many mistakes in the writings of this author, that I never gave much credit to his testimony, unless when supported by that of others. Now all travellers mention having seen the spotted lynx in the North of Germany, in Lithuania, Muscovy, Siberia, Canada, and other northern regions of both continents; but not one, whose accounts I have read, asserts he met with this animal in the warm climates of Africa or Asia. The lynxes of the Levant, Barbary, Arabia, and other hot climates, are, as I before observed, of one uniform colour, and without spots; they cannot, therefore, be the same as that mentioned by Klein, which [95] he says was finely spotted, nor that of Kolbe, which, according to his statement, perfectly resembled those of Brandenburgh. It would be difficult to reconcile these testimonies with the information we have from other hands. The lynx is certainly more common in cold than in temperate climates, and is at least very rare in hot ones. He was, indeed, known to the Greeks and Romans; a circumstance which does not, however, infer that he came from Africa, or the

southern provinces of Asia. Pliny, on the contrary, says, that the first of them which were seen at Rome, came from Gaul in the time of Pompey. At present there are none in France, except possibly a few in the Alpine and Pyrenean mountains. But the Romans, under the name of Gaul, comprehended several of the northern countries; and, besides, France is not at this time so cold as it was in those times.

The most beautiful skins of the lynx come from Siberia, as belonging to the *Loup-cervier*, and from Canada, under the name of *chat-cervier*, because, like all other animals, they are smaller in the new than in the old world; and are therefore compared to the wolf in Europe, and to the cat in Canada. What seems to have deceived M. Klein, and might have deceived even more able [96] writers is, first, that the ancients have said that India furnished lynxes to the god Bacchus; secondly, Pliny has placed the lynx in Ethiopia, and has said their hides and claws were prepared at Carpathos, now Scarpantho or Zerpantho, an island in the Mediterranean, between Rhodes and Candia; thirdly, Gesner has allotted a particular article to the lynx of Asia or Africa, in which there is the following extract of a letter from Baron Balicze. “You have not,” says he to Gesner, “mentioned in your history of animals, the Indian or African lynx. As Pliny has mentioned it, the authority of that great man has induced me to send you a drawing of this animal, that you may include it in your list. This drawing was made at Constantinople. This animal is very different from the lynx of Germany, being much larger, has shorter and rougher hair, &c.” Gesner, without making any reflections on this letter, contents himself with giving the substance of it, and intimating within a parenthesis, that the drawing never came to hand.

To prevent a continuance of these errors, let it be observed, first, that poets and painters have affixed tigers, panthers, and lynxes, to the car of Bacchus, as best pleased their fancies; or rather [97] because all fierce and spotted animals were consecrated to that god; secondly, that it is the word *lynx* which constitutes the whole of the ambiguity, since by comparing what Pliny says in one[M] passage with two others[N] it is plain that the Ethiopian animal which he calls lynx, is by no means the same as the chaus, or lupus-cervarius, which comes from the northern countries; and that it was from this name being improperly applied that the Baron Balicze was deceived though he considers the Indian lynx as a different animal from the German luchs, or our lynx. This Indian or African lynx, which he has described as larger and more full of spots than our lynx, was in all probability, a kind of panther. However true or erroneous this last conjecture may be, it appears that the lynx, of which we are now treating, is a stranger in the southern countries, and is found only in the northern parts of the new and old continents. Olaus says this animal is common in the forests of the North of Europe; Olearius, in speaking of Muscovy, asserts the same thing; Rosinus Lentilius observes that the lynx is common in Courland and Lithuania, and that those of Cassubia, a province of Pomerania, are very small, and not so much spotted as those of Poland and [98] Lithuania; and lastly, Paul Jovius confirms these testimonies by adding, that the finest skins of the lynx come from Siberia, and that there is a great traffic carried on with them at Ustivaga, a town about 600 miles from Moscow.

[M] Vide Pliny, lib. VIII. cap. 19.

[N] Ibid. VIII. c. 22, 23.

This animal, which as we have shewn, prefers the cold to the temperate climates, is one of those which might have passed from one continent to the other through the northern regions, and this is probably the reason why we find him a tenant of the northern parts of America. Travellers have described him in such a manner as to preclude all mistake; and besides its skin forms an article of commerce between Europe and America. The lynx of Canada, as we have already remarked, is only smaller and whiter than those of Europe, and it is from this difference in size that they have been distinguished with the appellation of *chat-cervier*, and been considered by our nomenclators as animals of a different species. Without pronouncing decisively upon this question we shall only observe, that to all appearance the lynxes of Canada and of Muscovy are of the same species, first because the difference in size is not very considerable, since it is almost relatively the same as that which takes place between all animals common to [99] both continents; the wolf, fox, &c. being smaller in America than they are in Europe, it cannot be expected to be otherwise with the lynx. Secondly, because, even in the north of Europe, these animals are found to vary in size; and authors mention two kinds, the one large and the other small. Thirdly, because they equally require the same climate, are of the same dispositions, the same figure, differing only in size, and a few trifling particulars of colour, circumstances not sufficient to authorize our pronouncing them to be two distinct species.

The lynx, of which the ancients have said his sight could penetrate opaque bodies, and whose urine possessed the properly of hardening into a precious stone, called Lapis Lyncurius, is an animal that never existed, any more than the properties attributed to him, except in fable. To the true lynx this imaginary one has no affinity but in name. We must not, therefore, following the example of most naturalists, attribute to the former, which is a real being, the properties of this imaginary one, the existence of which even Pliny himself does not seem disposed to believe, since he speaks of it as an extraordinary animal, and classes it with the sphynx, the pegasus, and other [100] prodigies, or monsters, the produce of Ethiopia, a country with which the ancients were very little acquainted.

Our lynx, though he cannot see through stone walls, has bright eyes, a mild aspect, and an agreeable lively appearance. His urine produces not precious stones, but he covers it with earth, like the cats, to whom he has a near resemblance, and whose manners, and love of cleanliness are the same. In nothing is he like the wolf but in a kind of howl, which being heard at a

considerable distance often deceives the hunters, by making them suppose they hear a real wolf. This alone, perhaps, is the cause of his having received the appellation of *loup*, and to distinguish him from the real wolf, and because he attacks the stags, the epithet of *cervarius* might have afterwards been added. The lynx is not so big as the wolf, has shorter legs, and generally about the size of a fox. He differs from the panther and ounce in the following particulars; he has longer hair, his spots are less lively, and are badly disposed; his ears are much longer, and they have tufts of black hairs at the points; his tail is shorter, and is also black at the end; his eyes have a whitish cast, and his countenance is more agreeable, and less ferocious. The skin of the male is [101] more spotted than that of the female. He does not run like the wolf, but walks and bounds like the cat. He lives upon other animals, and those he pursues to the tops of the highest trees, so that neither the wild-cat, pine-weasel, ermine, nor squirrel, can escape him. He also seizes birds, lies in wait for the stag, roe-buck, and hare, whom he seizes by the throat, sucks their blood, and then opens their heads to devour the brains; this done he frequently abandons them to go in search of fresh prey, and is seldom known to return to the former one; which has given rise to the remark, that of all animals the lynx has the shortest memory. His colour changes with the climate and the season. In winter his fur is much better than in summer, and his flesh, like that of all beasts of prey, is not good to eat.

[102]

SUPPLEMENT.

THERE is a Canadian Lynx in the Royal Cabinet in France, in fine preservation; it is only two feet three inches long, and rather more than thirteen inches high; its body is covered with long grey hair, striped with yellow, and spotted with black; its head also is grey, interspersed with white and yellow hairs, and shaded with a kind of black stripes; it has long white whiskers; its ears are more than two inches high, white on the inside, with yellow edges, the outside of a mouse colour, edged with black, and at the tip of each ear is a tuft of black hair seven lines high; it has a short tail, which is black from the end to about the middle, and the other part is of a reddish white; its belly, hind-legs, inside of the fore-legs and feet are of a dirty white, and it has long white claws. This lynx strongly resembles the one we have just described, except in the length of the tail and tuft on the ears, from which we may infer that the Canadian Lynx is a variety from that of the old continent.

Pontoppidan describes the lynx of Norway to be white with deep spots, and claws like those of [103] a cat; he says there are four species there, some being like the wolf, others the fox, others the cat, and others with a head like that of a colt; the last of which is not only doubtful in itself, but throws a degree of suspicion on the veracity of the remainder.

The species of the lynx is very common throughout Europe, and also in the northern provinces of Asia. Their skins are very valuable, and much esteemed for muffs, &c. in Norway, Russia, and even as far as China, and notwithstanding they are very common, they sell at a high price.

THE CARACAL.

THOUGH the Caracal[O] resembles the lynx in size, formation of the body, aspect, and the tufts of black hair at the extremities of the ears, I do not scruple from their disagreement in other [104] respects, to treat of them as animals of a different species. The Caracal is not spotted like the lynx; his hair is rougher and shorter; his tail is longer, and of a uniform colour; his snout is longer, in aspect he is less mild, and in disposition more fierce. The lynx inhabits cold and at most temperate climates, while the caracal is to be found only in the warmest countries. It is as much from these differences of disposition and climate, that I judge them to be of different species, as from the inspection and comparison of the two animals, both of which I have examined and had designed from life.

[O] In Turkey it is called Kaarah-kula; Arabia Gat el Challah; in Persia Siyah-Gush, denoting in all three languages, *the cat with long ears*.

The Caracal is common in Barbary, in Arabia, and in all those countries inhabited by the lion, panther, and ounce. Like them he depends on prey for subsistence, but from the inferiority of his size and strength, he has much difficulty to procure a sufficiency; frequently being obliged to be content with the leavings of the more powerful. He keeps at a distance from the panther, because that animal exercises its cruelty after being gorged with food; but he follows the lion, who, when the cravings of his appetite are satisfied, never injures any creature. From the remains left by this noble animal, the caracal not unoften enjoys a comfortable repast. Sometimes he follows, or [105] even goes before, at no great distance, taking a refuge in the trees, when self-preservation renders it necessary, and where the lion cannot, like the panther, follow him. For all these

reasons it is that the caracal has been called the Lion's Guide, or Provider; and it is said that the lion, whose smell is far from being acute, employs him to scent out his prey, and is permitted to enjoy the remains as a reward for his trouble.

The caracal[P] (*fig. 108*) is about the size of a fox, but more fierce, and much stronger. He has been known to attack, and in a few minutes, to tear in pieces a large dog, which defended himself to the utmost. He is very difficult to tame, yet if taken very young, and reared with care, he may be trained to the chace, to which he is by nature inclined, and in which he is very successful, especially if he be only let loose upon such animals as are inferior in strength, for he declines a service of danger with every expression of reluctance. In India they made use of him to catch [106] hares, rabbits, and even large birds, whom he seizes with singular address and facility.

[P] The principal part of his body is of a reddish brown colour, the inferior parts of the neck and belly whitish; round his muzzle black, his ears of a dark shade, with a tuft of black hair from his extremities.

SUPPLEMENT.

MR. BRUCE has informed me that he saw a caracal in Nubia, which differed from the one of barbary, just described; his face was more round, his ears black on the outside, intermixed with white hairs, and on the breast, belly, and inside of the thighs he had yellow spots. But this is a mere variety, of which there are several: for instance, in Lybia there is a caracal with white ears, and a white tail with four black rings at the end, and which is not bigger than a domestic cat; and if this were to establish a difference we might say there are two species of caracals in Barbary, the one large, with black ears and long tufts, and the other smaller, with white ears and short tufts.

[107]

THE HYÆNA.

ARISTOTLE has left us two accounts by which alone the hyæna (*fig. 110*) might easily be distinguished from all other animals. Nevertheless, travellers and naturalists have confounded him with no less than four other species, namely, the jackall, glutton, civet, and the baboon; all of which are carnivorous and ferocious like the hyæna, and all have some few particular resemblances to him, whence these errors may have originated. The jackall inhabits the same countries, and like the hyæna resembles the wolf in form; like him also he feeds upon dead carcasses, and digs up graves to devour their contents. The glutton has the same voracity, the same appetite for corrupted flesh, the same propensity for digging the dead out of their graves; and though he belongs to a different climate, and his figure is widely different from that of the hyæna, yet from this affinity of disposition authors have thought themselves warranted in considering them as of the same species. The civet is a native of the same countries as the [108] hyæna, and like him has a streak of long hair along the back, and also a particular opening, or glandular pouch; characteristics which belong only to a few animals, and which induced Bellon to suppose the civet was the hyæna of the ancients. As to the baboon, which has hands and feet like those of a man or a monkey, he resembles the hyæna still less than the other three, and it must be solely from their name that they have been confounded together.

The hyæna, according to Dr. Shaw, is called *dubbah* in Barbary; and Marmol, and Leo Africanus, say, the baboon is distinguished by the name of *dabuh*; and as the baboon belongs to the same climates, scratches up the earth and is nearly of the same form with the hyæna; these circumstances first deceived travellers, and naturalists adopted their blunders without investigation; and even those who distinguished the two animals, retained the name of *dabuh* to the hyæna, which in fact belongs to the baboon. It appears, then, that the hyæna is neither the *dabuh* of the Arabians, the *jesef* or *sesef* of the Africans, nor the *deeb* of Barbary. But to put a final stop to this confusion of names, I shall give, in a few words, the substance of the inquiries I [109] have made with respect to those animals.

Aristotle calls it by two names, *hyæna* and *glanus*; names which we may be assured are applied to the same animals by comparing the passages wherein they are mentioned.[Q] The ancient Latins retained the name hyæna, and never adopted that of glanus. In the writings of the modern Latins, however, we find the *ganus*, or *gannus*, and *belbus* employed as names for the hyæna. According to Rasis, the Arabians call it *kabo*, or *zabo*, names that appear to be derived from the word *zeeb*, which, in their language denominates a wolf. In Barbary the hyæna bears the name of *dubbah*, as appears from the description given of this animal by Dr. Shaw.[R] In Turkey it is called *zirtlaat*, according to Nieremberg; in Persia *kaftaar*, as stated by Kæmpfer; and [110] *castar*, according to Pietro della Valle. These are the only names which seem actually to refer to

the hyæna; though it is nevertheless probable that the *lycaon* and the *crocuta* of India and Ethiopia, of which the ancients speak, are no other than the hyæna. Porphyry expressly says that the *crocuta* of the Indies is the hyæna of the Greeks; and, indeed, all they have written, whether true or fabulous, respecting the lycaon and crocuta, bears some analogy to the nature of the hyæna. But we shall make no further conjectures on this subject until we treat of fabulous animals, and the affinities they have with real ones.

[Q] Aristotle Hist. Animal. lib. vi. c. 32. lib. viii. c. 5.

[R] The Dubbah is nearly the size of the wolf. Its neck is so exceedingly stiff, that when it offers to look behind, or even on one side, it is obliged to turn the whole body, like the hog, the badger, and the crocodile. Its colour is somewhat inclined to a reddish brown, with a few brown streaks of a darker hue, it has very long hairs on the neck which it can occasionally erect. Its paws are large and well armed, with which it digs up plants, and sometimes dead bodies from their graves. Next to the lion and panther, the dubbah is the most fierce of all the animals of Barbary. As it is furnished with a mane, has a difficulty in turning the head, and scrapes up dead bodies from their graves, it has every appearance of being the hyæna of the ancients. *See Shaw's Travels.*

The panther of the Greeks, the *lupus canarius* of Gaza, and the *lupus armenius* of the modern Latins and Arabians, seem to be the same animal, that is, the jackall, which the Turks call *cical*, according to Pollux, and *thacal* according to Spon and Wheeler; which the modern Greeks distinguish by the name of *zachalia*, the Persians *siechal*, or *schachal*, and the Moors of Barbary *deeb*; that of jackall, however, having been adopted by a number of travellers, to that we shall give the preference, and only remark at present, that he differs from the hyæna not only in size, [111]
figure, and colour, but in natural habits, for the hyæna is a solitary animal, while the jackall is seldom seen but in troops. After the example of Kæmpfer, some of our nomenclators have called the jackall *lupus aureus*, because his hair is of a lively yellow hue.

It is therefore evident, that the jackall is a very different animal from the hyæna; and no less so than the glutton, which is an animal confined to the northern regions of Lapland, Russia, and Siberia; it is a stranger even in the temperate climates, and therefore could never have inhabited Arabia, or any of the other warm countries in which the hyæna resides. It differs also in form, for the glutton bears a strong resemblance to a very large badger; his legs are so short that his belly almost reaches the ground; he has five toes on each of his feet, has no mane, and his body is covered with black hair, excepting sometimes a few reddish yellow hairs upon his sides; in short, he resembles him in nothing but in being exceedingly voracious. He was unknown to the ancients, who had made no great progress into the north of Europe. Olaus is the first author who mentions this animal and from his prodigious gluttony he called him *gulo*. In Sclavonia he afterwards obtained the name of *rosomak*, and in Germany *jerff*, or *wildfras*, and the French [112]
travellers have called him *glouton*. There are varieties in this species, as well as in that of the jackall, which we shall speak of when we come to the particular history of those animals, and shall only here observe, that those varieties, instead of assimilating them with the hyæna, render them additionally a more distinct species.

The civet has nothing in common with the hyæna but the glandular pouch, under the tail, and the mane along the neck and back-bone. It differs from the hyæna in figure and size, not being more than half as large; his ears are short and covered with hair, whereas those of the hyæna are long and naked; he has also short legs, and five toes upon each foot, while the legs of the hyæna are long, and he has only four toes upon each foot; nor does the civet dig up the earth in search for dead bodies. From these differences these animals are easily to be distinguished from each other.

With respect to the baboon, which is the *papio* of the Latins, and as we have before observed, has been mistaken for the hyæna, merely from the ambiguity of names, which seems to have arisen from a passage of Leo Africanus, and since copied by Marmol. "The *dabuh* say these [113]
authors, is of the size and form of the wolf; and scratches up dead bodies from their graves." From which it was supposed to mean the *dubbah*, or hyæna, although it is expressly stated in the same passages that the *dubbah* has hands and feet resembling those of a man; a remark which, however applicable to the baboon, cannot be applied to the hyæna.

From taking a view of the *lupus-marinus* of Bellon, which Gesner has copied, we might mistake it for the figure of the hyæna, to which it bears a great resemblance; but his description corresponds not with our hyæna, for he says, the *lupus-marinus* is an amphibious animal which feeds on fish, and has sometimes been seen on the coasts of the British ocean; besides this author says nothing of the peculiar characteristics which distinguish the hyæna from all other animals. It is possible that Bellon, prepossessed with the notion that the civet was the hyæna of the ancients, has given the figure of the real one under the name of *lupus-marinus*, for so striking and singular are the characters of that animal, that it is hardly possible to be deceived in them; he is, perhaps, the only quadruped that has four toes upon each foot. Like the badger he has an aperture under [114]
the tail, which does not penetrate into the body; his ears are long, straight, and naked; his head is shorter and more square than that of the wolf; his legs are longer, especially the hind ones; his eyes are placed like those of the dog; the hair of his body and mane is of a dark grey, with a small intermixture of yellow and black, and disposed all along in waves, and though in size he equals the wolf, yet he has, nevertheless, a contracted appearance.

This wild and solitary animal resides in the caverns of mountains, the clefts of rocks, or in dens, which he forms for himself under the earth. Though taken ever so young he is not to be tamed; he is naturally ferocious. He lives like the wolf, by depredation, but he is more strong and

daring. He sometimes attacks men, and darts with a ferocious resolution on all kinds of cattle; he follows the flocks, and even breaks down the sheep-folds in the night to get at his prey. His eyes shine in the dark, and it is asserted that he sees better by night than day. All naturalists who have treated of this animal, except Kæmpfer, say, that his cry resembles the noise of a man who is vomiting, while the latter asserts it to be like the lowing of a calf. He defends himself against [115] the lion, stands in no awe of the panther, and attacks the ounce, which is incapable of resisting him. When at a loss for prey he scrapes up the earth with his feet, and tears out the carcasses of animals and men, which in the countries he inhabits are promiscuously buried in the fields. He is found in almost all the hot climates of Africa and Asia, and it is probable that the animal called *farasse*, at Madagascar, which resembles the wolf in figure, but is larger and stronger, is the same animal.

Of this animal more absurd stories have been told than of any other. The ancients have gravely written that the hyæna is alternately male and female; that when it brings forth, suckles and rears its progeny, it remains as a female the whole year, but the year following it resumes the functions of the male, and obliges its companion to submit to those of the female. The circumstance which gave rise to this fable is plainly the orifice under the tail, in both males and females, independently of the organs of generation peculiar to both sexes, and which are the same in the hyæna as in all other animals. It has also been affirmed that this animal could imitate the human voice, remember the names of shepherds, call upon, fascinate, and render them [116] motionless; that he can terrify shepherdesses, cause them to forget and neglect their flocks, to be distracted in love, &c. All this might surely happen without the intervention of the hyæna! But I shall conclude here, to avoid the reproach which has been cast upon Pliny, that of taking pleasure in compiling and relating absurd fables.

SUPPLEMENT.

AT the fair of St. Germain, in the year 1773, I saw a male hyæna; the one just described was very ferocious, and as I mentioned untameable, but this was perfectly gentle, for though his keeper made him angry for the purpose of erecting his mane, yet he seemed to forget it in a few moments, and suffer himself to be played with without any appearance of dislike. He exactly accorded with the description I have given, except his tail being entirely white.

In the island of Meroë there is a large kind of hyænas, so strong that they can run off with a man to the distance of more than a league without stopping. These are also of a darker colour, and erect their long hairs on the hind parts and not the front. Mr. Bruce informs me that he has observed, that when the hyænas are forced to take to flight, they are at first exceedingly lame of the left hind leg, and which continues for more than an hundred paces, so much so indeed as to give them the appearance of falling, and that it is the same also with those of Syria and Barbary.

Engraved for Barr's Buffon.

FIG. 109. ***Lynx.***

FIG. 110. ***Hyæna.***

[117]

THE CIVET AND THE ZIBET.

THE generality of naturalists are of opinion that the perfume called civet, or musk, is furnished only by one species of animals. I have, however, seen two animals that furnish it, which, though they have many essential affinities, both in their external and internal conformations, yet differ in so many characteristics, that there is sufficient reason to consider them as two distinct species. To the first I have continued the original name of Civet, (*fig. 111.*) [118] and the second, for the sake of distinction, I have called Zibet (*fig. 113*) The civet seems to be the same as that described by the Academy of Sciences; by Caius, in Gesner, page 837, and by Fabius Columna, who has given both the male and female figures in the publication of Faber, which follows that of Hernandes. The *zibet* appears to be the same animal as M. de la Peyronnie has described under the name of Musk Animal, in the Memoirs of the Academy of Sciences for the year 1731. Both differ from the civet in the very same characters; both want the mane, or the long hair, on the back-bone, and both have the tail marked with strong annular streaks. The civet, on the contrary, has a mane, but no rings on the tail. It must, however be acknowledged that our zibet, and the musk animal of M. de la Peyronnie, are not so perfectly similar as to leave no doubt of the identity of their species. The rings on the tail of the zibet are larger than those of the musk animal, and the length of his tail is shorter in proportion to that of his body; but these differences are slight, and appear to be mere accidental varieties, to which the civet must be more subject than any other wild animal, as they are reared and fed like domestic ones in many parts of the Levant and East Indies. Certain it is, that our zibet bears a stronger resemblance to the musk animal than to the civet, and consequently they may be considered as the same species. Nor, indeed, do we mean positively to affirm that civet and zibet are not varieties of the same species, but from their different characteristics there is a strong presumption they really are so.

Engraved for Barr's Buffon.

FIG. 111. ***Civet***

FIG. 112. *Genet*
FIG. 113. *Zibet*

The animal which we here name the Civet, is called the *falanoue*, at Madagascar, *nzime*, or [119]
nzfusi at Congo, *kankan* in Ethiopia, and *kastor* in Guinea. That it is the civet of Guinea I am certain, for the one I had was sent from Guinea, to one of my correspondents at St. Domingo, where, after being fed for some time, it was killed for the more easy conveyance to Europe.

The zibet is probably the civet of Asia, of the East Indies, and of Arabia, where he is called zebet, or zibet, an Arabic word, which likewise signifies the perfume of that animal, and which we have adopted to signify the animal itself. He differs from the civet in having a longer and less thick body; a snout more thin and slender, and somewhat concave on the upper part; whereas that of the civet is more short, thick, and rather convex. The ears of the zibet are also larger and [120]
more elevated; his tail is longer, and more strongly marked; his hair is shorter and much more soft; he has no mane, or long hair on the neck or back-bone; no black spots under the eyes, or on the cheeks; all of which are remarkable characteristics in the civet. Some travellers have suspected there were two species of civets; but no person has examined them with sufficient accuracy as to give a distinct description. I have seen both; and after a careful comparison, am of opinion, that they not only differ in species, but perhaps belong to different climates.

These animals have been called musk-cats, though they have nothing in common with the cat, except bodily agility. They rather resemble the fox, especially in the head. Their skins are diversified with stripes and spots, which has occasioned them to be mistaken for small panthers, when seen at a distance; but in every other respect they differ from the panther. There is an animal called the Genet, which is spotted in the like manner, whose head is nearly of the same shape, and which, like the civet, has a pouch where an odoriferous humor is formed; but this animal is smaller than our civet; its legs are shorter, and its body thinner; its perfume is very faint, and of short duration; while the perfume of the civet is very strong, and that of the zibet is [121]
so to an excess.

This humor is found in the orifice which these animals have near the organs of generation; it is nearly as thick as pomatum, and though the odour is very strong, it is yet agreeable, even when it issues from the body of the animal. This perfume of the civet must not be confounded with musk, which is a sanguineous humor, obtained from an animal very different from either the civet or zibet, being a species of roe-buck, or goat, without horns, and which has no one property in common with the civet, but that of furnishing a strong perfume.

These two species of civets have not been distinguished with precision. They have both been sometimes confounded with the weasel of Virginia, the genet, the musk-deer, and even with the hyæna. Bellon, who has given a figure and description of the civet, insists that it was the hyæna of the ancients, and his mistake is the more excusable not being destitute of some foundation. Certain it is, that most of the fables which have been related of the hyæna, took their rise from the civet. The philters said to have been obtained from certain parts of the hyæna, and their [122]
power to excite love, sufficiently indicate that the stimulating virtues of the preparations of civet, were not unknown to the ancients, and which are still used for this very purpose in the East. What they have said of the uncertainty of the sex of the hyæna, is still more applicable to the civet, for the male has no external appearance, but three apertures so perfectly similar to those of the female, that it is hardly possible to determine the sex but by dissection. The opening which contains the perfume, is situated between the other two, and in the same direct line which extends from the os sacrum to the pubis.

Another error, which has made more progress, is that of Gregoire de Bolivar, with respect to the climates in which the civet is found. After stating them to be common in Africa and the East Indies, he positively affirms they are also very numerous in all parts of South America. This assertion, transmitted by Faber, has been copied by Aldrovandus, and adopted by all the authors who have since treated of the civet. But the truth is, that they are animals peculiar to the hottest climates of the old continent, and which could not have found a northern passage into the New World; where, in fact, no civets ever existed until they were transported thither from the [123]
Philippine Islands and the coasts of Africa. As the assertion of Bolivar is positive, and mine only negative, it is necessary I should give my particular reasons, to prove the falsity of the fact. Besides my own remarks, I refer to the very words of Faber himself.[S] On this head it is to be

observed, that the figure given by Faber, was left to him by Recchi, without any description[T]; and of which the inscription is, *animal zibethicum Americanum*; but this figure has no resemblance to the civet or zibet, and rather represents the badger; secondly, Faber gives a description and the figures of a male and female civet, which resemble our zibet; but these civets are not the same animal as that represented in the first figure; nor do they represent animals of America, but civets belonging to the old continent, of which Fabius Columna had procured drawings at Naples, and furnished Faber with their figures and descriptions; thirdly, after having quoted Bolivar respecting the climates in which the civet is found, Faber concludes with admiring Bolivar's prodigious memory, and that he was indebted for this recital to the oral information of [124] that gentleman. These three remarks are alone sufficient to create a suspicion respecting the pretended *animal zibethicum Americanum*, but what completely proves the error, Fernandes, in his description of the animals of America, flatly contradicts Bolivar, and affirms that the civet was not a native of America, but that, in his time, they had began to transport some of them from the Philippine Islands to New Spain. In fine, if we add this positive testimony of Fernandes, to that of all the travellers, who mention that civets are very common in the Philippine Islands, in the East Indies, and in Africa, not one of whom intimates having seen this animal in America, every doubt will vanish of what we advanced in our enumeration of the animals of the two continents, and it will be admitted that the civet is not a native of America, but an animal peculiar to the warm climates of the old continent, and that he was never found in the new, until after he had been transported thither. Had I not guarded against such mistakes, which are too frequent, I should have described my civet as an American animal, from its having been sent to me from St. Domingo, and not directly from Guinea, the place of its nativity, of which I was, however, assured by the letter from M. Pages which accompanied the animal. These particular facts I consider as [125] confirmations to the general position, that there is a real difference between all the animals of the southern parts of each continent.

[S] Novæ Hisp. Anim. Nardi Antonii Recchi Imagines & Nomina, Joannis Fabri Lyncei Expositione, p. 539.

[T] *Ibid.* p. 465.

Both the civet and zibet are then animals of the old continent, nor have they any other external differences, besides those already pointed out; and as to their internal differences, and the structure of their reservoirs which contain the perfume, they have been so accurately described by Messrs. Morand and Peyronnie, in the Memoirs of the Academy for 1728 and 1731, that I could do little more than give a repetition of their accounts. With regard to what remains to be further observed of those two animals, as the few facts are hardly more applicable to the one than the other, and as it would be difficult to point out the distinction, I shall collect the whole under one head.

The civets, (by the plural number I mean the civet and zibet) though natives of the hottest climates of Asia and Africa, can yet live in temperate and even cold countries, provided they are carefully defended from the injuries of the weather, and supplied with succulent food. In Holland they are frequently reared for the advantage obtained by their perfume. The civet brought from Amsterdam is preferred to that which comes from the Levant or the Indies, as being the most [126] genuine. That imported from Guinea would be the best, were it not that the Negroes, as well as the Indians, and the people of the Levant, adulterate it with the mixture of storax, and other balsamic and odoriferous drugs and plants.

Those who keep these animals collect the perfume in the following manner; they put them into a narrow cage, in which they cannot turn themselves; this cage opens behind, and two or three times in a week the animal is drawn a little out by the tail, and kept in that position by putting a bar across the fore-part of the cage; this done, the person takes out the perfume from the pouch with a small spoon, scraping all the internal parts, and then, putting the matter into a vessel, the greatest care is taken to keep it closely covered. The quantity so procured depends greatly upon the appetite of the animal, and the quality of his nourishment, as he always produces more in proportion to the goodness of his food. Hashed flesh, eggs, rice, small animals, birds, young poultry, and particularly fish, are the best, and which he most prefers; and these ought to be so varied as to excite his appetite and preserve his health. He requires but little water, and though [127] he drinks seldom, yet he discharges urine very frequently; and even on such occasions, the male is not to be distinguished from the female.

The perfume of the civets is so strong that it communicates itself to all parts of the body; the hair and skin is impregnated with it to such a degree, that it preserves the odour for a long time after it is stripped off. If a person be shut up in a close room with one of them alive, he cannot support the perfume, it is so copiously diffused. When the animal is enraged, its scent is more violent than ordinary, and if tormented so as to make him sweat, that is also collected and serves to adulterate, or at least increase the perfume which is otherwise obtained.

The civets are naturally wild, and even ferocious; and though tameable to a certain degree, they are never perfectly familiar. Their teeth are strong and sharp, but their claws are blunt and feeble. They are light and active, and live by prey, pursuing small animals, and surprising birds. They can bound like cats, and run like dogs; and sometimes steal into yards and out-houses to carry off the poultry. Their eyes shine in the dark, and they probably see better in the night than in the day. When they fail in procuring animal food, they subsist on roots and fruits. As they [128] seldom drink they never inhabit moist places, but cheerfully reside among arid sands and burning mountains. They breed very fast in their native climates; but though they can live, and even

produce perfume in temperate climates, yet they cannot multiply. They have a voice more powerful, and a tongue less rough than the cat, and their cry is not unlike that of an enraged dog.

The odorous humor which exudes from these animals is called civet in England and France, and *zibet*, or *algalia*, in Arabia, the Indies, and the Levant, where it is more used than in Europe. It is now very little employed as a medicine, but it is still used as an ingredient in the compositions of perfumers and confectioners. The smell of the civet, though stronger, is more agreeable than that of the musk. Both, however, lost their repute when the method of preparing ambergris was discovered; and even that seems now to be proscribed from the toilets of the polite and delicate.

[129]

THE GENET.

THE Genet (*fig. 112*) is a smaller animal than the civet. He has a long body, short legs, a sharp snout, slender head, and smooth soft hair, of a glossy ash colour, marked with black spots, which are round, and separated on the sides, but so nearly united on the back as to have the appearance of stripes along the body. Upon the neck and back it has a kind of mane, which forms a black streak from the head to the tail, the latter of which is as long as the body, and is marked with seven or eight rings, alternately black and white; the black spots on the neck also appear to form streaks, and it has a white spot under each eye. Under the tail, and in the very same place with the civets, it has a pouch, in which is secreted a kind of perfume, but is much weaker, and its scent soon evaporates. It is somewhat longer than the marten, which it greatly resembles in form, habit, and disposition; and from which it seems chiefly to differ in being more easily tamed. Bellon assures us, that he has seen them in the houses at Constantinople as tame as cats, that [130] they were permitted to run about without doing the least mischief, and that they were called *Constantinople cats*; *Spanish cats*; *genet cats*, *&c.* though, indeed, they have nothing in common with that animal, except the skill of watching and catching mice.[U] Naturalists pretend that genets inhabit only moist grounds, and reside along the banks of rivers, and that they are never found on mountains or dry grounds. The species is not numerous, or, at least, not much diffused; for there are none of them in any part of Europe, except Spain and Turkey. They seem to require a warm climate to subsist and multiply in, and yet they are not found in India or Africa. The *fossane* has been called the genet of Madagascar, but that animal is of a different species, as will hereafter be shewn.

[U] It is, perhaps, because they are only found in the Levant and in Spain, that they are designated by their country; for the name of *genet* is not derived from any of the ancient languages, and is probably only a new appellation taken from some place abounding with them, a custom which is very common in Spain, where a certain race of horses are called *genets*.

The skin of the genet makes a light and handsome fur, it was formerly fashionable for muffs, and consequently very dear; but the manufacturers having got the art of counterfeiting them, by painting the skins of grey rabbits with black spots, their value is abated, from being no longer [131] esteemed.

SUPPLEMENT.

I formerly stated that genets were not to be found in any parts of Europe, except Spain and Turkey, but since then I have learned that they are common in the southern provinces of France, and that at Poitou they are known by that name even to the peasantry. In April, 1775, the Abbé Roubard sent me a genet that was killed at Livray, in Poitou, which, except some trifling variations in the colour of the hair, was similar to that I have described; and he assured me that the species was also to be found in the neighbouring provinces; and M. Delpeche informed me, in a letter, that it was a constant practice with the peasants of the province of Rouergue to bring dead genets to the merchants in the winter; he added, that they were not very numerous, that they were principally found near Villefranche, and that they burrow in holes like the rabbits, especially in winter.

[132]

THE BLACK WOLF.

WE mention ibis animal merely as a supplement to the description we have given of the wolf, for there can be little doubt of his belonging to the same species. We have already said, that in the northern parts of Europe there were some wolves black, and others white, and that the black wolves were generally the largest; but the one we are now about to describe came from Canada, and was smaller than the common wolf; but we have had repeated occasions to remark, that the animals of the northern parts of America are less in size than those belonging to the north of Europe, and this difference in size was the chief, if not the only variation in him; besides, he had been taken very young, and ever after kept in a state of captivity, which also might have prevented the completion of his growth. Our common wolf is less in Canada than in Europe; and in that country black wolves and foxes are not uncommon. We saw this animal alive, and to us it appeared perfectly to resemble the common wolf both in figure and disposition.

Engraved for Barr's Buffon.

FIG. 115. ***Muscovy Rat.***
FIG. 114. ***Canadian Musk Rat.***

FIG. 116. ***Mexican Hog.***

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THE CANADIAN MUSK-RAT, AND THE MUSCOVY MUSK-RAT.

THOUGH these two animals have been denominated musk-rats, and have a few common characteristics, yet they ought not to be confounded; they must also be distinguished from the Pilori, or Musk-rat, of the Antilles; all three forming different species, and belonging to different climates; the first, also called Ondatra, is found in Canada; the second, or Desman, in Lapland and Muscovy; and the Pilori, in Martinico and other of the Antille islands.

The Musk-rat of Canada (*fig. 115*) differs from that of Muscovy in having all its toes separate, eyes very conspicuous, and a short nose; whereas the latter (*fig. 114*) has the toes of the hind feet united by a membrane, exceedingly small eyes, and a long nose like the shrew-mouse. The [134] tail of both is flat, in which, as well as in many other characteristics, they differ from the pilori of the Antilles. The tail of the pilori is short, and, like that of other rats, cylindrical; the other two have long tails, and the head of the first is like that of a water-rat, and the head of the second resembles a shrew-mouse.

In the memoirs of the Academy of Sciences, for 1725, we meet with a very accurate

description of the Canadian musk-rat. M. Sarrasin, a correspondent of the Academy, dissected a number of them at Quebec, and made some striking and singular remarks; by comparing his description with our own, we have not the least doubt but the animal which he calls the musk-rat of Canada, is the same with that now before us.

This animal is of the size of a small rabbit, and of the figure of a rat. Its head is short, and similar to that of the water-rat; its hair is soft and glossy, with a thick down underneath, like that of the beaver; its tail is long and covered with little scales, like that of the other rats, though of a different form, for instead of being cylindrical it is flat from the middle to the tip, and rather round at the insertion. The toes are not united by membranes, but furnished with a long thick [135] hair, which enables the animal to swim with ease. Its ears are very short, but not naked, as in the common rat, but covered with hair, both outwardly and inwardly; its eyes are large; it has two incisive teeth, about an inch long, in the under jaw, and two shorter ones in the upper; these four teeth are very strong, and by them the animal is enabled to gnaw through wood.

The striking singularities remarked by M. Sarrasin, in this animal are, first, the muscular force and great expansibility in the skin, which enables the animal to contract and compress its body into a smaller size. Secondly, the suppleness of the false ribs, which admits a contraction of body so considerable that the musk-rat can obtain an easy passage through holes where smaller animals cannot find admission. Thirdly, the manner in which the female voids her urine, the urethra not terminating, as in other animals, under the clitoris, but at a hairy eminence above the os pubis, and in which there is an orifice, that serves the urine to escape. This strange organization is found in only a few species of animals, as rats and apes have three apertures; and these two are perhaps the only animals who have a passage for the urine distinct from the organs of generation: to the females alone, however, does this singularity belong, for the conformation of [136] the males is the same with that of other quadrupeds. M. Sarrasin observes, fourthly, that the testicles which, as in other rats, are situated on each side of the anus, become exceedingly large, considering the size of the animal, during the rutting season; but that over, they not only change in size, consistency, and colour, but even in situation, and with the seminal vessels, and all the organs of generation become almost invisible. And, lastly, that the vessels which contain the musk, or perfume, of this animal, under the form of a milky humor, and which adjoin the parts of generation, undergo the same changes; that during the rutting season they enlarge in a great degree, and then the perfume is exceedingly strong, and may be sensibly distinguished at a considerable distance, but at its expiration they become wrinkled, decay, and at length entirely disappear. The change in the vessels, which contain the perfume, is effected more quickly, and more completely, than that of the parts of generation. These vessels are common to both sexes, and at the above periods contain a considerable quantity of milky humor; and the secretion is formed, and the humor voided, nearly in the same place as the urine of other quadrupeds. These [137] singularities were worthy the attention of so able an anatomist as M. Sarrasin. We have already mentioned similar alterations in the parts of generation in the water-rat, the campagnol, and the mole; but this is not the place for us to enlarge on the general consequences which might be drawn from these singular facts, nor even on the immediate references they may have to our theory of generation. These we shall soon have occasion to present with more advantage, by uniting them with other facts to which they relate.

As the Canadian musk-rat belongs to the same country as the beaver, is fond of water, and has nearly the same figure, colour, and hair, they have been often compared to each other; it is even affirmed, that, at the first glance, a full grown musk-rat may be mistaken for a beaver of a month old. But in the form of their tails there is a considerable difference; that of the beaver being oval and flat horizontally; whereas that of the musk-rat is of a considerable length, and flat, or compressed vertically. In disposition and instinct, however, these animals have a strong resemblance. The musk-rats, as well as the beavers, live in societies during the winter. They form little dwellings about two feet and a half in diameter and sometimes larger, in which is often an [138] association of several families. These habitations are not for the purpose of resorting to, in order to sleep like the marmots, for five or six months, but to obtain a shelter from the inclemency of the weather; they are of a round form, and covered with a dome about a foot thick; the materials for making which are herbs and rushes interwoven together, and cemented with clay, which they prepare with their feet; these huts are impenetrable by the rain, and secured from the effects of inundations by being elevated on the inside, and tho’ covered with snow several feet thick in the winter these animals do not seem to be incommoded by this circumstance. They do not provide a stock of provisions for that season, but dig a sort of passages round their dwellings, for the purpose of procuring roots and water. As winter is not their season of love, they reap but little advantage from associating. All this period they remain totally deprived of light, and therefore no sooner has the mild breath of spring begun to dissolve the snow, and uncover the tops of their little mansions, than the huntsmen open their dome suddenly, dazzle them with the light, and kill or seize all those who have not obtained shelter in their subterraneous passages; but as their [139] skins are valuable, and their flesh not unpalatable, thither they are also pursued for slaughter. Such as escape quit their habitations about the same time. They wander about during the summer but always in pairs, for then is the time of their amours; then it is that all their vessels expand, and feeding largely upon the fresh roots and vegetables which the season affords, they acquire a strong smell of musk; a scent which, though agreeable to Europeans, is so disgustful to the savages, that they distinguish one of their rivers, from being frequented by a number of them, the Stinking River, and the animal itself the Stinkard.

They produce once a year, and generally have five or six young. Their time of gestation cannot be long, as they are not in season till the summer, and their young are full grown by October,

when they seek for shelter; they construct new huts every year, and are never known to revisit their former habitations. Their cry is a kind of groan, which the huntsmen imitate in order to allure them. So strong are their fore-teeth, and so calculated for gnawing, that if shut up in a box, they soon make a hole large enough to escape through, a faculty which they possess in common with the beaver. They do not swim so fast, or so long as the beaver, and are often seen upon the [140] ground; they run very indifferently, and in their walk they waddle like a goose. Their skin retains the smell of musk, which renders it of little value to the furriers, but their under hair, or down, is used in the manufacture of hats. These animals are not very wild, and when taken young are easily tamed; and are then tolerably handsome, for their tail, which is afterwards long and disagreeable, is very short. They play with all the innocence and sprightliness of young cats, and they might be reared with ease but for their disagreeable smell.

The Canadian and Muscovy musk-rats, are the only animals belonging to the northern regions which yield any perfume, for the odour of the *castoreum* (obtained from the badger) is highly disagreeable; and it is only in warm climates that we meet with the animals which furnish the real musk, the civet, and other delicate perfumes.

The musk-rat of Muscovy might, perhaps, present singularities analogous to those of the Canadian, and not less remarkable, but it does not appear that any naturalist has yet had an opportunity to dissect, or examine it alive. Of its exterior form alone we can speak, as that sent [141] from Lapland, for the king’s cabinet, was in a dry state, and therefore I can only add my regret that so little is known about it.

THE PECCARI, OR MEXICAN HOG.

AMONG the animals of the New World, few species are more numerous, or more remarkable, than that of the Mexican Hog.[V] (*fig. 116*) At the first glance he resembles our wild boar, or rather the hog of Siam, which, as we have already observed, is nothing more than a variety of the wild boar; and for which reason this has been called the American wild boar, or American hog. He is, however, of a distinct species, and refuses to engender either with our wild or domestic kinds; a circumstance of which I was convinced, by having reared one of these animals in company with several sows.

[V] This animal has a variety of names; besides the above, some call him *Tajassou*, *Tajacou*, *Paquira*, *Saino*, &c.

He differs also from the hog in a number of characteristics, both external and internal. He is less corpulent, and his legs are shorter; in the stomach and intestines, there is a difference of [142] conformation. He has no tail, and his bristles are much stronger than those of the wild boar; and, lastly, he has on his back, near the crupper, an opening from which there is discharged an ichorous humor of a very disagreeable smell. This is the only animal which has an opening in this part of the body. In the civets, the badger, and the genet, the reservoir for their perfume is situated beneath the parts of generation; and in the musk-animal, and the musk-rat of Canada, we find it under the belly. The moisture which exudes from this aperture in the back of the Mexican hog, is secreted by large glands, which M. Daubenton has described with much attention, as well as the other singularities of this animal; Dr. Tyson also in the Philosophical Transactions, No. 153, has given a good description of it. Without minutely detailing the observations of these two able anatomists, I shall barely remark, that the latter was mistaken in asserting that this animal has three stomachs, or, as Mr. Ray says, a gizzard and two stomachs. M. Daubenton plainly shews, that it is only one stomach divided by two similar pouches, which give it the appearance of three; that only one of these pouches has a pyrolus, or orifice below, for [143] the discharge of its contents; that, consequently, we ought to consider the two others merely as appendages to, or rather portions of, the same stomach.

The Mexican hog might be rendered a domestic animal like the common kind; he has nearly the same habits and natural inclinations; feeds upon the same aliments, and his flesh, though more dry and lean, is not unpalatable, and may be improved by castration. When killed, not only the parts of generation, if the flesh is intended to be eaten, (as is also done with the wild boar) must be taken instantly away, but also the glands at the opening in the back, and which are common to both male and female, must likewise be removed, for if this operation be deferred for only half an hour, the flesh becomes utterly unfit to be eaten.

These animals are extremely numerous in all the warm climates of South America. They go in herds of two or three hundred together, and unite, like hogs, in the defence of each other. They are particularly fierce when their young are attempted to be taken from them. They surround their plunderers, attack them without fear, and frequently make their lives pay the forfeit of their rashness. In their native country they prefer the mountainous parts to the low and level grounds; [144] neither do they seek marshes nor mud, like our hogs, but remain in the forests, where they subsist upon wild fruits, roots, and vegetables; they are an unceasing enemy to all the serpent kinds, with which the uncultivated forests of the New Continent abound: as soon as they perceive

a serpent or viper, they seize it with their fore hoofs, skin it in an instant, and devour the flesh.

These animals are very prolific; the young ones follow the dam, and do not separate from her till they are full grown. If taken young they are very easily tamed, and soon lose all their natural ferocity, but they never shew any signs of docility, but continue stupid, without attachment, or even seeming to know the hand that feeds them. They do no mischief, and may be permitted to run tame, without apprehending any dangerous consequence. They seldom stray far from home, but return of themselves to the sty: they never quarrel among each other, except when they are fed in the same trough. At such times they have an angry grunt, much stronger and harsher than that of a common hog; but they seldom scream, only when suddenly surprised, or frightened, when they have a shrill manner of blowing like the wild boar. When enraged they draw their [145] breath with great force, and point their bristles upward which more resemble the sharp armour of the hedge-hog than the bristles of the wild boar.

The species of the Mexican hog is preserved without alteration, and altogether unmixed with that of the European hog, which has been transported to, and become wild in, the forests of America. These animals meet in the woods, and even herd together, and yet never produce an intermediate breed. It is the same with the Guinea hog, which has greatly multiplied in America, after being brought thither from Africa.

However approximate the species of the European hog, the Guinea-hog, and the peccari, may appear, it is, nevertheless, evident, that they are each distinct, and separate from the others since they inhabit the same climate without intermixture. Of the three, the strongest, most robust, and most formidable, is our wild boar. The peccari, though equally fierce, is yet less active, and inferior as to the engines of defence, his tusks being much shorter. This animal dreads the cold, and cannot subsist, without shelter, even in our temperate regions; nor can our wild boar exist in countries which are very cold; therefore it is impossible that either of them [146] could have found a passage from the one continent to the other, over any northern country; and therefore the Mexican hog cannot be considered as an European hog degenerated, or changed, by the climate of America, but as an animal peculiar to the southern regions of that continent.

Ray and other naturalists, have maintained, that the humor discharged from the back of the Mexican hog is a kind of musk, an agreeable perfume, even as it exudes from the body of the animal; that it is perceived at a considerable distance, and perfumes every place he inhabits, and through which he passes. I have, I must own, a thousand times experienced very contrary effects; for so disagreeable is the smell of this moisture, on being separated from the body of the animal, that I could not collect it without being exceedingly incommoded. It becomes less fœtid by being dried in the air, but never acquires the agreeable smell of musk, or of civet; and naturalists would have expressed themselves with more propriety, if they had compared it to that of *castoreum*.

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SUPPLEMENT.

M. de la BORDE says, there are two kinds of the Peccari, or Mexican hog, in Cayenne, which never intermix; the largest of which is black, excepting two white spots upon its jaws, and that the hair of the small one is rather red; but I apprehend the differences are occasioned by age, or some accidental circumstance. He adds, that those of the large size do not associate with men; but that they live in the woods, upon seeds, roots, and fruits; that they dig in the damp soils for worms, and that they go in flocks of two or three hundred. It is no difficult matter to shoot them, as, instead of flying, they collect together, and will stand several discharges; nay, they will even attack the dogs, and sometimes men. He mentions an instance where he was out with a party that were surrounded by a flock of these hogs, who were not to be intimidated by a continual firing, and could not be dispersed until several of them were killed. When taken young, they are [148] soon rendered familiar, but they will not intermix with the domestic hogs. When living in their natural state of freedom, they often reside in the marshes, and will swim across rivers. Their flesh, though palatable, is not so good as the common hog; it has a strong resemblance to that of the hare, and is without lard or grease.

M. de la Borde speaks of another species of hog found in Guiana, which he calls *patira*, in these terms: “The patira is about the size of the small Mexican hog, and the only difference is the former having a white stripe along the back; they live in large forests, and, in general, herd in families. They will defend themselves against dogs, when hunted by them: when likely to be overpowered, they seek shelter in hollow trees, or in holes of the earth, that have been made by armadilloes, which they entered backwards. To get them out, the hunters employ every means to irritate them, (having first inclosed a space round the hole) for when angry they will quit their retreat, and the men, standing prepared, destroy them with pitchforks and sabres. If a hunter observes a single one in a hole, and does not then wish to take it, he closes up the entrance, and [149] is sure to have him the next day. Their flesh is superior to that of other hogs. When caught young they are easily rendered domestic, but even then they preserve their natural inveteracy against dogs, whom they attack on all occasions. They constantly live in the marshes, unless when entirely covered with water. The females produce two at a time, and they breed at all seasons of the year. Their hair is soft, like that of the Mexican hog. When tamed they follow their masters, and allow themselves to be handled by those they know, but strangers they always threaten by

shewing their teeth.”

THE ROUSETTE, OR TERNAT BAT, THE ROUGETTE, OR LITTLE TERNAT, AND THE VAMPYRE.

THE Roussette[W] and the Rougette[X] seem to form two distinct species, but they so nearly resemble each other that they ought not to be presented apart, as they differ only in the size of the body and colour of the hair. The Great Ternat, (*fig. 117*) whose hair is of a reddish brown, is nine inches in length, from the tip of the nose to the insertion of the tail, and in breadth three feet, when the membranes, which serve it for wings, are fully extended. The Rougette, whose hair is of a reddish ash colour, is hardly more than five inches and a half in length, and two feet in breadth, when the wings are extended; and its neck is half encircled with a stripe of lively red, intermixed with orange, of which we perceive no vestige on the neck of the roussette. They both belong to nearly the same hot climates of the old continent, are met with in Madagascar, in the island of Bourbon, in Ternat, the Philippines, and other islands of the Indian Archipelago, where they seem to be more common than on the neighbouring continents. [150]

[W] Also called the Flying Dog, and the Great Bat of Madagascar.

[X] Or the Red-necked Flying Dog.

In the hot countries of the New World, there is another flying quadruped, of which we know not the American name, but shall call it Vampyre, because it sucks the blood of men, and other animals while asleep, without causing sufficient pain to awaken them. This American animal is of a different species from the bats just mentioned, both of which are to be found solely in Africa, and in the southern parts of Asia.

Engraved for Barr’s Buffon.

FIG. 117. *Ternat Bat.*

FIG. 118. *Bull Dog Bat*
FIG: 119. *Senegal Bat*

THE vampyre[Y] is smaller than the rougette, which is itself smaller than the roussette. The first, when it flies, seems to be of the size of a pigeon, the second of a raven, and the third of a large hen. Both the roussette and rougette have well shaped heads, short ears, and round noses, nearly like that of a dog. Of the vampyre, on the contrary, the nose is long, the aspect as hideous as that of the ugliest bats; its head is unshapely, and its ears are large, open, and very erect; its [151]

noise is deformed, its nostrils resembling a funnel, with a membrane at the top, which rises up in the form of a sharp horn, or cock's-comb, and greatly heightens the deformity of its face. There is no doubt, therefore, that this species is different from the Ternat bats. It is an animal not less mischievous than it is deformed; it is the pest of man, and the torment of other animals. In confirmation of this, the authentic testimony of M. de la Condamine may be produced. "The bats," says he, "which suck the blood of horses, mules, and even men, when they do guard against it by sleeping under the shelter of a pavilion, are a scourge common to most of the hot [152] countries of America. Of these some are of a monstrous size. At Borja, and several other places, they have entirely destroyed the large cattle which the missionaries had brought thither, and which had begun to multiply." These facts are confirmed by many other historians and travellers. Petrus Martyr, who wrote not long after the conquest of South America, says, that there are bats in the isthmus of Darien which suck the blood of men and animals while they are asleep, so as to much weaken, and frequently kill them. Jumilla, Don George Juan, and Don Ant. de Ulloa, assert the same. Though from the above testimonies it appears that these blood-sucking bats are numerous, particularly in South America, yet we have not been able to obtain a single individual. Seba has presented us with a figure and description of this animal, of which the nose is so extraordinary, that I am astonished travellers should not have remarked a deformity so palpable as to strike the most superficial beholder; possibly the animal of which Seba gives the figure, is not the same with that which we distinguish by the name of the vampyre, or blood-sucker; It is also possible, that this figure of Seba's is false or exaggerated, or at least that this deformed nose [153] is only a monstrous accidental variety; though of these deformities there may be found permanent examples in some other species of bats. By time alone will these obscurities be removed.

[Y] An American animal called the Great American Bat, or Flying Dog of New Spain.

Both the roussette and rougette are in the cabinet of the King of France; and it is to the island of Bourbon that we are indebted for them. They belong exclusively to the Old Continent; and in no part either of Africa or Asia are they so numerous as the vampyre is in America. These animals are larger, stronger, and perhaps more mischievous than the vampyre. But it is by open force, and in the day as well as night, that they commit hostilities. Fowls and small birds are the objects of their destructive fury; they even attack men, and wound their faces; but no traveller has accused them of sucking the blood of men and animals while asleep.

The ancients had but an imperfect knowledge of these winged quadrupeds, which may, indeed, be termed monsters; and it is probable, that from those whimsical models of Nature, they received the idea of harpies. The wings, the teeth, the claws, the cruelty, the voracity; the nastiness, and all the destructive qualities, and noxious faculties of the harpies, bear no small [154] resemblance to those of the Ternat bat. Herodotus seems to have denoted them, when he mentions that there were large bats which greatly incommoded the men employed in collecting cassia round the marshes of Asia, and that, to shield themselves from the dangerous bites of these animals, they were obliged to cover the body and face with leather. Strabo speaks of very large bats in Mesopotamia, whose flesh was palatable. Among the moderns, these large bats have been mentioned, though in vague terms, by Albertus, Isidorus, and Scaliger. With more precision have they been treated of by Linscot, Nicholas Matthias, and Francis Pyrard; Oliger Jacobeus has given a short description of them with a figure; and lastly, in Seba, and in Edwards, we find well-executed description and figures, which correspond with our own.

The Ternat bats are carnivorous animals, voracious, and possessed of an appetite for every thing that offers. In a dearth of flesh or fish, they feed on vegetables and fruits of every kind. They are fond of the juice of the palm-tree, and it is easy to take them by placing near their retreats vessels filled with palm-tree water, or any other fermented liquor, with which they are sure to intoxicate themselves. They fasten themselves to trees, and hang from them by their [155] claws. They usually fly in flocks, and more by night than by day. Places which are much frequented they shun, and their favourite residence is uninhabited islands. To copulation they are strongly inclined. In the male the sex is very apparent, and not concealed in a scabbard, like that of quadrupeds, but extends forwards from the body, nearly as it does in the ape. In the female the sex is equally conspicuous; she has but two nipples, and those situated upon the breast; she produces more than once a year, but the number at each time is but small. Their flesh, when young, is not unpalatable; the Indians[Z] are fond of it, and compare its flavour to that of the partridge or the rabbit.

[Z] The Moors and Malayans are most certainly meant, as the Indians neither eat nor kill any animal. Lett. M. La Nux.

The American travellers unanimously agree, that the great bats of the new continent suck the blood both of men and animals while they are asleep, and without awakening them. Of this singular fact, no mention is made by any of the Asiatic or African travellers, who speak of the Ternat bats. Their silence, nevertheless, is no adequate proof of their being guiltless, especially as they have so many other resemblances to those great bats, which we denominated vampyres. I [156] have, therefore, thought it worth while to examine how it is possible that these animals should suck the blood of a person asleep, without causing a pain so sensible as to awake him. Were they to cut the flesh with their teeth, which are as large as those of other quadrupeds of the same size, the pain of the bite would effectually rouse any of the human species, however soundly asleep; and the repose of animals is more easily disturbed than that of man. Thus it would also be, were they to inflict the wound with their claws. With their tongue only, then, is it possible for them to make such minute apertures in the skin, as to imbibe the blood through them, and to open the

veins without causing an acute pain.

The tongue of the vampyre I have not had an opportunity of observing, but those of several Ternat bats which M. Daubenton attentively examined, seemed to indicate the possibility of the fact; their tongues were sharp, and full of prickles directed backward; and it appears that these prickles, or points, from their exceeding minuteness, may be insinuated into the pores of the skin, and may penetrate them so deep as to command a flow of the blood, by the continued function of [157] the tongue. But it is needless to reason upon a fact of which all the circumstances are imperfectly known to us, and of which some are perhaps exaggerated, or erroneously related.

SUPPLEMENT.

AMONG other remarks which I received from the ingenious M. de la Nux upon this work, after its first publication, were the following respecting these animals. He says, in general terms, that the size and number of the Great Ternat Bats are both exaggerated; that instead of attacking men they invariably endeavour to get from them, consequently never bite but when taken, or defending themselves, which they do then most dreadfully; and that instead of being ferocious animals, they are perfectly gentle in their dispositions. Speaking from his own experience, he says, both the great and small Ternat bats are natives of Bourbon, the isles of France, and Madagascar, in the former of which he had resided upwards of fifty years; when he first arrived [158] there they were very numerous in many places where at present they are not to be found, and for these reasons, that the forests were then adjacent to them, which had been cleared away by the settlements, and that it is only in forests they can subsist; besides, they bring forth but once a year, and are hunted, both by whites and negroes, for the sake of their flesh and grease. The females are in season about the month of May, and produce towards the end of September. They appear to come to maturity in about eight months, since there are no small ones to be seen after April or May, and the young are to be known from the old by their colours being more vivid: they become grey with age, but it is uncertain at what period; at this time their flesh is very disagreeable, and their fat alone, of which they have plenty during the summer, is eaten by the negroes. They never feed upon any kind of flesh, but entirely on bananas, peaches, and other fruits and flowers with which these forests abound: they are exceedingly fond of the juices of certain umbellated flowers; and it is possibly for the purpose of sucking the different species of them that they have such a number of sharp papillæ on their tongues. They never touch the skins of the mango, perhaps because it is resinous. Some of them which have been caught, and kept [159] alive, have been known to eat bread and sugar-canes, but I believe, even in that state, no kind of meat, either raw or prepared. There cannot be any thing to apprehend from these animals, either personally, or even for poultry, because they are incapable of seizing upon the smallest bird, for if they come too near the ground they fall, and are then under the necessity of climbing up some elevated object before they can resume their flight, and in this case they climb up the first thing they meet with, even if it be a man. They trail their bodies along, consequently move very slow, and which is of itself sufficient to prove their incapacity for seizing birds. These animals, when going to take wing, cannot, like birds, dart at once into the air, but are obliged to beat their wings several times to fill them, and to release their claws from what they have hold of, and even then the weight of their bodies frequently bears them to the ground; from this necessity of filling their wings they cannot take flight from any part of the tree, but are obliged to crawl to a part of the branch where they can act with perfect freedom. They are much alarmed at the firing of a gun, or at a peal of thunder; and if a large flock of them, resting upon a tree, are surprised by [160] either of these reports, in their haste to fly, numbers of them fall to the ground, not having sufficient air in their wings; in this case they hasten to climb up the first object they met with; let us therefore only suppose that object to be a traveller unacquainted with these animals; he would naturally be struck with terror at being suddenly surrounded with a number of creatures of such an ugly form and aspect, and especially when they began to climb up his body; he would of course endeavour to extricate himself from them, and they, in turn, finding themselves roughly treated, might begin to scratch and bite. Would not a circumstance of this nature be sufficient to give rise to the idea that these bats were ferocious animals, rushing upon men for the purpose of wounding and destroying them? when the whole would arise from the rencounter of different animals mutually afraid of each other. They are led to reside in forests by instinct, it being there only they can procure subsistence, and not from any savage disposition; besides this, neither of these bats ever light upon carrion, nor do they eat upon the ground, but generally in a hanging posture, and which appears to be necessary when they feed all of which is surely enough to prove [161] they are neither carnivorous, voracious, nor cruel animals; and as their flight is both heavy and noisy, there cannot remain a doubt of their being a species very distant from the vampyre. The great Ternat bats have also been charged with feeding on fish, because they sometimes fly very near the water; but this is equally untrue, for it is certain that they live entirely on vegetables, and it is solely for the purpose of washing themselves that they go so near the water, being an exceedingly clean animal, for of the numbers I have killed I never found dirt upon any of them.

When near, the great Ternat bat is certainly rather disgustful, and all his motions are disagreeable, and it is only when perched on a tree that his natural deformity is concealed; he then hangs with his head downward, his wings are folded close to his sides, his vibrating wings,

which are his greatest defects, as well as hind paws, by which he is suspended, are concealed, and there then appears only a round plump body, covered with a clean, smooth brown hair, terminated with a head rather agreeable than otherwise. This is the only attitude in which they take repose, they frequently remain in it the greatest part of the day, and in it they are seen to [162] the greatest advantage, especially if they are at the height of 40 or 50 feet, and about 100 feet distant. The great Ternat bat is always placed for shew with his wings extended, by which means he is seen to the greatest disadvantage. The representation given of him in your work is not exact, as they never rest with their four feet on the ground. Both species are excellent food, and have never been known to produce any bad effects, although frequently eaten to excess; nor is that in the least surprising when we consider they feed entirely on ripe fruits, the juices, flowers, and according to Herodotus, “the exudations of trees.”

THE SENEGAL BAT.

THE Senegal Bat[AA] (*fig. 119*) or as it is called by some, the Marmotte Volante, is of a dark brown colour upon its head and back, with a light mixture, which increasing under the belly, [163] renders that considerably paler; the tail, as well as the membrane of the wings, are quite black. That which I saw and had been brought from Senegal, by M. Adanson, was not more than four inches in length, and his wings extended to about 21 inches; his head was long, ears short, and his nose rather pointed; he had 20 teeth in the whole, two incisive, two canine, and eight grinders in the upper jaw and six incisive and two canine in the under.

[AA] Of this and the two following Mr. Pennant’s Synopsis contains very accurate descriptions.

THE BULL-DOG BAT.

The Bull-Dog Bat, (*fig. 118*) has a short thick nose, and large broad ears, which bend forward. The greatest part of its body is a dark ash-colour; the middle of its belly is brown, and its chest and throat a clear ash, without any mixture; the tail and membrane of the wings are nearly black, from the latter of which there comes a part of the tail, composed of five false vertebræ. It has 26 teeth, two incisive, and two canine, in each jaw; eight grinders in the upper, and ten in the lower; [164] it is not more than two inches in length, measuring from the top of the nose, nor does its wings extend to quite ten.

THE BEARDED BAT.

THE head of this bat (*fig. 120*) is very peculiarly constructed; the nose is sunk in the front, and, contrary to all other animals, it has not its nostrils divided by a partition, but are placed on the sides of a kind of gutter entirely open from one end to the other; the exterior edges of them join above the upper lip, forming a cavity from thence to the front, where it terminates with a deep hole covered all round with long hairs. It has long narrow ears; the hair on the top and hind part of the head, along the neck, back, tail, and shoulders, is of a reddish brown, and all the remainder is of a yellowish white; the membrane of the wings and tail have a kind of mixture of black and reddish brown and its claws are yellow. Its body is about an inch and a half long, and its wings extend to about seven.

Engraved for Barr’s Buffon.

FIG. 121. ***Polatouch***
FIG. 120. ***Bearded Bat***

FIG. 122. ***Swiss Squirrel***
FIG. 123. ***Palmist***

[165]

THE STRIPED BAT.

THIS bat is very small, has a short nose and broad ears, bending forward; it is of a whitish yellow colour, excepting under its throat, breast, and belly, which is a light blue, with a yellow shade; the tail, and membrane of the wings are a mixture of yellow and brown.

THE POLATOUCH.

I HAVE chosen to continue the name this animal bears in Russia, its native country, rather than to adopt those vague and uncertain ones since appropriated to it, such as, the Flying-rat, Flying-squirrel, &c.

The Polatouch (*fig. 121*) resembles but in a few particulars either the squirrel, loir, or rat. To the squirrel it has no affinity but in the largeness of the eyes, and form of the tail, the latter of [166] which, however, is neither so long, nor bushy as in the former. He is more like the loir by the shape of his body, his short and naked ears, and the hairs of his tail, which are of the same form and length; but he is not like him, subject to numbness in cold weather. The polatouch is a different species from the squirrel rat, or dormouse, though he participates of the nature of all three. M. Klein gave the first exact description of this animal, in the Philosophical Transactions, 1733; he was, however, known long before that time. He is found in the northern parts both of the ancient and New Continent,[AB] but he is more common in America than in Europe, where he is seldom seen, except in Lithuania and Russia. This little animal dwells upon trees, like the squirrel; he goes from branch to branch, and when he leaps from one tree to another, his loose skin stretches forward by his fore-legs, and backward by his hind ones; his skin thus stretched and drawn outwardly more than an inch, increases the surface of his body, without adding to its

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weight, and consequently retards the acceleration of his fall, so that he is enabled to reach in one leap a great distance. This motion is not like the flight of a bird, nor the fluttering of a bat, both of which are made by striking the air with repeated vibrations. It is one single leap, caused by the first impulsion, the motion of which is prolonged, because the body of the animal presents to the air a larger surface, and thence finds a greater resistance, and falls more slowly. This singular extension of the skin is peculiar to the polatouch, and this characteristic is sufficient to distinguish him from all other squirrels, rats, or dormice. But the most singular things in Nature are not unparalleled; there is another animal of the same kind, with a similar skin, which is not only stretched from one leg to another, but from the head to the tail. This animal, whose figure and description has been given by Seba, under the denomination of the flying-squirrel of Virginia, seems so different from the polatouch, as to constitute another species; though probably it may be only a simple variety, or an accidental and monstrous production, for no traveller or naturalist makes mention of it. Seba is the only one who has seen it in the cabinet of Vincent; and I always distrust descriptions of animals made in cabinets of curiosities, which are often disfigured to [168] make them appear more extraordinary.

[AB] The Hurons of Canada have three different species of squirrels. The Flying-squirrels are frequent in North America, but they have been lately found in Poland.

I have seen and kept a long while the living polatouch. He has been well described by travellers, particularly Sagard, Theodat, John of Laet, Fernandes, Le Hontan, Denys, Catesby, Dumont, Le Pague du Pratz, &c. and Messrs. Klein, Seba, and Edwards, have given exact descriptions of him, with his figure. What I have seen of this animal agrees with their relations. He is commonly smaller than a squirrel. That which we had weighed little more than two ounces, about the weight of a middling sized bat, and the squirrel weighs eight or nine ounces. However, there are some of a greater size, since we have a skin of a polatouch much larger than usual.

The polatouch has some analogy with the bat by this extension of the skin, which unites the fore and hind legs, and supports him in the air; he seems also to participate of his nature, for he is quiet and sleepy in the day time, having no activity but towards the evening. He is easily tamed, but soon offended, and must be kept in a cage, or fastened with a small chain; he feeds upon bread, fruits, seeds, and is remarkably fond of the buds and shoots of the birch and pine trees. He does not seek after nuts and almonds like a squirrel. He makes a bed of leaves, in which [169] he buries himself, and sleeps through the day, leaving it only in the night, or when pressed by hunger. As he has little agility, he becomes easily the prey of martens, and other animals who climb up the trees, so that the species is not numerous, although they have commonly three or four young at a time.

SUPPLEMENT.

IN the original work I remarked having seen the skin of a polatouch larger than the common size, but the difference was very trifling, to one the Prince de Condé has since permitted me to examine, whose bulk was perfectly gigantic, compared with those of Russia or America, the latter never exceeding five inches in length, and this measured twenty-three. It was taken upon the Malabar coast, where they are very common, as well as in the Philippine Islands, and other parts of India, where they are called taguans, or great flying squirrels; but notwithstanding they resemble the polatouch in figure, and the extension of their skin, yet I think they ought to be [170] considered as different species; for among other varieties, the tail of the taguan is round, and that of the common kind flat; the hair of the former's tail is also of a blackish brown, the face is quite black, the sides of the head have a mixture of white hairs, and on the nose and round the eyes, there are also some red ones; it has long brown hairs that cover the neck, the whole back is a mixture of black and white, the belly of a dirty white; the upper part of the extended skin is brown, and the under a greyish yellow, the legs black with a reddish shade, the tail brown, deepening by degrees until it becomes quite black at the end, the toes are black, and the claws hooked like those of the cat, from which, and the resemblance of the tail, it has been called by some the flying cat. M. de Vosmaër, in his Description of an *Ecureuil Volant*, gives a very particular account of both species, as does M. l'Abbé Prevost, and both of which perfectly coincide with the above.

At this time, March 17, 1775, I have one of the small species alive; I kept it in a cage, with a box at the bottom filled with cotton, in which it covers itself all day, and only comes out at night to seek for food. Whenever it is forced to come out, it cries somewhat like a mouse; its teeth are [171] small, but sharp, and it bites violently; it can only be made to extend its wings by letting it fall from some height; and it is so very chilly, that I am astonished how it preserves itself in the northern climates, since it would very soon perish, even in France, if it were not supplied with plenty of cotton to cover itself all over.

Of the Great Flying Squirrel M. de Vosmaër remarks, "that it has a great affinity to the smaller species described by M. de Buffon; they both have the same kind of membranes, with which they support themselves in the air when they leap from tree to tree." These animals were first mentioned by Valentine, who states them to be found in the island of Gilolo, where they are called *flying civets*; he describes them to have long tails, and says, when at rest their wings are

not to be seen; that they are very wild and fearful; that their heads are reddish, intermixed with grey, that their membranes are covered with hair, their teeth so strong and sharp that they would soon escape from a wooden cage; that they are sometimes called *flying monkeys*; and that they are also to be met with in the island of Ternat, where they were at first mistaken for squirrels.

M. l'Abbé Prevost says, it is also found in the Philippine Islands, where it is called *taguan*; that [172] he saw two females, the one at the Hague, whose body was a light chesnut, rather darker on the back, and black towards the extremity of the tail; and that he had also seen two males in the Prince of Orange's cabinet, which were one foot five inches long in the body, and their tails one foot eight. The hind part of their heads, back, and the commencement of the tail are covered with long hairs, black at the bottom, and of a greyish white at the ends; the other part of the tail is black, and the hair is so disposed as to make the tail have a round appearance, the cheeks are brown, and their throats, breasts, and bellies are of a whitish grey. The membranes are the thinnest in the middle where they are covered with chesnut hairs, increasing in thickness towards the paws, and the colour growing darker until it is nearly black at the extremities.

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THE GREY SQUIRREL.

THIS animal is found in the northern parts of both continents. He is in shape like a common squirrel, and his external difference consists in his being larger, and the colour of his hair not being red, but of a grey more or less deep; his ears are not so hairy towards the extremity as those of our squirrels. These differences, which are constant, seem sufficient to constitute a particular species. Many authors think this species is different in Europe and America, and that the grey squirrels of the former are of the common kind, and that they change their colour with the season in the northern climates. Without denying absolutely this assertion, which does not seem sufficiently proved, we look upon the grey squirrel of Europe and America as the same animal, and as a distinct species from common squirrels, who are found in the northern parts of both continents, being of the same size, and of a red, more or less bright according to the temperature of the country.

At the same time, other squirrels of a larger size, whose hair is grey, or somewhat black, in all [174] seasons, breed in the same latitude. Besides, the fur of the grey squirrel is more fine and soft than that of our squirrels; we are, therefore, authorised to believe that though very nearly alike, they ought to be distinguished as different species.

M. Regnard says affirmatively, that the grey squirrels of Lapland are the same animals as the French squirrels. This assertion is so positive that it would be satisfactory were it not contradicted by others; M. Regnard has written excellent dramatic pieces, but he did not give a sufficient application to Natural History, nor did he continue long enough in Lapland to see the squirrels change their colour. It is true that some naturalists, and among them Linnæus, have said, that in the north of Europe the hair of the squirrel changes colour in the winter. This may be true, for the hares, wolves, and weasels, also change their colour in those climates; but from red they grow white, not grey; and to give no other instance but that of the squirrel, Linnæus in the *Fauna Suecica*, says, *æstate ruber hieme incanus*, consequently from red he becomes white; and we do not see why this author should substitute for the word *incanus* that of *cinereus*, which is [175] found in the last edition of the *Systema Naturæ*. M. Klein asserts, on the contrary, that the squirrels in the vicinity of Dantzic, are red in the winter as well as in the summer, and that there are others frequently found in Poland grey and blackish, who do not change their colour any more than the red; these last also breed in Canada, and in all parts of North America, consequently we may consider the grey squirrel as an animal common to both continents, and of a different species from that of the common squirrel.

Besides, we do not perceive that the squirrels which are very frequent in our forests unite in troops; we do not see them travel in companies, approach the waters, nor cross rivers upon the bark of trees. Thus they differ from the grey squirrels, not only in size and colour but in natural habits; for although the navigations of the grey squirrels seem almost incredible, they are attested by so many witnesses that we cannot deny the fact.[AC]

[AC] The grey squirrels frequently remove their place of residence, and it not unoften happens that not one can be seen one winter where they were in multitudes the year before; they go in large bodies, and when they want to cross a lake or river, they seize a piece of the bark of a birch or lime, and drawing it to the edge of the water, get upon it, and trust themselves to the hazard of the wind and waves, erecting their tails to serve the purpose of sails; they sometimes form a fleet of three or four thousand, and if the wind proves too strong, a general shipwreck ensues, to the no small emolument of the Laplander who may fortunately find their bodies on the shore, as, if they have not lain too long, their furs will prepare in the usual manner; but if the winds are favourable they are certain to make their desired port. *Oeuvres de M. Regnard, tom. i. p. 163.*

Of all quadrupeds that are not domestic, the squirrel is, perhaps, the most subject to vary in [176]

shape and colour, and whose species has the greatest numbers of others that approach it. The white squirrel of Siberia seems to differ only in colour from our common squirrel. The black and the grey of America are, perhaps, only varieties of the grey squirrel. The squirrels of Barbary, Switzerland, and the palmist, are three species very much like each other.

We have very little information with regard to the grey squirrel. Fernandes says, that the grey or blackish squirrels of America dwell upon trees, particularly upon pines; that they feed upon fruits and seeds; that they provide provisions for the winter, and heap it up in some hollow tree, where they retire during that season, and where the female brings forth her young. The grey squirrel differs, then, from the others who make their nests at the tops of trees like birds, yet we [177] do not pretend to affirm that the blackish squirrel, mentioned by Fernandes, is the same as the grey squirrel of Virginia, or that both of them are the same as the grey squirrel of Europe; we only think it is probable, as these three animals are nearly of the same size and colour, inhabit the same climates, are precisely of a similar form, and their skins being equally used in the furs, called the fur of the grey squirrel.

THE PALMIST, THE SQUIRRELS OF BARBARY AND SWITZERLAND.

THE palmist is about the size of a rat, or a small squirrel; he lives upon the palm-trees, from which he takes his name. Some call him the palm-rat, and others the palm-tree squirrel; but as he is neither a rat nor a squirrel, we call him palmist. (*fig. 123*) His head is nearly the same form as that of the campagnol, and covered with rough hair. His long tail does not lie on the ground, like that of the rat, but he carries it erect vertically, without, however, throwing it down on his back [178] like the squirrel; it is covered with hair longer than that of his body, but shorter than the hair of the tail of a squirrel. His back is variegated with white and brown stripes, which distinguish the palmist from all other animals, except the squirrels of Barbary and Switzerland. These three animals are so much alike, that Mr. Ray thought they made but one species; but if we consider that the palmist and the squirrel of Barbary, are only found in the warm climates of the ancient continent, and that the squirrel of Switzerland, described by Lister, Catesby, and Edwards, is only to be met with in the cold and temperate regions of the New World, we must judge them to be different species. By minute observation it is easy to perceive that the white and brown stripes of the Swiss are disposed differently from those of the palmist, whose white stripe extends all along the back, while it is black or brown in the Swiss; and this brown stripe in the latter is followed by a white stripe, in the same manner as the white stripe in the former is by a brown; besides, the palmist has but three white stripes, while the Swiss has four; he also brings down his tail on his back, which the palmist does not: the latter dwells upon trees, and the Swiss is an [179] inhabitant of the earth; from which difference he is called the land squirrel. In fine, he is smaller than the palmist, consequently there can be no doubt of their being two different species.

As for the squirrel of Barbary, as he is of the same continent and climate, of the same size, and nearly the same form as the palmist, they might be considered as varieties of the same species; yet in comparing the description and figure of the squirrel of Barbary, given by Caius, and copied by Aldrovandus and Johnson, with the description given here of the palmist, and comparing afterwards the description and figure of the squirrel of Barbary, given by Edwards, it is easy to discern that they are different animals. We have seen them all in the king’s cabinet. The squirrel of Barbary has the head and forehead more round, the ears longer, and the tail more bushy than the palmist; he is more like a squirrel than a rat, by the form of his head and body; and a palmist resembles more a rat than a squirrel. The squirrel of Barbary has four white stripes, and the palmist has no more than three; the white stripe is on the palmist’s back bone, but that on the squirrel of Barbary is brown and red. These animals have very near the same habits and [180] dispositions as the common squirrel. Like him they feed upon fruit, and use their fore paws in carrying it to the mouth; they have the same voice and cry, the same instinct, and agility; they are lively and tractable, easily tamed, and so fond of their habitations, that they never go out but on diversion, and return spontaneously to their residence. They are both of a pretty figure; their coats, which has white stripes, is more valuable than that of the squirrel; their size is shorter, their body lighter, and their motions equally quick. The palmist, and the squirrel of Barbary, dwell on trees like the common squirrel, but the Swiss lives upon the earth, and, like the field mouse, forms a retreat that the water cannot penetrate; he is also less docile and less gentle than the two others; he bites without mercy, except completely tamed, from which it appears he is more like a rat, or a field mouse, than a squirrel, by instinct and nature.

Engraved for Barr’s Buffon.

FIG. 124. ***Great Ant Eater.***

FIG. 125. ***Short tail'd Manis.***
FIG. 126. ***Long tail'd Ditto.***

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THE ANT EATERS.

SOUTH America produces three animals with a long snout, a small mouth, without teeth, and a large round tongue; with which they penetrate into the ants' nests, and draw them out again when covered with those insects, which are their principal food. The first of these ant-eaters is that which the Brasilians call Tamandua-Gaucu, or Great Tamandua, and to which the French settled in America have given the name of Tamanoir. This animal (*fig. 124*) is about four feet in length from the extremity of the muzzle to the origin of its tail; his head is fourteen or fifteen inches long, his muzzle stretches out to a great length; his tail is two feet and a half long, is covered with rough hair, more than a foot in length; his neck is short, his head narrow, his eyes black and small, his ears round, his tongue thin, more than two feet long, and which he folds up in his mouth. His legs are but one foot high; the fore-legs are a little higher, and more slender [182] than those behind: he has round feet; the fore-feet are armed with four claws, the two middle ones are the longest; those behind have five claws. The hair of his tail and body are black and white. Upon the tail they are disposed in a bunch, which he turns up on his back, and covers with it his whole body, when he is inclined to sleep, or wants to shelter himself from the rain or heat of the sun. The long hair of his tail and of his body is not round in all its extent; it is flat towards the ends, and feels like dry grass. He waves his tail frequently and hastily when he is irritated, but it hangs down when he is composed, and sweeps along the ground. The hair of the fore-part of his body is longer than that on the hind part. On the neck and back it is somewhat erect, and towards the tail, and on the flanks, close to the skin; his fore-parts are variegated with white, and his hind-parts wholly black; he has also a white stripe on the breast, which extends on the sides of the body and terminates on the back near the thighs; his hind-legs are almost black, and the fore-legs almost white, with a large black spot towards the middle. The Great Ant-eater moves so slow that a man can easily overtake him in running; his feet seem less calculated to walk than to [183] climb, and to fasten round bodies; for he holds so fast a branch, or a stick, that it is not possible to force it from him.

The second of these animals is called by the Americans only Tamandua; he is much smaller than the former, being not above eighteen inches from the extremities of the muzzle to the tail; his head is five inches long, his muzzle crooked, and long; his tail ten inches long, without hair at the end; his ears are erect, and about an inch long; his tongue is round, eight inches long, and placed in a sort of hollow canal within the lower jaw; his legs are not above four inches in height, his feet are of the same form, and have the same number of claws as the Great Ant-Eater. He

climbs and holds fast a branch, or a stick, like the former, and his motions are equally slow. He cannot cover himself with his tail, the hair being short, and the end almost bare. When he sleeps he hides his head under his neck and fore-legs.

The third of these animals, the natives of Guiana call *ouatiriouaou*. He is still smaller than the second, being not above six or seven inches in length from the extremities of the snout to the tail; his head is two inches long; and his muzzle proportionally short; his tail is seven inches in length, [184] the hair curls downwards, and it is bare at the end; his tongue is narrow, long, and flat; his neck is very short, his head big in proportion to the body; his eyes are placed low, and at a little distance from the corners of the mouth, his ears are small, and hidden by the hair; his legs are but three inches long, the fore-feet have only two claws, the outward of which is much thicker and longer than the inward; the hind feet have four claws, the hair of the body is about nine inches long; smooth, and of a shining colour, diversified with red and yellow, his feet are not made to walk, but to climb and to take hold of branches of trees, on which he hangs himself by the extremity of his tail.

We know of these kind of animals only the three species we have mentioned. M. Brisson, after Seba, speaks of a fourth species, under the denomination of the *long-eared ant-eater*, but we doubt its existence; because Seba has been guilty of more than one error in enumerating animals of this kind; he says expressly, “we preserve in our cabinet six species called ant-eaters,” and yet he gave only a description of five; and amongst them he reckoned the *ysquiepatl*, or *mouffette*, an animal, not only of a species, but even of a genus, widely different from the ant-eaters, as he has [185] teeth, and a flat short tongue, like other quadrupeds, and comes very near a kind of weasels or martens. Out of these six species, pretended to be preserved in the cabinet of Seba, four only remain, as the ysquiepatl, which he reckoned the fifth, is no ant-eater, and the sixth is not even mentioned, unless the author meant to comprehend among these animals the *Pangolin* or scaly lizard, which he does not intimate in his description of that animal. The scaly lizard feeds upon ants; he has a long muzzle, a narrow mouth, without visible teeth, and the tongue round; characteristics which he has in common with ant-eaters; but he differs from it as well as from all other quadrupeds, by having the body covered with thick scales instead of hair. Besides, this animal belongs to the hottest climates of the old continent, and the ant-eaters, whose bodies are covered with hair, are found only in the southern parts of the new world. There are therefore no more than four species instead of six, mentioned by Seba, and out of these four there is but one species discernible by its description; which is our third or smallest ant-eater, to whom Seba allows but one claw to each foot, though he has two. The three others are so imperfectly [186] described, that they cannot be traced to their true species. One may judge by this of the credit which Seba’s voluminous book deserves. This animal which he calls *tamandua murmecophage* of America, and the figure of which he has given[AD], cannot be compared with either of the three we are now treating of, it is sufficient to be convinced of his error by reading his description. The second which he terms *tamandua-guacu* of Brasil, or the *bear ant-eater*, is described in a vague, equivocal manner; yet I am inclined to think with Klein and Linnæus, that he meant the true tamandua-guacu, or great ant-eater, but it is so badly described, and so imperfectly represented, that Linnæus has comprehended, under one species, the first and second of Seba’s animals. M. Brisson considered the last as a particular species, but I do not believe his establishment of this species better founded than his criticism on M. Klein, for having confounded it with that of the great ant-eater. The only just reproach M. Klein has incurred, is to have added to the good description he has given of this animal, the erroneous indications of Seba. In fine, the third of these animals, whose figure is given in that work, is so badly described, that I cannot persuade myself, notwithstanding the respect I have for Linnæus and Brisson’s authority, this animal from [187] Seba’s description and figure can be the middle ant-eater; I only wish that his description may be attended to in order to judge of its fallacy. These discussions, although tedious and disagreeable, cannot be avoided in the details of a Natural History. Before we write upon a subject very little known, we must, as much as possible, remove all obscurities, and point out the numberless errors before we can come to the truth. The result of this criticism is a proof that three species of ant-eaters really exist, namely the *tamanoir*, the *tamandua*, and the *ouatiriouaou*, and that the fourth called the *long-eared ant-eaters*, mentioned by M. Brisson, is doubtful, as well as the other species indicated by Seba. I have seen the first and last with their skins, in the king’s cabinet; and they are certainly very different from each other. We have not seen the tamandua, but have described it, after Piso and Marcgrave, the only authors that ought to be consulted upon this animal, as all others have only copied them. The tamandua, and the small ant-eater have the extremities of their tails bare, with which they hang on the branches of trees, and when they perceive hollows, they put their tongues within, and draw them instantly back in their mouths, to [188] swallow the insects which they have gathered.

[AD] Seba, tom. I, p. 60, tab. 37. fig. 2.

These three animals, so different in size and proportions of the body, have many things in common, both as to conformation and instinct. All feed upon ants, and put their tongues into honey, and other liquid and viscous substances; they gather quickly crumbs of bread and small pieces of meat; they are easily tamed; they can subsist a long while without food; they do not swallow all the liquor which they take into their mouths, a part returning through their nostrils; they commonly sleep in the day-time, and change their station in the night; they go so slow that a man may overtake them easily whilst running in open ground. The savages eat their flesh, but which has an unsavoury taste.

The great ant-eater looks, at a distance, like a fox, and for that reason some travellers call him

the American fox; he is strong enough to defend himself against a large dog, and even the jaguar. When attacked he at first fights standing on his hind legs, like the bear, and makes use of his fore claws, which are powerful weapons; afterwards he lies down on his back, and uses all four feet, and in that situation he is almost invincible, and fights with obstinacy till the last extremity; even [189] after he has put to death his adversary he keeps hold of him a long while. He maintains the fight longer than most animals, from being covered with long bushy hair and a very thick skin, besides his flesh is remarkably hard, and he seldom loses his life in these engagements.

The three ant-eaters are natives of the hottest climates of America, are found in Brasil, Guiana, the country of the Amazons, &c. but they are not met with in Canada, or in the northern regions of the new world, they consequently do not belong to the ancient continent; yet Kolbe and Desmarchais have stated these animals to live in Africa, but they seem to have confounded the scaly lizard with the ant-eaters. Perhaps this mistake is in consequence of a passage of Marcgrave, who says: "*Tamandua-guacu Brasiliensibus, congensibus (ubi et frequens est) umbula dictus*;" but Marcgrave certainly never saw this animal in Africa, since he confesses that he had seen only his skin in America. Desmarchais only says that the great ant-eater is found in Africa as well as America, but he adds no circumstance to prove this fact. In regard to Kolbe's attestation, we reckon it nothing, for a man who has seen at the Cape of Good Hope, elks and lynxes, like [190] those of Prussia, might also see the ant-eaters in the same climate. But they are not mentioned by any authors among the animals of Asia or Africa, while all the travellers, and most of the historians, of America, make a particular mention of them. De Lery, de Laët, Father d'Abbeville, Maffèe, Faber, Nieremberg, and M. de la Condamine, agree with Piso and Barrere, in declaring that the ant-eaters are peculiar to the warm countries of America; thus we cannot doubt that Desmarchais and Kolbe were mistaken, and that these three species of animals do not exist in the ancient continents.

SUPPLEMENT.

I HAVE received from M. Maudhuit, residing at Guiana, an ant-eater in excellent condition, which appears to be of the same species as those just described, differing somewhat in the length of the muzzle and the toes.

M. de la Borde has also transmitted several particulars; he says, "There are two species of ant- [191] eaters which inhabit the woods of Guiana, the one larger than the other; they run very slow, and when they swim across large rivers which is a common practice, it is easy to knock them on the head with a stick; but in the woods it is necessary to use muskets, for the dogs refuse to hunt them. The great ant-eater tears up the nests of wood-lice, which he easily discovers; he is a dangerous animal to encounter, as he gives most severe wounds with his claws, with which he successfully defends himself against the most fierce animal of this continent, such as the jaguars, cougars, &c. and with which he also kills many dogs, who are therefore afraid of him. He is said to feed on ants, for which his tongue appeared well calculated, but I found in the stomach of one a great number of wood-lice, which had just been swallowed. The females bring forth in the holes of trees, and have one at a time, and at those periods they will even attack men. The savages at Cayenne eat the flesh, although it is black and unsavory; their skins are thick and hard; they do not attain their full size before they are four years old; and the whole of their respiration is [192] performed through their nostrils. The smaller one has whitish hair, about two inches long; it has no teeth, but its claws are very long; this, as well as the former feeds during the night; the female also has but one at a time, and they perfectly resemble each other, but the latter is more scarce to be met with than the former."

This gentleman sent me also the following remarks upon our third species. "It has bright hair, rather of a golden colour; it feeds upon ants, which adhere to its tongue; it is not bigger than a squirrel, runs very slow, and is easily taken; it fixes itself so fast to a stick or branch that it may be carried in that manner to any distance, and they are frequently found thus fixed; these, like the former bring forth but one at a time, in the holes of trees, and feed also in the night; they are not by any means scarce, though it is difficult to distinguish them on the trees."

[193]

THE LONG AND THE SHORT-TAILED MANIS.

THESE animals are commonly known under the name of scaly lizards; we reject this denomination; 1st, because it is a compound; 2dly, because it is ambiguous, and applied to both species; 3dly, because it is wrongly imagined; these animals being not only of another species, but even of a different class, than the lizards, which are oviparous reptiles, while the pangolin, and the phatagen, as they are called in their native countries of the east, are viviparous quadrupeds.

All lizards are covered with a sleek speckled skin, in representation of scales, but these animals have no scales on their throat, breast, or belly, the phatagen, or long-tailed manis, (*fig. 126*) like other quadrupeds, has hair on all these under parts of the body; the pangolin, or short-tailed manis (*fig. 125*) has nothing but a smooth skin without hair. The scales with which all the other parts of the bodies of these two animals are covered do not stick to the skin, they are only [194] strongly fixed at the lower parts, being moveable, like the quills of a porcupine, at the will of the animal; they raise these scales when exasperated, and when particularly so, they roll themselves up like a ball, resembling the hedge-hog: these scales are so big, so hard, and so sharp, that they repel all animals of prey; it is an offensive armour which wounds while it resists. The most cruel and voracious animals, such as the tiger and the panther, make but useless efforts to devour these animals, they tread upon, and roll them about, but when they attempt to seize them, they receive severe wounds; they can neither destroy them by violence, nor bruize, or smother them with their weight. The fox is averse to attacking the hedge-hog when rolled up, but he forces him to stretch himself by treading on, and squeezing him with all his weight, and as soon as his head appears, he seizes the snout, and thus secures him as a prey. But of all quadrupeds, without even excepting the porcupine, the armour of the manis is the strongest and most offensive, and which animals, by contracting their bodies and presenting their weapons, brave the fury of all their enemies. When they contract themselves, they do not take, like the hedge-hog, a globose figure, [195] but form an oblong, their thick and long tail remaining outwardly and encircling their bodies; this exterior part, by which it would seem these animals could be seized, carries its own defence; it is covered with scales equally hard and sharp as those with which the body is cloathed, and as it is convex upwards and flat below, nearly in the form of half a pyramid, the sides are covered with square scales folding in a right angle, as thick and as cutting as the others, so that the tail seems to be still more strongly armed than the body, the under parts of which are unprovided with scales.

The short-tailed manis is larger than the long-tailed kind; his fore feet are covered with scales, but the feet of the latter, and part of his fore legs are clothed with hair only. The former has also larger scales, thicker, more convex, uniformly cutting, and not so close as those of the latter, which are armed with three sharp points; he is also hairy upon the belly; the other has no hair on that part of his body, but between the scales which cover his back, some thick and long hair issues like the bristles of a hog, which are not on the back of the long-tailed species. These are all the essential differences which we have observed in the skins of both these animals, and which [196] distinguish them from all other quadrupeds so much, that they have been looked upon as a species of monsters. From these general and constant differences, we dare affirm them to be two animals of distinct species. We have discovered their analogies and differences, not only by the inspection of three of them, which we have seen, but also by comparing all which has been observed by travellers and naturalists.

The short-tailed manis is from six to eight feet in length, his tail included, when he comes to his full growth; the tail is nearly as long as the body, though it appears shorter when the animal is young; the scales are not then so large nor so thick, and of a pale colour; the colour becomes deeper in the adult, and the scales acquire such a hardness, as to resist a musket ball. Both these animals have some affinity with the great and middle ant-eater, for like them they feed on ants, have very long tongues, narrow mouths, without apparent teeth; their bodies and tails are also very long, and the claws of their feet very near of the same length and the same form, but they have five toes on each foot, while the great and middle ant-eaters have but four to their fore feet; these are covered with hair, the others are armed with scales; and besides they are not natives of [197] the same continent. The ant-eaters are found in America, and both the species of the manis belong to the East Indies and Africa, where the negroes call them *quogelo*; they eat their flesh, which they reckon a delicate wholesome food, and use their scales for different purposes. They have nothing forbidding but their figure; they are gentle and innocent, feeding upon insects only; they never run fast, and cannot escape the pursuit of men, except by hiding themselves in hollow rocks, or in holes, which they dig themselves, and in which they breed. They are two extraordinary species, not numerous, and seemingly useless: their odd form seems to exist as an intermediate class betwixt the quadrupeds and reptiles.

THE ARMADILLO.

WHEN we speak of a quadruped, the very name seems to carry the idea of an animal covered with hair; as when we mention a bird, or fish, feathers and scales present themselves to our [198] imagination, and seem to be inseparable attributes of those beings: yet Nature, as if willing to deviate from this characteristic uniformity, and to elude our views, offers herself, contrary to our general ideas, and in contradiction to our denominations and characters, and amazes more by her exceptions than by her laws. Quadrupeds, which we look upon as the first class of living nature, and who are, next to man, the most remarkable beings of this world, are neither superior in every thing, nor separated by constant attributes from all other animals. The first of those characters which constitutes their name, and which consists in having four feet, is common to lizards, frogs, &c. which differ, however, from quadrupeds in so many other respects, as to make

them be considered as a separate class. The second general property, to produce young alive, is not peculiar to quadrupeds, since it is also common with cetaceous animals. And the third attribute, which seems the less equivocal, as it is the most apparent, that of being covered with hair, exists not in several species which cannot be excluded from the class of quadrupeds, since this single characteristic excepted, they are like them in all other respects: and, as these exceptions of nature are but gradations calculated to join in a general chain, the links of the most [199] distant beings, we should seize these singular relations as they offer themselves to our view. The armadillos, instead of hair, are covered, like turtles, craw-fish, &c. with a solid crust. The manis is armed with scales like fish; the porcupine carries a sort of prickly feathers, the quill of which is like that of the birds. Thus in the class of quadrupeds, and in the most constant characteristic of these animals, that of being covered with hairs, Nature varies in bringing them near the three different classes of birds, fishes, and the crustaceous kinds. We must be cautious then in judging of the nature of beings by one single character, as that would always lead us into error; even two or three characters, though general, are often insufficient, and it is only, as we have often repeated, by the union of all the attributes, and by enumerating all the characters, that we can judge of the essential qualities of the productions of nature. A good description without definitions, an exposition more exact on the differences than the analogies, a particular attention to exceptions and almost imperceptible gradations, are the true rules, and I dare assert, the only means of estimating nature. If the time lost in forming definitions had been employed in making [200] good descriptions, we should not at this day have found Natural History in its infancy; we should have had less trouble in taking off her bawbles, disentangling her from her swaddling clothes, and, perhaps, have anticipated her slow discoveries, for we should have written more for science; and less against error.

But to return to our subject; it appears then that there exists several species of animals which are not covered with hair among the viviparous quadrupeds. Armadillos form alone a whole genus, in which may be reckoned many distinct species, all of whom are, however, covered with a crust, resembling bone; it covers the head, neck, back, flanks, rump, and the tail, to the very extremity. The crust is covered with a thin skin, sleek and transparent: the only parts that are not sheltered by this buckler are the throat, breast, and belly, which have a white grainy skin, like that of a plucked fowl, by inspecting these parts with attention, we perceive the rudiments of scales of the same substance as the crust; the skin of these animals, even in the places where it is most soft, is therefore inclined to become bony, but the ossification is only realized on the superior and external parts of the body. This crust is not in one piece, like that of the turtle, but [201] consists of several bands, joined to each other by membranes, which allow this armour a degree of motion. The number of these bands does not depend, as might be imagined, on the age of the animal. The young armadillos, and the adults, have the same number of stripes, of which we have been convinced by comparing them; and though we cannot be certain that all these animals do not intermix and produce promiscuously, yet it is very probable, that since the difference in the number of these moveable bands is constant, they are really distinct species, or at least lasting varieties, produced by the influence of various climates. In this uncertainty, which time alone can remove, we have thought proper to mention all the armadillos under one head, enumerating each of them as if they were, in fact, so many different species.

Father d'Abbeville seems to be the first who has distinguished them by different names or epithets, and which have been, for the most part, adopted by the authors who have written after him. He has clearly indicated six species of them: first, *tatououasso*, or, as we call it, twelve-banded armadillo; 2. the *tatouette*, or eight-banded; 3. the *encuberto* of Marcgrave, or six-banded; 4. the *tatua-apara*, or three-banded; 5. the *cinquinçon*, or eighteen-banded; 6. [202] *cachichame*, or nineteen-banded. Other travellers have confounded the species; but we have borrowed only the description of the *apar* and the *cinquinçon*, having seen the other four.

All, except the *cinquinçon* have two long bucklers, one at the shoulders, and another on the rump; they each consist of one solid piece; but the cuirass, which is also bony, and covers the body, is transversely divided, and parted into more or less moveable bands, separated from each other by a flexible skin. But the *cinquinçon* has but one buckler, and that on his shoulder, the rump being covered with moveable bands, like those of the cuirass of the body. But we shall now proceed to a description of them particularly.

THE THREE-BANDED ARMADILLO.

THE first author who described this animal was Clusius, and though his description was from a drawing only, it is evidently the same species which Marcgrave calls the *tatua-apara*; from its [203] three moveable stripes, and its short tail; he has an oblong head, almost pyramidal; the snout sharp, small eyes, short round ears, and the upper part of the head covered with a helmet of one piece; he has five claws to each foot; the two middle claws of the fore feet are very long, and the two lateral shorter; the fifth, which projects, is the least. In the hind feet they are shorter and more even. The tail is but two inches in length, and is entirely covered with a crust; the body is a foot long, and above eight inches in its largest breadth. The cuirass, which covers it, is divided

into four parts, and composed of three moveable transverse bands, which give the animal liberty to bend and contract his body in a round form; the skin between the stripes is very supple. The bucklers which cover the shoulders and rump are composed of five pieces, equally disposed in five angles; the three moveable bands betwixt these two bucklers consist of square pieces, ornamented with little scales of a straw colour. Marcgrave adds, that when he lies down to sleep, or any person touches him, he brings his fore feet together, lays his head under his belly, and bends himself so perfectly round that he looks more like a sea-shell than a terrestrial animal. This [204] contraction is made with the assistance of two great muscles on the sides of his body, and the strongest man finds it difficult to force him with his hands to stretch out. Piso, and Ray, have added nothing to the description of Marcgrave, but it is singular that Seba, who has given us a description and figure of this animal evidently copied after Marcgrave, not only not mentions that author, but tells us, “that no naturalist has known this animal, that it is extremely scarce, and found in the most remote countries of the East Indies,” when in fact this animal is well described by Marcgrave, and the species is well known, not indeed in the East Indies, but in America, where it is very common. The only real difference between the description of Seba, and that of Marcgrave is, that the latter gives the animal five claws to each foot, and Seba allows him but four, and yet they evidently speak of the same animal.

Fabius Calumna has given the description and figure of an armadillo contracted into a ball, [205] which seems to have had four moveable bands, but as this author was absolutely unacquainted with the animal, whose skin or shell he has described, as he did not even know the name of the armadillo, though mentioned by Bellon fifty years before, but gave him a Greek name, (*cheloniscus*); besides, as he confesses, that the skin had been pasted together, and wanted several pieces, we do not see ourselves authorised to pronounce, as our modern nomenclators have done, that a species of armadillo, with four moveable bands, exists in Nature; and more especially since these imperfect indications given in 1606, by Fabius Calumna, no mention is made of it in the works of any naturalists; and, if he really did exist, he certainly would have been introduced into some cabinets, or have been observed by some travellers.

Engraved for Barr’s Buffon.

FIG. 127. ***Six Banded Armadillo.***

FIG. 128. ***Long-tailed Armadillo.***

THE SIX BANDED.

THIS species (*fig.* 127) is larger than the former; he has the upper part of the head, neck, body, legs, and tail, covered with a very hard crust, composed of several large pieces, elegantly [206]

disposed. He has a buckler on each shoulder, and another on the rump, each of which are in one piece; only there is beyond the buckler on the shoulders, and near the head a moveable band, which enables the animal to bend its neck. The buckler on the shoulders is formed by five parallel rows, composed of pieces which represent five angles, with an oval in each; the cuirass on the back, that is the part betwixt the two bucklers, is divided into six bands, which are united together and to the bucklers, by seven joints of a supple and thick skin. These bands are composed of large square pieces; from the skin of these joints some white hairs issue out, like those on the breast and belly; all these inferior parts are covered only by a grainy skin, and not by a crustaceous substance like the upper. The buckler on the rump has a border, the mosaic work of which is similar to that of the moveable bands, and the rest consists of pieces like those of the bucklers of the shoulders. The crust of the head is long, broad, and consists of one piece, extending to the moveable band on the neck. He has a sharp muzzle, small and hollow eyes, a narrow and sharp tongue; the ears are without hair, naked, short, and brown, like the skin of the joints; he has eighteen teeth in each jaw, five claws to each foot, long, in a round form, and rather narrow; the head and the snout are like those of a pig, the tail is thick at its origin, [207] diminishing gradually towards the extremity, where it is very slender and round. The colour of the body is a reddish yellow; the animal is commonly thick and fat, and the male has the sexual organ very visible; he digs into the ground with great facility with his snout and claws; he dwells in the day-time underground, and only goes out towards the evening to seek for food; he drinks often, lives upon fruit, roots, insects, and birds, when he can catch them.

THE EIGHT BANDED.

THIS is not so large as the last, he has a small head, a sharp snout, the ears erect, and rather long, the tail still longer, and the legs rather short. He has small black eyes, four toes on the fore-feet, and five on those behind; the head is covered with a helmet, the shoulders and rump with shields, and the body with a cuirass composed of eight moveable bands connected together, and with the bucklers, by nine joints of a flexible skin; the tail has also a similar number of bands. The [208] colour of the cuirass on the back is iron grey, and on the flanks and tail of a light grey with spots of iron grey. The belly is covered with a whitish skin, grainy and hairy. The individual of this species, described by Marcgrave, had a head three inches long, the ears near two, the legs about three, the two middle toes of the fore-feet an inch; the body from the neck to the origin of the tail seven inches, and the tail nine inches in length; the bucklers had small white spots; the moveable bands were marked by triangular figures; this crust was not hard, being penetrable to the smallest shot which would kill the animal, whose flesh is very white, and good to eat.

THE NINE BANDED.

NIEREMBERG has described this animal very imperfectly: Wormius and Grew have described him much better. The individual which Wormius mentioned was adult, and one of the largest of [209] the species; that of Grew was younger and smaller. We shall only give their descriptions as far as they agree with our own specimens. Besides, it may be presumed, that this nine-striped armadillo is not really a distinct species from the eight, which he resembles in every other respect. We have two eight-banded armadillos which are dried, and seem to be both males; we have seven or eight with nine bands, one well preserved, which is a female, and the others are so dried up that we could not discern the sex. It is probable, therefore, that the eight-banded is the male and the nine-banded the female. But this is merely a conjecture for we shall give in the following article the description of two armadillos, one of which has more rows than the other upon the buckler on the rump, and yet they are so alike in every other respect, that one should be inclined to think this difference arises only from that of the sex, for it is not improbable, that greater numbers of these moveable bands may be necessary to facilitate the gestation and delivery of the female. The head of the armadillo, the skin of which Wormius has described, was five inches from the end of the snout to the ears, and eighteen inches from the ears to the tail, which last was a foot in [210] length, and composed of twelve rings. The head of that described by Grew was three inches, the body seven and a half, and the tail eleven; the proportions of the head and body agree, but the difference of the tail is too great; and it is probable that the tail of that described by Wormius had been broken, for it should have exceeded a foot in length. As in this species the tail diminishes to the size of an awl, and is, at the same time, very brittle; few of the skins therefore have the whole tail preserved as that described by Grew.

THE TWELVE BANDED.

THIS seems to be the largest of the species. He has a larger and broader head, and a snout not so sharp as the others; his legs and feet are thicker, and his tail has not any crust; a particularity which is alone sufficient to distinguish this species from all others. He has five toes on each foot, and twelve moveable bands. The buckler on the shoulders is formed of five or six [211] rows, each composed of large quadrangular pieces. The moveable bands are also formed of large pieces, almost square; those which compose the buckler on the rump are like those on the shoulder. The helmet of the head consists of large irregular pieces. Between the joints of the moveable bands and in the other parts of the armour, there appear some hairs like the bristles of a hog; there are also upon his breast, belly, legs, and tail, round scales, almost imperceptible, hard and polished like the crust, and between which are small tufts of hair. The pieces which compose the helmet, the two bucklers, and the cuirass, being proportionally larger and less in number in this than in other armadillos, evidently prove he is the largest of the kind. The head of that from which we took this description was seven inches long, and the body twenty-one.

[212]

THE EIGHTEEN BANDED.

MR. GREW first described this animal from a skin preserved in the cabinet of the Royal Society in London. All the other armadillos have two bucklers, one on the shoulders, and the other on the rump, but this has but one, which is upon his shoulders. He is called the weasel armadillo, because his head is nearly of the same form as a weasel. From the description of this animal given by Grew, it appears, that his body is about ten inches in length, his head three, and his tail five; the legs two or three inches in height; the forehead large and flat, small eyes, and the ears an inch long, he has five toes on each foot, the three in the middle being the largest. The armour of the head and legs is composed of round scales, about a quarter of an inch diameter, that on the neck consisted of one piece, as did the buckler on the shoulders composed of several rows of scales like those of the armour; these rows on the buckler, in this species, as in all others are continuous, and join by a symphysis. The rest of the body, from the buckler on the shoulders [213] to the tail, is covered with moveable bands, parted from each other by a supple membrane: these bands are eighteen in number; those nearest the shoulders are the largest, and are composed of small squares. The posterior are intermixed with round and square pieces, and the extremity of the armour near the tail is of a parabolic figure. The first half of the tail is encircled with six rings, composed of small square pieces, and the lower part is covered with irregular scales. The breast, belly, and ears, are naked, as in the other species. It should seem that, of all armadillos, this has the most facility to contract and roll himself up in a ball, by his moveable bands which extend to the tail.

Linnæus who must have seen the descriptions of Grew and Ray, who both agree with that we have given, has indicated this animal with one band only, instead of eighteen: founded on an evident mistake, by having taken the *tatu seu armadillo Africanus* of Seba for the *tatu mustelinas* of Grew, which even according to the descriptions of these two authors, are very different from each other. It is doubtful whether the tatou of Seba exists, at least as he has described him, but the animal given in Grew’s description is a real existing species. [214]

All the armadillos come originally from America; they were unknown before the discovery of the New World. The ancients never mentioned them, and modern travellers all agree, that these animals are natives of Mexico, Brasil, Guiana, &c. and no one pretends to have seen this species in Asia or Africa. Some have, indeed, confounded the scaly lizards of the East Indies with the armadillos of America. Others thought they existed on the western coasts of Africa, because they have sometimes been transported from Brasil into Guinea. Bellon, who wrote above two centuries ago, and is one of the first who has given a short description, with the figure of a tatou, from a skin which he had seen in Turkey, says, that it came from the new continent. Oviedo, De Lery, Gomara, Thevet, Ant, Herrera, Father d’Abbeville, François, Ximenes, Staddenius, Monard, Joseph Acosta, De Laët, and all the more recent authors mention these animals as natives of the southern countries of America. Piso is the only one who has pretended, without any authority, that the armadillos were found in the East Indies, as well as in America; and it is probable, that [215] he has confounded the scaly lizards with the armadillos, especially as they have been so called by the Spaniards; this error has been adopted by nomenclators, and those who have given descriptions of cabinets; who have not only admitted the existence of armadillos in the East Indies, but even in Africa, though none were ever in those two parts of the world, except such as have been transported from America.

The climate of these animals is not therefore, equivocal; but it is more difficult to determine the relative bulk of each species. For this purpose we have compared great numbers which are preserved in the king’s cabinet and those of others. We have also compared the descriptions of all authors with those of our own, without being able to ascertain the fact. It appears that the

twelve and six banded are the largest, and that the three, eight, nine, and eighteen banded are the smallest. In the larger species the crustaceous substance is harder and more solid; the pieces which compose it are larger, and in a smaller number; the moveable bands encroach, less one upon the other; the flesh, as well as the skin, is harder, and not so savory. Piso says, that the flesh of the six banded is not eatable; and Nieremberg affirms, that it is unwholesome and [216] pernicious. Barrere says, that the twelve banded has a strong smell of musk; and all authors agree in praising the flesh of the three banded, and particularly that of the eight, which is as white, and equally good as the flesh of a pig. They say also, that the small species dwell in marshy and low grounds, and that those of the large species are found on dry and high lands only.

These animals can all contract their bodies into a round form, with more or less facility. When they are contracted the defects of their armour is most visible in those who have it composed of the smallest number of pieces; the three banded then shews two large voids betwixt the bucklers and the armour on the back. None of them can roll themselves up in a ball so exact as that formed by the hedge-hog; when so contracted they represent the figure of a globe flattened at the two ends.

This singular crust, which covers them, is a bone composed of small contiguous pieces, and being neither moveable nor jointed, except at the partitions of the bands, are united by a symphysis, and may all be separated from each other if put on the fire. When the animal is alive [217] these small pieces, both of the bucklers and the moveable bands yield to his motions, especially when he contracts himself, otherwise he could not possibly roll himself up. These pieces in different species are of different figures always as regularly disposed as an elegantly contrived mosaic work. The pellicle which covers the crust is a transparent skin, and has the effect of a varnish on the whole body; this skin, when taken off, changes the relievo of this natural mosaic, and gives it a different appearance. This crustaceous covering is only a surface independent of the interior parts of the animal’s body, his bones, and other organs, being composed like those of other quadrupeds.

The armadillos, in general, are innocent, harmless animals, unless they can penetrate into gardens, where they will eat the melons, potatoes, pulse, and roots. Though they originally belong to the hot climates of America, they live in temperate regions. I once saw one in Languedoc, which was fed in the house, and went about every where without doing any mischief. They walk quickly, but they can neither leap, run, nor climb up trees, so that they cannot escape those who pursue them; they have no resource but to hide themselves in their holes, or if at too [218] great a distance from their habitations, to endeavour to dig one before they are overtaken, for which they want but a few instants, the mole itself not being more expert in digging the ground. Sometimes before they can get quite concealed they are caught by the tail, and when they make such a strong resistance that the tail is often broke without bringing out the body; in order to take them without mutilation the burrow must be opened, when they are taken without any resistance; when caught they roll themselves up into a ball, and will not extend again unless they are placed near the fire. Hard as their coat of mail is, the animal, on being lightly touched with the finger, receives so quick an impression that he contracts instantaneously. When in deep burrows they are forced out by smoking them, or letting water run down the holes. It is said that they remain under ground above three months in the year; be that as it may, it is certain that they never come out of their holes but in the night, when they seek for food. The armadillo is hunted with small dogs, by whom he is soon overtaken; but before they have reached him he contracts himself, in which condition he is seized, and carried off. If near the brink of a precipice, he escapes both dogs and hunters, for contracting he rolls himself down like a ball, without hurt [219] or prejudice to his coat of mail.

These animals are fat, and very prolific: the male has exterior signs of great generative faculties; the female brings forth, as it is said, every four months, of course their species are very numerous. As they are good to eat they are hunted in different manners; they are easily taken with snares laid for them on the banks of rivers, and in marshy grounds, which they inhabit by preference. They never go to any great distance from their burrows, which are very deep, and which they endeavour to reach whenever they are alarmed. It is pretended they are not afraid of the bite of the rattle snake, though it is as dangerous as that of the viper; nay, it is asserted, that they live in peace with these reptiles, which are often found in their holes. The savages make different uses of their crusts; they paint them with divers colours, and make baskets, boxes, and other small vessels, of them. Monard, Ximenes, and many other writers, have attributed great medicinal properties to different parts of these animals; they assure us that the crustaceous covering, reduced into powder, and taken inwardly, even in a small quantity, is a powerful [220] sudorific; and that the bone of the hip, pulverised, cures the venereal disease; that the first bone of the tail, applied to the ear, cures deafness, &c. We give no credit to these extraordinary properties; the crust and bones of the armadillos being of the same nature as the bones of other animals. Such marvellous effects are never produced but by imaginary virtues.

SUPPLEMENT.

I RECEIVED the drawing of a six-banded armadillo, taken from life, from M. de Séve, and with it a description; in which, after stating that it corresponds pretty much with that we have given, observes, that the rows on the bucklers, and their pieces, vary in form and number: this animal was fourteen inches long, independent of the tail, which he supposed to be about six inches, as part of it was broken off; his head was rather more than three inches long, and his ears a little above one; on the broadest part of the body the crust measured six inches seven lines; the fore legs were two inches long, and his hind ones three.

M. de la Borde says, there are two species of Armadillos at Guiana, the largest black and the [221] other a greyish brown; the former are so prolific as sometimes to bring forth eight or ten at a litter: they reside in very deep holes, and when any attempts are made to take them by digging, they penetrate further in the earth, and almost perpendicularly; they only quit their holes in the night, and then for the purpose of seeking for food, which commonly consists of worms, ants, and wood-lice; their flesh is of an excellent flavour, and resembles that of a pig. The small one has not more than four or five young at a time, and they are more hard to be taken; these sometimes come out of their holes in the day, but never when it rains. The hunters know when they are in their holes by the number of flies which hover round: and when they begin to dig the animal digs also, and by throwing the earth behind, so effectually closes up the holes that smoke cannot penetrate to them. I conceive the first of these animals to be that we have mentioned, as the twelve-banded, and the other the eight-banded armadillos.

Dr. W. Watson has given a description of an armadillo with nine bands, and a long tail, (*fig. 128*) in the Philosophical Transactions, where he says, This animal was brought from America, [222] and kept alive in the house of Lord Southwell; but the drawing was not taken till after its death; he weighed seven pounds, and was not bigger than a common-sized cat; while in possession of Lord Southwell it grew considerably; it was fed with flesh and milk, but would not eat grain or fruits. Those by whom it was brought from America asserted, that it dug a hole for itself in the earth in which it lived.

Engraved for Barr's Buffon.

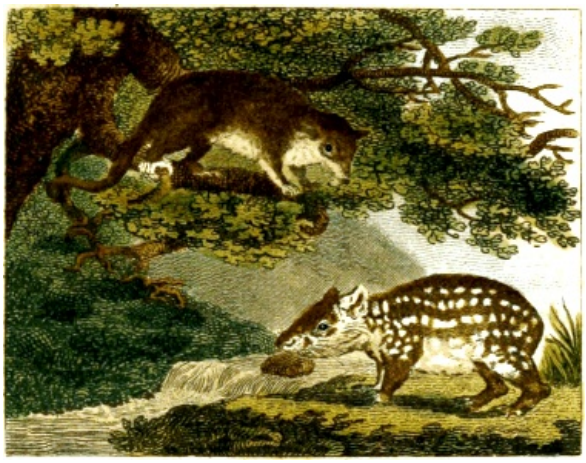

FIG. 129. ***Paca.***
FIG. 132. ***Marine Opossum.***

FIG. 130-131. ***Virginian Opossum Male and Female.***

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[223]

THE PACA.

THE paca (*fig. 129*) is an animal of the new world, which digs itself a borough like a rabbit, to whom he has often been compared, though there is scarce any likeness between them; he is much larger than the rabbit, or even the hare; his body is bigger and more compact; he has a round head and short snout; he is fat and bulky, and is more like a pig in form, grunting, waddling, and manner of eating, for he does not use, like the rabbit, his fore feet to carry food to his mouth, but grubs up the earth like the hog to find subsistence. They inhabit the banks of rivers, and are found only in the damp and warm places of South America: their flesh is very good to eat, and excessively fat; their skin is eaten like that of a pig. For these reasons a perpetual war is carried on against these animals. Hunters find it very difficult to take them alive; and when they are surprised in their burrows, which have two openings, they defend themselves, and bite with great rage and inveteracy. Their skins, though covered with short and rough hair, make a fine fur because it is regularly spotted on the sides. These animals bring forth very often, and in abundance: men, and animals of prey, destroy great numbers of them, and yet the species remains undiminished in numbers; he is peculiar to South America, and is found no where in the old continent.

[224]

SUPPLEMENT.

OUR former description of the Paca was taken from a young one which had not nearly come to its full growth. Since then I have had one sent me, which was much bigger even when he arrived, and continued to grow while I kept him, namely from August 1774, to May 28, 1775. From the Sieur Trécourt I received an account of his natural habits, in which that gentleman says: “This animal remains perfectly quiet in the day, if he is provided with a wooden cage, or box, and has plenty of provisions, to which he readily retires of himself while the day continues, but as soon as night comes on he becomes in a perpetual agitation to get out, and will even use violent efforts to effect that purpose if he is fastened in; this he never attempts during the day, unless pressed to make some natural evacuation, in which case he always gets to the furthest corner, having an aversion to any kind of dirt in the place he lives in; even his straw he pushes out with his nose when it begins to smell, and will seek about for rags, or paper, to supply its place. He had no [225] particular attachment to his box, for he would often forsake it for some obscure corner, and when once his bed was made, he could only be made to leave his new habitation by force. This animal, which was a female, gave a strong proof of her propensity to cleanliness, for a large male rabbit being put with her when she was in season, she received him with a degree of fondness, and something was expected from them; she would lick his nose, ears, and body, and even suffer him to take away the greatest part of her food; but upon voiding his excrement, in their common apartment, she immediately took an aversion to him, and retired to the bottom of an old press, making herself a bed with paper and rags, nor would she return to her house again, until she perceived it was cleared of the dirt and her filthy companion.”

The Paca very easily becomes domesticated, and is very gentle and tractable, unless when much irritated. He is very fond of being noticed, and will lick the hands of those who caress him; he very readily distinguishes the voices of those who take care of him, and when stroked on the back, he will lie down on his belly, stretch himself out, and, with a gentle cry, express his [226] gratitude for the favour, and seem to ask a continuance; but if laid hold of in a rough manner, he will struggle violently to escape. His muscles are very strong, yet his feeling is so delicate that the slightest touch on the skin will excite in him the most sensible emotions; and which sensibility, though commonly producing good humour, will sometimes, by irritation, or presenting an offensive object, put him in the most violent passion. A strange dog invariably produces the latter effect; and he has been observed, when shut in his cage, to make violent efforts to get out upon the appearance of one. It was at first thought he had no desire to come out but upon natural occasions; but one day, when he was at liberty, he flew out upon a poor dog, and bit him very severely; but in a few days after he became perfectly familiar with the same dog. He will also fly at strangers, if they plague him, but he never offers to bite those by whom he is taken care of. He has a dislike to children, and will run after them; and when in a passion he makes a kind of grunting, and at the same time a chattering with his teeth. He very frequently sits for a considerable time together on his posteriors, and has a common practice of appearing to comb [227] his head and whiskers with his paws, which he repeatedly licks with his tongue. When thus employed, he scratches all parts of his body which he can reach with his fore paws, and afterwards the remainder with his hind ones. He is, however, a gross animal; he does not appear delicate; his coat is not smooth; he is far from active, but moves heavily and somewhat like a hog; whom he also resembles by the whiteness and thickness of his skin; he seldom attempts to run, and when he does, it is very aukwardly.

This animal, though not full grown, measured more than eighteen inches from the point of his nose to the extremity of his body, and he could stretch himself out to near two feet, while the one which I formerly described was not more than seven inches five lines, and this difference was evidently to be attributed to their ages, as in all other respects they were perfectly similar.

This animal measured about seven inches high before, and nine and a half behind, by which his head always appeared lower than his hind parts: his head is five inches long, and rather convex; he has large brown eyes, two inches asunder, short round ears, covered with a fine

down, a broad black nose, divided like that of a hare, very large nostrils, and in which he has great strength; the upper jaw comes out above an inch beyond the lower; he has a fold along them that may at first sight be taken for the mouth, but which is scarcely perceptible unless it is open; he has two large yellow teeth in each jaw, with which he can cut through wood, and I have known him make a hole in a plank in a single night through which he could put his head; but, although several times attempted, he would never permit us to count his grinders; he has a thick rough tongue, and whiskers on each side his nose, consisting of black and white hairs; he has five toes on each foot, and long claws on them, of a flesh colour; and his tail is merely a kind of button, does not exceed five lines in length, and requires a close inspection to discover it. [228]

The paca, when domesticated, will eat any thing that is given him, and if fed with bread he seems to have an equal relish for it, whether soaked in water, wine, or vinegar; he is extremely fond of sugar and fruits, and will leap about for joy when they are given him; he seems to have the same relish for grapes, celery, onions, or garlic; he will also eat grass, moss, the bark of trees, or even wood; he drinks like a dog; his urine has a disagreeable smell, and his excrements are like those of the rabbit. [229]

As there can be little doubt but these animals would produce in the climates of France; as they are easily tamed, and their flesh is excellent food, they might be rendered an advantageous acquisition, especially as one individual would be equal to seven or eight rabbits, and their flesh not inferior.

M. de la Borde agrees with most of the foregoing particulars, and says also that the paca generally has his hole on the banks of rivers, and that he so forms it as to have three ways to enter or retreat; that when disturbed he takes to the water, and endeavours to effectuate his escape by diving frequently, and that he makes a stout defence when attacked by dogs.

THE OPOSSUM.

THE opossum is an animal of America, which is easily distinguished from all others by two singular characters; first, the female has under the belly a large cavity where she receives and suckles her young; secondly, both male and female have no claws on the great toes of the hind feet, which is separated from the others, as the thumb on the human hand, whilst all the other toes are armed with crooked claws, like the feet of other quadrupeds. The first of these characters has been observed by most travellers and naturalists, but the second had escaped their observation. Edward Tyson, an English physician, seems to be the first who made this remark; and he only has given a good description of the female in a treatise printed in London in 1698, under the title of The Anatomy of an Opossum. Some years after, W. Cooper, a celebrated English anatomist, communicated to Tyson the observations which he had made Upon the male. Other authors, and especially the nomenclators, who have multiplied beings without necessity, have here fallen into numerous errors respecting this animal. [230]

Our opossum, described by Tyson, is the same animal as the oriental philandre of Seba, since of all the animals which Seba has described, and to which he gave the name of philandre, opossum, or carigueya, this is the only one who has a bag under the belly, and thumbs without claws behind. This animal is a native of the warm climates of the new world; for the two we have in the king’s cabinet came from America. That which Tyson had, was sent him from Virginia. M. de Chanvallon, correspondent of the Academy of Sciences in Martinico, who has given us a young opossum, acknowledged the two others to be true opossums of America. All the travellers agree, that this animal is found in Brasil, New Spain, Virginia, and the Antilles; and none mention having seen it in the East Indies; thus Seba was mistaken in calling it the oriental philandre. He says, his philandre was sent him from Amboyna, under the name of coes-coes, with other curiosities, but he confesses, at the same time, that it had been transported from some other remote countries to Amboyna. This should be sufficient to shew, that the denomination of oriental philandre was improper; for it is possible that travellers have transported this animal from America to the East Indies, but nothing proves that he is a native of Amboyna; and even the passage of Seba, which we have quoted, seems to indicate the contrary. The cause of this error and even of the name *coes-coes*, is found in Piso, who says, that in the East Indies, and only in the island of Amboyna, is found an animal very much like the opossum of Brasil to whom the natives give the name of *cous-cous*. Piso quotes no authority for this assertion. It would be strange, if it was true, as Piso affirms, that this animal is only found in Amboyna, while Seba, on the contrary, says, that the opossum sent him from Amboyna, was not a native of that island, but had been brought there from more distant countries; though he was ignorant of the native country of his philandre, he nevertheless gave him the epithet of oriental, though he is certainly the same animal as that of the West Indies; the proof of it will clearly appear by comparing the figure he has given with Nature. But another error of this author is, that while he gives to the opossum of America the name of great oriental philandre he presents us another animal, which he thinks a different one, under the name of the philandre of America; and which according to his own description, differs only from the former by being smaller, and having the spots above the eyes of a deeper brown colour; which differences are merely accidental, and too inconsiderable to [231] [232]

constitute two different species, for he does not mention another difference more essential, if it existed, that Seba's philandre of America has sharp claws on the hind toes of the hind feet, while [233] his oriental philandre has no claws upon his two thumbs. It is certain, that our opossum, which is the true one of America, has no claws to his toes behind; if an animal with sharp claws did exist, such as is represented by Seba, it could not be, as he asserts, the opossum of America. But this is not all, Seba mentions a third animal, under the name of oriental philandre, of whom, however, he speaks only after Valentin, an author who, as we have observed already, deserves little credit: and this third animal is yet the same as the two first. We are, therefore, persuaded that the three animals of Seba are individuals of the same species, and which species is the same as our opossum; and that the difference between them might be occasioned by their age, as it entirely consists in their size and slight variations in their colour, particularly in the spots above their eyes.

Seba says, "that according to Valentin, this last philandre is the largest species seen in the East Indies, and particularly among the Malays, where he is called *pelandor aroé*, which signifies a rabbit of *Aroé*, though Aroé is not the only place where these animals are found; that they are common in the island of Solor; that they are kept promiscuously with rabbits, to whom they do no harm; and that the inhabitants eat their flesh, which they reckon excellent." These facts are very [234] doubtful, not to say absolutely false, for according to Seba, this is not the largest species of the oriental philandre, that it bears no resemblance to the rabbit, therefore is very improperly termed the rabbit of Aroé; and that no person who has travelled in the East Indies has mentioned this remarkable animal; neither is he found in the island of Solor, nor in any other part of the ancient continent. Seba himself seems to have perceived not only the incapacity, but also the inaccuracy of the author whom he quotes: F. Valentin has written a Natural History of the East Indies in five volumes folio, and for the credit due to his testimony, both Artedi and Seba refer to a passage wherein he affirms, "that the pouch of the philandre is the womb in which the young are conceived; that having himself dissected a female, he found no other; and if that pouch is not the real womb, the teats are to the young, what the pedicles are to fruits, that they stick to them till they are sufficiently grown, and then they are separated like the fruit, when it is come to ripeness." What seems to be the truth is, that Valentin, who affirms that those animals are common in the East Indies, especially at Solor, had never seen any there; that all he says, even [235] his most manifest errors, are copied from Piso and Marcgrave, who are themselves copyists of Ximenes, and are mistaken in everything they have advanced of their own authority; for Marcgrave and Piso say expressly and observatively, as well as Valentin, that the pouch is the true womb where the young of the opossums are conceived. Marcgrave says, he dissected one, and found no other womb: Piso, who says he dissected many, affirms he never could discover any womb in the internal parts, and also maintains the opinion, equally ill-grounded, that this animal is found at Amboyna. One may judge of what credit ought to be given to Marcgrave, Piso, and Valentin's assertions, the first of whom had not examined with accuracy; the second had added to the errors of the first, and the last copied from both.

I should willingly ask pardon of my reader for the length of this critical disquisition, but when obliged to correct errors, we cannot be too exact or too attentive, even to the smallest circumstances.

M. Brisson, in his work upon the quadrupeds, has adopted whatever he found in that of Seba, and adopts both his denominations and descriptions; he goes even farther than his author, in [236] making three distinct species of the philandres, described by Seba; for, if he had adhered to Seba, he would have observed that the latter did not give them as really different from each other. Seba had no doubt that an animal of the warm climates of America, could be found also in the torrid regions of Asia; but he distinguished them according as they came to him from one or the other continent. It seems clear that he does not use the word species in its most strict sense, nor did Seba ever pretend to make a methodical division of animals into classes, genera, and species; he has only given the figures of the different animals in his cabinet, distinguishing by names, according as he saw some difference in their size, colour, or the countries from which he received them. It appears, therefore, that M. Brisson was not authorised by Seba, in making three different species of philandres, especially as he has not employed the distinctive characters, and makes no mention of the want of the claws, in the hind toes of the hind feet; he only says, in general, that the toes of the philandres have claws, without making any exception; yet the one which he saw in the King's cabinet, and which is our opossum, had no claws to the hind toes of the hind legs, and which seems to be the only one he has seen. The work of M. Brisson is very useful, but in his catalogue the species are more numerous than in that of Nature.

Engraved for Barr's Buffon.

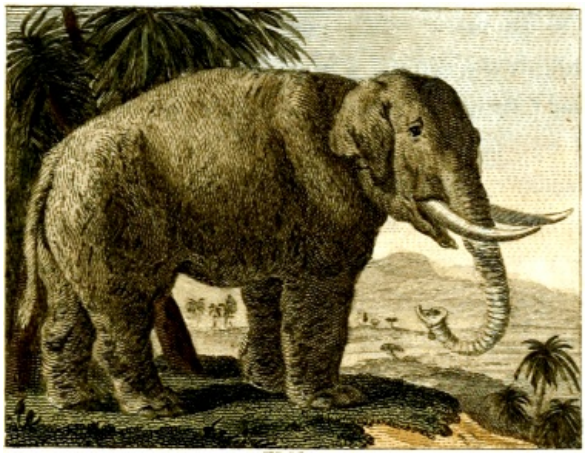

FIG. 133. *Elephant.*

FIG. 134. *Rhinoceros.*

We have now only to examine the nomenclature of Linnæus, which in this article is much less [237] erroneous than in many others, for he suppresses one of the three species of Seba; but he should have reduced them to one. Besides, he employs the distinctive character of the toes behind without claws, which none but Tyson had observed. The description which Linnæus gives of the opossum as the *marsupialis*, seems to be a good one, and agreeable to Nature, but he is in an error when under the name of opossum he designs an animal different from his *marsupialis*, upon the authority of Seba, acknowledging, however, that this opossum had no claws to the toes behind, whilst they are very visible in the figures of Seba. Another error is, considering the *maritacaca* of Piso, as the same animal as the *carigueya*, whilst these two animals, though mentioned in the same chapter, are mentioned by Piso as two different animals, and he describes them one after the other. But his greatest error is in making two different species of the [238] *marsupialis* and the opossum; they have both, according to Linnæus, the pouch, the hind toes of their hind feet have no claws, are both natives of America, and only differ in this respect, by the first having eight paps, and the second only two, and the spot above the eyes more pale. These characteristics cannot be sufficient to distinguish them as distinct species; for the first can scarcely be called a difference; nor can any thing be established as fixed or certain, in regard to the order and the number of the paps, since they vary in the same species of most animals.

From this examination, which we have made with strict impartiality, it appears, that the *philandre*, *opossum*, *seu carigueya Brasiliensis*, and the *philander orientalis maximus* of Seba; those of M. Brisson, and the *marsupialis* and *opossum* of Linnæus are all of them the same animal, which is our opossum whose natural climate is South America; and who was never seen in the East Indies, but when transported thither. Upon this subject, some uncertainty still remains in regard to the *taiibi*, which Marcgrave does not mention as an animal different from the *carigueya*, but which Johnston, Seba, Klein, Linnæus, and Brisson, have presented as distinct from the preceding. In Marcgrave the two names of *carigueya* and *taiibi* are found in the same [239] article, where it is said, that this animal is called *carigueya* in Brasil, and *taiibi* in Paraguay. There is afterwards a description of the *carigueya* taken from Ximenes; and then another is given of the animal called *taiibi*, by the Brasilians; *cachorro domato*, by the Portuguese, and *hooschratte*, or the rat of the wood, by the Dutch. Marcgrave does not say this is an animal different from the *carigueya*, but on the contrary, considers it as the male of that species; and it appears clearly, that the male and female opossum were called *taiibi* in Paraguay, and that in Brasil they gave the name of *taiibi* to the male, and that of *carigueya* to the female. Besides, the difference between those two animals, such as it is indicated by their descriptions, is too inconsiderable to conclude they are not the same species. The most essential is, the colour of the hair, which in the *carigueya* is yellow and brown, and grey in the *taiibi*, the hairs of which are white at their bottom, and brown or black at the extremities. It is therefore more than probable, that the *taiibi* is the male opossum. Mr. Ray seems to be of that opinion, when speaking of the *carigueya*, and the *taiibi*. Yet, notwithstanding Marcgrave's authority, and the rational doubt of [240] Ray, Seba gives the figure of an animal, under the name of the *taiibi*; and says, at the same time, that this *taiibi* is the same animal as the *tlaquatzin* of Hernandes; this is adding error upon error;

for even according to Seba, his *taiibi*, which is a female, has no bag under the belly; and Hernandes gives to his *tlaquatzin* this bag as a particular characteristic; consequently the *taiibi* of Seba cannot be the *tlaquatzin* of Hernandes, as it has no pouch, nor the *taiibi* of Marcgrave, since it is a female; it is certainly, therefore, another animal badly designed, and badly described, to whom Seba thought proper to give the name of *taiibi*, and which he confounds with the *tlaquatzin* of Hernandes, which as we have said before, is our opossum. Brisson and Linnæus have, in regard to the *taiibi*, literally followed Seba; they have copied even his error in regard to the *tlaquatzin* of Hernandes, and both, have made an equivocal species of this animal, the first under the name of *philandre* of Brasil, and the second under that of *philander*. The true *taiibi* of Marcgrave and Ray, is not therefore the *taiibi* of Seba, the *philander* of Linnæus, nor the Brasilian *philander* of Brisson; nor are the two latter the *tlaquatzin* of Hernandes. The *taiibi* of Seba (supposing his existence) is a different animal from all those treated of by the above [241] authors, and ought to have had a particular denomination, and not been confounded with the *taiibi* of Marcgrave, which has nothing in common with him; besides, as the male opossum has no pouch, it is not surprising that they have been taken for different animals, as that the female is called carigueya, and the male taiibi.

Edward Tyson dissected and described the female opossum with care; in the individual which served him for subject, the head was six inches, the body thirteen, and the tail twelve in length: the fore legs were six inches, and the hind legs four inches and a half in height: the body was fifteen or sixteen inches in circumference; the tail three inches round in the beginning, and only one inch towards the extremities; the head three inches betwixt the two ears, decreasing gradually to the nose; and was more like that of a pig than a fox; the sockets of the eyes are much inclined in the direction from the ears to the nose; the ears are rounded, and about an inch and a half long; the mouth was two inches and a half wide from one of the corners of the lip to the extremity of the snout; the tongue narrow, three inches long, and rough; his fore feet had five toes armed with crooked claws, but in the hind feet he had only four toes with claws, and the fifth [242] toe, or thumb, was separated from the others, was placed lower, and had no claws. All his claws were without hair, and covered with a skin of a reddish colour, and very near an inch in length; his hind and fore paws were large, and he had fleshy callosities under all the toes. The tail was covered with hair for two or three inches from the beginning, and the rest of it with a smooth scaly skin to the end. These scales were whitish, almost hexagonal, and placed regularly, so that they did not encroach upon each other, but were divided by a skin browner than the scales. The ears were without hair, thin and membranous like the wings of a bat, and very open. The upper jaw longer than the under; the nostrils large, the eyes small, black, and lively; the neck short, the breast wide, and the whiskers like those of a cat: the hairs of the forehead whiter and shorter than those of the body; his colour a yellowish grey, intermixed with black on the back and sides, more brown on the belly, and still deeper on the legs. Under the belly of the female (*fig. 131*) is a skin two or three inches long, which forms a kind of pouch by a double fold thinly covered with hair on the inside, and which pouch contains the teats. The young enter into this pouch to suck, [243] and soon acquire the habit of hiding themselves in it, so that they retire thither whenever they are frightened. This pouch opens and shuts according to the will of the animal; which it effects by several muscles and two bones, which are peculiar to the opossum; these two bones are about two inches in length, placed by the os pubis, they decrease gradually from the basis to the extremities, and support the muscles which open the pouch; the antagonists of these muscles serve to shut it so exactly, that in the living animal the opening cannot be seen, without forcibly dilating it with the fingers. The inside of this pouch is full of kernels, which contain a yellow substance, the smell of which is so offensive, that it infects the whole body of the animal; yet when this matter is dried, it not only loses its disagreeable smell, but acquires a perfume which may be compared to that of musk. This pouch is not, as Marcgrave and Piso have falsely asserted, the place in which the young are conceived; the female opossum has an internal womb, different indeed from that of other animals, but in which the young are conceived, and remain till they are brought forth. Tyson says, that in this animal there are two wombs, two vaginas, and four [244] ovariums. M. Daubenton does not agree with Tyson in these particulars; but by his description, it is at least certain, that in the organs of generation of the opossums, there are several parts double which are single in other animals. The glans penis of the male, and the glans clitoridis in the female, which are forked, and seem double. The vagina, which is single at the entrance, is afterwards divided into two channels; this conformation is very singular, and differs from that of all other quadrupeds.

The opossum belongs to the south parts of the new world, but he does not, like the armadillo, seem confined to the hottest climates, for he is found not only in Brasil, Guiana, and Mexico, but also in Florida, Virginia, and other temperate regions of this continent. They are very common in these countries, as they bring forth often, and most authors say four or five, others six or seven, at a time. Marcgrave affirms, that he has seen six young ones alive in the pouch of the female; they were about two inches in length, were very nimble, and went in and out of the pouch many times in a day. They are very small when just brought forth: some travellers say they are not [245] bigger than flies when they go out of the womb into the pouch, and attach themselves to the teats. This fact is not so much exaggerated as might be imagined, for we have seen in an animal, whose species is somewhat like that of the opossum, young ones sticking to the teats not bigger than beans; and it is not improbable, that, in these animals, the womb is only the place of conception and first formation of the fœtus, whose unfolding is completed in the pouch. No one has observed the time of their gestation, which we think is shorter than in any other quadruped; and as this early exclusion of the fœtus is a singularity in nature, we wish those who have an opportunity of observing the opossums in their native country would contrive to discover how

long the females go with young, and how long the young remain attached to the teats. This observation is curious in itself, and may become useful, in pointing out some means of preserving the lives of children born before their natural period.

That the young opossums stick to the teats of the mother till they have acquired strength, and a sufficient growth to move with ease, is a fact not to be doubted; nor is it peculiar to this species only, since we have seen it in that of the *marmose*. The female marmose has not, like the [246] opossum, a bag under the belly; it is not, therefore, in consequence of the assistance which the young receive from the pouch that they stick so long to the teats, and increase in that immoveable situation. I make this observation to prevent the pouch being considered as a second womb, or at least an asylum necessary to the young before they are unfolded. Some authors pretend that they stick to the teats for several weeks, others say that they remain in the pouch only the first month after they came out of the womb. The pouch may be opened, the young counted, and even felt, without disturbing them, for they do not leave the teats, which they hold with their mouths, before they are strong enough to walk; then they fall into the bag, and afterwards go out to seek for their subsistence; they often go in again to sleep, to suck, and to hide themselves when terrified; in cases of danger the mother flies, and carries the whole of her young with her. Her belly does not seem to have any increased bigness when she is breeding, for in the time of the true gestation it is scarcely perceivable that she is with young.

From inspecting the form of the feet it is easy to perceive that he walks and runs aukwardly; it [247] is said a man can overtake him without hastening his steps. He climbs up trees with great facility, hides himself in the leaves to catch birds, or hangs by the tail, the extremity of which is so muscular and flexible that he can clasp with it any thing he seizes upon. He sometimes remains a long while in this situation, his body suspended, with his head hanging downward, waiting for his prey. At other times he jumps from one tree to another, as the monkeys, with like muscular flexible tails, which he resembles also in the conformation of his feet. Though carnivorous, and even greedy of blood, which he sucks with avidity, he feeds also upon reptiles, insects, sugar-canes, potatoes, roots, and even leaves and bark of trees. He may easily be rendered a domestic animal, for he is neither wild nor ferocious; but he creates disgust by his smell, which is more offensive than that of the fox; his figure is also forbidding, for his ears are like those of an ounce, his tail resembles that of a serpent, his mouth is cleft to the very eyes, his body appears always dirty, because his hair is neither smooth nor curled, and seems as if covered with dirt. His bad smell resides in the skin, for his flesh is eatable. The savages hunt this animal by preference, and [248] feed on his flesh heartily.

SUPPLEMENT.

M. de la BORDE has sent me an account of three opossums, which he kept in a cask at Cayenne; in most particulars it agrees with the description already given; he says they are very easily tamed, and feed upon fish, flesh, bread, &c. that those he had possessed no disagreeable smell, but that there are two species, the one which has so strong an odour as to be called stinking by the inhabitants, and that their flesh is not good to eat.

M. de Vosmaër, to his description of the flying squirrel, has added a note, in which he says, “the *coes-coes* is the *bosch* of the East Indies, the *philandre* of Seba, and the *didelphiè* of Linnæus. M. de Buffon has confined this animal to the new world, and positively denies its existence in the East Indies; but I can assure that learned naturalist that Valentin and Seba said no more than the truth, in affirming they were common to both Asia and America, for I have had [249] a male and female sent me from the East Indies, and Dr. Schlosser, at Amsterdam received one of the same species from Amboyna. The principal difference between those of the East and West Indies is in the colour of the hair, the male of the former being of a yellowish white, and the female a little darker, with a brown line on the back, and their ears are less than those of the latter. The heads also of the West India species are much shorter than those of the East.” I have not the smallest reason to doubt M. Vosmaër’s receiving two animals from the East Indies, under the name of *coes-coes*, but am of opinion the differences which he points out are sufficient to induce us not to consider them the same species as the opossums. I, however, confess the justice of his observation upon my making the three philandres of Seba the same animal, when, in fact, the third is a different species, and found in the Philippine islands, and possibly in many parts of the East Indies, where it is called *coes-coes*, or *cous-cous*. Christopher Barchewitz gives a description of this animal found in the island of Lethy, and from the similarity it plainly appears, that the East India *cuscus* is of the same genus as the American opossum; but that is no proof of [250] their being of the same species; and I am still of opinion, that the animals of one continent will not be found in the other, unless they have been transported thither. I do not mean to deny the possibility of the same climates in the two continents producing some animals of exactly the same species, provided other circumstances were the same; I am not, however, treating here of possibilities, but of general facts, of which we have given many instances in our enumeration of animals peculiar to the two continents; and, upon the whole, I am inclined to consider the coes-coes of the East Indies as an animal whose species approaches very near to that of the opossums of America, but that they have similar differences, to those which are observable between the jaguar and leopards, which of all animals peculiar to the southern climates of the two continents,

without being the same species, come the nearest to each other.

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THE MARMOSE.

THE species of the Marmose, or Murine Opossum, (*fig. 132*) resembles that of the preceding; they are natives of the same climate and the same continent; they are very much alike in the form of the body, the conformation of the feet, in the tail, which is mostly covered with scales, except the upper part, which is hairy, and by the teeth, which are more numerous than in other quadrupeds. But the marmose is smaller, and his snout sharper; the female has no pouch under the belly, she has only two loose skins near the thighs, between which the young fix themselves to the teats. The parts of generation of the male and female marmose resemble, by their form and their position, those of the opossum. When the young are brought forth, and fix themselves to the teats, they are not so big as small beans. The brood is also more numerous; I have seen ten young ones, each sticking to a different teat, and the mother had four more teats, which made fourteen in all. It is particularly on the females of this species that the observations, recommended in the [252] preceding article, should be made; as I am persuaded they bring forth a few days after conception, and that the young are only fœtuses which are not come to the fourth part of their growth. The mother always miscarries, and the fœtuses save their lives by sticking to the teats, and never leaving them till they have acquired the growth and strength which they would naturally have got in the womb, if they had remained until the proper period.

The marmose has the same manners, and the same inclinations, as the opossum; both of them dig burrows to dwell under the ground, hang by the extremities of their tails to the branches of trees, and rush upon birds and small animals; they eat fruit, corn, and roots, but they are still more greedy of fish and craw-fish, which, it is affirmed, they catch with their tails. This fact, however, is doubtful, and does not agree with the natural stupidity attributed to those animals, who, according to the relation of most travellers, do not even know how to move, fly, or defend themselves, with any degree of art.

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THE CAYOPOLLIN.

FERNANDES is the first author who has mentioned this animal. The Cayopollin, says he, is a small animal, little bigger than a rat, very much resembling the opossum in the snout, ears, and tail, and which he makes use of as we do our hands; he has thin transparent ears; his belly, legs, and feet, are white. The young, when frightened, seize hold of the mother, who carries them up on the trees. This species is found on the mountains of New Spain. Nieremberg has copied Fernandes verbatim, without any addition of his own. Seba, who first caused this animal to be engraved, gives no description of it; he only says, that he has the head thicker, and the tail a little bigger than the marmose, and that though he is of the same kind he belongs to another climate, and even to another continent. He refers his readers to Nieremberg and Johnston for a further description of this animal; but it seems evident that neither of them had seen him, as they only [254] follow Fernandes. Neither of these three authors say that he is a native of Africa, on the contrary, they assert, that he comes originally from the mountains of the warm climates of America, and yet Seba, without any authority, has pretended, that it is an African animal. That which we have seen certainly came from America; he was larger, the snout not so sharp, and the tail was longer than those of the marmose, and he resembled the opossum more even than the marmose does. These three animals are much alike in the conformation of their interior and exterior parts, in their additional bones, form of their feet, in being brought forth before their entire formation, their long and continued adherence to the teats, and in their habits and dispositions. They are all three natives of the new world, and of the same climate; they are never found in the cold regions of America, nor can hardly live in temperate climates. All of them are very ugly; their mouths extended like that of a pike, their ears like those of a bat, their tails like that of a snake, and their monkey’s feet present a very odd form, which is rendered still more disagreeable by their bad [255] smell, and by the slowness and stupidity which accompany their actions and manners.

THE ELEPHANT.

THE Elephant, the human species excepted, is the most considerable animal of this world; he surpasses all terrestrial beings in size, and approaches near to man in understanding, as much, at least, as matter can approach to mind. The elephant, dog, beaver, and ape, of all the animated beings, have the most admirable instinct; but this instinct, which is only the product of all the interior and exterior faculties of the animal, manifests itself very differently in every one of these species. The dog is naturally as cruel and bloody as the wolf; but his ferocious nature is to be conquered by gentleness: he only differs from the other animals of prey, by possessing a degree of sensibility, which makes him susceptible of affection, and capable of attachment. He has from nature this disposition, which man has cultivated and improved by a constant and ancient society [256] with this animal. The dog alone was worthy of this attention, as he is more capable than any other quadruped of foreign impressions, his social nature has improved all his relative faculties. His sensibility, tractable temper, courage, talents, and even his manners, are modified by the example and qualities of his matter. He has not then, from nature, all those qualifications he appears to possess, but has acquired them from his intercourse with men; he is only more susceptible of tuition than other animals; far from having, like most of them, a disgust for man, his inclination leads him to seek their society: actuated by a desire of pleasing, his tractability, fidelity, constant submission, and that attention necessary to act in consequence of man's orders, are the result of this natural sentiment.

The ape, on the contrary, is untractable and eccentric; his nature is perverse; he has no relative sensibility, no gratitude for good treatment, and no remembrance of favours; he is naturally averse from the society of man, he hates constraint, is mischievous by nature, and inclined to do every thing hurtful and disagreeable. But these real faults are compensated by seeming perfections. His exterior conformation resembles that of man, he has arms, hands, and [257] fingers. The use of these parts alone, makes him superior in dexterity to other animals; and the affinities to us which he then possesses by a similarity of motions, and the conformity of his actions, please and deceive us, and induce us to attribute to interior qualities, what depends merely on the formation of his members.

The beaver, who seems inferior to the dog and ape, by his individual faculties, has nevertheless received from Nature a gift almost equivalent to that of speech; he makes himself so well understood by those of his own species, as to bring them together; to act in concert, and to undertake and execute extensive and continued labours in common; and this social love, as well as the product of their reciprocal understanding, have better claims to our admiration, than the dexterity of the ape, or the faithfulness of the dog.

Thus the dog's genius is only borrowed; the ape has but the appearance of sagacity, and the beaver is only sensible in regard to himself, and those of his species. The elephant is superior to them all three, for in him are united all their most eminent qualities. The hand is the principal organ of the ape's dexterity; the elephant is equally so with his trunk, which serves him instead of [258] arms and hands, by it he can lift up, and seize small as well as large objects, carry them to his mouth, place them on his back, hold them fast, or throw them to a distance; he has at the same time the docility of the dog; he is, like him, susceptible of gratitude, capable of a strong attachment, attends upon man without reluctance, and submits to him, not so much by force as good treatment; serves him with zeal, intelligence, and fidelity; in fine, the elephant, the same as the beaver, likes the society of his own species, and by whom he is understood. They are often seen to assemble together, disperse, and act in concert, and if they do not carry on any work in common, it is, perhaps, only for want of room and tranquillity; for men have been very anciently multiplied in all the regions inhabited by the elephant; he consequently lives in fear and anxiety, and is no where a peaceful possessor of a space large and free enough to establish a secure habitation. We have seen that all these advantages are requisite to manifest the talents of the beaver, and that wherever men are settled, he loses his industry, and ceases to build. Every being has its relative value in Nature. To judge of the elephant, we must allow him to possess the [259] sagacity of the beaver, the dexterity of the ape, the sentiment of the dog with the peculiar advantages of strength, bigness, and longevity. We must not forget his arms, or tusks, with which he can pierce through and conquer the lion. We should also recollect that he shakes the ground at every step; that with his trunk he roots out trees; that with the strength of his body, he makes a breach in the wall; that though tremendous by his strength, he is more invincible by the resistance of his bulky massiveness, and the thickness of his skin; that he can carry on his back an armed tower filled with many men; and that he alone moves machines, and carries burthens, which six horses cannot move. To this prodigious strength, he joins courage, prudence, coolness, and an exact obedience; he preserves moderation even in his most violent passions; he is more constant than impetuous in love: in anger he does not forget his friends; he never attacks any but those who have given him some offence; and he remembers favours as long as injuries. Having no taste for flesh, and feeding chiefly upon vegetables, he is not naturally an enemy to any living creature; he is beloved by them all, since all of them respect, and no one has cause to fear him. For these reasons, men at all times have had a sort of veneration for this first of animals. The [260] ancients considered the elephant as a prodigy, a miracle of Nature, and he is in reality her greatest effort; they have attributed to him without hesitation, intellectual qualities and moral virtues.

Pliny, Ælian, Solinus, Plutarch, and other more modern authors, have even given to this animal rational faculties, a natural innate religion, the observation of a daily worship, such as that of the sun and moon, the use of ablution before adoration, a spirit of divination, piety towards heaven and their fellow creatures whom they assist at their deaths; and after their decease, express their regret by tears, and cover them with earth. The Indians, prepossessed with the opinion of the

metempsychosis, are to this day persuaded, that a body so majestic as that of the elephant cannot be animated but by the soul of a great man, or a king. They respect at Siam,[AE] Laos, and Pegu, white elephants as the living manes of the emperors of India. They have each of them a palace, a [261] number of servants, golden vessels, exquisite dainties, magnificent trappings, and are absolved from all labour and obedience; the living emperor is the only one before whom they kneel down, and the monarch returns the salute. These flattering attentions, this respect, these offerings flatter them but do not inspire them with vanity; they have not consequently a human soul, and this circumstance should be sufficient to prove it to the Indians.

[AE] The white elephant, so much respected in India, and who has been the cause of so many wars, is very small and wrinkled with age. He is attended by several mandarins who are appointed to take care of him, and his victuals is presented to him in large golden vessels; his apartment is very magnificent, and gilt all round. At about a league from the country-house belonging to the king, is another white elephant, kept as a successor to the former, whom they say is 300 years old. He is also attended by mandarins, and his mother and aunt are kept with him out of respect. *Premier Voyage du P. Tachard.*

Without adopting the credulities of antiquity, and the puerile fictions of superstition, the elephant is an animal still worth the attention of a philosopher, who ought to consider him as a being of the first distinction. He deserves to be known, and to be observed; we shall therefore write his history with impartiality; we shall consider him at first in his state of nature when he is free and independent, and afterwards in his servile condition, when the will of his master [262] becomes the cause of his actions.

In a wild state, the elephant is neither sanguinary nor ferocious; he is of a mild temper, and never makes a bad use of his arms, or his strength; for he never employs or exerts them but in his own defence, or in protecting others of his species. His manners are social, for he is seldom wandering alone: they commonly walk in troops, the oldest leading, and the next in age bringing up the rear; the young and the weak keeping in the middle. The females carry their young, and hold them close with their trunks. They only observe this order in perilous marches when they go to feed on cultivated lands; they travel with less precaution in forests and solitary places, but without separating to such a distance as not to be able to give to each other mutual assistance, and warnings of danger. Some, however, straggle, and remain behind, and it is none but these the hunters dare attack, for a small army would be requisite to assail the whole herd, and they could not conquer without a great loss of men. It is even dangerous to do them the least injury, for they go straight to the offender, and notwithstanding the great heaviness of their bodies they walk so fast that they easily overtake the most agile man; they pierce him through with their [263] tusks, or seize him with their trunks; throw him like a stone, and then kill him by treading him under their feet. But it is only when they have been provoked that they become so furious and so implacable; they do no harm to those who do not disturb them; yet, as they are very suspicious, and sensible of injuries, it is proper to avoid them; and the travellers who frequent the countries where they are numerous, light great fires in the night, and beat drums, to prevent their approach. It is said that when they have been once attacked by men, or have fallen into a snare, they never forget it, but seek for revenge on all occasions. As they have a most exquisite sense of smelling, perhaps more perfect than that of any other animal, they smell a man at a great distance, and can easily follow him by the scent. The ancients have asserted that the elephant tears up the grass where the hunters have passed, and with their trunks convey it to each other, in order to give information of the passage and march of the enemy. These animals are fond of the banks of rivers, deep valleys, shady places, and marshy grounds. They cannot go long without water, which they make thick and muddy before they drink it. They often fill their trunks with [264] water, either to convey it to their mouths, or only to cool their noses, and to amuse themselves in sprinkling it around them. They cannot support cold, and suffer equally from excessive heat; to avoid the burning rays of the sun, they penetrate into the thickest recesses of the forests. They bathe often in the water; the enormous size of their bodies is rather an advantage to them in swimming, and they do not sink so deep in the water as other animals; besides, the length of their trunks, which they erect in the air, and through which they breathe, takes from them all fear of being drowned.

Their common food is roots, herbs, leaves, and young branches; they also eat fruit and corn, but they have a dislike to flesh and fish. When one of them finds a good pasture, he calls the others, and invites them to come and feed with him. As they consume a great quantity of fodder, they often change their place, and when they find cultivated lands they make a prodigious waste; their bodies being of an enormous weight, they destroy ten times more with their feet, than they consume for their food, which may be reckoned at 150lbs. of grass daily; and as they always keep in great numbers together, they will lay waste a large territory in an hour’s time; for this reason [265] the Indians and Negroes exert every means to prevent their visits, and to drive them away; they make great noises, and large fires round their cultivated lands; yet, notwithstanding these precautions, the elephants often take possession of them, drive away the cattle and men, and sometimes pull down their cottages. It is difficult to frighten them, as they are little susceptible of fear; the only things that can stop their progress are fire-works, and crackers thrown amongst them; the sudden and repeated noise of which sometimes occasions them to turn back. It is very difficult to part them, for they commonly act together whether they attack, proceed, or turn back.

When the females come in season this social intercourse yields to a more lively sentiment; the herd separate in pairs, having each chosen their mates; they then seek for solitary places, and in their march love seems to precede and modesty to follow them; for they observe the greatest

mystery in their amours, and they have never been seen to couple. They avoid the inspection of their own species, and, perhaps, know better than ourselves the pure delight of secret pleasure, being wholly taken with one beloved object. They retire into shady woods and most solitary [266] places, to give themselves up, without disturbance or restraint, to the impulses of Nature, which are strong and lasting, as they have long intervals between their seasons of love. The female goes two years with young; when she is in that condition the male abstains from her, and thus are they subjected to the influence of love but once in three years. They bring forth only one young, which has teeth at its birth, and is then bigger than a wild boar; his tusks are not visible, but they appear soon after, and when six months old they are some inches long. At that age the elephant is bigger than the ox, and the tusks continue to increase till he is much advanced in years, provided the animal is in health, and at liberty, for it is scarcely to be imagined how much slavery and unnatural food change his natural habit and constitution.

The elephant is easily tamed, brought into submission, and instructed, and as he is the strongest and most sensible of animals, he is more serviceable than any of them; but he seems always to feel his servile condition, for though subject to the powerful impressions of love they never couple, nor produce in a state of domesticity. His passion, irritated by constraint, [267] degenerates into fury; as he cannot indulge it without witnesses he becomes violent and intractable, and the strongest chains and fetters are often found necessary to stop his impetuosity, and subdue his anger. Thus the elephant differs from all domestic animals which man treats or manages as beings without will; he is not like these born slaves, which we mutilate or multiply for our use. Here the individual alone is a slave, the species remains independent, and constantly refuses to increase for the benefit of their tyrants. This alone shews in the elephant elevated sentiments superior to the nature of common brutes. To be agitated by the most ardent desires, and to deny themselves the satisfaction of enjoying them; to be subjected to all the fury of love, and yet not to violate the laws of modesty, are, perhaps, the highest efforts of human virtue, but which in these majestic animals are all suggested by instinct, and from which they never deviate. Enraged that they cannot be gratified without witnesses their fury becomes stronger than their passion of love, destroys the effects of it, and provokes, at the same time, that anger which, in those instants, renders the elephant more dangerous than any other wild animal.

We should be inclined to doubt this fact, were it possible, but naturalists, historians, and [268] travellers, all agree, that the elephants never produce in a domestic state. The kings of India keep a great number of them, and after having endeavoured in vain to make them multiply, like other domestic animals, they found it necessary to part the males from the females, to prevent that fury which is occasioned by the irritation of desires they will not satisfy in a state of subjection. There are, therefore, no domestic elephants but what have been wild, and the manner of taking, taming, and bringing them into submission deserves particular attention. In the middle of forests, and in the vicinity of the places frequented by the elephants, a spot is chosen, and encircled with palisadoes; the strongest trees of the forest serve for stakes, to which are fastened cross pieces of timber, which support the other stakes. A man may easily pass through this palisado; a large opening is also left, through which the elephant may go in, and over it is a trap, or large stake, which is let down to shut the opening after the animal has entered. To bring him to this inclosure the hunters take a tame female with them into the forest, who is in season, and when when they think she is near enough to be heard they oblige her to make the cry of love, the [269] wild male answers immediately, and begins his march to meet her. She is then led towards the inclosure, repeating her call now and then; she arrives first, and the male following her track enters through the same gate. As soon as he perceives himself enclosed his ardour vanishes, and when he discovers the hunters he becomes furious; they throw ropes at him with a running knot, by which they fetter his legs and trunk; they then bring two or three tame elephants, led by dextrous men, and endeavour to tie him to one of them; in short, by dint of dexterity, strength, terror, and caresses, they succeed in taming him in a few days.

I shall not enter into more particulars on this subject, but refer to those travellers who have been ocular witnesses of the manner of hunting the elephants;[AF] it varies according to different [270] countries, and according to the power and the abilities of those who make war against them, for instead of erecting, like the kings of Siam, walls, terraces, or making palisades around large inclosures, the poor negroes use the most simple snares; they dig pits in the passages, where the elephants are known to pass, so deep as to prevent their getting out again when fallen in.

[AF] For the purpose of hunting the elephant, they have at a little distance from Luovo, a kind of amphitheatre, surrounded with high walls, where those are placed who wish to see the sport. In the middle of these walls a palisade is formed, with strong stakes fixed in the ground; a pretty large opening is left on the side next the forest, and a smaller one towards the city, into which the elephant cannot enter without difficulty. Upon the day fixed upon for the chace, the hunters go into the forests upon some female elephants covering themselves with leaves to prevent being seen; having reason to suppose there are wild ones near, they make the females utter certain cries, and which the wild males instantly answer; the hunter then drives the female back to the above amphitheatre, whither the male constantly follows her, and being entered the large opening is immediately shut. At the one we were present, the females went out on the other side, but from the smallness of the size the wild one refused to enter; the females repeated their cries, and some of the Siamese began to irritate him, by clapping their hands, and crying *pat, pat*, while others struck him with long poles that had sharp points, all of whom he pursued, but they escaped by slipping between the palisades, sufficient spaces being left for that purpose; at length he fixed upon one whom he pursued with great fury, and the man running into this narrow passage the elephant followed him, but the moment he entered, the bars, before and behind, were let fall, and he no sooner found

himself in the snare than he made the most violent efforts, and raised the most hideous cries. The hunters then endeavoured to sooth him by flinging quantities of water upon his body and trunk, rubbing him with leaves, putting oil on his ears, and bringing tame elephants, who seemed to caress him with their trunks, one of which, properly trained, was mounted by a man who made him go backwards and forwards to shew as it were the stranger that he had nothing to fear. Ropes were thrown round his hind legs and body, and then the bar was taken away from the further end, where being come he was tied to two tame elephants one of each side of him these led him the way while another pushed him behind with his head until they came to a kind of shade where he was fastened to a large post, like the capstan of a ship, and there left till the next day. While here, one of the Bramins, or priests, dressed in white, and mounted on another elephant, goes to him and sprinkles him with consecrated water, which they imagine has the power of divesting him of his ferocity. Next day he is marched off with the other elephants, and by the end of the fifteenth, they are in general perfectly tame. *Premier Voyage du P. Tachard.*

In Ethiopia they take great numbers of these animals by forming an inclosure in the thickest parts of the forests, leaving a sufficient opening, with a door lying flat on the ground; the hunters sit to watch for the elephant on a tree and as soon as he enters they draw up the door with a rope, then descend and attack him with arrows, but if by any chance he gets out of his confinement, he kills every man that he can come near. *L'Afrique de Marmol.*

At Ceylon they take the elephant by digging deep ditches lightly covering them over, in places frequented by these animals, who coming on this covering in the night, unavoidably fall in and are unable to get out again; here the slaves supply them with food, to whom they, in a short time, are so accustomed, and familiar, as to be led up to Goa perfectly tame. They have also a mode of hunting them with two tame females, whom they take into the forests, and coming near a wild elephant, they let them loose; these go up to the strange one on each side, press so closely against him as to force him their way, and render it impossible for him to escape. *Memoir es touchant les Indes Orientales. Voyages de P. Philippe, Thevenot, &c.*

The elephant, when once tamed, becomes the most tractable and submissive of all animals; he [271] conceives an affection for his leader, caresses him, and seems to foresee whatever can please him; in a little time he understands signs, and even the expression of sounds; he distinguishes the tones of command, anger, or approbation, and acts accordingly. He never mistakes the voice of his master; he receives his orders with attention, executes them with prudence and eagerness, but without precipitation, for his motions are always measured, and his character seems to participate of the gravity of his body. He is easily taught to bend his knees to assist those who [272] ride on his back; he caresses his friends, salutes the persons he is directed to take notice of, lifts up burdens, and helps to load himself with his trunk; he has no aversion to being clothed, and seems to delight in a golden harness or magnificent trappings; he is easily put into traces, and often employed in drawing; he draws evenly, without slopping or any marks of dislike, provided he is not insulted by unseasonable correction, and that his driver seems to approve the spontaneous exertion of his strength. His conductor is mounted on his neck, and makes use of an [273] iron rod, hooked at the end, with which he strikes him on the head, or sides, to make him turn, or increase his pace; but a word is commonly sufficient, especially, if the animal has bad time to make himself well acquainted with his conductor, and has a confidence in him. His attachment is sometimes so strong, and so lasting, and his affection so great, that he will refuse to serve a second person, and has been known to die of grief when in a fit of rage he has happened to destroy his keeper.

The species of the elephant is numerous, though they bring forth but one in two or three years. In proportion to the shortness of the life of an animal is its multiplicity of production; and in the elephant the duration of its existence compensates for the smallness of its number; and if it be true that they live 200 years, and propagate until they are 120, each couple may bring forth forty in that time. Besides, having nothing to fear from other animals, and being taken by men with great difficulty and danger, the species has not decreased, and is generally dispersed in all the southern parts of Africa and Asia. They are numerous at Ceylon, in the Mogul dominions, in Bengal, Siam, Pegu, and the other territories of India. They are perhaps, in a greater number in [274] the South of Africa, except some parts which they have abandoned, since they have been so fully inhabited by men. They are faithful to their country, and constant to their climate, for though they can live in temperate regions it does not seem that they ever attempted to settle, or even to travel into them. They were formerly unknown in Europe. It does not seem that Homer, who speaks of the ivory, knew the animal from whom it is obtained. Alexander was the first who rode upon an elephant in Europe. He sent into Greece those which he took at Porus, and were, perhaps, the same which Pyrrhus employed several years after against the Romans, in the Tarentine war, and with which Curius adorned his triumph into Rome. Hannibal afterwards brought them from Africa, made them pass the Alps, and led them almost to the gates of Rome.

From time immemorial the Indians have made use of elephants in war. Among those nations, unacquainted with military discipline, they formed their best troop, and as long as battles were decided by iron weapons they commonly vanquished. Yet we learn by history that the Greeks and Romans soon used themselves to those monsters of war; they opened their ranks to let them go [275] through; they did not attempt to wound them, but threw all their darts against their leaders, who were obliged to turn all their attention to the elephant, when separated from their troops. Now that fire is become the element of war, and the principal instrument of death, elephants, who are afraid of noise and flame, would be rather an incumbrance in battle, and more dangerous than useful. The kings of India still arm their elephants in war, but it is more for shew than for real

service; yet they derive from these animals the same utility that arises from an army which is to enslave their equals; they make use of them to subdue the wild elephants. The most powerful monarchs of the Indies have now above 200 elephants for war. They keep many others for different services, and to carry the large cages in which their women travel; it is a perfectly safe way of travelling, for the elephant never stumbles; but time is required to be used to the motions of his pace. The best place is upon the neck, as you there ride more easy than on the shoulders or the back; but in war, or hunting, several men ride the same elephant: the conductor rides on his neck, and the hunters, or warriors, are placed on other parts of his body.

[276] In those happy regions, where our cannon and our murdering arts are yet scarcely known, they fight still upon elephants. At Cochin, and in the other parts of Malabar, they make no use of horses, and all those who do not fight on foot are mounted upon elephants. In Tonquin, Siam, and Pegu, the king, and all the grandees, ride on nothing but elephants; on festival days they are preceded and followed by a great number of these animals, superbly caparisoned, and covered with the richest stuffs. They surround their tusks with gold and silver rings; they paint their ears and cheeks; they crown them with garlands, and their harness is ornamented with little bells; they seem to delight in magnificent attire, and the more their trappings are rich and splendid the more they are cheerful and caressing. It is only in the East Indies that the elephants are so far improved, for in Africa they can scarcely tame them. The Asiatics, anciently civilized, have reduced the education of the elephant into a system, and they have instructed and modified him according to their manners. But of all the Africans the Carthaginians were the only people who trained up the elephants to war, because at the time of the splendor of their commonwealth they were, perhaps, more civilized than any other of the eastern nations. At present no wild elephants [277] are found in all that part of Africa on this side Mount Atlas; there are even few beyond those mountains, as far as the river Senegal. But they are numerous in Senegal, in Guinea, in Congo, and on the Teeth Coast, in the countries of Anto, Acra, Benin, and all the other southern parts of Africa, as far as the Cape of Good Hope, except some provinces very populous, such as Fida, Ardra, &c. They are also found in Abyssinia, in Ethiopia, in Nigritia, on the eastern coast, and in the inland parts of Africa. They are also in the great islands of India and Africa, such as Madagascar, Java, and the Philippines.

After comparing the relations of travellers and historians it seems that elephants are actually more numerous in Africa than in Asia; they are there also less mistrustful, and not so shy, as if they knew the unskilfulness and the little power of the men who inhabit this part of the world; they come daily without fear to their habitations, and treat the negroes with that natural and scornful indifference they have for other animals; they do not consider those men as powerful and formidable beings, but as a species whose skill consists in laying snares, without having the courage to encounter them, and absolutely ignorant of the art of reducing them into subjection. It [278] is by this art known, from the earliest times, to the eastern nations, that their species is diminished. The wild elephants, which they tame, become by their captivity, like so many voluntary eunuchs, which daily drain the source of generation; but, on the contrary, in Africa, where they are all free, the whole species propagate, and all the individuals constantly concur to its increase. I do not know any other cause for this difference in their numbers, for, in considering the other effects, it seems the south of India, and the east of Africa, are the natural countries, and the most suitable to the elephant. He is there much larger and stronger than in Guinea, or in the other western parts of Africa. He fears excessive heat, and never inhabits the burning sands; he is most frequently found on the flat countries near the rivers, and never on the hilly parts of Africa; but in India the most powerful and the most courageous of the species, and who have the strongest and longest tusks, are the elephants of the mountains; they inhabit the high grounds, where the air being more temperate, the water more pure, and the food more wholesome, they gradually arrive to the full perfection of their nature.

[279] In general the elephants of Asia are larger and superior in strength, to those of Africa; particularly those of Ceylon, which exceed in courage and sagacity even those of Asia. Probably they owe these qualifications to their more improved education; it is, however, certain, that all travellers have celebrated the elephants of this island, where the ground is interspersed with mountains, which rise gradually towards the centre, and where the heat is not so excessive as in Senegal, Guinea, and other western parts of Africa. The ancients, who knew no more of this part of the world, but the countries seated between Mount Atlas and the Mediterranean, had observed, that the elephants of Lybia were much smaller than those of India. There are not any elephants at this time, in that part of Africa, which proves, as mentioned in the article of the Lion, that men are more numerous there now than they were in the ages of Carthage. The elephants have retired in proportion as men have molested them; but in travelling through the climates of Africa, they have not changed their nature; for those of Senegal, Guinea, &c. are at this time smaller than those of India.

[280] The strength of these animals is proportionate to their bigness. The elephants of India carry with ease burdens of three or four thousand pounds weight; the smallest, that is, those of Africa, lift up freely with their trunks, burdens of two hundredweight, and place them on their shoulders; they take into their trunks a great quantity of water, which they throw out around them, at seven or eight feet distance; they can carry a weight of a thousand pounds upon their tusks; with their trunks they break off branches, and with their tusks they root out trees. Their strength may be judged of by their agility, comparatively to the bulk of their bodies; they walk as fast as a horse goes on an easy trot; and they run as fast as a horse can gallop; which seldom happens in their wild state, except when they are provoked or frightened. The tame elephants are commonly walked; they travel easily, and without fatigue, fifteen or twenty leagues a day; and, when

hurried, they can travel thirty-five or forty. Their steps are heard at a great distance, and they may be followed by their tracks, for the marks they leave on the ground are fifteen or eighteen inches in diameter.

A domestic elephant does, perhaps, to his master more real service than five or six horses; but he requires much care and abundance of good food; it is computed that he consumes to the [281] amount of an hundred pence per day. He is commonly fed with raw or boiled rice mixed with water; and it is reckoned he wants one hundred pounds of rice daily to be kept in his full vigour; they give him also grass to cool him, for he is often over-heated, and must be led to the water that he may bathe two or three times a day; he easily learns to wash himself; he takes the water up in his trunk, carries it to his mouth, drinks part, and then by elevating his trunk, lets the remainder flow over every part of his body. To give an idea of the services he is able to perform, it is sufficient to observe, that all the bags, bales, and parcels, which are transported from one place to another in the Indies, are carried by elephants; that they carry burdens on their bodies, their necks, their tusks, and even with their mouths, by giving them the end of a rope which they hold with their teeth.

When the elephant is taken care of he lives a long time even in captivity; and it is to be presumed, that in a state of liberty his life is still longer. Some authors say he lives four or five hundred years; others, two or three hundred; and others, one hundred and twenty, thirty, and even one hundred and fifty years. I take this last opinion to be the nearest to the truth; and if it is [282] certain, that captive elephants live one hundred and twenty or thirty years; those who are free, and enjoy all the conveniences and rights of Nature, must live at least two hundred; besides, if their gestation lasts two years, and thirty years are required to bring them to their full growth, we may be assured that their life extends to the term we have mentioned. It is not so much the captivity, as the change of climate which shortens their existence: whatever care is taken of the elephant, he does not live long in temperate, and still shorter in cold climates. The elephant which the King of Portugal sent to Louis XIV. in 1668, and who was then but four years old, died in his seventeenth, in January 1681, and lived only thirteen years in the menagerie of Versailles, where he was treated with care and tenderness, and fed with profusion; he had every day four score pounds of bread, twelve pints of wine, two buckets of porridge, with four or five pounds of bread in it, the last was changed every other day for two buckets of rice boiled in water, without reckoning what was given him by visitors. He had, besides, every day a sheaf of corn to amuse himself; for, after eating the ears, he made large whisps of the straw, and used them to drive [283] away the flies. He delighted in breaking the straw in small bits, which he did with great dexterity with his trunk; and as he was led to walk daily, he pulled and eat the grass. The elephant who was lately at Naples, though the heat is greater than at Paris, lived there but a few years. Those which have been transported to Petersburg perished successively, notwithstanding they were well sheltered, covered, and warmed with stoves; consequently, we may conclude, that this animal cannot live in a state of nature, nor multiply in Europe. But I am surprised that the Portuguese, who first knew the use and value of these animals in the East Indies, did not transport them into the warm climate of Brasil, where they might have propagated, if left at liberty.

The common colour of the elephant is of ash grey, or blackish. White ones, as we have observed, are extremely scarce: and some have been seen in the Indies of a reddish colour; these and the white are much esteemed; but these varieties are so scarce, that they cannot be considered as a race distinct from the species, but rather as accidental qualities peculiar to individuals; for otherwise, the countries of the white, red, and black elephants would be known, as well as the climates of white, red, and black men, and those of a copper colour. “Elephants of [284] three different sorts are found in the Indies; (says Father Vincent Marie) the white, which are the largest, most gentle, and of the best temper, are worshipped as gods by several nations; the red, such as those of Ceylon, though the smallest, are the most valiant, the strongest, and best for war, and the other elephants, either from natural inclination, or perceiving in them something superior, shew them a great respect; the third species, is that of the black, which are the most common, and the least esteemed.” This author is the only one who has intimated that Ceylon was the peculiar climate of red elephants; other travellers make no mention of such a fact. He also affirms, that the elephants of Ceylon are smaller than the others. Thevenot says the same thing in his voyage, but others assert the contrary. Father Vincent Marie also, is the only author who has said the white elephants are the largest. Father Tachard assures us on the contrary, that the white elephant of the king of Siam was rather small, though very old. After comparing the relations of travellers, in regard to the size of elephants in different countries, it seems, that the smallest are those of North and West Africa, and that the ancients, who only knew the northern part of Africa, had some reason to say that, in general, the elephants of the Indies were much [285] larger than those of Africa. But in the eastern parts of this quarter of the world, unknown to them, the elephants are at least as large as those of India; for those of Siam and Pegu excel in bulk the elephants of Ceylon; which, however, are the most courageous and intelligent, according to the unanimous opinion of travellers.

Having thus collected the different facts relative to the species, let us now examine minutely the faculties of the individual; his senses, motion, size, strength, address, sagacity, and intelligence. The elephant has very small eyes, compared to the enormous size of his body, but they are bright and lively; and what distinguishes them from the eyes of all other animals, is their pathetic expression of sentiment, and an almost rational direction of all their motions. He turns them slowly and gently towards his master, and when he speaks, the animal has the appearance of listening to him with an eye of friendship and attention, and by an expressive glance seems to

penetrate into his wishes, and anticipate his desires. He seems to reflect, to think, and to deliberate, and never acts till he has examined and observed several times, without passion or precipitation, the signs of which he is to obey. Dogs, the eyes of which have much expression, are [286] animals too lively to allow us to distinguish their successive sensations; but as the elephant is naturally grave and sedate, we may read in his eyes, whose motions are slow, the order and succession of his interior affections.

He has a quick hearing, and this organ, like that of smelling, is outwardly more marked in the elephant than in any other animal. His ears are very large, even in proportion to his body; they are flat, and close to the head, like those of a man; they commonly hang down, but he raises and moves them with such facility that he makes use of them to defend his eyes against the inconveniency of dust and flies. He delights in the sound of musical instruments, and moves in exact time to the sound of the trumpet and tabor. He has an exquisite sense of smelling, and he is passionately fond of perfumes of all sorts, and especially of fragrant flowers; he gathers them one by one, makes nosegays of them, which he smells with eagerness, and then carries to his mouth, as if he intended to taste them. Orange flowers are one of his most exquisite dainties; he strips with his trunk an orange tree of all its verdure, eating the fruit, the flowers, the leaves, and even [287] the young branches. He chuses in meadows odoriferous plants, and in the woods he gives the preference to cocoa, palm, and sago trees, and as these trees are pithy and tender he not only cats the leaves and fruits but even the branches, the trunk, and the roots, for when he cannot break the branches with his trunk, he roots up the trees with his tusks.

In regard to the sense of feeling, it centres in his trunk; but it is as delicate and as distinct in that as in the human hand. This trunk, composed of membranes, nerves, and muscles, is, at the same time, a member capable of motion, and an organ of sentiment. The animal can not only move and bend it, but he can shorten, lengthen, and turn it all ways. The extremity of the trunk is terminated by a protuberance, which projects on the upper part like a finger, by which the elephant does the same as we do with our fingers; he picks up from the ground the smallest pieces of money; he gathers herbs and flowers, chusing them one after another; he unties knots, opens and shuts doors, by turning the keys or slipping the bolts: he learns to draw regular characters with an instrument as small as a pen. We cannot even deny that this hand of the [288] elephant has several advantages over ours: it is equally flexible and as dexterous in feeling or laying hold of objects. These operations are made by means of that sort of finger, seated at the superior part of the border, which surrounds the extremity of the trunk, in the middle of which there is a concavity, in the form of a cup, and at the bottom of it are the two apertures, which convey the sense of smelling and respiration. The elephant, consequently, unites in his trunk both the senses of feeling and smelling; and he may join the power of his lungs to the action of his hand, either drawing liquids by suction, or lifting up very heavy burdens, by applying the extremity of his trunk, and making within an empty place by respiration.

Thus the delicacy of feeling, exquisiteness of smelling, facility of motion, and the power of suction, are united in the trunk of the elephant. Of all the instruments which Nature has so liberally bestowed on her favourite productions, the trunk of the elephant is, perhaps, the most complete and the most admirable; it is not only an organic instrument, but a triple sense, whose united functions are, at the same time, the cause, and produce the effect of that intelligence, and [289] of those peculiar faculties which distinguish the elephant, and raise him above all other quadrupeds. He is less subject than other animals to errors of sight, because he rectifies them quickly by the sense of feeling; and making use of his trunk as a long arm to feel distant bodies, he acquires, like men, distinct ideas of distance. But other animals (except the monkey, and some others, who have the fore feet similar to arms and hands) cannot acquire the same ideas without running over that space with their bodies. Feeling is, of all the senses, that which has the most relation to knowledge. The delicacy of feeling gives the idea of the substance of the bodies; the flexibility of the trunk gives the idea of their exterior form; the power of suction, that of their weight; smelling, that of their qualities; and its length, that of their distance. They, therefore, with the same member, and by one simultaneous act, feel, perceive, and judge of divers things at once. His multiplied sensations are equivalent to reflection; and though this animal is, like others, incapable of thinking, as his sensations are combined in the same organ, are coeval and undivided, it is not surprising that he has ideas of his own, and that he acquires in a little time [290] those we inculcate to him. His remembrance should be more perfect than that of any other animal, for memory only depends chiefly on the circumstances of action; and no sensation, however lively, can leave a lasting impression, when single and abstractedly taken; but several combined sensations leave deep impressions, so that if the elephant cannot recall an idea by feeling alone, the sensations of smelling and suction, which act at the same time, help him in recalling them to remembrance. With us the best method to improve the memory is to make use successively of all our senses to consider an object; and it is for want of that combined use of the senses that man forgets more things than he can recollect.

Although the elephant has a more retentive memory, and more intelligence than any other animal, his brain is proportionally smaller than most of them, which I only mention as a proof that the brain is not the seat of sentiment, the *sensorium commune*, which resides, on the contrary, in the nerves of the senses, and in the membranes of the head, which are so numerously distributed on the trunk of the elephant, as to be equal to all those on the rest of the body. It is, therefore, by virtue of this singular combination of faculties in the trunk, that this animal is superior to all [291] others in intelligence, notwithstanding his enormous size, and the disproportion of his form; for the elephant is, at the same time, a miracle of intelligence, and a monster of matter. His body is very thick, without any suppleness; his neck short and stiff, his head small and deformed, his ears

and nose exceedingly large; his eyes, mouth, genital members, and tail, very small in proportion; his legs are like massive pillars, straight and stiff; his feet so short and small, that they are hardly perceptible, and his skin hard, thick, and callous; all these deformities are more remarkable, from being exhibited on a large scale, and most of them being peculiar to himself alone, no other animal having either the head, feet, nose, ears, or tusks, placed like those of the elephant.

From this singular conformation he suffers several inconveniences; he can scarcely move his head, or turn back without making a circuit. The hunters who attack him behind, or on the flanks, avoid the effects of his vengeance by circular motions, and they have sufficient time to strike him again whilst he is turning against them. His legs, which are not so stiff as his neck and body, yet bend very slowly, and with difficulty; their articulation with the thighs is very strong. His knee is [292] situated like that of a man, and his feet as low; but his foot has no strength nor elastic power, and the knee is hard, without suppleness; yet whilst the elephant is in his youth and vigour, he bends it to lay down, to let himself be loaded, or to help his leaders to mount him; but when he is old or infirm, this motion becomes so difficult that he sleeps standing; and, if he is compelled to lay down, the use of engines are necessary to raise him. His tusks, which become of an enormous weight when he grows old, not being seated in a vertical position, as the horns of other animals, form two long levers, and being in an almost horizontal direction, fatigue his head prodigiously, and draw it downwards, so that the animal is sometimes obliged to make holes in the wall of his lodge to support them, and ease himself of their weight. He has the disadvantage of having the organ of smelling far distant from that of tasting; and likewise the inconvenience of not being able to seize any thing on the ground with his mouth, because his neck is too short to let his head reach the earth; he is forced, therefore, to take his food, and even his drink with his nose; and to carry it not only to the entrance of his mouth, but to his very throat; and when his trunk is full of [293] water, he thrusts the extremity of it to the very root of the tongue, probably to push back the epiglottis, and to prevent the liquor which passes through with impetuosity, from entering into the larynx; for he thrusts out the water by the strength of the same air which he had employed to suck it up, and it goes out of the trunk with noise, and enters into the throat with precipitation. Neither the tongue, the mouth, nor the lips, are of any service to him, as to other animals, in sucking or lapping their drink. From this description seems to result the singular consequence, that the young elephant must suck with his nose, and afterwards carry the milk to his throat. Yet the ancients have written that he sucks with the mouth, and not with the trunk; but they were not, probably, witnesses of the fact, and have founded their opinion on the analogy with all other animals. If the young elephant had once been used to suck with his mouth, how could he lose that habit the remainder of his life? Why does he never use the mouth to take water within his reach? Why does he constantly employ two actions, where one would be sufficient? Why does he never take any thing with his mouth, but what is thrown in when it is open? It appears probable, [294] therefore, that the young elephant sucks with his trunk only. This presumption is not only proved by the subsequent facts, but is also founded on a better analogy than that which decided the opinion of the ancients. We have said, that animals in general, at the instant they are brought forth, can have no indication of the food they want, from any other sense but that of smelling: the ear is certainly of no use in that respect; neither is the eye, since the eyes of most animals are not open when they begin to suck: feeling can give but a vague idea of all the parts of the mother's body, or rather indicates nothing relative to the appetite. Smelling alone directs him: it is not only a sort of taste, but a species of fore-taste, which precedes, accompanies, and determines the other. The elephant, like other animals, perceives by this fore-taste the presence of his food; and as the seat of smelling is united with the power of suction at the extremity of his trunk, he applies it to the teats, sucks the milk, and conveys it afterwards to his mouth to satisfy his appetite. Besides, the two paps being seated on the breast, like those of women, and the teats being very small in proportion to the size of the mouth of the young elephant, who cannot bend his neck, he could not reach the teat of his mother with his mouth, unless she laid upon her back, or on her [295] side, and even in that situation he would find it very difficult to suck her, on account of the largeness of the mouth, and the smallness of the nipples. The margin of the trunk, which the elephant contracts as much as he pleases, is easily proportioned to the nipple, and the young elephant may suck his mother with it, either when she stands, or lies on her side. Thus, every thing agrees to confute the opinion of the ancients on this subject, for none of them, nor even any of the moderns, pretend to have seen the elephant sucking, and I think, I may affirm, that whenever that observation is made, it will appear, that he does not suck with his mouth, but with his trunk. I likewise believe, that the ancients have been mistaken in telling us, that elephants couple like other quadrupeds, the position of the parts seeming to make it almost impossible. The female has not, like other quadrupeds, the orifice of the vagina near the anus, being near three feet distance from it, and seated almost in the middle of the belly. Besides, naturalists and travellers agree that the male elephant has not the genital member longer than a horse, and therefore it is impossible for them to copulate like other quadrupeds, and that the female must necessarily lie on her back, and which De Feynes and Tavernier positively affirm must be the [296] fact, though I should not pay much attention to their testimony were it not in conformity with the physical conformation; they require, therefore, for this operation, more time and conveniences, than other animals; and it is, perhaps, for this reason they never couple, but when at full liberty. The female must not only consent, but even place herself in an indecent situation, to provoke the male, which probably, she never assumes but when she thinks herself without witnesses. Is not modesty then a physical virtue of which animals are susceptible? It is at least like softness, moderation, temperance, a general attribute of the female sex.

Thus the elephant neither sucks, eats, or drinks, like other quadrupeds. The sound of his voice is also very singular. If we believe the ancients, he has, as it were, two voices: the one issuing

from the trunk, which is rough, and from the length of the passage is somewhat like that of a trumpet; and the other coming from his mouth, which is interrupted by short pauses and hard sighs. This fact, advanced by Aristotle and afterwards repeated by naturalists and some travellers, is at least doubtful. M. de Bussy affirms positively, that the elephant does not utter any sounds through the trunk; yet as in shutting the mouth close, man can make a sound through the [297] nose, it is possible that the elephant, with so long a nose may issue sounds in the same manner. From wherever it proceeds, the cry of the elephant is heard at more than a league's distance; and yet, it is not so terrifying as the roaring of the lion or the tiger.

The elephant is yet more singular in the conformation of his feet, and the texture of his skin. He is not clothed with hair like other quadrupeds, but his skin is perfectly bare; some bristles issue out in different parts, they are thinly scattered on the body, but more thick on the eye-lids, on the back part of the head, within the ears, the thighs, and the legs. The epidermis has two sorts of wrinkles, which are hard and callous, some sinking, others prominent, which gives a divided appearance, like the bark of an old oak. In man, and in other animals, the epidermis sticks every where close to the skin, but in the elephant, it is only fastened by some points, like two quilted stuffs one above the other. This epidermis is naturally dry, and soon acquires three or four lines of thickness, by the divers crusts, which are regenerated one above the other, drying up. It is this thickness of the epidermis which produces the *elephantiasis*, or dry leprosy, to which [298] man, whose skin is bare like that of the elephant, is sometimes subject. This distemper is very common to elephants, and to prevent it the Indians rub them often with oil, to preserve the skin clean and supple. It is very tender wherever it is not callous; in the fissures, and other places, where it is neither dry nor hard, the elephant is so sensible of the sting of the flies, that he not only employs his natural motions, but even the resources of his intelligence to get rid of them. He makes use of his tail, ears, and trunk, to strike them; he contracts his skin and squeezes them to death betwixt his wrinkles; he takes branches of trees, boughs, and handfuls of straw, to drive them away, and when all this does not answer the purpose, he gathers dust with his trunk, and covers with it all the tender parts of his body. He often covers himself with dust several times in a day, particularly after bathing. The use of water is almost as necessary to these animals as air. When at liberty they seldom leave the banks of rivers, but often go into them, and remain for hours together up to the belly. In India, where they are treated most suitable to their nature and constitution, they wash them with care, and give them all the necessary time and opportunity to [299] wash themselves. They clean their skins by rubbing it with pumice-stones, and afterwards they pour on them perfumed oil, and paint them with various colours.

The conformation of the elephant's feet and legs is also different from that of other animals; the fore legs seem to be higher than those behind, yet the hind legs are the longest; they are not bent in two places, like the hind legs of a horse, or an ox, the thigh-bones of which seem to be of the same piece with the buttock, the knee very near the belly, and the bones of the foot so high and so long that they seem to make a great part of the leg; in the elephant, on the contrary, the foot is very short, and rests on the ground; he has the knee like man, in the middle of the leg; his short foot is divided into five toes, which are all covered with a skin, so as not to appear outwardly; we are only able to perceive a kind of nails, the number of which varies, though that of the toes is constant, for he has always five toes to each foot, and commonly five nails, but sometimes he has no more than four, or even three, and in this case they do not correspond exactly with the extremities of the toes. However, this variety, which has only been observed in [300] young elephants transported to Europe, seems to be merely accidental, and depends, probably on the treatment the elephant has received in his youth. The sole of the feet is covered with a skin, as hard as the hoof, which projects all round; the nails are formed of the same substance.

The ears of the elephant are very long; he makes use of them as a fan, and moves them as he pleases: his tail is not longer than his ears, being commonly near three feet in length; it is rather thin, sharp, and garnished at the extremity with a tuft of large black, shining, and solid bristles; these bristles are as big and as strong as wire, and a man cannot break them by pulling with his hands, though they are elastic and pliant. This tuft of hair is an ornament which the negro women are particularly partial to, from superstitious notions. An elephant's tail is sometimes sold for two or three slaves, and the negroes often hazard their lives to cut and snatch it from the living animal. Besides this tuft at the extremity, the tail is covered throughout with hard bristles, bigger than those of a wild boar; some are also found on the convex part of the trunk, and on the eye- [301] brows, where they sometimes are a foot in length. The hairs on the eye-lids are peculiar to men, monkeys, and elephants.

The climate, food, and condition, have great influence on the growth and size of the elephant. In general those who are taken young, and early lose their liberty, never come to their full growth. The biggest elephants of India, and the eastern coasts of Africa, are fourteen feet high; the smallest, which are found in Senegal, and in the other western parts of Africa, are not above ten or eleven feet; and those which are brought young into Europe acquire not that height. That which was in the menagerie of Versailles, which came from Congo, was but seven feet and a half high, in his seventeenth year. During thirteen years that he lived in France he did not grow above a foot, so that at the age of four, when he was sent he was only six feet and a half high, and as the growth gradually diminishes as animals advance in years, if he had lived thirty years, which is the ordinary term of their full growth, he would not have been more than eight feet high. Thus a domestic state reduces the growth of the animal at least one third, not only in height but in all other dimensions. The length of the body, measured from the eye to the tail, is very near equal to [302] his height; an elephant of the Indies, therefore, of fourteen feet high, is seven times bigger and heavier than was the elephant of Versailles. In comparing the growth of this animal with that of

man we shall find, that an infant, being commonly thirty-one inches, that is half his height when he is two years old, and coming to his full growth at twenty, the elephant, who increases in height and bulk to his thirtieth year, should come to half his height in three years. In the same manner, if we judge of the enormity of the bulk of the elephant, it will be found, that the volume of a man's body being supposed to be two cubic feet and a half, the body of an elephant of fourteen feet in length, allowing him only three feet in thickness, and of a middling breadth, would be fifty times as big, and, consequently, an elephant ought to weigh as much as fifty men.

"I have seen (says father Vincent Marie) some elephants who were fourteen or fifteen feet high, long and thick in proportion. The male is always larger than the female. The price of these animals increases in proportion to their size, which is measured from the eye to the extremity of the back, and after exceeding certain dimensions, the price increases like that of precious [303] stones."

"The elephants of Guinea (says Bosman) are ten, twelve, or thirteen feet in height, and yet they are incomparably smaller than those of the East Indies, since those who have written the history of that country, give to those more cubits in height, than the others have feet."

"I have seen elephants thirteen feet high, (says Edward Terry) and I have met with many, who affirmed they have seen elephants fifteen feet high[AG]."

[AG] These authors probably referred to different measures, the first meaning Roman, the second Rhenish, and the last English feet.

From these, and many other attestations, we may conclude, that the most common size of the elephant is from ten to eleven feet; that those of thirteen or fourteen feet are very scarce, and that the smallest are at least nine feet high when they come to their full growth in a state of liberty. These enormous lumps of matter, as we have observed, move with much celerity; they are supported by four members, which are more like pillars, or massive columns, than legs, and are from fifteen to eighteen inches in diameter, and five or six feet in height; their legs are therefore twice as long as those of a man; thus, though the elephant took but one step to a man's two, he [304] would overtake him in running. The common pace of the elephant is not swifter than that of the horse; but when he is pressed, he goes a sort of amble, equivalent for quickness to a gallop. He executes with speed, and even with ease, all direct motion; but he has no facility for oblique or retrograde motions. It is commonly in narrow and deep roads, where he can hardly turn, that the negroes attack him, and cut off his tail, which they value as much as the whole animal. He cannot go down a steep declivity without much difficulty, he is then obliged to bend the hind legs, in order to keep the fore part of his body on a level with the hind, and that his own weight may not throw him down. He swims well, though the form of his legs and feet seem to indicate the contrary; but as the capacity of his breast and belly is very large, as the volume of the lungs and intestines is enormous, and as those parts are full of air, or matter lighter than water, he sinks less deep than any other animal; he finds less resistance to overcome, and, consequently, can swim faster in making less efforts with his limbs. Thus, he is very useful for crossing rivers; besides two field-pieces, each of them four-pounders, with which he is loaded on these occasions, [305] he carries heavy baggage, and several persons holding him by the ears and tail. When thus loaded, he swims deep in the water, and nothing is seen but his trunk, which he keeps erect to enable him to breathe.

Though the elephant commonly feeds on herbs and young branches, and requires prodigious quantities of these aliments, to extract from them the nutrition necessary to such a body, yet he has not many stomachs, like most animals who feed on the same substances. He has but one stomach, does not ruminate, and is formed more like the horse than the ox, or other ruminating animals. The want of a paunch is supplied by the bigness and length of his intestines, and especially of the colon, which is two or three feet in diameter, and fifteen or twenty in length. The stomach is much smaller than the colon, being but four feet, at the most, in length, and a foot and a half in diameter. To fill such a capaciousness, the animal must eat almost continually, especially when he has no food more substantial than herbage; therefore the wild elephants are almost always employed in grubbing up trees, gathering herbs, or breaking young boughs; and those that are tame, though fed with great quantities of rice, pluck up herbs whenever they find an [306] opportunity. However great the appetite of the elephant, he eats with moderation, and his taste for cleanliness gets the better of his wants. His dexterity in parting, with his trunk, the good leaves from the bad, and the care he takes to shake off the sand or insects, are convincing marks of his delicacy. He is very fond of wine, spirituous liquors, brandy, and arrack. He is prevailed upon to exert his greatest efforts, and to undertake the most arduous task, by shewing him a vessel full of these liquors, and promising it to him as the reward of his labours. He seems also to like the smoke of tobacco, but it stupifies and intoxicates him: he has a natural aversion to bad smells, and such an antipathy for hogs, that the cry of that animal disorders and puts him to flight.

To give a complete idea of the nature and intelligence of this singular animal, I shall insert here some particulars communicated to me by the Marquis de Montmirail, President of the Royal Academy of Sciences, who has taken the trouble to translate from some Italian and German books, which were not known to me, whatever relates to the history of the animal creation. His taste for arts and sciences, his zeal for the advancement of them, his exquisite judgment, and a [307] very extensive knowledge of all the parts of Natural History, entitle him to the greatest respect, and it is with pleasure and gratitude I refer to the information he has given me, and which I shall have frequent occasion to refer to in the subsequent part of this work:—"They make use of the

elephant to carry artillery over mountains; and it is then that he gives the greatest proofs of his intelligence: when the oxen, yoked together, endeavour to draw a piece of artillery up a mountain, the elephant pushes the breech of the cannon with his forehead, and at every effort he supports the carriage with his knee, which he places against the wheel. He seems as if he understood what is said to him. When his leader employs him in some hard labour, he explains what is his work, and the reasons which ought to engage him to obey. If the elephant shews any repugnance to comply, the *cornack*, so his leader is called, promises to give him arrack, or some other thing that he likes; then the animal agrees to every thing proposed; but it is dangerous to break a promise with him, as many cornacks have fallen victims by such conduct. An instance of this happened at Dekan, which deserves to be recorded; and which, however incredible it may [308] appear, is perfectly true. An elephant, in revenge, killed his cornack; the man's wife being witness of this dreadful catastrophe, took her two children and threw them to the feet of the still enraged animal, saying, *Since thou hast killed my husband, take also my life and that of my children*. The elephant stopped short, grew calm, and, as if moved with regret and compassion, took with his trunk the biggest of the two children, placed him on his neck, adopted him for his cornack, and would never suffer any other to mount him afterwards.

"If the elephant be vindictive he is no less grateful. A soldier at Pondicherry, who commonly gave one of these animals a certain measure of arrack every time he received his pay, having one day drank more than common, and seeing himself pursued by the guard, who wanted to conduct him to prison, took refuge under the elephant, and there fell asleep. In vain did the guard attempt to draw him out from this asylum, the elephant firmly defending him with his trunk. The next day, when the soldier became sober, he was struck with terror to find himself under an animal of such enormous bulk. The elephant, who no doubt perceived his consternation, caressed him with his [309] trunk, and made him understand that he might depart freely.

"The elephant sometimes falls into a sort of phrenzy, which deprives him of his tractability, and makes him so formidable that it is frequently thought necessary to kill him, though they generally tie him with heavy chains, in hopes that he will come to himself; but when in his natural state the most acute pains cannot provoke him to do any harm to those who have not offended him. An elephant, made furious by the wounds he had received in the battle of Hambour, ran about the field crying out in the most hideous manner. A soldier, notwithstanding the warning of his companions, was unable to fly, perhaps from being wounded; the elephant coming up to him appeared afraid of trampling him under his feet, took him up with his trunk, placed him gently on one side, and continued his march." These particulars were given to the Marquis Montmirail by M. de Bussy, who lived ten years in India, and served the state with reputation. He had several elephants in his service; he mounted them often, saw them every day, and had frequent opportunities of observing many others.

The gentlemen of the Academy of Sciences have also communicated to us the following facts, [310] which they learned from those who governed the elephant at Versailles, and which deserve to be mentioned here. "The elephant seemed to discern when any body made a fool of him, and he remembered the affront to be revenged the first opportunity. A man deceived him by feigning to throw something into his mouth, upon which the animal gave him such a blow with his trunk as broke two of his ribs; having knocked him down, he trampled him under his feet, and broke one of his legs, and then kneeling down, he tried to thrust his tusks into the man's belly, which, however, went into the ground on both sides of his thigh, without hurting him. He bruised another man, by squeezing him against the wall, for a little mockery. A painter was desirous to draw him in an unusual attitude, with his trunk erect and his mouth open; the servant of the painter, to make him remain in that attitude, threw fruits into his mouth, but often deceived him, which provoked his indignation, and, as if he knew the painter was the cause of his being thus insulted, without taking any notice of the servant, he threw such a quantity of water with his trunk upon the paper, the master was drawing on, as totally to spoil the design. The elephant made less use of his strength than of his address, which was such that he untied with great [311] facility a double leather string which fastened his leg, and as this buckle had a small string twisted around it with several knots, he untied them all without breaking either the strings or the strap. One night, having thus disentangled himself from his leather strings, he dexterously broke open the door of his lodge, so that his keeper was not awakened by the noise; he went from thence into several courts of the menagerie, breaking open the doors that were shut, and pulling down the stone work when the passage was too narrow for him to pass; by this means he got into the lodges of other animals, terrifying them to that degree, that they hid themselves in the remotest parts of the inclosures." In fine, to omit nothing that may contribute to make all the natural and acquired faculties of this animal so superior to all others, perfectly known, we shall add some facts, extracted from the most credible authors. "The elephant, even when wild (says Father Vincent Marie), has his virtues. He is generous and temperate; and when tamed he is esteemed for gentleness and fidelity to his master, and friendship for his governors. If destined to the immediate services of princes he knows his fortune, and preserves a gravity agreeable to the [312] dignity of his employ. If, on the contrary, he is employed in mean labours, he evidently grieves and laments his being thus debased. In war he is impetuous and proud at the first onset; he is equally so when surrounded by hunters, but he loses courage when he is conquered. He fights with his tusks, and fears nothing so much as losing his trunk, which, by its consistence, is easily cut off. He is naturally mild, never attacks any person, unless he has been offended; he seems to delight in company, is particularly fond of children, caresses them, and seems to be sensible that they are harmless and innocent."

"The elephant, (says F. Pyrard) is an animal of so much judgment and knowledge, that one

should think him endowed with rational faculties; besides being of infinite service to man. If wanted to be ridden, he is so supple, and obedient, that he conforms to the conveniency and quality of the person he serves: he bends his knees, and helps his leader to mount him with his trunk. He is so tractable, that he does whatever he is required, provided he is treated with gentleness. He performs all that he is commanded, and caresses those whom he is directed to use with civility."

"By giving the elephants, (says the Dutch travellers) whatever can please them, they are as [313] easily tamed and rendered as submissive as men. It may be said they want no other faculty, but that of speech. They are proud and ambitious, but they remember good offices, and are so grateful for them, that they never fail to incline their head as a mark of respect, when they pass before a house where they have been well used. They may be conducted at the command of a child, but they love to be praised and cherished. No person can affront, or injure them without their notice; and those who have treated them with disrespect, may think themselves happy if they escape without being sprinkled with the water from their trunks, or thrown into the dirt."

"The elephants, (says Father Philip) come very near the human species in judgment and reasoning. Monkeys are stupid brute animals compared to them. The elephants are so modest, that they cannot bear being seen when they couple; and if by chance, any person were to see this operation they would infallibly be revenged of them. They salute by bending the knees, and inclining their head; and when their master shews his intention to mount them, they so dexterously present to him their foot, that he may use it as a step. When a wild elephant is taken, [314] and his feet are tied, one of the hunters comes near, salutes, makes an apology for having tied him, and protests that his intention is not to do him any harm; tells him that in his savage state he often wanted food, but now he will be treated with tenderness, and which he promises to do constantly. The hunter has no sooner finished this soothing discourse, than the elephant follows him as gently as a lamb. We must not, however, conclude from this, that the elephant understands languages, but only having a particular discerning faculty, he knows the motions of esteem from contempt, friendship from hatred, and all other sentiments of man towards him, for which cause he is more easily tamed by reasoning than by blows. He throws stones to a great distance, and very straight with his trunk; which he also makes use of to pour water over his body when bathing."

"Of five elephants, (says Tavernier) which the hunters had taken, three escaped, although their bodies and legs were fastened with chains and ropes. These men told us the following surprising circumstance, if it can be believed, that when an elephant has been caught, and escaped the snare, he becomes very mistrustful and breaks off a large branch with his trunk, with [315] which he sounds the ground before he puts his foot upon it, to discover if there are any holes, by which he may be caught a second time; for this reason the hunters, who related this singularity, despaired of catching again the three elephants who had escaped. The other two which they had caught, was each of them placed betwixt two tame elephants, and around them were six men, holding torches, who spoke to the animals, and presented them something to eat, saying, in their language, 'take this and eat it.' What they gave them consisted of small bundles of hay, bits of black sugar, and rice boiled in water, with pepper. When the wild elephant refused to do what he was ordered, the men commanded the tame elephants to beat him, which they did immediately; one striking his forehead, and when he seemed to aim at a revenge, the other struck him on the side, so that the poor creature soon perceived he had nothing to do, but to obey."

"I have several times observed, (says Edward Terry) that the elephant does many things which seemed to be more the result of a rational than an instinctive faculty. He does whatever his master commands him. If he wishes him to frighten any body, he advances towards him with the [316] same fury as if he would tear him to pieces, and when near he stops short, without doing him any harm. If the master is inclined to affront another, he speaks to the elephant, who takes up dirty water with his trunk, and throws it over the person pointed out to him. His trunk is made of a cartilage, hangs betwixt his tusks, and by some called his hand, because on many occasions it is as serviceable to him as the hand is to men. The Mogul keeps elephants for the execution of criminals condemned to death. If their leader bids them dispatch the wretched creatures quickly, they tear them to pieces in a moment with their feet; but if commanded to make the criminals languish, they break their bones one after another, and make them suffer torments as cruel as those of the wheel."

We might quote several other facts equally curious and interesting, but we should exceed the limits of this work; we should not have even entered into so many particulars, if the elephant (*fig. 133*) were not, of all animals, the first in every respect, and that which consequently deserves most attention.

We have said nothing respecting the production of his ivory because M. Daubenton has made several useful observations upon the nature and quality of it, but he has at the same time [317] assigned to the elephant the tusks, and prodigious bones attributed to the mammoth. I confess I was long doubtful on this subject; I had several times considered those enormous bones, and compared them with the skeleton of an almost adult elephant preserved in the king's cabinet, and before writing the history of those animals, I could not persuade myself that elephants six or seven times bigger than the one whose skeleton I had seen, could exist; more especially, as the large bones had not the same proportions with the corresponding ones of the elephant, I thought with the generality of naturalists that these enormous bones had belonged to an animal much larger, whose species was lost or annihilated. But it is certain, as we have mentioned before, that some elephants exist who are fourteen feet high, that is, six or seven times bigger (for the bulk is

in proportion to the cube in height) than the elephant, of whose skeleton we have spoken, and which was not more than seven feet and a half in height. It is also certain, for the observations of M. Daubenton, that age changes the proportion of the bones and when the animal is adult, they grow considerably thicker, though they are come to their full height: in fine, it is certain, from [318] the relations of travellers, that of some elephants, the tusks weigh more than 120lbs.[AH] From these observations, we cannot doubt that those tusks and bones we have already noticed for their prodigious size, actually belonged to the elephant. Sir Hans Sloane was of that opinion, but he did not prove it. M. Gmelin said it still more affirmatively, and gave on this subject several curious facts[AI]; but M. Daubenton is the first who has proved them unquestionably by exact measures and comparisons, and reasons founded on the great knowledge that he has acquired in the Science of Anatomy.

[AH] Mr. Eden says, that several elephant's tusks which he measured, were no less than nine feet long, and as big as a man's thigh in circumference, some of them weighing more than nine pounds; and that he saw a head in the possession of a Mr. Jude, which had been brought from Guinea by some English ships, of which the mere bones, without the tusks, weighed upwards of 200lbs. and it was supposed that when the head was entire it could not weigh less than 500lbs. Lopes affirms he met with several tusks that weighed 200lbs. *Hist. Gen. des Voyages.* This magnitude of the tusks is also confirmed by Drake, Holbe, and the Dutch travellers.

[AI] The Czar, Peter, being curious in Natural History, issued orders in the year 1722, that wherever any bones of the mammoth should be found, search should be made after the remainder, and the whole of them sent to Petersburg, and which orders were made public in all the towns of Siberia. In consequence of this several persons applied to the Woywode of Jakutzk to be sent off to two different places, where they affirmed they had seen these bones; their demands were complied with, and many of them returned with heads and various bones, which were transmitted to Petersburg, and placed in the imperial cabinet; but it will be found upon examination that all the bones placed there, under the denomination of the Mammoth bones, are perfectly similar with the elephant's. And as to their being found under the earth and in Siberia, it may fairly be presumed that in the great revolutions which have happened to the earth, a great number of elephants might be driven from their native climates; many have been destroyed by the inundations, and those who wandered so far into the North must necessarily have perished from the rigours of the climate. *Voyage a Kamtschatka par M. Gmelin.*

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SUPPLEMENT.

THE female elephant, as in all other animals, is more gentle than the male, at least we found it so, for the male which we saw in 1771, was more fierce and untractable than a female we witnessed in 1773; he would frequently lay hold of, and tear the clothes of those who approached too near him, and even his keepers were always obliged to be on their guard, while she was [320] perfectly quiet, and always ready to obey, nor ever shewed a disposition to be perverse but when they wanted to put her into a covered waggon for the purpose of conveying her from one town to another; upon which occasion she would refuse to go forward, and they had no means of making her advance but by pricking her behind; this would make her very angry, and being unable to turn, the only way she had of revenge was to take up water in her trunk and throw it over them, and which she would do in pretty large quantities.

I formerly remarked, there was a probability, from the situation of the sexual organs, that these animals did not copulate in the same manner as other quadrupeds, but this conjecture I understand is not warranted in fact, for M. Marcel Bles thus expresses himself upon the subject: "The comte de Buffon, in his excellent work, is deceived in respect to the copulation of the elephants. In many parts of Asia and Africa they certainly, during their season of love, retire into the most secret recesses of the forests; but in the island of Ceylon which is almost in every part inhabited, and where I have lived twelve years, they have not that opportunity of concealing themselves. I have frequently examined them, and from the female organ being nearly in the [321] middle of the belly there is some reason to conclude as M. de Buffon has done; however, when inclined to admit the male, I have seen the female bend her two fore legs upon the root of a tree, lowering, at the same time, her head and neck, and keeping her hind legs erect, which gave the male an opportunity of acting in the same manner as other quadrupeds. They never copulate but in a state of freedom. The males are very furious in the rutting season, and it is very dangerous to go near them; during which the females will sometimes make their escape, and seek the wild males in the woods. A few days after her cornack goes into the woods in search of her, and she will come to him upon hearing him call her by name, and quietly suffer herself to be led home again. It was from these excursions discovered that the females bring forth at the end of nine months."

I certainly am ready to give full credit to the first remark of M. Marcel Bless, because he assures us that he has seen the elephant perform the operation; but I cannot think we ought so perfectly to acquiesce as to the time of their going with young, since it is the opinion of all travellers that they do not bring forth in a less period than two years.

[322]

THE RHINOCEROS.

AFTER the elephant the Rhinoceros (*fig. 124*) is the most powerful of quadrupeds; he is at least twelve feet in length, from the extremity of the snout to the tail; six or seven feet in height, and the circumference of his body is nearly equal to his length. In bulk, therefore, he nearly resembles the elephant, and if he appears smaller, it is because his legs are shorter in proportion than those of the elephant. But he differs widely from that sagacious animal by his natural faculties and intelligence, having received from Nature merely what she grants in common to all animals. He is deprived of all feeling in his skin; he has no organ to answer the purpose of hands, to give him a distinct sense of touching; instead of a trunk he has only a moveable lip, in which centres all his dexterity. He is superior to other animals only in strength, magnitude, and the offensive weapon, which he carries upon his nose, and which is peculiar to him. This weapon is a [323] very hard horn, solid throughout, and placed more advantageously than the horn of ruminating animals; those only protect the superior parts of the head and neck, whilst the horn of the rhinoceros defends all the exterior parts of the muzzle, the mouth, and the face, from insult. For this reason the tiger attacks more readily the elephant, whose trunk he can seize, than the rhinoceros, which he cannot attack in front without running the danger of having his inside torn out; for the body and limbs are covered with so impenetrable a skin that he fears neither the claws of the tiger nor lion, nor the fire and weapons of the huntsman. His skin is blackish, of the same colour, but thicker and harder than that of the elephant; nor does he feel the sting of flies. He cannot contract nor extend his skin; it is folded by large wrinkles on the neck, shoulders, and rump to facilitate the motion of his head and legs, which last are massive, and terminated by large feet, armed with three great toes. His head is larger in proportion than that of the elephant, but his eyes are still smaller, which he seldom opens entirely. The upper jaw projects above the lower, and the upper lip is moveable, and may be lengthened six or seven inches; it is terminated by a sharp edge, which gives the animal the power to gather grass and divide it into handfuls, as [324] the elephant does with his trunk. This muscular and flexible lip is a sort of imperfect trunk which is equally capable of seizing with force, and feeling with delicacy. Instead of those long ivory tusks, which form the weapons of the elephant, the rhinoceros has a powerful horn, and two strong incisive teeth in each jaw: these teeth, which the elephant has not, are placed at a great distance, one in each corner or angle of the jaws; the under jaw is square before, and there are no other incisive teeth in all the interior part, which is covered by the lips; but, independently of these four incisive teeth, placed in the four corners of the mouth, he has twenty-four smaller teeth, six on each side of each jaw. His ears are always erect; they are in form like those of the hog, only they are smaller in proportion to his body, and they are the only hairy parts about him. The end of the tail, like that of the elephant, is furnished with a tuft of large bristles, very hard and very solid.

Mr. Parsons, a celebrated physician in London, to whom the republic of letters is indebted for several discoveries in Natural History, and to whom I am under obligations for the marks of [325] esteem and friendship he has honoured me with, published in 1744, a Natural History of the Rhinoceros, of which I shall give an extract with more willingness, because whatever Mr. Parsons has written deserves credit and attention.

“Though the rhinoceros was often seen at the spectacles at Rome, from the time of Pompey to that of Heliogabalus, though many have been transported into Europe in these last ages, and though Bontius, Chardin, and Kolbe, have drawn this figure, both in the Indies and Africa, yet he was so badly represented, and his description was so incorrect, that he was known very imperfectly, until those which arrived in London in 1739 and 1741, were inspected, when the errors or caprices of those who had published figures of him became very visible. That of Albert Durer, which was the first, is the least conformable to Nature; it has, nevertheless, been copied by most naturalists; and some of them have loaded it with false drapery, and foreign ornaments. That of Bontius is more simple and more true; but the inferior part of the legs is badly delineated. On the contrary, that of Chardin represents naturally the foldings of the skin and feet, but in other respects does not resemble the animal. That of Camerarius is not better; nor is that drawn [326] from the rhinoceros which was in London in 1685, and which was published by Carwitham in 1739. Those which were engraved on the ancient pavement of Præneste, or on the medals of Domitian, are very imperfect; but they have not the imaginary ornaments given to that of Albert Durer.” Dr. Parsons has taken the trouble to draw this animal himself in three different views, before, behind, and in profile; and particular parts from other rhinoceroses which are preserved in the cabinets of Natural History.

The rhinoceros which arrived in London in 1739, was sent from Bengal: though not more than two years old, the expences of his food, and of his voyage, amounted to near one thousand pounds sterling. He was fed with rice, sugar, and hay; they gave him daily seven pounds of rice, mixed with three pounds of sugar, which they divided into three portions: he had also hay and green herbage, to the last of which he gave the preference. His drink was water, of which he drank great quantities at a time. He was of a quiet disposition, and suffered all parts of his body to be felt. He grew unruly upon being struck, or when he was hungry; and in both cases he could [327] only be appeased by giving him something to eat. When he was angry he leaped forwards with

impetuosity, and raised himself to a great height, and rushed furiously against the walls with his head, and which he did with a prodigious quickness, notwithstanding his heavy appearance and massive corpulence. “I have often been witness (says Dr. Parsons) of those motions produced by impatience or anger, especially in the morning before his rice and sugar were brought him. The quickness and celerity of the motions of this animal made me of opinion that he is absolutely unconquerable, and that he would easily overtake any man who should have given him offence.”

This rhinoceros, when two years old, was not higher than a young cow who had never had any young; but his body was very long and very thick. His head was large in proportion to his body; taking it from the ears to the horn of the nose, it formed a concavity, the extremities of which, that is, the upper end of the snout, and the part near the ears are very high. The horn, not then an inch long, was black, smooth at the end, but wrinkled and directed backwards at the base. His nostrils were not above an inch from the mouth; the under lip was like that of a ox, but the upper [328] resembled that of an horse, with this difference and advantage, that the rhinoceros can lengthen, direct, turn it round a stick, and seize with it those objects which he wants to carry to his mouth. The tongue of this young rhinoceros was soft like that of a calf; his eyes had no vivacity, they were formed like those of a hog, and were placed very low, that is, near the opening of the nostrils. His ears were large, thin towards the end, and bound up with a sort of wrinkle at the origin. His neck was very short, the skin forming on this part two large foldings which surround him. His shoulders were very thick, and at their juncture there was another fold of skin which comes under the fore legs. The body of this young rhinoceros was very thick, and resembled that of a cow ready to bring forth. There was another fold betwixt the body and the rump, which descends under the hind legs; and lastly, there was another fold which transversally surrounds the lower part of the crupper, at some distance from the tail. The belly was very big, and hung down to the ground, especially the middle part; the legs were round, thick, strong, and bent backward at the joint, which was covered by a remarkable fold of the skin when the animal laid [329] down, but it disappeared when he was standing. The tail was thin and short, compared to the volume of the body; that of this rhinoceros was not above seventeen inches in length; it is a little thicker at the extremity, which is covered with hard, short and thick hair. The sexual organ of the rhinoceros is of an extraordinary form; it is contained in a sort of case, like that of a horse, and the first thing which appears when irritated is a second prepuce of flesh colour, from which issues a hollow pipe, in form of a funnel, like a fleur de luce. It not being in a straight direction, but rather inclining backward, he emits his urine behind, and from which it appears their copulation must be different from other animals. The female has the exterior parts of generation situated like those of the cow, and she resembles perfectly the male in the size and form of the body. The skin is thick and impenetrable; in taking the folds with the hand, it feels like a wooden plank half an inch thick. “When it is tanned (says Dr. Grew) it is excessively hard, and thicker than the skin of any other terrestrial animal.” It is every where more or less covered with incrustations, in the shape of galls, which are small on the summit of the neck and back, but becomes bigger down the sides; the largest are on the shoulders and crupper, the thighs, and [330] around the legs, down to the feet; but betwixt the folds the skin is penetrable, and even tender, and as soft as silk, while the outward part of the folds is as rough as the rest. This tender skin between the folds is of flesh colour, and the skin of the belly is nearly of the same colour and consistence; but those galls, or tuberosities, should not, as some authors have done, be compared to scales, as they are mere callosities of the skin, irregular in their figure and symmetry in their respective positions. The suppleness of the skin in the folds gives the rhinoceros the power of moving his head, neck, and limbs, with facility. The whole body, except at the joints, is inflexible, like a cuirass. Dr. Parsons says, that this animal hearkened with a sort of continual attention to any kind of noise; so that if he was even sleeping, eating, or satisfying other urgent wants, he instantly raised up his head, and listened till the noise had ceased.

In fine, after giving this exact description of the rhinoceros, Dr. Parsons examines whether the rhinoceros with a double horn exists, and having compared the relations of ancients and moderns, and the remains of this variety, found in the collections of natural objects, he [331] concludes, with some probability, that the rhinoceroses of Asia have commonly but one horn, and those of Africa, generally two.

It is certain that some rhinoceroses have but one horn, and others have two; but it is not equally certain that this variety is constant, and depends on the climate of Africa or India, or that two distinct species may be established from these differences. It seems that the rhinoceroses with one horn have it bigger and longer than those who have two. There are single horns of three feet and a half, and, perhaps, of more than four feet in length, by six, or seven inches in diameter at the base. Some double horns are but two feet in length.

Commonly these horns are brown, or olive colour, though some are grey, and even white. They have only a small concavity, in form of a cup, under their base, by which they are fastened to the skin of the nose; the remaining part of the horn is solid, and very hard. It is with this weapon that the rhinoceros is said to attack, and sometimes mortally wound, the biggest elephants, whose long legs give the rhinoceros an opportunity of striking them with his snout and horn under their bellies, where the skin is tender, and penetrable; but if he misses the first blow the elephant [332] throws him on the ground and kills him.

The horn of the rhinoceros is more valued by the Indians than the ivory of the elephant, not so much on account of its real use, though they make several things of it with the chisel, but for divers specific virtues, and medicinal properties, which they ascribe to it. The white, from being the most rare, are also those which they value most. Among the presents which the king of Siam

sent to Louis XIV. in 1686, were six horns of the rhinoceros. We have seen in the king's cabinet twelve of different sizes, and one of them, though mutilated, is three feet eight inches and a half in length.

The rhinoceros, without being ferocious, carnivorous, or even very wild, is, nevertheless, untractable. He is of the nature of a hog, blunt and brutal, without intellects, sentiment, or docility. He is subject to fits of fury, that nothing can calm; for the rhinoceros, which Emanuel, king of Portugal, sent to the Pope in 1513, was the cause of the ship being destroyed in which he was transporting; and that which we saw at Paris was drowned in the same manner, in going over to Italy. These animals, also like the hog, are much inclined to wallow in the mire. They like [333] damp and marshy places, and seldom leave the banks of rivers. They are found in Asia and Africa, in Bengal, Siam, Laos, Mogul, Sumatra, Java, in Abyssinia, in Ethiopia, in the country of the Anzicos, and as far as the Cape of Good Hope. But in general the species is not so numerous, or so universally spread, as that of the elephant. The female brings forth but one young, and that at a great distance of time. In the first month the rhinoceros is not much bigger than a large dog; he has no horn when first brought forth, although the rudiment of it is seen in the fœtus. When he is two years old his horn is not above an inch long; and in his sixth year it is about ten inches; and as some of these horns are very near four feet long, it appears that they grow till the half, or, perhaps, during the whole life of the animal, which must be long, since the rhinoceros, described by Dr. Parsons, was not come to half his growth at two years old, which makes it probable that this animal, like man, lives to seventy or eighty years.

Without the capacity of being useful like the elephant, the rhinoceros is equally hurtful from the prodigious devastation which he makes in the fields. He has no one advantageous quality [334] while alive. His flesh is excellent, according to the taste of the Indians and Negroes: Kolbe says, he has often eaten it with pleasure. His skin makes the best and hardest leather in the world; and not only his horn, but all the other parts of his body, and even his blood, urine, and excrements, are esteemed as antidotes against poison, or remedies against several diseases. These antidotes, or remedies, extracted from different parts of the rhinoceros, are of the same use in the dispensatory of the Indians, as the theriaca is in that of Europe. Probably, all those virtues are imaginary:—But how many things are held in great estimation, which have no value but in opinion!

The rhinoceros feeds upon coarse herbs, such as thistles and prickly shrubs, and he prefers this wild food to the sweet pasture of the verdant meadows. He is fond of sugar canes, and eats also all sorts of corn. Having no taste for flesh, he neither molests small animals, nor fears the large ones, but lives in peace with them all, not excepting the tiger, who often accompanies, without daring to attack him; therefore, I doubt, whether the battles betwixt the elephant and rhinoceros, have any foundation; they must at least be seldom, since there is no motive for war [335] on either side; and, besides, no sort of antipathy has been observed between these animals. Some even in captivity have lived quietly together, without giving offence or provocation. Pliny is, I believe, the first who has mentioned these battles betwixt the rhinoceros and elephant. It seems they were compelled to fight in the spectacles at Rome, and, probably from thence the idea has been taken, that when in their natural state they fought as desperately; but every action without a motive is unnatural; it is an effect without a cause, which cannot happen but by chance.

The rhinoceroses do not herd together, nor march in troops like the elephants; they are more wild and solitary, and perhaps more difficult to hunt and subdue. They never attack men unless provoked; but then they become furious, and are very formidable. Neither scymetars, darts, nor lances, can make an incision upon his skin, which even resists musket balls; the only places penetrable in his body are the belly, the eyes, and round the ears; so that the hunters, instead of facing and attacking this animal, follow him at a distance by his track, and wait till he lies down to rest or sleep. We have in the king's cabinet a fœtus of a rhinoceros, which was extracted from [336] the body of the mother, and sent from the island of Java: it was said, in a memorial which accompanied this present, that twenty-eight huntsmen having assembled to attack this rhinoceros, they followed her at a distance for some days, one or two walking now and then before to reconnoitre her situation; by these means they surprised her when she was asleep, and silently came so near that they discharged at once their twenty-eight guns into the lower parts of her belly.

From the description given by Dr. Parsons, it appears that this animal has a good ear, and even very attentive: it is also affirmed, that his sense of smelling is excellent; but it is said that he has not a good eye, and sees only those things which are before him: his eyes are so small, and placed so low, and obliquely, they have so little vivacity and motion, that this fact seems to be confirmed. His voice, when he is calm, resembling the grunting of a hog; but when he is angry, it is sharp, and heard at a great distance. Though he lives upon vegetables, he does not ruminate: thus, it is probable, that, like the elephant, he has but one stomach, and very large bowels, which supply the office of many stomachs. His consumption of food, though very great, is not [337] comparable to that of the elephant, and it appears, by the thickness of his skin, that he loses much less than the latter by perspiration.

SUPPLEMENT.

IN the month of September, 1770, another rhinoceros was brought to the royal menagerie, which was said to be only three months old; but I am persuaded it was as many years, for it was eight feet two inches in length, including the head, five feet six inches high, and eight feet two inches in circumference: by the 28th of August, 1781, it had increased seven inches in length, three inches in the height, and seven inches in circumference; and on the 12th of August, 1772, it measured nine feet four inches in length, including the head, six feet four inches high at the crupper, and only five feet eleven at the withers. In some places its skin was spotted with black and grey, and in others it was in deep furrows, having the appearance of a kind of scales. This animal had but one horn, which was brown, and of a very hard substance; and in all other [338] respects he nearly resembled the description we have already given.

Mr. Bruce has remarked, that my conjecture, that in the interior parts of Africa there were rhinoceroses with two horns, was exactly the case, for he saw none in Abyssinia but what had one situated near the nose, which was of the common form, and the other rather higher on the head, sharp at the point, and always shorter than the first. M. Daubenton received a letter from M. Allamand at Leyden, in 1776, in which that gentleman says, “In a passage which M. de Buffon has quoted from Mr. Parsons, it is supposed, that the rhinoceroses of Asia have but one horn, and those of the Cape of Good Hope have two, but I am inclined to believe the opposite is the fact, for the heads of those I have received from Bengal, and other parts of India, had always two horns, and those which came from the Cape had but one.” This remark of M. Allamand we may consider as a confirmation of our former observation, that the rhinoceroses with two horns form a variety in the species, and may be equally found in Asia and Africa.

END OF THE SEVENTH VOLUME.

T. Gillet, Printer, Wild-court.

Transcriber Note

All obvious typographical errors were corrected. Where several variant spellings were used, the most prevalent version was use to standardize them. All illustration headers were standardized to display “*Engraved for Barr’s Buffon.*” above each group and the captions were also standardized. The illustration captions were arranged in ascending numbers. Where paragraphs were split by illustrations, they were rejoined. To match the other volumes in this series, the list for the placement of images was positioned after the Table of Contents.

p. 29, cougouacu-apara changed to cougouacou-ara
p. 171, missing endquote, placed at end of line
p. 225, missing endquote, placed at end of paragraph

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