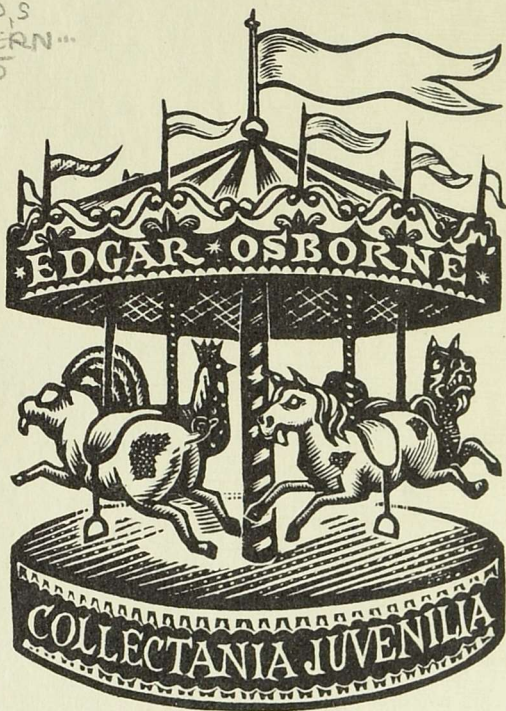


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A
MODERN SYSTEM
OF
NATURAL HISTORY.

CONTAINING

Accurate Descriptions, and faithful Histories,

OF

ANIMALS, VEGETABLES, and MINERALS.

Together with

Their Properties, and various Uses in MEDICINE,
MECHANICS, MANUFACTURES, &c.

Illustrated

With a great Variety of COPPER PLATES, accurately
drawn from Nature, and beautifully engraved.

By the Rev. SAMUEL WARD,
Vicar of Cotterstock, cum Glapthorne, Northamp-
tonshire; and others.

*The great Creator did not bestow so much Curiosity and
Workmanship upon his Creatures to be looked upon with a
careless incurious Eye.*

Derham's Phys. Theol. Book xi.

LONDON:

Printed for F. NEWBERRY, the Corner of St. Paul's
Church-yard, Ludgate-street. 1775.

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P R E F A C E.

NATURAL history has always afforded ample employment for the industrious, and amusement for the idle. It is a study both agreeable and useful: it entertains while it instructs, and blends the most pleasing ideas with the most valuable discoveries. It includes every object which the whole universe presents to our observation; and its amazing variety fills the soul with astonishment and delight.

It is very natural to imagine that there is a kind of order and uniformity extended through the whole system of things; and, indeed, upon a transient view of the works of nature, she seems to have acted upon a certain plan: we form a thousand false resemblances in her productions; we

even compare plants with animals, and animals with minerals : yet, upon a more attentive inspection, we perceive their mechanism is different, and their organization so various, that these resemblances subsist much less in nature, than in the imagination of hypothetical writers.

But the infinite variety of the productions of nature, creates only a small part of our astonishment ; her art, her mechanism, her several resources, nay even her irregularities, cause our admiration. Too weak for such immensity of thought, the human mind sinks, overwhelmed, beneath this weight of wonders. The great Creator's hand seems to have formed not one determined number, one settled chain of species, but with diffusive power to have spread abroad at once a world of beings, some relative, others dissimilar : an infinity of combinations, harmonic and contradictory, and a perpetual alternative of destruction and renovation.

What

What an awful sense of the adoration due to the great Creator; what an immense idea of his power, must this prospect of the universe inspire!

Nor is the study of nature barren and unentertaining. Discoveries of the utmost utility are the constant result of a diligent enquiry; the assiduous and attentive examiner never labours in vain in these researches. But, notwithstanding all these advantages, natural history is too much neglected. The treatises already extant upon this subject are, indeed, no little discouragement. The works of those who have hitherto written on Natural History, are either too voluminous to be read, or too expensive to be purchased by the generality of readers.

We were, therefore, persuaded that a System of Natural History, if properly executed, enriched with all the modern discoveries, and sold at a moderate price, would meet with encouragement; especially if the uses

of the various products of nature in medicine, mechanics, manufactures, dying, painting, &c. were added to their history; as these particulars, though of the greatest utility, have hitherto been either totally neglected, or very superficially considered.

“The great Creator,” says Dr. Derham, in his *Phys. Theol.* book xi. “did not bestow so much curiosity and workmanship upon his creatures, to be looked upon with a careless incurious eye, especially to have them slighted or contemned; but to be admired by the rational part of the world, to magnify his own power to all the world, and the ages thereof; and since the works of the creation are all of them so many demonstrations of the infinite wisdom and power of God, they may serve us as so many arguments, exciting us to a constant fear of the Deity, and a steady and hearty obedience to all his laws.”

Besides exalting our veneration towards the Almighty, the various benefits

nefits resulting to human society from this sublime science, merit our most serious consideration.

Great improvements have been lately made in the science of Natural History; our illustrious countryman, Mr. Ray, published his Synopsis at a period when the study of Natural History was but beginning to dawn in these kingdoms, and when our contracted commerce could not furnish him with the lights we now enjoy. He could only give descriptions of the few animals brought over here, and collect the rest of his materials from other writers. Under his hand the indigested matter of Aldrovandus and Gesner assumed a new form, and the whole became clear and perspicuous.

Linnæus published his first system in 1735, which was followed by several others, varying constantly in the arrangement of the animal kingdom, even to the last edition of 1766. The variations in his different systems have,

have, probably, arisen from the new and continual discoveries that are made in this science, or perhaps from a diffidence in the abilities he had exerted in his prior performances.

In 1751, Mr. Klein published a Systematic Description of Quadrupeds, in the first order of which he follows the general arrangement of Mr. Ray, but judiciously separates certain animals which Mr. Ray had consolidated. He is not equally happy in his second order, for, as Mr. Pennant justly observes, “by a servile regard to a method taken from the number of toes, he has jumbled together most opposite animals; the camel and the sloth, the mole and the bat, the glutton and apes.”

In 1756, another system was published by Mr. Brisson, in which his animals were arranged by the number or defect of their teeth. It unavoidably happens that, by this method, some quadrupeds, differing widely from each other in their manners, are

too intimately connected in this system.

Let us now turn our eyes to a genius of another kind, who has paid little attention to method in classing his quadrupeds: I mean M. de Buffon. The warmth of his stile, and the brilliancy of his imagination, are inimitable; he has, in the most entertaining manner, given the completest descriptions of the œconomy of the whole four-footed creation. The misunderstanding between Linnæus and M. de Buffon, which has long subsisted, is most injurious to science. The French naturalist never mentions the Swede but with contempt; and Linnæus, in return, never deigns to quote the Frenchman, fearing he should, by that means, confer on him too much honour.

About the year 1760, Dr. Brookes made his appearance as a systematic writer on Natural History, who has entirely adopted the method of Mr. Ray, in the history of quadrupeds,
birds,

x P R E F A C E.

birds, and fishes. We cannot, therefore, entirely approve of his method of arrangement, and still less can we coincide with him in opinion, that copper-plates, *well executed*, are not required in a System of Natural History.

These are his words: "Copper-plates, moderately well *done*, answer the learner's purpose every *whit* as well as those which cannot be purchased but at vast expence; they serve to guide us to the archetypes in nature, and this is *all* that the finest picture should be *permitted to do*; for nature herself ought always to be examined by the learner before he has *done*."

It may be necessary to observe, that it is our intention to pursue a very different plan: though Dr. Brookes chose to have his copper-plates "moderately well *done*," we are determined that our's shall be elegantly and accurately engraved: we shall be
parti-

particularly careful not to copy either the doctor's style, or his animals.

The ingenious Mr. Pennant favoured the world with his Synopsis of Quadrupeds, in 1771. He copies Mr. Ray, in his greater division of animals into hoofed and digitated; but, like Mr. Klein, forms separate genera of the rhinoceros, hippopotame, tapir, and musk. The camel is placed in the first order after the musk. He places the apes as Mr. Ray has done, which are followed by the maucaucos. The carnivorous animals deviate but little from Mr. Ray's system, and are arranged according to that of Linnæus, after omitting the seal, mole, shrew, and hedge-hog.

Mr. Pennant continues the herbivorous or frugivorous quadrupeds in the same station that Mr. Ray assigned them; in which class he also comprehends the shrew, the mole, and the hedge-hog. With respect to the number of its cutting teeth, the mole

is an exception to the character of this order; but its manner of living, places it more naturally than with the feræ, as Linnæus has done. The fourth section of digitated quadrupeds consists of those which are absolutely destitute of cutting teeth, such as the sloth and armadillo. The fifth section is formed of those which are entirely destitute of teeth. The third and fourth orders, or divisions, are the pinnated or winged quadrupeds: the bats are winged quadrupeds, and form the next gradation from this to the class of birds.

Doctor Goldsmith's History of the Earth and animated Nature, was ushered into the world in 1774: the doctor says his natural history is written with only such an attention to system as serves to remove the reader's embarrassments, and allure him to proceed. "My aim, continues he, has been to carry on just as much method as was sufficient to shorten my descriptions by generalizing them."

It is evident, indeed, that the doctor has endeavoured to be rather entertaining than systematic.

The number of beings endued with life, seems, at a cursory view, to be infinite; the forest, the waters, the air, teem with animals of various kinds; almost every vegetable, and every leaf, has millions of minute inhabitants, each of which is destined to perform his allotted task; and some are objects of the greatest curiosity. But the active and inquisitive mind is not intimidated with the immense variety; it engages in the task of numbering, grouping, and classing all the various kinds that fall within its notice, continually discovers new relations between the several parts of the creation, acquires a method of considering several at a time under one point of view; and, at length, perceives that the variety is neither so great nor so inscrutable as was at first imagined.

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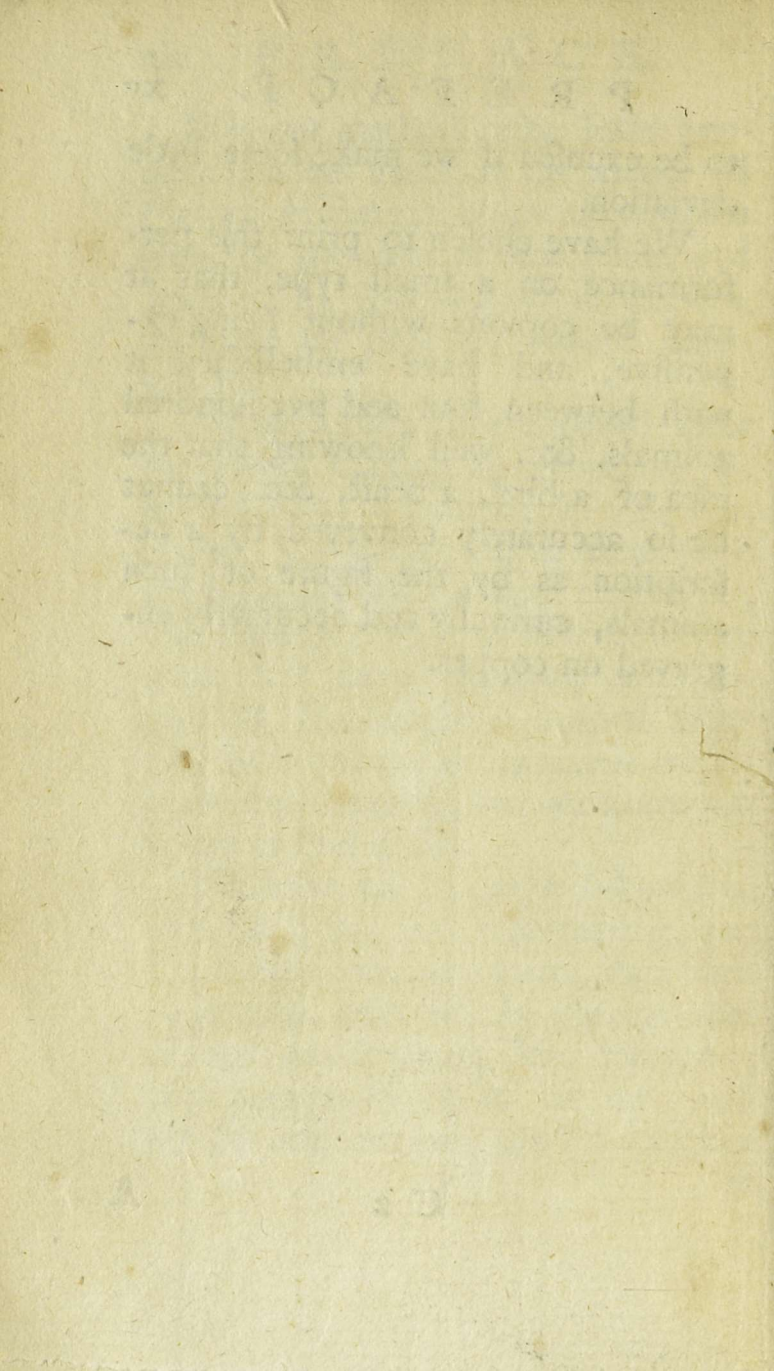
Without method very little progress can be made in the science of Natural History; it is that alone which fixes the attention to one point, and leads it, by slow and certain degrees, to leave no part of nature unexplored.

All naturalists have adopted some method of classing or grouping the several parts of nature; Mr. Buffon, indeed, has pretended to treat these methodical divisions with contempt; but without the aid of system, nature must still have remained undistinguished, like furniture heaped together in a room; every article we require may be there, but we know not where to find them.

We hope to be more systematic, without being less entertaining than Dr. Goldsmith, and have, therefore, in general, adopted the arrangement of our countryman, Mr. Pennant; as it appears to us to be the most regular and rational, though we hope
to

to be excused if we make some little deviation.

We have chosen to print this performance on a small type, that it may be copious without being expensive, and have embellished it with between four and five hundred animals, &c. well knowing that the idea of a bird, a beast, &c. cannot be so accurately conveyed by a description as by the figure of such animals, curiously and accurately engraved on copper.



A

MODERN SYSTEM

O F

NATURAL HISTORY.

OF QUADRUPEDS IN GENERAL.

IF we take a comparative view of the various animals of the globe, we shall be convinced that, next to man, quadrupeds demand the foremost rank, and consequently ought to be the first objects of our consideration. The similitude between their structure and our own, the instincts which they seem to enjoy in a superior degree to the other classes that inhabit air and water, their constant services, or their unceasing hostilities to men, all render them the most interesting parts of animated nature, and entitle them to claim our first attention.

It is probable that, in the first ages of the world, before these animals were so completely subdued as they are at present, they were nearer upon an equality with us ; and, in some degree, disputed the possession of the earth. Man, when almost a savage himself, was utterly unqualified to civilize a forest. While he continued naked, unsheltered, and unarmed, every wild beast was a formidable rival, and the destruction of such was the first employment of heroes. But when he began to multiply, and arts to accumulate, the most noxious of these rivals he banished from the plains ; he soon established an empire over all the orders of animated nature ; a part was taken under his care and protection, while the rest sought a precarious refuge in the desert.

Quadrupeds, instead of rivals, are now become the assistants of man ; to them he allots laborious employments, and finds them patient, humble, ready to obey, and content with the smallest retribution. But the independent spirit of these animals could not be broken, without long and repeated efforts. Several generations must pass, before the savage freedom of wild animals can be
totally

totally subdued. Dogs and cats, when taken from a state of natural wildness in the forest, still transmit their fierceness to their young: and, though in general concealed, will display itself on several occasions. Thus not only their disposition, but their very forms are altered, by the assiduity and application of man in bringing them up.

Of all the ranks of animated nature, quadrupeds bear the nearest similitude to man. The resemblance will be particularly striking, when they are taught to walk forward in an upright posture, erected on their hinder feet. We then perceive that all their extremities correspond, in a great degree, with ours, and present us with a rude imitation of our own. The resemblance is so very striking in some of the ape kind, that anatomists can scarce discover in what part of the human body man's superiority consists.

Upon comparing their internal structure with our own, the resemblance will appear still stronger: we shall then perceive that they enjoy many advantages in common with us, above the lower tribes of nature. However mortifying the reflection may be, they are,
like

like us, placed above the class of birds, by bringing forth their young alive; like us, they are also placed above the class of fishes, by breathing through the lungs; like us, they are placed above the class of insects, by having red blood circulating through their veins; and, like us, they are different from almost all the other classes of animated nature, being either wholly, or partly covered with hair. How little reason have we, therefore, to be proud of our persons alone, to the perfection of which quadrupeds make such very near approaches!

Quadrupeds are less apt to be changed by the influence of climate or food than the lower ranks of nature; a further argument of their similitude to man. Birds, it is well known, are very apt to alter both in size and colour; fishes alter still more; insects may be taught to change, and adapt themselves to any climate; and, if we descend to plants, which have a kind of animated existence, their kinds may be readily altered, and brought to assume new forms. The figure of animals may be considered as a kind of drapery, which human assiduity may put on or off: in
man

man indeed the drapery is almost invariable ; in quadrupeds it admits of some variation ; and, if we descend to the inferior classes of animal existence, the variety may be made still greater.

Though quadrupeds are in general divided from the various kinds around them, yet some are of so equivocal a nature, that it is difficult to determine whether they deserve to be ranked in the quadruped class, or placed with those below them. The bat, for instance, approaches the aerial tribe, and might by some be ranked among the birds. The porcupine, being covered with quills, has some pretensions to the same class, as it informs us that birds are not the only part of nature that are furnished with such a defence. The armadilla, being covered with a shell, might be referred to the tribe of snails or insects ; the seal and the morse, being furnished with fins, and residing almost constantly in the water, might be ranked among the fishes. All these become less perfect, the farther they recede from the human figure, and may be considered as the lowest kinds of that class to which we have assigned them.

But,

But, although there is such infinite variety in quadrupeds, they all seem well adapted to their respective stations, and probably enjoy a state of happiness adapted to their nature. We may suppose the sloth, that is two months employed in climbing up a single tree, or a mole, who cannot distinctly see on account of the smallness of its eyes, are miserable and helpless creatures; but their life is perhaps a life of luxury; the most pleasing food is easily obtained, and, as they are abridged in one pleasure, in those which remain their enjoyment may be doubled. At worst, the inferior kinds of animals have only the torments of immediate evil to encounter, which is transient and accidental; but man has two sources of calamity, that which he suffers, and that which he foresees or dreads: he would therefore be the most wretched of all beings, if his rewards were to be only in this life.

The heads of quadrupeds, though very different, are generally adapted to their mode of living. It is sharp in some, the better to facilitate the turning up the earth, in which their food lies hid. It is long in others, to afford

a greater room for the olfactory nerves, as in dogs, who find out their prey, and pursue it by the scent. In some, as in the lion, it is short and thick, to give strength to the jaw, and the better to qualify it for combat. Quadrupeds, which feed on grass, are enabled to hold down their heads to the ground, by a strong tendinous ligament, which extends from the head to the middle of the back.

In all animals the teeth are perfectly adapted to the nature of their diet. In those who live upon vegetables, they seem entirely calculated for gathering and bruising their simple food, being edged before, and fitted for cutting; but broad and fitted for pounding towards the end of the jaw. The teeth of carnivorous animals are sharp before, and fitted rather for holding than dividing. They serve as grindstones in the one; in the other, as weapons of defence. In both, however, the surfaces of the grinding teeth are unequal, with cavities and risings which tally with each other when the jaws are brought into contact. These inequalities better serve for grinding and comminuting the food, but they grow smoother

smoother with age : old animals therefore require a longer time to chew their food, than those in the prime and vigour of life.

The legs and feet of quadrupeds are entirely suited to the motion and exercises of each animal. In some they are made for strength only, in order to support a vast unwieldy frame, and are neither flexible nor beautifully formed. The elephant, the rhinoceros, and the sea-horse, have legs resembling pillars : were they smaller they would be unable to support so huge a body ; flexibility and swiftness would be useless to them, as they do not pursue other animals for food ; and, conscious of their superior strength, there are none they endeavour to avoid. Deers, hares, and other animals whose safety depends upon their flight, have slender and nervous legs. Were it not for this advantage, their races would be entirely extinguished, as they would soon become the prey of every carnivorous animal. The means of safety are indeed superior to those of offence, and it is only by patience, perseverance, and industry, that the pursuing animal can succeed. The feet of some, that feed

feed upon fish alone, are fitted for swimming: the toes of these animals are joined together with membranes like those of geese and ducks, by which they swim with great rapidity. Animals that lead a life of hostility, and devour others, have their feet armed with sharp claws, which some of them can sheath and unsheath at pleasure: on the contrary, peaceful animals have generally hoofs, which serve some of them as weapons of defence, and are more convenient to all for traversing extensive tracts of country, than the claw-foot of their hostile pursuers.

The stomach of each animal is in general proportioned to its food, or the ease or difficulty of obtaining it. In those which live upon flesh, and such nourishing substances, it is small and glandular, affording such juices as are best adapted to digest and macerate its contents. On the contrary, such animals as feed entirely upon vegetables have a large stomach; and ruminating animals, or such as chew the cud, have four stomachs; all which serve as so many laboratories to prepare and turn their gross food into proper nutriment. Buffon asserts, however, that in Africa,

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where

where the plants afford greater nourishment than in our temperate climates, several animals which with us have four, are there found to have but two : but, it is certain, that the size of the intestines are proportioned to the nature of the food in all animals ; where that is plentifully furnished, the stomach dilates to answer the encrease. It is large in domestic animals that are abundantly supplied ; but in the wild animals, whose nourishment is precarious, it is more contracted, and the intestines are considerably shorter.

All animals are thus fitted by nature to fill up some peculiar station. The largest live an inoffensive life, and range the forest without injuring others ; and are supported by the productions of the earth : they neither attack nor avoid the rest of the quadrupeds. With their strength, nature has given them gentle and inoffensive dispositions ; or those enormous creatures would be more than a match for all the rest of the creation. Were the elephant as fierce and mischievous as the tiger, what devastation might ensue !

To oppose those larger animals, and, in some degree, to prevent their exuberance,

berance, there is a species of the carnivorous kind inferior in strength, but of greater cunning and activity. The tiger, and the lion, lay in wait for the larger kinds of prey, seize them by surprise, and attack them at a disadvantage. Except the dog alone, none of the carnivorous kinds will make a voluntary attack, unless they have the advantage on their side. Cowards by nature, they usually catch their prey by a sudden leap from some lurking place; for the larger beasts are too powerful, and the smaller too fleet for them.

It is not without reluctance that a lion will attack an horse, and then only the keenest hunger can compel him to it. In Italy the combats between a lion and an horse are frequent: they are both inclosed in a kind of amphitheatre; the lion wheels about as he approaches, while the horse presents his hinder parts to the enemy: the lion continues going round and round, gradually narrowing his circle, till he finds himself at a proper distance to make his spring; and, at the very instant that he springs, the horse lashes with both legs from behind, and the decision is generally in

his favour, for it more frequently happens that the lion is struck motionless by the blow, than that he effects his jump between the horse's shoulders. If the lion is stunned or left sprawling, the horse leaves him, without attempting another stroke; but, if the lion succeeds, he never quits his prey till he tears him in pieces.

But hostilities are not confined to the larger animals of the forest, there is a more treacherous contest between the lower ranks of quadrupeds: the panther hunts for the sheep and the goat, the catamountain for the hare or the rabbit, and the squirrel and the mouse are pursued by the wild cat. The deficiency of strength in each carnivorous animal, is fully atoned for by patience, assiduity, and cunning.

Few wild animals hunt after their prey in the day time. In countries that are inhabited, they are deterred by their fears of man, and in those extensive countries that lie towards the south, in which they reign the undisputed tyrants, they are discouraged by the excessive heat of the sun. The carnivorous animals retire to their dens, as soon as the morning appears; at
which

which time the elephant, the deer, and the other inoffensive animals make their appearance. But when night returns, the state of hostility begins : the whole forest echoes to a variety of different howlings ; the roaring of the lion resembling distant thunder ; the shriller but more hideous yellings of the tiger ; the jackall pursuing by the scent, and barking like a dog ; the hyæna, with a note peculiarly dreadful and solitary ; and the hissing of the various kinds of serpents ; all these sounds together form a concert beyond conception terrible.

Beasts of prey do not often devour each other ; and nothing but the greatest degree of hunger can induce them to it. But, in such extremities, the weakest affords its antagonist a disagreeable repast. The deer or the goat is what they principally seek after, which they either pursue, or surprize. Among the fiercest animals, the most usual method is to hide and crouch near some path frequented by their prey, or some water, where cattle come to drink, and seize them at once with a bound. The lion and the tiger are said to leap twenty feet at a spring ; they depend

30 *Of QUADRUPEDS in general.*

upon this for a supply, more than upon their strength or swiftness.

There is another class of the carnivorous kind that hunts by the scent, from which it is much more difficult to escape. All animals of this kind pursue in a pack, and, by their mutual cries, encourage each other: of this kind are the jackall, the hyaguth, the wolf, and the dog; they pursue with perseverance rather than swiftness. At first their prey often leaves them several miles behind, but they proceed with a constant steady pace, exciting each other by a general spirit of industry and emulation, till at length they share the common plunder. Sometimes indeed it happens, that the larger beasts of prey, upon hearing a cry of this kind begun, pursue the pack, and when they have hunted down the animal, appear and monopolize the spoil. Hence arose the report of the jackall's being the lion's provider, but, in reality, he hunts only for himself, and the lion is an unwelcome intruder upon the fruits of his industry.

But, notwithstanding all the powers which carnivorous animals possess, they generally lead a life of hunger and fatigue.

tigue. Their prey has so many methods of escaping, that they often continue without food for twelve or fourteen days together : but nature has given them patience equal to their condition ; and although their subsistence is precarious, their appetites are complying. They usually roar when they seize their prey, perhaps to terrify it from resistance, or to express their joy at the acquisition. In general, they ravenously devour their prey, bones and all, and immediately retire to their dens, where they remain inactive till the calls of hunger again excite their courage and industry.

Some of their prey find protection in holes, in which nature has directed them to bury themselves ; some owe their safety to their swiftness ; and those who possess neither of these advantages generally herd together, and endeavour to repel invasion by united force. The very sheep which to us seems the most defenceless animals of all, are not so in a state of nature ; they have a great degree of swiftness, and are furnished with arms to defend themselves ; they have a spirit of mutual defence : the females fall into the center, and the males forming

ing a ring round them, oppose their horns to the assailants. Some animals, that feed upon fruits, which are to be obtained only at one time of the year, fill their holes with variety of plants, and lie concealed during the hard frosts of the winter, contented with their prison, which affords them plenty and protection. These holes are so artfully constructed, that there seems the design of an architect in the formation. In general, there are two apertures, by one of which the little inhabitant can always escape, when any enemy is in possession of the other. Such are the contrivances of the badger, the hedgehog, and the mole. Many creatures avoid their enemies, by placing a centinel to warn them of the approach of danger: this duty they generally perform by turns, and they have modes of punishment for such as have neglected their post, or been unmindful of the common safety.

These are some of the efforts, exerted by the weaker races of quadrupeds, to avoid their invaders; and they are generally attended with success. These are the efforts of instinct for safety, which are in general sufficient to repel
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the hostilities of instinct only. Man is the only creature against whom all their little tricks can scarce prevail. Wherever he has extended his dominion, scarce any flight can save, or any retreat protect; terror seems to follow him, and all society ceases among the inferior tenants of the plain; their union against him can afford them no protection, and all their cunning is but weakness. Such as he has chosen to protect, have calmly submitted to his protection; such as he has thought proper to destroy, engage in an unequal war, and their numbers are decreasing daily.

The wild animal, until he comes under the dominion of man, is subject to few alterations; in a savage state, he continues for ages the same, in size, shape, and colour; but its external and even its internal form, are altered by human assiduity: this is one of the principal causes of the great variety among the several quadrupeds of the same species. By cultivation and care, man appears to have changed the very nature of domestic animals; they seem to have few other desires but such as man is willing to allow them. Hum-
ble,

ble, patient, resigned, and attentive, they fill up the duties of their station; ready for labour, and satisfied with subsistence.

Most domestic animals appear to bear the marks of servitude strong upon them: the varieties in their colour, the length and fineness of their hair, together with the depending length of their ears, seem principally to have arisen from a long continuance of domestic slavery. What infinite variety in the ordinary race of dogs and horses! the chief differences of which have been effected by the industry of man, who has so adapted the food, the treatment, the labour, and the climate, that the original design of nature is hardly to be traced; and the tame animal no longer resembles his ancestors of the woods.

The savage animals preserve the marks of their original formation; their colours are generally the same; a rough dusky brown, or a tawny, being almost their only varieties. But in the tame animals it is otherwise; their colours are various, and their forms are different. The nature of the climate, which indeed operates on all, has

has a particular effect on these. The nourishment furnished by the hand of man, is not chosen to their appetites, but to suit his own convenience ; the climate, the rigours of which he can soften, and the various employments to which they are assigned, produce innumerable distinctions that are not to be found among the savage animals. Although, at first, these were accidental, they, in time, became hereditary ; and a new race of artificial monsters are propagated, principally to answer the purposes of human pleasure. Their very appetites may indeed be changed ; and those animals which naturally feed on grass, may be rendered carnivorous. “ I have seen,” says Dr. Goldsmith, “ a * sheep that would eat flesh, and an horse that was fond of oysters.”

It is evident that even their dispositions and their natural sagacity, are altered by the vicinity of man. In countries uninhabited by man, and where they have seldom intruded, some animals have been found established in a kind of civil state of society. Re-

* Vol. II. pag 327.

mote from the tyranny of man, they seem no strangers to mutual friendship and mutual benevolence. In these distant solitudes, the beavers build like architects, and rule like citizens: the habitations which they erect, exceed the buildings of the human inhabitants of the same country, both in neatness and convenience. But when man intrudes upon their society, they are impressed with the terrors of their inferior situation, their bond of society is dissolved, and every animal seeks for safety in solitude, where it exerts its little industry to provide only for itself.

The climate also appears to have considerable effects upon the nature and form of quadrupeds. As in man, so in the lower ranks, that are more subject to variation, the influence of climate is more immediately discovered. These being more nearly attached to the earth, and in some degree connected with the soil, they are unable to shield themselves from the inclemency of the weather, or to soften the rigours of the sun; and consequently undergo the greater change by its variations. It is a general remark, that the colder the country, the larger and the warmer

warmer is the fur of the animals; nature having wisely ordained that the inhabitant should be adapted to its situation. In temperate climates, the fox and wolf have short hair; but in the frozen regions near the pole, they have a fine long fur: and those dogs, which with us have long hair, when carried to Guinea, or Angola, will presently cast their covering, and assume a lighter dress, which is better adapted to the warmth of the climate.

The beaver, and the ermine, which are plenty in the colder regions, are remarkable for the warmth and delicacy of their furs; while the elephant and the rhinoceros, that are natives of the line, are almost destitute of hair. Human industry can, in some degree, repress the effects of climate in this particular. We all know what alterations proper care can produce in the sheep's fleece in different parts of our own country; and the same industry is, with equal success, pursued in Syria, where many animals are cloathed with a long and beautiful hair, which they improve, as they work it into a camblet, a stuff well known in many parts of Europe.

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The climate seems to mark the disposition of the animal, as much as the figure. What has rendered the human inhabitants of the rigorous climates savage and ignorant, has also operated upon their animals. The wild quadrupeds are fierce and untameable both at the line and the pole. Here their savage dispositions have not been quelled by any efforts from man; and, being still further stimulated by the severity of the weather, they continue savage and untractable. The attempts hitherto made to tame the wild beasts brought from the pole or the equator, have been in general ineffectual: while young, they are gentle and inoffensive; but their natural ferocity encreases with their bulk, and they snap at the hand that feeds them.

In all countries where the men are most barbarous, the animals are more cruel and fierce. Africa has ever been remarked for the barbarity of its men, and the ferocity of its beasts: its crocodiles and its serpents are as much to be dreaded as its lions and its leopards; their dispositions seem entirely marked with the climate, and, bred in an extreme of heat, they shew a peculiar
ferocity

ferocity, invincible to the force or cunning of mankind. Fortunately, however, for the wretched inhabitants of those climates, its most formidable animals are all solitary ones ; they are ignorant of the art of uniting to oppress mankind.

The quantity of food in any country, or its nutriment adapted to each peculiar species, serves also to make a variety in the size of the respective animal. The beasts which feed in the valley are generally larger than those which glean a scanty subsistence on the mountain. In warm climates, where the plants are larger and more succulent than with us, the animals are equally remarkable for their bulk. The ox which receives his nourishment in the plains of Indostan, is much larger than that which is sparingly maintained on the side of the Alps.

The largest and fiercest animals are found in the deserts of Africa, where the plants are extremely nourishing ; and, perhaps for a contrary reason, America does not produce such large animals as are found in the antient continent. It is however certain, whatever be the reason, that although Ame-

rica exceeds us in the size of all kinds of reptiles, it is far inferior in its quadruped productions. The largest animal of that country for instance, is the tapiir, which cannot be compared to the elephant of Africa. Its beasts of prey also have less strength and ferocity than those in this part of the world. The lion, tiger, and leopard of America are neither so fierce nor so valiant as those of Africa and Asia. The tiger of Bengal has been known to measure four yards in length, without including the tail; but the American tiger, if it deserves that name, seldom exceeds three feet. Mr. Buffon is of opinion that all quadrupeds in Southern America are of a different species from those which resemble them in the ancient continent; and there does not appear to be any common to both, but such as have entered America by the north; which being able to endure the rigours of the frozen pole, have travelled from the old world into the new. The bear, the wolf, the elk, the stag, the fox, and the beaver, are as well known to the inhabitants of North America as to those of Russia; while those animals that

that are natives of the south, do not in the least resemble them.

Upon the whole, it appears, that such animals as peculiarly belong to America are destitute of the marks of the quadruped perfection : they are, in general, almost defenceless ; neither their teeth, horns, or tails are formidable ; their figure is awkward, and their limbs want proportion. Some among them, particularly the ant, the bear, and the sloth, appear so wretchedly formed as hardly to be able to move or eat. They suffer a languid existence in the most desert solitude ; and, in a country where there were inhabitants or powerful beasts to oppose them, would quickly be destroyed.

But, although the quadrupeds of America be smaller, they are much more numerous ; for it is a rule that obtains through nature, that the smallest animals multiply the most. The goat, imported from Europe to South-America, becomes much smaller in a few generations ; but, as it degenerates, grows more prolific ; and, instead of one or two at a time, it generally produces five kids, and frequently more. Whether this change is pro-

duced by the food or the climate, we are not able to determine; we might be induced to ascribe it to the heat, were it not, that, on the African coast, where it is still hotter, this rule does not obtain; for in that region, instead of degenerating, the goat seems to improve.

It is however a general rule among quadrupeds, that those which are large and formidable produce but few at a time, while such as are small and contemptible are extremely prolific. The lion or tiger seldom have more than two cubs at a litter, while the cat, which is of a similar nature, has often five or six. Thus the lower tribes become extremely numerous; and, from their natural weakness, were it not for this surprizing fecundity, they would soon be extirpated: were the mouse as slow in production as the elephant, their breed would long since have been extinct. But nature has wisely ordered that animals which are incapable of making much resistance, should have a means of repairing the destruction which they must often suffer, by their quick reproduction.

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The wisdom of Providence is equally displayed in the larger animals : they produce but slowly, for, as they require support from nature in proportion to their bulk, they would soon consume their own stores if they were more prolific ; and consequently many of them would perish for want of food, and life would be given without the necessary means of subsistence. Besides, had the elephant, the rhinoceros, and the lion, the same degree of fecundity with the rabbit, all the arts of man would soon be unequal to the contest, and they would shortly become the tyrants of those who affect to call themselves the masters of the creation.

Providence has therefore wisely balanced the strength of the great against the fecundity of the little ; and has also provided that the larger animals, which produce but few at a time, seldom begin to generate till they have nearly acquired their full growth, while those which bring forth many, engender before they have arrived at half their natural size. The bull and the horse, for example, are almost full grown before they begin to breed ; but the hog and the rabbit become parents almost
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as soon as they have quitted the teat. In proportion to their size also, most animals continue the time of their pregnancy. The mare continues eleven months with foal, the cow nine, the wolf five, and the bitch nine weeks. The intermediate litters are generally the most fruitful in all; the first and the last producing usually the worst of the kind, and the fewest in number.

Animals of all kinds, whatever their natural disposition may be at other times, acquire new courage and fierceness in defence of their young. No dangers or terrors can drive them from the post of duty; even the mildest begin to exert their little force, and threaten the invader. Where there are no hopes from resistance, they incur every danger, in order to rescue their young by flight, and retard their own expedition by providing for their little ones. Such as have force and subsist by rapine are at such times terrible indeed! No obstacles can stop their ravage, no threats can terrify them. The lioness then appears more daring than even the lion himself: men and beasts she indiscriminately attacks, and carries all she can subdue reaking to her cubs,

cubs, whom she thus early enures to slaughter.

Of all quadrupeds, milk is the first aliment, which is at once a liquor both nourishing and easily digested : in carnivorous animals it is much more sparing than in others ; it is probably for this reason that all such carry home their prey alive, that, in feeding their young, its blood may supply the deficiencies of nature.

Nature, that has furnished them with courage to protect their young, has given them instinct to choose the proper times of copulation, so as to bring forth when the provision, suitable to the age and appetite of each peculiar kind, is to be found in the greatest plenty ; and they in general couple at such times, as that the female shall produce in the mildest seasons, such as the latter end of spring, or the beginning of autumn : the wolf for instance, couples in December, that it may bring forth its young in April, the time of pregnancy being five months. The mare, which goes eleven months, admits the horse in summer, that she may foal about the beginning of May. But those animals, which treasure up provisions

sions for the winter, as the beaver and marmotte, couple towards the latter end of autumn, in order to bring forth about January; for which severe season they have provided the necessary supplies. Among some of the domestic kinds, however, the seasons for coupling are generally in consequence of the quantity of provisions with which they are at any time supplied. We may therefore make these animals breed whenever we please, by feeding and keeping from them the rigour of the climate. By this contrivance, lambs are produced all the year round.

The choice of situation in bringing forth is also worthy of admiration. Among the most rapacious kinds, the female takes the utmost precautions to conceal from the male the place of her retreat, which, when pressed with hunger, would otherwise devour her cubs. She therefore seldom strays far from the den, and never returns while the male appears in view. Animals of tender constitutions are particularly careful to provide a place of warmth as well as safety for their young; the rapacious kinds bring forth in the thickest woods; the ruminant, with the various tribes

tribes of the vermin kind, make choice of some hiding place in the neighbourhood of man ; some choose the hollow of a tree ; others dig holes in the ground ; and all the amphibious kinds rear their young near the water, and accustom them early to either element.

There is, however, one class of quadrupeds that seems left entirely to chance ; they have no parent or instructor, to protect or teach them the arts of subsistence : these are the quadrupeds of the oviparous kinds, or such as are produced from the egg, as the lizard, the tortoise, and the crocodile. Of all animals, these are the most prolific ; they often bring forth above two hundred at a time ; but, as the offspring is more numerous, the parental care is less exerted. The brood of eggs are, without further solicitude, buried in the sands of the shore, and left to be perfected by the warmth of the sun ; and they arrive at this perfection almost as soon as they are disengaged from the shell ; and it is indeed a general observation, that the more imperfect an animal is, the sooner it arrives to its greatest state of perfection. Most of them, without any
guide,

8 *Of QUADRUPEDS in general.*

guide, immediately move towards the water ; but, in their passage thither, they have innumerable enemies to fear. Birds of prey that haunt the shore, beasts, and even the parent animals, by a strange rapacity, are said to reduce their numbers.

Providence has thus kindly ordered it, that the most noxious animals shall have many destroyers ; were it otherwise, by their extreme fecundity, they would soon over-run the earth, and the most inoffensive part of animated nature would have but a short existence, full of sufferings and persecutions.

It is not to be doubted, that the Egyptians have honoured animals with a public worship, authorized by the laws of the country ; their temples were filled with figures of almost all the animals which Egypt produced : these animals were fed and lodged with particular care ; they were embalmed after their death, and magnificently interred in the catacombs that were provided for them ; it was even customary to bring dead animals from foreign countries, to procure them in Egypt an honourable sepulture : at length, whoever had killed any one of the consecrated animals,

mals, was punished with death. But was this worship a worship of God? No; it was only a relative worship. The animals were nothing but symbols representing the divinity; and this worship was first founded on that formerly paid to the stars, to which were given names of animals; secondly, on a tradition of the Egyptians, namely, that the gods, when they were pursued by Typhon, had concealed themselves under the figures of various animals: thirdly, on the doctrine of the metempsychosis, according to which there is a continual circulation of souls into different bodies of men or animals; and, lastly, on the benefit received by the Egyptians from certain animals. Thus they paid divine honours to the ibis, because it destroyed winged serpents; to the ichneumon, because it prevented too great an increase of crocodiles, by breaking their eggs; and in like manner to the rest.

It is necessary to observe, that every deity had his favourite animal, which was dedicated to him: thus the lion was dedicated to Vulcan; the wolf and sparrow-hawk to Apollo; because they have a sharp and penetrating sight;
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the raven, crow, and swan, to the same deity, because they are said to have a natural instinct to foretell future events; the cock to the same, because by its crowing it announces the sun-rise; and also to Mercury, as the symbol of the vigilance which the multitude of his employments required; the dog to the lares, or household gods; the bull to Neptune, on account of the roaring of the waves, which is denoted by that animal; the dragon to Bacchus and Minerva; the griffin to Apollo; the serpent to Æsculapius; the stag to Hercules; the lamb to Juno; the horse to Mars; the heifer to Isis; the eagle to Jupiter; the peacock to Juno; the owl to Minerva; the vulture to Mars; the dove and the sparrow to Venus; the halcyons to Thetis; the phoenix to the sun, &c.

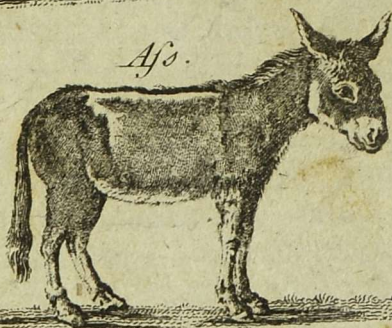
THE HORSE.

OF all the quadruped animals, the horse seems the most beautiful; he is also the most generous and useful of quadrupeds; docile, spirited, and yet obedient; adapted to all purposes,

Horse.

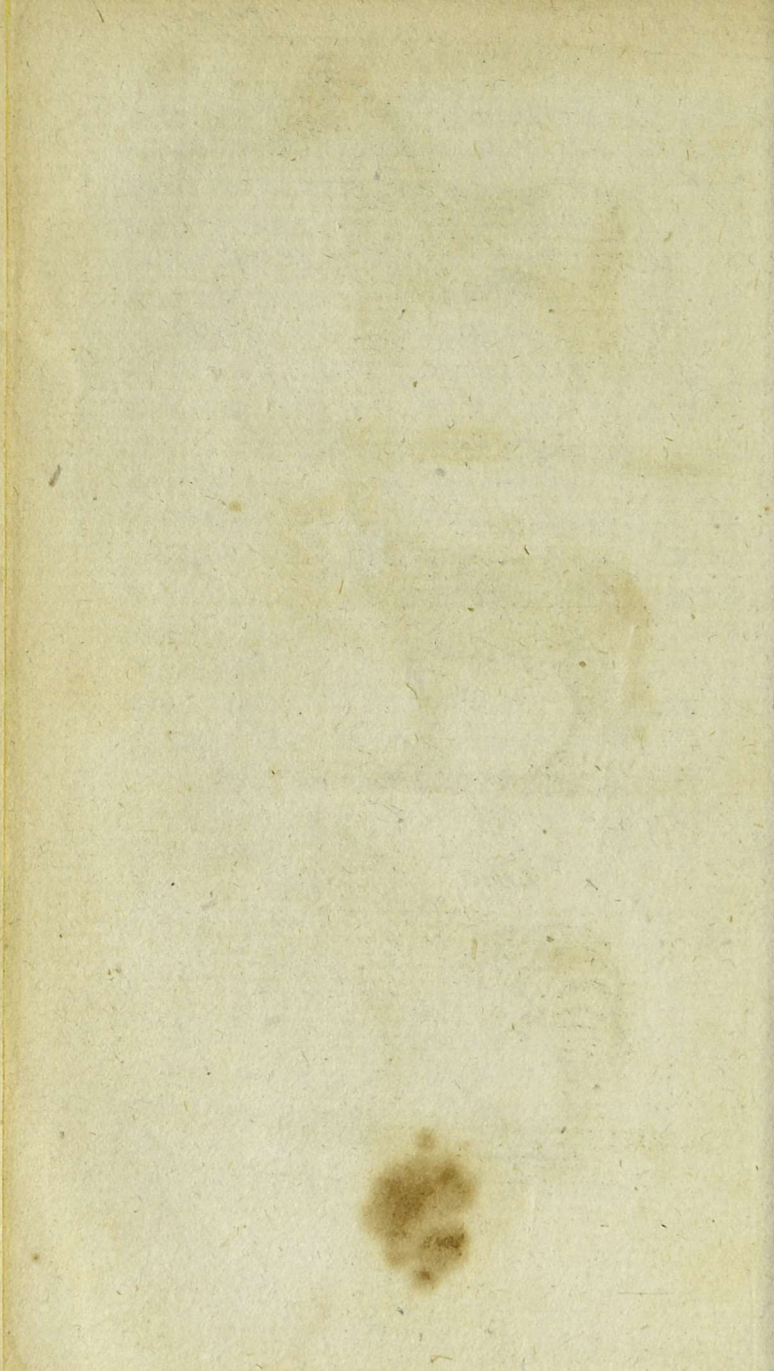


Ass.



Zebra.





poses, the chase, the draught, and the race. This animal is produced in most parts of the world. To have an idea of this noble animal in his native simplicity, we must not look for him in the pastures or the stables, but in those wild and extensive plains where he has been originally produced, where he ranges without controul. In this happy state of independence, and, rioting in all the variety of luxurious nature, he disdains the assistance of man, which only tends to servitude. In those boundless tracts whether of Africa or New Spain, he is not incommoded with the inconveniencies to which he is subject in Europe. His wants are supplied with the continual verdure of the field, and the climate, which is a stranger to winter, suits his constitution, naturally adapted to heat. His enemies are few, for none but the larger kinds of animals will venture to attack him; any one of which he is singly able to overcome; but he secures his safety in society; for in those countries the wild horses always herd together, and are often seen feeding in assemblies of five or six hundred.

As they are harmless animals, they are satisfied to remain entirely upon the defensive. The pastures abundantly supply them with food, and all other precautions are purely for their security in case of a surprize. Whenever they sleep in the forests, one among their number performs the office of centinel, to give notice of any approaching danger; and this office they execute by turns. If, while they are feeding by day, a man approaches them, their centinel boldly walks towards him, as if he meant to examine his strength, or to intimidate him from proceeding. If the man advances within pistol-shot, the centinel alarms his fellows by a loud kind of snorting, upon which they all take the signal, and fly off with the rapidity of the wind; their faithful centinel always bringing up the rear*.

Although the horse is found in almost all countries, it is evident that the colder climates do not agree with his constitution; his form is altered there, and he is found not only diminutive, but ill-shaped. We have the testimony of the ancients that there were wild horses

* Labat. tom. vii.

once in Europe ; at present, however, they are totally brought under subjection ; and even those in America are of a Spanish breed ; which were sent thither upon its first discovery, and, becoming wild, have spread over all the south of that vast continent, almost to the streights of Magellan. These are, in general, a small breed, of about fourteen hands high, and indifferently shaped : they are easily tamed, the horse being naturally a gentle complying creature, and resists rather from fear than obstinacy. If they happen to be set at liberty they never become wild again, but know their masters, and obey their call.

American horses, however, cannot properly be ranked among the wild races, being originally bred from such as were tame. We must look into the old world for this animal, if we would see him in a true state of nature ; in the extensive deserts of Africa, in Arabia, and those vast countries that separate Tartary from the more southern nations. Large assemblies of these animals are seen wild among the Tartars : they are small and extremely swift. To the north of China, there are also

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great numbers of wild horses, but they are small, and of a weak and timid breed.

There are also considerable numbers of horses in a state of nature, at the Cape of Good Hope, but they are small, vicious, and untameable. In several parts of Africa they are likewise found; but the wretched inhabitants are either ignorant of their uses, or know not how to tame them. They seem to consider the horse rather in the light of a dainty for food, than a useful creature, capable of assisting them either in war or labour; and whenever the natives of Angola or Caffraria catch an horse, they butcher him for food.

But, of all the wild horses, Arabia produces the most beautiful breed; the most generous, swift, and persevering: but, though they are beautiful and active, they are smaller than those that are bred up tame; their colour is brown, their mane and tail very short, and the hair black and tufted. Their swiftness is incredible, and the only method of taking them is by traps concealed in the sand, which, entangling their feet, the hunter approaches them, and either kills or carries them home alive. If
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the horse be young, the Arabians feast upon him, and consider him as the greatest delicacy : but if, from his shape and vigour, they are of opinion he will be serviceable in his more noble capacity, they tame him by fatigue and hunger, and he soon becomes an useful domestic animal.

At present, however, the horses thus caught are but very few ; the value of Arabian horses, in every part of the world, has thinned the deserts of the wild breed ; and there are very few to be found in those countries, except such as are tame. Historians inform us, that the Arabians first began the management of horses in the time of Sheque Ismael. Before that period they wandered wild along the face of the country, useless and neglected ; the natives then first began to tame their fierceness, and to improve their beauty : they now possess a race of the most beautiful horses in the whole world, with which they drive a considerable trade, and furnish the stables of princes at immoderate prices.

Almost the poorest among the Arabians is provided with his horse ; in their ordinary excursions they generally
make

make use of mares; experience having taught them that they endure hunger, thirst, and fatigue better than the horses: they are also less vicious, of a gentler nature, and more harmless among themselves; not being so apt to kick or hurt each other.

The Arabians, having no other house but a tent to live in, that also serves them for a stable; so that the husband, the wife, the children, the mare, and the foal lie indiscriminately together: the little children are frequently seen upon the body or the neck of the mare, while it continues harmless and inoffensive, permitting them to play with it without injury. The Arabians never beat their horses; they treat them gently, and consider them as friends. The Arabian horses are of a middle size, easy in their motions, and rather inclined to lean than fat. Every morning and evening they are dressed with the greatest care, and they have nothing to eat during the whole day; they are permitted to drink once or twice; and at sun-set a bag is hung to their heads, containing about half a bushel of clean barley. They continue eating the whole night, and the
bag

bag is taken away in the morning. In the beginning of March, when the grass is pretty high, they are turned out to pasture ; from whence they are taken when the spring is past, and they eat neither grass nor hay during the rest of the year ; barley is their only food, except now and then a little straw.

Sensible of the great advantage their horses are to the country, the Arabians have made a law, prohibiting the exportation of the mares, and those stallions that are brought into England, are generally purchased on the eastern shores of Africa, and come round to us by the Cape of Good Hope. They are in general about fourteen hands, or fourteen hands and an half high ; their motions are more graceful, and they are swifter than our own horses ; but their speed is irregular, and they cannot endure so much fatigue : they are nevertheless considered as the first and finest breed in the world ; and that from which all others have derived their principal qualifications. It is probable that Arabia is the original country of horses ; for there, instead of crossing the breed, they are careful to preserve it entire. In other countries

tries they continually change their races, or their horses would soon degenerate; but, in Arabia, the same blood has passed down through a long succession, without any diminution either of strength or beauty.

This race of horses has spread itself into Barbary, among the Moors, and has even extended itself across that vast continent to the western shores of Africa. The Arabian breed has also been diffused into Egypt, and even into Persia; where, as we are told by Marcus Paulus, there are studs of ten thousand white mares all together, which are very fleet, and their hoofs are so hard that shoeing is unnecessary. In these countries, the horses generally receive the same treatment as in Arabia, except that they are littered upon a bag of their own dung, dried in the sun, and then reduced to powder.

In Numidia, however, the race of horses is much degenerated; the Turks having discouraged the natives from keeping their breed up, by seizing upon all the good horses, without bestowing on the owners the smallest gratuity.

The Spanish genetie is, in general, ranked next to the barb. These horses are small, but extremely swift and beautiful. Their most usual colour is black, or a dark bay. They are all branded on the buttock with the name of the owner; and those of the province of Andalusia are esteemed the best. They are said to have courage, obedience, grace, and spirit, in a greater degree than even the barb; and have therefore been preferred as war horses to those of any other country.

The Italian horses are not so beautiful now as they were formerly, for the Italians have greatly neglected the breed: but there are still some beautiful horses, particularly among the Neapolitans, who use them principally for draught. In general they have large heads, and thick necks, are restive, and consequently ungovernable. They are, however, large, spirited, and have a graceful easy motion. They are very fond of prancing; and are excellent for shew.

The Danish horses are of a large strong make, and are preferred to all others for draught. Some of them are well shaped, but in general they have

have a thick neck, heavy shoulders, a long hollow back, and a narrow croup; however they all move well, and are excellent both for war and parade. They are of all kinds of colours, and often very whimsical ones, some of them being mottled like the leopard, or streaked like the tiger.

The German horses, although originally from Arabian and Barbary stocks, appear to be small and ill shaped; they are also said to be weak and washy, and to have very tender feet. The Hungarian horses are excellent both for the draught and saddle. The hussars, who use them in war, usually slit their noses; for what purpose we know not, although some assert it is to prevent their neighing.

The Dutch breed is good for the draught, and is used all over Europe for that purpose: the province of Friesland produces the best. They are much superior to Flanders horses, the latter having generally large heads, flat feet, and swollen legs.

The French have various kinds of horses, but very few that are good. Their best horses come from Limosin; they have a strong resemblance to the
barb;

barb; and, like them, are excellent for the chace, but they are a long time in arriving to perfection: whilst they are young, they must be conducted with great care, and they are not backed until they are eight years old. Normandy furnishes good horses, but they are better for war than for the chace. French horses are usually heavy shouldered, which is opposite to the fault of the barb, which is thin in the shoulder, and consequently apt to be shoulder-slipt.

It is said there are very good horses in the islands of the Archipelago. Those of Crete were greatly esteemed among the ancients, for their strength and swiftness; at present, however, they are but little used even there, the country being uneven, rocky, and mountainous. The original horses of Morocco are much smaller than the Arabian breed, but they are very fleet and vigorous. Horses of almost every race may be found in Turkey; Arabians, Tartars, Hungarians, and those natural to the place. The latter are extremely beautiful and elegant; they have a great deal of fire and swiftness, and yet are very obedient; but

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they cannot support fatigue. The Persian horses are, in general the most beautiful and most valuable of any in the East. Great numbers of them are annually transported into Turkey, but chiefly into the East-Indies; but travellers all agree that they are not to be compared to the Arabian horses, either for courage, strength or beauty.

The horses of India are of a very indifferent kind. Those used by the grandees up the country come from Arabia and Persia; they are fed sparingly with hay in the day time, and at night with boiled peas, mixed with sugar and butter: this nourishment strengthens and supports them; otherwise they would soon degenerate, the heat of the climate being against them. Those which naturally belong to the country, are very small and vicious. Taverner informs us they are so very little, that the young-mogul prince, when he was but seven years of age, rode one of those little horses, that scarce exceeded a greyhound in size; and one of these was very lately brought over into this country, as a present to our queen, that is not above nine hands high, and very little larger than a com-

mon mastiff. The horses of the Gold-Coast, and of Guinea, are very small, but extremely docile.

The horses of China are not superior to those of India : they are small, weak, ill-shaped, and timid. Those of Corea are not above three feet high ; and so timorous that they cannot be rendered serviceable in war ; it may, therefore, with propriety, be said, that the Tartar horses were, in reality, the conquerors of China. There are indeed extremely serviceable in war ; and although they are but of a middle size, they are surprizingly patient, vigorous, bold, and swift. The Tartars and their horses live together almost in the same manner as the Arabians do ; they begin to back them when they are but seven or eight months old, placing their children upon them, who manage them even at that early age. Thus they break them, by degrees, till at last, when they are about six or seven years old, they are able to endure great hardships ; they have been known to march two or three days without stopping ; to continue five or six without any provisions, except an handful of grais at every eight hours, and to remain twenty-

four hours without drinking. These horses, however, lose all their strength when they are brought into China or the Indies; but they rather improve in Persia and Turkey. There are also some fine horses in Circassia and Mingrelia; and some which are greatly esteemed in the Ukraine, in Wallachia, Poland, and Sweden; but we have no particular account of them.

In Great Britain, the breed of horses is as mixed as that of its inhabitants. From the frequent introduction of foreign horses, we can boast of a greater variety than any other country; few other kingdoms produce more than one kind, but ours, by a judicious mixture of the several species, by the variety of our soils, and by our superior skill in management, may triumph over the rest of Europe, in having brought this noble animal to the highest degree of perfection. An English horse is known to excel the Arabian in size and swiftness; to be more durable than the barb; and more hardy than the Persian. The famous horse Childers was an amazing instance of rapidity; he has ran eighty-two feet and a half in a second, or almost a mile in a minute: the same horse

horse has run round the course at New-Market, which is only four hundred yards less than four miles, in six minutes and forty seconds. It is, however, remarkable, no other horse has since been able to equal him; and those of his breed have been remarkably deficient.

This kind of horses derive their origin from Arabia; the seat of the purest and most generous breed. The hunter is a happy combination of the former with others of superior strength, but inferior in swiftness and lineage: this is a necessary union; for the fatigues of the chace require the spirit of the one, as well as the vigour of the other to support it.

No other country can produce a breed of horses, equal in strength and size to ours, which are destined for the draught, or to the united strength and activity of those that form our cavalry. In London there are instances of a single horse that has been able to draw, for a small space, the weight of three tons; but could easily draw half that weight for a continuance. It has been usual for the pack-horses of Yorkshire to carry a burden of four hundred and

twenty pounds; and that over the highest hills of the north, as well as the most level roads. Some of our mill-horses will carry at one load thirteen measures, which, at a moderate computation of seventy pounds each, will amount to nine hundred and ten. When it is considered that these horses are accustomed to the weight by degrees, it will appear less surprising: it must also be remembered that they travel only to and from the adjacent hamlets.

The increase of our inhabitants, and the extent of our manufactures, together with the neglect of internal navigation, occasioned the number of our horses to be multiplied: an excess of wealth increased the luxury of carriages, and added to the necessity of an extraordinary culture of these animals: the reputation they have acquired abroad, has also made them a branch of commerce, and proved an additional cause of their great encrease.

When foreigners, particularly the French, describe our breed, they mention, as a defect, the awkward motion of our horses; they admit them to be good; but will not allow them an easy or an elegant carriage. But they do
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not consider that this seeming want of grace, is entirely the result of our manner of breaking them. Speed is what we consult in this animal's motions; the French, and other nations, pay more attention to parade and spirit. We always throw our horses forward, while they put them upon their haunches; we teach them an easy swift method of going, that covers a great deal of ground: on the contrary, they throw them back, which certainly gives them a more showy appearance, but makes them infinitely less useful. From our manner of breaking it must be acknowledged, that the horse is sometimes apt to fall forward; the French managed horse never falls before, but generally on one side. It would certainly be no difficult task to give our horses all that grace which foreigners are so fond of; but it would render them less swift and durable.

But foreigners in general have now perceived their error, and our English hunters are considered as the most useful horses in the world. Numbers of geldings are sent over to the continent, and sell at very large prices: there is indeed a law prohibiting the exportation

tion of our mares and stallions ; and even so early as the times of Athelstan their exportation was prohibited, except they were intended as presents.

Although horses are endowed with vast strength and great powers, they seldom exert either to the prejudice of their masters ; on the contrary, they will endure the greatest fatigues for our benefit. They have a benevolent disposition, and a fear of the human race, together with a certain consciousness of the services we can render them. The hoofed quadrupeds are, in general, domestic, necessity compelling them to seek our protection ; wild animals are furnished with feet and claws, adapted to the forming dens and retreats from the inclemency of the weather ; but the former are obliged to run to us for artificial shelter, as nature, in these climates, cannot supply them with necessary food throughout the year.

Providence hath admirably adapted the several services of domestic animals towards the human race ; and ordered that the parts of such, which have been most useful during their lives, should contribute the least to our benefit after death. The principal use that the skin
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of the horse can be applied to, is, for collars, traces, and other parts of the harness; and thus, even after death, he preserves some analogy to his former employ. The mane is used in making perukes, and the hair of the tail for bottoms of chairs, floor-cloths, cords, and lines for the angler. To sum up the account of this noble and generous animal, it is certain, that every country which boasts of a fine race of horses, is indebted to Arabia, their primæval seat.

The horse was dedicated to Mars, as the god of battle. The sight of a horse was an omen of war, because it was a martial animal. Æneas had scarce set foot in Italy, when the first omen he saw was four white horses feeding in a meadow; immediately Anchises cried out, “O foreign country, thou threatenest war against us!”

The Persians, Armenians, and Masagetæ, sacrificed horses to the Sun. The Suevi, an ancient people of Germany, says Tacitus, supported white horses in the sacred woods, at the public charge, from whom they drew omens; no body was permitted even to touch them: the priest with the prince

prince of the nation alone fastened them to a consecrated chariot, accompanied them, and observed their neighings and tremblings. There was no omen to which, not only the people, but also the priests and the chiefs of the nation, gave greater credit.

THE A S S.

FROM the great resemblance there is between the horse and the ass, we might, at first sight, be induced to suppose them of the same species; and that the ass was only an horse degenerated: but they are certainly distinct, and an inseparable line is drawn between them; for the mule they produce is barren, which appears to be a barrier between every species of animals. Nature has providently stopped the fruitfulness of these ill-formed productions, to preserve uncontaminated the form of every animal: without this regulation, the races would, in a short time, be mixed with each other; every creature would lose its original perfection and degenerate.

The horse and the ass are of two distinct kinds, different in their natures, though so nearly approaching in form: both races would soon be extinguished, if there were but one of each kind. The resemblance between the sheep and the goat is not so great as that between the horse and the ass, and yet the former produce an animal that is not barren, but soon re-produces an offspring resembling the sheep; while the mule is marked with certain sterility. The goat and the sheep are therefore of one kind, although their figures are so very different; but the horse and the ass, though nearly alike in form, are perfectly distinct. Aristotle indeed has said that their male is sometimes prolific, but this has not been confirmed by any other testimony.

But, in order to elucidate the subject, let it be observed, that the two animals are found in a state of nature entirely different. The peculiarities in the onager, or wild ass, are more distinctly marked than in those of the tame one. Had it been an horse degenerated, the resemblance would be stronger between them, the higher we went to the original stock, from whence

whence both have been supposed to be sprung. On the contrary, the wild ass appears still more different from the horse, and to have even a natural aversion to it. Some writers have very improperly confounded the wild ass with the zebra, for they are of a very different species. The wild ass is not streaked like the zebra, nor is his form so beautiful: his figure resembles that of the common ass, except that he is of a brighter colour, and has a white list extending from his head to his tail. This animal is found wild in many islands of the Archipelago; and there are many in the deserts of Lybia and Numidia, that run with amazing swiftness. When they behold a man, they set up a most horrid braying, and stop short all together till he approaches near them, and then all run off with extraordinary speed; and upon such occasions, they generally fall into the traps that are prepared for them. Their flesh, by the natives, is considered as delicious eating, and of their skins that kind of leather is made which is called shagreen.

The ass was originally imported into America by the Spaniards, and afterwards

wards by other nations. Where they have run wild, they have multiplied in such numbers, that in some places they are become a nuisance. Ulloa informs us that, in the kingdom of Quito, the owners of the grounds where they are bred, permit any persons to take away as many as they can, on paying a small consideration, in proportion to the number of days their sport continues. Their manner of catching them is remarkable. A number of persons go on horseback, attended by Indians on foot. At proper places they form a circle, in order to drive them into some valley, where, at full speed, they throw the noose, and endeavour to halter them: the animals, finding themselves enclosed, make furious efforts to escape; and if only one happens to force his way through, they all follow with an impetuosity that is irresistible. But, when they are noosed, the hunters throw them down and secure them with fetters, and they are left till the chase is over.

When attacked, these animals defend themselves with their heels and mouth with such activity, that, without slackening their pace, they often

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maim their pursuers: they have all the swiftness of horses, and neither declivities nor precipices can retard their career. It is, however, extremely remarkable, that, after carrying their first load, their celerity and ferocity leaves them, and they soon contract the stupidity and dulness peculiar to the assinine species. These animals will not suffer an horse to live among them; and, if any one should happen to stray into the place where they graze, they immediately fall upon him, and, without permitting him to escape, they bite and kick him till they leave him dead.

Such is the ass in its natural state, fleet, fierce, and formidable: but in his state of tameness he presents a very different picture. He is then the most gentle and quiet of all animals, and assumes a patience and submission even humbler than his situation. He is temperate with regard to his provision, and is contented with the most neglected weeds: the plantane, however, seems to be his favourite vegetable, for which he is often seen to neglect every other herb in the pasture. With respect to his water, he is extremely delicate, and drinks only at the clearest brooks, and prin-

principally those to which he has been accustomed : he drinks as moderately as he eats, and never, like the horse, plunges his nose into the stream. He never rolls in the mud, and even seems afraid of wetting his feet, turning out of his way to avoid the dirty paths of a road. He is sprightly, and even tolerably handsome, when very young, but, either by age or bad treatment, he presently loses these qualifications, and becomes slow, stupid, and headstrong : he appears to shew no ardour except to the female ; and the she ass is not less fond of her young, than he is of her. This animal is sometimes strongly attached to its owner ; by whom he is too frequently abused. He distinguishes him from others in a crowd, and scents him at a distance.

When over-loaded, he shews his sense of the injustice of his master, by hanging down his ears : he will not stir a step if his eyes are covered ; he walks, trots, and gallops like an horse ; but, if he even sets out pretty freely at first, he is quickly tired ; and then hardly any beating will make him mend his pace ; the unmerciful rider exerts his whip in vain ; the poor creature suffers

it with patience, and without a groan ; and, conscious of his own imbecility, does not even attempt to move.

Man appears to despise this humble useful animal : the horse is the only favourite, and upon him alone all labour and expence are bestowed. He is carefully fed and attended, while the ass is abandoned to the cruelty of the vulgar, or to the sport of children : he is over-loaded and insulted by unnecessary stripes ; and, being generally the property of the poor, partakes of their wants and their distresses. In a word, this faithful animal, which, if there were no horses, would be the first of quadrupeds in our esteem, is now treated with contempt ; he is entirely disregarded, because his properties are found in an higher degree elsewhere ; and, from being the second of the domestic quadrupeds, he is degraded into one of the most useless.

The horse, the cow, and the sheep, are rendered larger by the assiduity of man ; the ass is suffered to dwindle every generation, and were it not for the medicinal qualities of its milk, it is probable that the whole species would have been long since extinguished.

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The ass, in proportion to his size, is stronger than the horse; he is surer footed, and less apt to start. The Spaniards seem to be the only people in Europe who are acquainted with the value of the ass. They take every method to improve the breed; and jack asses have been seen from that country, above fifteen hands high. A warm climate, however, is best adapted to this animal; their size and spirit decline in proportion as they advance into colder regions.

This animal, though now so common in all parts of England, was entirely lost among us during the reign of queen Elizabeth; Hollingshed informing us that, in his time, "*Our lande did yielde no asses.*" However, there are accounts of their being common in England before that time; for mention is made of them in the time of king Ethelred, when the price of a mule or young ass was twelve shillings: they are also mentioned in the reign of Henry III. It must therefore have been owing to some accident that the race was extinct in the days of Elizabeth. It is probable that it was again introduced in the succeeding reign, when

our intercourse with Spain was renewed; in which country this animal was greatly used.

In Sweden the ass is even now a sort of rarity, nor does it appear by Pontoppidan's Natural History of Norway that they have yet reached that country. They are at present naturalized in this kingdom; and since our horses are become a considerable article of commerce, and bring large sums annually into these kingdoms, the cultivation of an animal, that will in many cases supply the place of the former, and enable us to enlarge our exports, certainly merits our attention.

The ass is a more healthy animal than the horse; and of all animals covered with hair, he is the least subject to vermin; for he has no lice; which is probably owing to the dryness or hardness of his skin. He is three or four years in coming to perfection; he lives from twenty to twenty-five years; requires much less sleep than the horse, and never lies down for that purpose, but when he is much tired. The she-ass goes eleven months with young, and never produces more than one at a time.

THE ZEBRA.

MANY authors have mistaken the zebra for the wild ass, though it is quite a different animal : the zebra is the most beautiful, and at the same time the wildest animal in nature. Nothing can exceed the delicate regularity of its colour, or the lustrous smoothness of its skin. It is principally a native of the southern parts of Africa ; and whole herds of them are frequently seen feeding on those extensive plains that lie towards the Cape of Good Hope. But they are so vigilant that they will suffer nothing to approach them ; and they are so swift, that they easily leave every pursuer far behind. In shape, the zebra rather resembles the mule than the horse, or the ass : it is less than the former, and yet larger than the latter. Its ears are longer than those of the horse, but shorter than those of the ass. Like the ass, it has a large head, a straight back, its legs are finely placed, and its tail is tufted at the end ; like the horse, its skin is smooth and close, and its hind quarters round and fleshy. The colours of the
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male are white and brown ; those of the female white and black. These colours are so exactly disposed in alternate stripes over the whole body, that one would imagine nature had employed the rule and compass in painting them. These stripes, resembling so many ribbands laid over its body, are narrow, parallel, and curiously separated from each other ; every stripe is perfectly distinct. The head, the body, the thighs, the legs, the tail, and even the ears are thus beautifully streaked, so that at a small distance, the animal appears to be dressed out by art, instead of being thus admirably adorned by nature.

Hitherto this animal appears to have disdained servitude, and neither force nor tenderness have been able to wean it from its native independence and ferocity : in time, however, this wildness might be surmounted ; and, it is probable, that the horse and the ass were equally obstinate, fierce, and unmanageable, when they were first taken from the forest. Mr. Buffon says that the zebra, from which he took his description, could never be entirely mastered, notwithstanding the utmost pains was
taken

taken to tame it. Whenever it was mounted, two persons were obliged to hold the reins while a third ventured upon its back; and whenever it perceived any one approaching, it always attempted to kick. That at the Queen's-Menagerie, near Buckingham-Gate, is also extremely vicious; and the keeper finds it necessary to inform the spectators of its ungovernable nature. It appears as wild as if just caught, and will endeavour to kick any person that comes near it; though it was taken extremely young, and used with the utmost indulgence. As the zebra resembles the horse in form, it has doubtless a similitude of nature, and by industry and skill might be added to the number of our domestics.

The zebra is the native of countries where the human inhabitants are but little superior to the quadruped. The natives of Angola and Cafraria, consider horses only as being good for food: neither the stateliness of the Arabian courser, nor the beautiful colourings of the zebra, have any allurements to a race of people, who only consider the quantity of flesh, and not its conformation. It is therefore imagined that the
zebra

zebra may hitherto have continued wild, because it is the native of a country, where no successive efforts have been made to reclaim it: this animal has been long taught to consider man as its mortal enemy; all the pursuits that have hitherto been instituted against it, being rather against its life than its liberty: it is natural that it should refuse to yield obedience, where it has seldom experienced mercy.

All animals seem perfectly to know their enemies, and to avoid them. Instinct indeed may teach the deer to avoid the lion, or the mouse the paws of the cat; but why does the dog attack the dog-butcher? In China, where the killing and dressing dogs is a trade, whenever any of these people go abroad the dogs of the neighbourhood pursue him. "I have seen," says Dr. Goldsmith *, "a poor fellow, who made a practice of stealing and killing dogs for their skins, pursued hue and cry for three or four streets together, by all the bolder breed of dogs, while the weaker flew from his presence with affright." This, however unaccounta-

* Vol. II. pag 395.

ble, appears to be fact ; and obtains in some other animals, as well as dogs, though in a less degree. This may probably have been the cause that has hitherto kept the zebra in its state of natural wildness ; in which it may continue, till kinder treatment shall have reconciled it to man.

As a civilized people are now placed at the Cape of Good Hope, where this animal is principally found, it is likely that we may have them tamed and rendered serviceable. It is not merely on account of the extraordinary beauty of this animal, that we wish it among the number of our dependents ; its swiftness is said to surpass all others ; it stands better upon its legs than an horse, and is consequently stronger in proportion.

It does not certainly appear that any zebra has ever been brought into Europe, that was caught sufficiently young, so as to be untinged by their original state of wildness ; and, I believe, were it taken up very young, and properly treated, it might be rendered as tame as any other animal.

Although this creature is not to be found in Europe, Asia, or America, it

is very easily fed. That which appeared in England some years ago, would eat bread, meat, tobacco, and almost any thing; and that which is here at present, subsists entirely upon hay. As it so nearly resembles the horse and the ass in structure, it is probable that it brings forth annually as they do; but of this we have no certain testimony. The noise they make is very different from that of an ass, resembling more the confused barking of a mastiff dog.

THE M U L E.

THE mule may be engendered either between an horse and a she-ass, or between a jack-ass and a mare: those produced between the two last are esteemed the best, as they are larger, stronger, and better shaped; the mule being observed to partake less of the male than the female parent; but they generally inherit, in some degree, the obstinacy of the parent ass: it must be acknowledged, however, that this vice is heightened by their being injudiciously broke; instead of gentle usage, which usually

usually corrects the worst qualities, the mule, from the beginning, is treated with cruelty; and is so accustomed to blows, that it naturally expects ill-treatment whenever it is either loaded or mounted; he therefore either prepares to retaliate, or in the terror of bad usage, becomes invincibly obstinate. Could we prevail upon ourselves to consider this animal in its proper light, and pay due attention to its breaking, we might easily form it for the saddle, the draught, or the burden. By the importation of the Spanish male asses, the size and strength of our mules are so much improved, that we shall soon have numbers that may be adapted to each of these uses.

People of the first quality are drawn by mules in Spain; and Mr. Clarke informs us, in his letters on the Spanish nation, that fifty or sixty guineas is no uncommon price for one of them. This is not in the least surprizing, when we consider how greatly they excel the horse in draught in a mountainous country; for where the horse can hardly stand, the mule is able to tread securely.

Neither mules nor the spurious offspring of any other animal generate any farther; all these productions indeed are monsters: therefore nature wisely stops, in the first instance, the powers of propagation, in order to preserve the original species of animals pure and entire. The common mule is very healthy, and will live about thirty years.

OF RUMINATING ANIMALS.

ANIMALS that chew the cud are the most inoffensive, and the most easily tamed. Living entirely upon vegetables, they have neither pleasure nor interest in making war upon other creatures. The fiercest of the carnivorous kinds seek their food in gloomy solitude, but these range together in herds, and the very meanest of them unite in each other's defence. The food of ruminant animals being easily procured, they seem naturally more indolent and less artful than those of the carnivorous kinds. The fox or the wolf are habituated to want, and long habit furnishes them with a degree of
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sharpness and cunning; their life is a continued scene of stratagem and escape: but the ox or the deer enjoy the repast which nature has abundantly provided; certain of subsistence, and satisfied with security.

It requires a long and tedious process before grass can be transmuted into flesh, therefore, nature has generally furnished such animals as feed upon grass, with four stomachs: the first is called the paunch, which receives the food after it has been lightly chewed; the second, which is indeed a continuation of the former, is called the honey-comb; these two, which are very capacious, the animal fills with as much expedition as it can, and then lies down to ruminate. When these two stomachs are filled, and the grass, which was slightly chewed, begins to swell with the heat of the situation, the stomachs dilate, and afterwards contract upon their contents. The aliment, thus squeezed, has two passages to escape at; one in the third stomach, which is very narrow; and the other back, by the gullet, into the mouth, which is wider. The greatest quantity is driven back through the largest aperture into the

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mouth, to be chewed a second time; and a small part, which is the most liquid, is driven into the third stomach, through the small aperture. The food which is chewed a second time, is by that means rendered more soft and moist, and at length passes into the conduit that leads to the third stomach, where it suffers a still farther comminution. The third stomach is called the manifold, from the number of its leaves, which all tend to promote digestion: it requires the operation of the fourth stomach to make a part of the animal's nourishment, where it undergoes a complete maceration, and is separated to be turned into chyle.

Thus all quadrupeds of the cow, the sheep, or the deer kind, are seen to ruminate, and are furnished with four stomachs for the macerating of their food. These only are properly called the ruminant kinds, though many others have this quality in a less observable degree. The rhinoceros, the camel, the horse, the rabbit, the squirrel, and the marmotte, all chew the cud occasionally, but they are not furnished with stomachs like the former. There are many other animals that appear

pear to ruminate ; and, among others, birds, fishes, and insects. Among birds that have a power of disgorging their food to feed their young, are the pelican, the stork, the heron, the pigeon, and the turtle. Among fishes are lobsters, crabs, and the dorado. The salmon and the scarus are also said to be of this number. Among insects, the mole, the wasp, the drone, the bee, the cricket, the grasshopper, and the beetle, are of the ruminating tribe. All these either actually chew the cud, or, at least, appear to ruminate. They have the stomach composed of muscular fibres, in the same manner as those which are particularly distinguished by the appellation of ruminants.

Men themselves have been known to ruminate. An account of a ruminating family at Bristol, is given us in the Philosophical Transactions ; but, as the particulars cannot possibly be agreeable to our readers, we shall purposely omit them. Instances of this kind, however, are accidental and uncommon ; and it is fortunate for mankind that they are so. Of all other animals, we spend the least time in eating ; this is a principal distinction
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between us and the brute creation ; and eating is a pleasure of so inferior a kind, that only such as are nearly allied to the quadruped, desire its prolongation.

All ruminating animals, especially those that have horns, have suet ; others have only fat, which is softer, and melts more readily before the fire. Cloven-footed animals have each toe covered with a kind of hoof, the upper part of which is of a horny substance ; and the lower, which composes the sole of the foot, is callous. In the deer, goat, sheep, and hog kind it is softer, and these animals have two small hoofs or nails behind, which are useful to keep the feet from sliding. Hogs have not only a sort of hoofs behind, but also toes, one of which has three joints like the little finger of a man, and the other two like the thumb ; they have likewise bones of the metatarsus, but they are so weak and slender, that they are of little use in walking.

THE BULL, OX, AND COW.

THE climate of England is, above all others, productive of the greatest variety

variety and abundance of wholesome vegetables, which are almost equally diffused over all its parts. For this general fertility, we are indebted to those clouded skies, which mistaken foreigners mention as a reproach on our country : but let us chearfully endure a temporary gloom, which cloaths our hills and meadows with the richest verdure. To this we owe the number, variety, and excellence of our cattle, the richness of our daries, and innumerable other advantages.

The Latin word *bos*, which comprehends an ox, bull, and cow, may be extended to all of this kind. Of all ruminant animals, these deserve the first rank, with respect to their size, their beauty, and their services. Many of our English peasants have no other possession than a cow, and they are only the nominal possessors of its advantages. If they pretend to taste its flesh, their whole riches are at once destroyed ; veal is a delicacy they cannot make any pretensions to, therefore they are obliged to fatten its calf for sale ; even its milk is wrought into butter and cheese for the tables of their masters ; a very small share being appropriated to their
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own use. In Germany, Poland, and Switzerland, every peasant keeps two or three cows for his own benefit. The meanest of them annually kills at least one for his own table, which is salted and hung up, and is thus preserved as a delicacy all the year round. A piece of beef hung up there is considered as elegant furniture, and argues the possessor's opulence and ease. But in this country, for many years past, peasants have seldom been able to purchase meat, and even butter is considered by them as an article of extravagance.

The verdure and fertility of our plains are perfectly suited to this animal's manner of feeding; for, not having the upper fore-teeth, it is fond of grazing in a rich high pasture, regardless of the quality of its food, if it be supplied in sufficient abundance; and where the grass is rather high and flourishing than succulent and nutritious, the cow thrives surprizingly. In England, the same animal grows larger, yields more milk, and sooner fattens than in any part of Europe.

In a course of years, the horse, and the sheep, are known to impoverish the ground; but, where the cow has been bred,

bred, the pasture acquires a finer surface, and every year becomes more beautiful and even. The horse having fore-teeth in the upper jaw, nips the grass closely, and selects that which is most tender and delicate; the sheep only bites the most succulent parts of the herbage: these animals therefore cut the finer grass too closely, and suffer the high weeds and ranker herbs to vegetate and over-run the pasture. But the cow is obliged to feed upon the tallest vegetables that offer: thus it eats them all down, and levels the surface of the grass.

The age of the cow is known by the teeth and horns: it has eight cutting teeth in the lower jaw; the two middlemost of these fall out at the age of ten months, and are replaced by others, which are broader, but not so white: at the age of sixteen months, the two next milk-white teeth fall out, and others succeed them: the animal thus loses and gains at the end of every six months, till it arrives at the age of three years; by which means all the cutting teeth are renewed, and then they are long, regular, and tolerably white; but as the creature advances into years,
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they become irregular and black, their inequalities become smoother, and consequently the animal less capable of chewing its food. From this single cause, a cow sometimes cannot eat sufficiently to support life, and sinks in the midst of plenty; every year becoming leaner and leaner till it dies. At three years old this animal sheds its horns, which are succeeded by new ones that continue as long as it lives; at four years of age, it has small pointed smooth horns; in another year they become larger, and are marked round with a years growth. Thus they continue to grow as long as the animal lives, and a new ring is added every year at the root; so that the animal's age may be exactly known, by allowing three years before the appearance of the horns, and then adding the number of rings.

Our breed of horned cattle has been so greatly improved by a foreign mixture, that we cannot, with any degree of certainty, point out the original kind of these islands. Those which may be supposed to have been purely British, are much smaller than those on the northern part of the European continent. On the highlands of Scotland, the

the cattle are extremely small ; and many of them, males as well as females, are hornless : the Welch runts are considerably larger ; and the Cornish black cattle are of the same size as the latter. The large species, now cultivated through most parts of England, are either entirely of foreign extraction, or our own improved by a cross with the foreign kind. The Lincolnshire kind derive their size from the Holstein breed : and the large hornless cattle, which are bred in some parts of England, came originally from Poland. We were once famous for a wild breed of these animals, but these no longer exist, and this nation is happy in having fewer wild animals of any kind than any kingdom in Europe. Cultivation and agriculture are sure to banish these ; for those animals that are fitted only for a state of nature, are always driven away by the improvements of art.

Of all quadrupeds, this animal seems most liable to alteration from its pasture, or according to the richness or poverty of the soil. In some they grow to a great bulk, and in others they appear as diminutive : the breed of the
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the Isle of Man, and most parts of Scotland, is, in general, considerably less than in England or Ireland: they are also differently shaped, the dewlap being much smaller, and the creature has more of the ewe neck. In almost every part of the world this animal is to be found large or small, in proportion to the richness or poverty of its food.

The differences, however, in the size of this animal, are less remarkable than those of its form, its hair, and its horns: in many of them, the variation is so very extraordinary, that they have been considered as a difference kind of creature, and names have been given them as a distinct species, when, as Mr. Buffon asserts, they are in reality the same. Though the horse and the ass do not differ so much in form as the cow and the bison, yet the former are distinct animals, their breed being marked with sterility; the latter are certainly animals of the same kind, their breed being fruitful; and a race of animals is produced, in which the hump of the bison is soon worn away. It is evident, therefore, that the differences between the cow, the urus, and the bison, are merely accidental.

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Nature, which has given horns to some cows, and not to others, may also have given an hump to the bison, or enlarged the urus.

The cow is to be found, in some one of its varieties, in almost every part of the world : the few kine which subsist in Iceland, are without horns, though they were originally of the same race with ours. The Dutch frequently bring large quantities of lean cattle from Denmark, which they fatten on their own rich grounds : these are in general larger than their own natural breed, and soon become fat. The cattle of the Ukraine, having excellent pasture, fatten very easily, and are considered as the largest breed of all Europe. On the rich mountains of Switzerland, these animals grow to a very large size. In France, where they are permitted to have no grass but what is thought unfit for horses, they dwindle and grow lean. In some parts of Spain they grow to a great size ; but the wild bull, which they pride themselves so much in combating, is a very mean despicable little animal. In Barbary, and the provinces of Africa, where the pasturage is short, and the

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ground dry, the cows are small, and give but little milk. In Ethiopia they are exceeding large. In some parts of Persia and Tartary they are of a prodigious stature, and in others extremely small.

In Great-Britain, the ox is the only horned animal that will apply his strength to the service of mankind. It is certain that, in many cases, oxen are more profitable in the draught than horses; their food, harness, and shoes being cheaper; and after they are grown old, they are equally valuable. Mr. Mortimer, in his Treatise on Husbandry, says, "An old working beast will be as good meat, and fatten as well as a young one." There is scarce any part of this animal without its use. The blood, fat, marrow, hide, hair, horns, hoofs, milk, cream, butter, cheese, whey, urine, liver, gall, spleen, and bones, have each their particular uses in commerce, manufactures, and medicine. The hide serves for boots, shoes, and many other conveniences of life. Vellum is made of calves-skin, and gold-beater's skin is made either of a thin vellum, or the finer part of the guts of the ox. The hair, mixed with lime,

is a very necessary article in building. Combs, handles for knives, boxes, buttons, drinking vessels, &c. are made of the horns. In medicine, the horns were employed as alexipharmics, or antidotes against poison, the plague, or the small-pox ; they are said to answer the end of the oriental bezoar. Carpenter's glue is made of the chips of the hoofs, and the parings of the raw hides.

The bones are used by mechanics, as a substitute for ivory ; by which many neat conveniencies may be purchased at an easy rate. From the feet is procured an oil much used in the harness and trappings belonging to a coach ; and the bones calcined, afford a fit matter for tests, for the use of the refiner in the smelting trade. The blood is said to be an excellent manure for fruit-trees ; and it is the basis of the colour, called the Prussian blue. We owe our artificial light in some manner to their fat and suet. The gall, liver, spleen, and urine, have their place in the *Materia Medica*. The uses of butter, cheese, cream, and milk are too obvious to be insisted on.

Ox beef is very nourishing, and yields a strong aliment; and those who live chiefly upon beef are strong, vigorous, and healthy. It should, however, be tender and well fed; for otherwise it is hard of digestion. Bull beef contains a great deal of volatile salt and oil; but it is hard, tough, and dry, and is therefore seldom used for food. It is said indeed that when a bull is first baited, and then killed, the flesh becomes more fit for food: this method has been practised in many parts of England, but the poor are the only purchasers of such beef. The flesh of a cow is inferior to that of an ox, but if she has been well fatted, and is young, there is no very considerable difference. Veal is nourishing, well tasted, and easy of digestion: it agrees very well with weak delicate constitutions, and those who use but little exercise. The fatteners of veal for the London markets suffer the calf to lick salts, chalk, &c. which they imagine bring him on more speedily in his flesh, and render the meat whiter; how much it may improve the colour, I will not pretend to determine, but it certainly does not improve the flavour of it.

Before

Before we dismiss this article, we shall observe, that the bull was the most usual victim in sacrifices, and was chiefly offered to Jupiter, Mars, Apollo, Minerva, Ceres, Venus, and the Lares. Black bulls were selected for Neptune, Pluto, and the infernal deities : before they were sacrificed, they were variously adorned. Over the middle of the body was placed a large piece of cloth, which hung down on both sides, and was ornamented with flowers : their horns were decorated with festoons. The bull that was sacrificed to Apollo, had usually great horns.

THE URUS.

THE urus, or wild bull is chiefly to be met with in the province of Lithuania. It grows to such an amazing size, that scarce any animal, except the elephant, is found to equal it. This creature is quite black, except a stripe mixed with white on the top of the back, which extends from the neck to the tail ; the eyes are fierce ; the horns short, thick, and strong ; the forehead is generally decorated with a

large quantity of black curled hair, and many of them have beards of the same; the neck is short and thick, and the skin has a strong odour resembling musk. The female, though much smaller than the male, is superior in size to the largest of our oxen; but her udder and teats are so extremely small as hardly to be perceived. Upon the whole, however, this animal differs but little from the tame one: there are indeed some trifling varieties, which have probably been produced by his wildness, or the richness of the pastures where he is found. There is a smaller race of the urus to be found in Spain. But whether they are of the large enormous kind of Lithuania, or the smaller Spanish race; whether with short or long horns; whether with or without long hair on the forehead, they are every way the same with what our common breed was, when in the forest, and before they were reduced to a state of servitude. The flesh of the urus is much inferior to that of the ox, and the most valuable part of him is the hide, which serves for various purposes.

THE B I S O N.

THE bison, called by the Lithuanians *suber*, and by the Germans *wisent*, is another variety of the cow-kind, though it differs from the rest, in having a lump between its shoulders : some of these animals are very large, and others as diminutively small. In general the fore parts of this creature somewhat resemble the lion, having a long shaggy mane, and a beard under his chin ; his head is small, his eyes red and fiery, and his look furious ; the forehead is extensive, and the horns so large and so far asunder, that there is sometimes room for three men to sit between them : a bunch, almost as high as that of a camel, grows on the middle of the back, which is considered by the inhabitants of those countries where he is found wild, as a great delicacy. There is no pursuing him with safety, except in forests, where there are trees large enough to hide the hunters. They are generally taken by pit-falls ; the inhabitants dig holes in the ground, and cover them over with grass and boughs of trees ; after which they provoke the animal

animal to pursue them, and then get on the opposite side of the pit-fall, while the enraged creature, running with great violence, falls into the pit, where he is quickly overpowered and killed.

The bison is found in all the southern parts of the world; throughout the vast continent of India; and throughout Africa, from mount Atlas to the Cape of Good Hope. This animal seems chiefly to prevail in all these countries; where they are found to have a smooth soft hair, travel a great pace, and supply, in some degree, the want of horses. They are very expert and docile; many of them bend their knees to take up or set down the burthens with which they are often loaded; and they are treated by the natives of those countries, with a degree of tenderness proportioned to their utility. Among the Hottentots these animals are highly esteemed, as being uncommonly serviceable. They are the companions of their pleasures and fatigues, and are considered as the Hottentot's protector and servant, assisting him in attending his flocks. The bison lives in the same cottage with his master, and, by degrees, conceives an affection for him; and

and in proportion as the man approaches to the brute, so the brute seems to acquire human sagacity.

The bisons, or cows with a hump, differ greatly from each other in the several parts of the world. The wild ones are larger than the tame. Some have horns, others have none; some are extremely large, and others very small. But, when tame, they are all equally docile and gentle. The bisons of Malabar, Abyffinia, and Madagafcar, are large; those of Arabia, Petræa, and most parts of Africa, are small. The American bison is rather less than that of the ancient continent; its hair is longer and thicker, and its hide softer.

By Linnæus, the bison is called, a beave with horns turned upwards, a hump-back, and a very long mane and beard. The tongue of this animal is said to be almost as rough as a file. The bison is also said to have a great aversion to a red colour, and if a piece of red cloth, silk, &c. is thrown down to him, he will never leave it till he has trod it to pieces.

THE BONASUS.

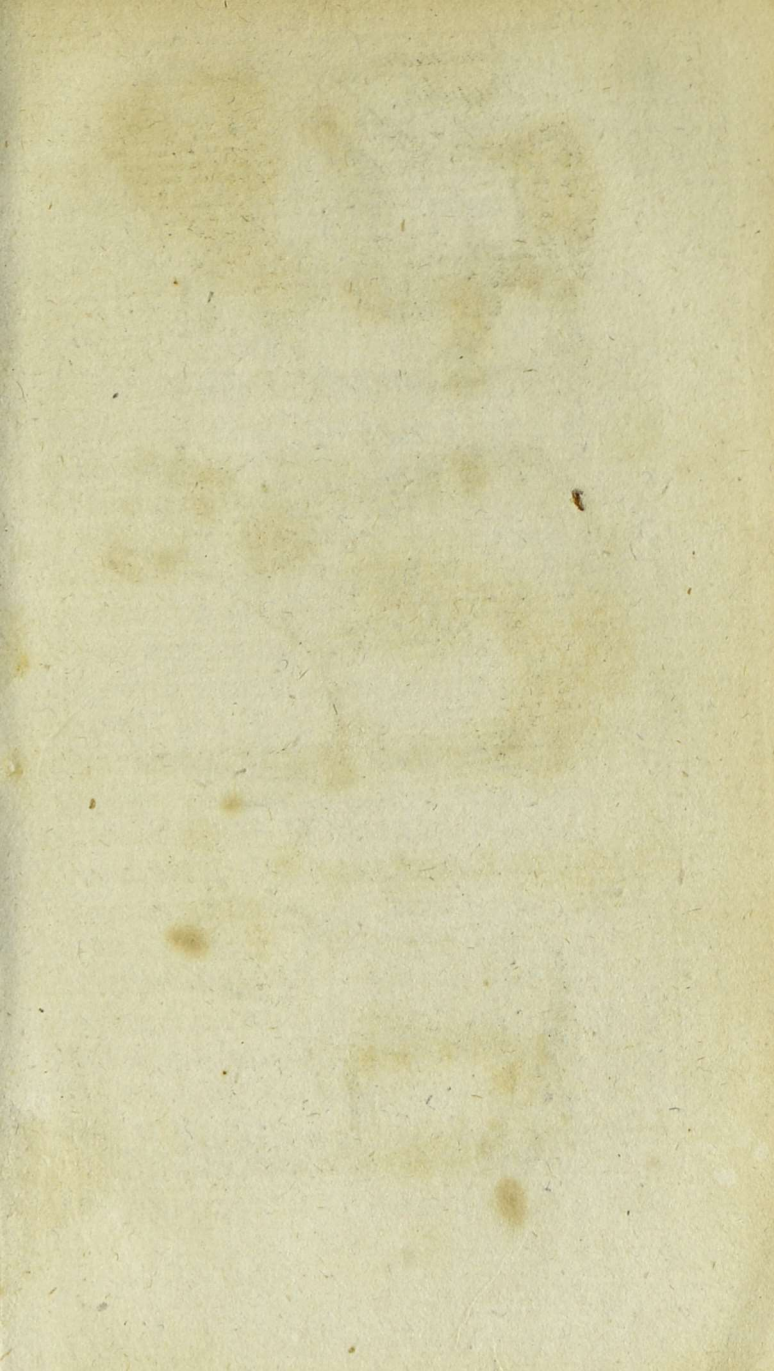
THE bonafus is a species of the wild ox, very thick and bulky, and furnished with a mane like a horse. It is an unwieldy animal, and something larger than our bull: the horns are so short as not to exceed a span in length, and so turned as to be unfit for wounding; the nostrils are wide, and the ears long and broad. The colour of the animal is a deep tawny; except that the forehead and the breast are white, and the mane of a darker colour than that of the rest of the body. It has no teeth in the upper jaw before, like others of this kind, and his tail is short in proportion to the rest of his body. He bellows like an ox, and his legs are covered with hair. When pursued, it does not attempt to defend itself with its horns, but kicks and discharges its dung to a great distance against the pursuer. This animal is found in Lydia, Phrygia, and the adjacent countries.

THE ZEBU, OR BARBARY-COW.

THE zebu, or Barbary-cow, is very small; and not exceeding in size the bison of Arabia Petræa, and most parts of Africa. Naturalists, says Mr. Buffon, (Vol. xxii. pag. 130) have given various names to animals which are in reality the same, and differ only in some few accidental circumstances. The wild and tame cow, that belonging to Europe, and that of Asia, Africa, and America; the bonafus and the urus, the bison and the zebu, are all one and the same; they all propagate among each other, and, in a few generations, the hump wears away, and few vestiges of savage fierceness remain. Of all animals, except man, the cow seems most extensively propagated. It seems equally capable of enduring the rigours of heat and cold. It is equally an inhabitant of the frozen fields of Iceland, and the scorching deserts of Lybia. It is domestic and tame in civilized countries, savage and wild in countries thinly inhabited, but is capable of being made useful in all.

THE BEEVE-HOG, OR HOG-COW.

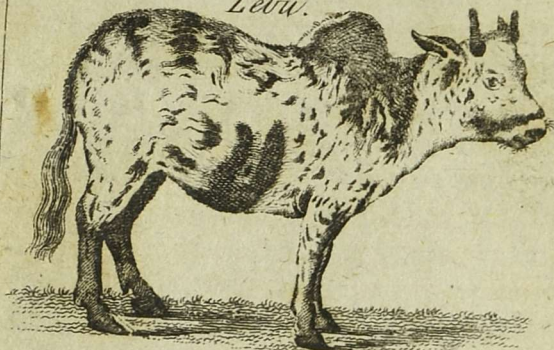
THERE is an animal of the beeve kind, that appears to be of a middle nature between a beeve and a hog, and is indiscriminately called a beeve-hog, or a hog-cow. The female of this kind was shewn a few years ago in England. It is about the height of an ass, but broader and thicker, and is nearly of a cream-colour. Its body is very thin of hair, which resembles the hair of a hog more than that of a cow. Along the spine of the back, from the neck to the tail, there is a row of bristles, but they are not quite so strong as those of a hog. The head is very long, and though the snout resembles that of a cow, it bears some similitude to that of a hog. The animal has two black flattish horns on the top of its head, which bend inwards, and lies almost close to the neck. It has not an udder like a cow; but has two teats between the hind legs, which are not visible unless you stoop to observe them. It is indeed a very uncommon animal, and has hardly been mentioned by any author.



*American
Buffalo.*



Zebu.



many horned Sheep.



thor. Those who exhibited this creature in England, pretended it was brought from the East-Indies.

THE B U F F A L O.

IF we compare the common Buffalo with our cow, there is a very strong similitude between them, both in their form and nature ; they are equally submissive to the yoke, both frequently live under the same roof, and are employed in the same domestic services ; their figures are so much alike, that it requires a close attention to distinguish them : and yet, says Mr. Buffon, no two animals can be more distinct, or appear to have a stronger antipathy to each other. It is probable that, if there were but one of each kind remaining, the race of both would shortly be extinct. It is certain that the cow refuses to breed with the buffalo, which it so nearly resembles, though it will propagate with the bison, to which, in point of form, it has but a very distant similitude.

The buffalo is less beautiful than the cow, his figure is more clumsy, and
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he carries his head nearer the ground; his limbs are not so fleshy, nor his tail so well covered with hair; his body is shorter and thicker; his legs are higher; his head smaller; his horns not so round, but compressed; one side being sharp with a tuft of hair hanging down between them; his skin is also harder, thicker, blacker, and thinner of hair; his flesh, which is blackish and hard, is disagreeable to the taste and to the smell. The milk, though produced in great abundance, is not so good as that of the cow. In the warm countries, the greatest part of their cheese and butter is made of the milk of the buffalo. The veal of the buffalo is not better eating than the beef; the hide being the most valuable thing he furnishes, and is well known for its softness, thickness, and impenetrability.

This animal is employed in agriculture, and in drawing and carrying burthens; being guided by a ring, which is thrust through his nose. It is said that two buffaloes, yoked in a waggon, will draw more than four strong horses; their heads and necks being naturally

turally bent downward, they are the better fitted for the draught.

The wild buffaloes are very dangerous animals, and frequently gore travellers to death; they afterwards trample upon them till they have mangled the whole body: they are, however, least to be feared in the woods, because in their pursuit they often get entangled in the branches of the trees, which affords time to escape the danger. There is hardly any other method of avoiding their pursuit; for they are extremely swift, and such excellent swimmers, as to cross large rivers with the utmost facility. Thus all other large animals of the torrid zone are very fond of the water, and, in the midst of their pursuit, frequently plunge in to cool themselves. The negroes of Guinea, and the Indians of Malabar, where there are great numbers of buffaloes, delight much in hunting and destroying them; but they never attempt to face the buffalo openly; their usual method is to climb up a tree, and from thence shoot at him; nor do they venture to come down till they have effectually dispatched him. However, when it is tamed, no animal can be

more patient or humble than the buffalo, or more readily submit to domestic drudgeries.

The buffalo is found wild in many parts of Africa and India; but in both they are domesticated. They are very common in Italy, and were originally brought from India into Lombardy, in the reign of king Agilulf, who reigned from 591 to 616. The buffalo is said to be found wild in Apuglia; and to be very common in hot weather on the sea shore, between Manfredonia and Barletta. They grow to an enormous size, and are twice the bulk of our largest oxen; from which some call them *Taurelephantes*. There is a pair of horns in the British Museum, probably of this kind: one of them is six feet six inches and an half in length, it weighed twenty-one pounds, and the hollow contained five quarts of water: Lobo mentions some that would hold more than ten. They are well described by Aristotle, under the title of wild oxen, among the *Arachotæ*, notwithstanding Belon, and Mr. Buffon, say it was unknown to him.

The female produces but one at a time, like the cow; but they are very different

different in the times of gestation ; for the cow goes but nine months, the buffalo twelve. The buffalo is a distinct kind, that never mixes with the cow, the urus, or the bison. It testifies an aversion to the cow, and, when feeding on the same pasture, is always kept separate, and makes a distinct race in every part of the world. It is imagined that these two species are the only real varieties of the cow kind, though naturalists have enumerated many. The buffalo, in general, is an inoffensive animal, if undisturbed, and so are all those that feed upon grass ; but when they are wounded, or even fired at, their fury is ungovernable. It is, however, remarkable, that although their horns are very formidable, they make more use of their feet in combat, and endeavour to tread their enemies to death.

The small Indian Buffalo is nearly of the size of a calf about six months old, and resembles the English bull in shape, but has very short horns, and a bunch rising on the back between the shoulders. In the East-Indies they are used for drawing coaches instead of horses : the nose is broad, flat, and

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bare

bare of hair; on the lips or muzzle there are some loose shaggy straggling hairs, and the hair on the sides of the nose is whitish. The horns, which are small, and of a dark colour, appear but little above the rough hair on the top of the head. The ears are much longer and larger than the horns, being of a flesh colour, and without hair on the inside. The hair is sleek all over the body, and the head, neck, back, tail, and sides are of a bluish colour. The loose skin on the neck is white, and the belly is covered with so small a quantity of lightish hair, that it shews the flesh colour. The legs are of a light colour, spotted and marked with black, and become gradually whiter towards the feet. The tuft of hair at the end of the tail is black, and the hoofs of a dark brown, shaped like those of our cattle.

In the northern parts of America, there is another animal of the beeve kind, which differs from the rest in some particulars. He is larger than the ox, and has short black horns, and a large beard under his chin: his head is so full of hair, that it hangs down over his eyes, and gives him a terrible appearance.

pearance. He has a hump on his back, which extends from the shoulders to the haunches. The hump is covered with reddish long hair, and the rest of the body with a kind of black wool, which is in great esteem. He has a large breast, narrow buttocks, a very short tail, and hardly any neck; but his head is larger than that of a bull. At the sight of a man, he will run away, and a whole herd of them will make a precipitate flight, if they see but a single dog. He has so quick a smell that there is no approaching him but on the leeward side. When he is wounded, however, he becomes very furious, and turns back upon the hunters. The flesh of the female is good, and the hide is excellent for many purposes. The savages make bucklers of it, which, though extremely light, are hardly to be penetrated by a musket-ball. They are famous for hunting this animal in the western parts of New-France, on this side the Mississippi. The hunters range themselves into four lines, and form a very large square; afterwards they set fire to the grass, which at that time is very long and very dry; the animals draw closer together,

gether, as the fire runs along the lines, and, as they are much afraid of fire, they naturally fly from it, and at length they all get close together. The hunters then attack them briskly, and seldom suffer any to escape. Writers of good authority affirm, that they seldom return from those hunting-matches till they have killed a thousand or fifteen hundred of these animals.

THE SIBERIAN COW.

THE Siberian cow is another animal of this kind; though extremely different from any of the rest: the male has neither horns nor mane; but he has curled hair on the top of his forehead, and his tail resembles that of an horse. His whole body, except his legs and face, is covered with long straight hair, and it is only in shape that he is like any of those animals; but he is without an hump on his back. He is found near the lake Baykal, in Siberia, and probably in the neighbouring countries.

OF ANIMALS OF THE SHEEP AND
GOAT KIND.

THE goat and the sheep are apparently different in the form of their bodies, in their horns, and in their covering; and may therefore be considered as two different kinds, with regard to all common and domestic purposes. But upon examining them cloſer, and obſerving their internal conformation, no animals can more ſtrongly reſemble each other; their feet, their four ſtomachs, their ſuet, their appetites, are all entirely the ſame, and ſhew the ſimilitude between them; and what is more, they propagate with each other. The buck goat, ſays Buffon, and the ewe, will produce an animal, that in two or three generations returns to the ſheep, and ſeems to retain no marks of its ancient progenitor; the ſheep and the goat may therefore be conſidered as belonging to one family; and, if the whole races were reduced to one of each, they would in a ſhort time replenish the earth with their kind. Indeed the goat, the ſheep, the cow, and all ruminant animals,
are

are internally very much alike ; but still the differences between those animals are sufficiently apparent. Between the cow and the sheep kind, nature has obviously marked the distinction by their form and size ; and the latter are distinguished from those of the deer kind, by never shedding their horns. The form alone is sufficient to guide us to the kind ; and we might, almost at the first view, be able to judge which belongs to the deer kind, and which belongs to that of the goat.

The line is drawn pretty exact between the two kinds, by the annually shedding the horns in the deer, which are permanent in the sheep : we may therefore consider this distinction only, and define the sheep and goat kind as ruminant animals of an inferior size, that never shed their horns.

If we consider the sheep and the goat, those inoffensive and useful animals, in one point of view, we shall perceive that they have been long reclaimed, and brought into a state of domestic servitude : they both appear to require protection from man, and are, in some degree, pleased with his society : the sheep is indeed the most service-

serviceable of the two; but the goat has more attachment and sensibility. In the earliest ages, the goat appears to have been the greater favourite, and, among the poor, continues so to this day; but the sheep has long since become the principal object of human care. By the generality of mankind the goat is disregarded, or become the possession of only the lowest of the people. We shall therefore first give the sheep and all its varieties, and the goat, with all those of its kind, will properly follow.

THE S H E E P.

OF all animals the sheep, in its present domestic state, is the most defenceless and harmless. Having lost the habit of self-defence, it seems also to have lost the instincts of nature: it seems likewise to have lost its swiftness and its cunning with its liberty. Without any quality to fit it for self-preservation, it vainly attempts at all: it endeavours to fly without swiftness, and to oppose without strength. But these
feeble

feeble attacks only excite the insults of every enemy ; and the dog pursues the flock with greater delight upon seeing them fly, and the more fiercely attacks them upon their unsupported attempts at resistance. They flock together, rather with the hopes of losing their single danger in the croud, than of uniting to repress the attack by numbers. Were the sheep exposed in its present state, to struggle with its natural enemies of the forest, it would soon be extirpated. It can have no other safety than what it finds from man ; and must now rely solely upon that art for protection, to which it originally owed its degradation.

But nature is not to be charged with the formation of an animal, so utterly unprovided against its enemies, and so incapable of defence. The moufflon, which is the sheep in a savage state, is a bold and fleet animal ; it can escape by its swiftness from the larger animals, and is able to oppose the smaller kind with the arms provided by nature. Human art alone has reduced the sheep to the tardy defenceless creature we now find it. In a state of nature they are entirely different. In the forest

forest they are surrounded by dangers, and alarmed with unceasing hostilities; they are hourly pursued from one tract of country to another; and spend a considerable part of their time in attempts to avoid their enemies. By this exercise, and continual practice of the arts of defence and escape, the animal preserves its life and native independence, together with its fleetness and the slender agility of its form.

The sheep, in its servile state, appears to be the most stupid of all animals, and to be divested of all inclinations of its own. Every quadruped has a peculiar turn of countenance that generally marks its nature. The sheep seems to have none of those traits which betoken either courage or cunning. It appears a large mass of flesh, supported upon four small straight legs, ill suited for carrying such a burthen; it is awkward in its motions, easily fatigued, and frequently sinks under the weight of its own corpulency. Those which feed upon a more fertile pasture, and grow fat, become entirely feeble; those without horns are duller and heavier than the rest; and those which have the longest and finest fleeces, are sub-

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ject to the greatest number of disorders. In short, all the changes which have been wrought in this animal by human industry, are calculated for human advantage, and not for the benefit of the creature.

The goat, which this animal resembles in so many other respects, is greatly its superior. The former has its particular attachments, is sensible of danger, and endeavours to escape it; but the other is timid without a cause, and secure when threatened by real danger. The sheep is equally absurd, when bred up tame in the house, and familiarized with its keepers; it then becomes mischievous, butts with its head, and thus displays its unworthiness of being singled out from the rest of the flock: it is indeed extremely evident that this animal is more fitted for the necessities than the amusements of mankind. I know but of one instance in which the sheep testifies any attachment to its keeper. In many parts of the Alps, and even in some provinces of France, the shepherd and his pipe are still continued. The flock is penned every evening in order to preserve them from the wolf; and at sunset,

set, the shepherd returns homeward, with his sheep following him, and seemingly pleased with the sound of the pipe, which is blown with a reed. The Arcadian life is thus preserved in all its antient purity, in those countries that still continue poor; but where a greater inequality of condition prevails, the shepherd is generally some indigent wretch, who, for a paltry pittance, only guards those luxuries, of which he is not fated to partake.

It does not appear from early writers that the breed of this animal was cultivated among the Britons; the inhabitants of the interior parts of this island went entirely naked, or were only covered with skins. Those who lived on the sea-coasts, and were the most civilized, affected the manners of the Gauls, and, like them, wore a sort of garment made of coarse wool. These were probably furnished by the Gauls, as, in the histories of those times, there are not the least traces of manufactures among the Britons.

This negligence does not appear wonderful, when it is considered that they were an uncivilized nation, whose wants were few, and those easily satisfied; but

it is surprising, that when we had long cultivated a breed of sheep, whose fleeces were superior to those of other countries, we still neglected to promote a woollen manufacture at home. That valuable branch of business lay for a considerable time in foreign hands, and we were obliged to import the cloth manufactured from our own materials. After many unavailing efforts among our kings, to introduce and preserve the manufacture at home, Henry the Second granted a patent to the weavers in London, wherein he directed, that if any cloth was found made of a mixture of Spanish wool, it should be burned by the mayor. Notwithstanding this, the weaving business advanced so slowly, that Edward the Third was obliged to permit the importation of foreign cloth in the beginning of his reign: but shortly after, by encouraging foreign artificers to settle in England, and instruct the natives in their trade, the manufacture so far increased, as to enable him to prohibit the wear of foreign cloth.

Many salutary edicts operated, by degrees, towards the establishing this
trade

trade among us ; but the grand rise of all its prosperity is to be dated from the reign of queen Elizabeth, when the tyranny of the duke of Alva, in the Netherlands, drove numbers of artificers into this country for refuge, who were the founders of that immense manufacture we carry on at present : it is however supposed, by many, that the woollen manufacture is upon the decline among us, and that the cloth now made is neither so firm, so fine, nor so serviceable as it has been.

No country in the world is better supplied with materials than Great-Britain, and those adapted to every species of the cloathing business ; and though the sheep of this island afford fleeces of different qualities, yet they may all be used in some branch of it. Herefordshire, Devonshire, and Coteswold-Downs are celebrated for producing sheep with exceeding fine fleeces. The Lincolnshire and Warwickshire kind are very large, and exceed any for the quantity and quality of their wool. Lincolnshire yields the largest sheep in Great-Britain ; and, in that county, it is no uncommon thing to give fifty guineas for a ram.

Suffolk breeds a very valuable kind. In the northern parts of this kingdom, the fleeces are inferior in fineness to those of the south. The Yorkshire hills furnish the looms of that county with great quantities of wool; and that which is taken from the neck and shoulders they mix with Spanish wool, and use in some of their finest cloths.

The wool which Wales produces, is coarse, though it is more extensively useful than the finest Spanish fleeces; for every individual must acknowledge the universal benefit of the flannel manufacture.

In Ireland the sheep are found to vary like those of Great-Britain. Those of the south and east are large, and their flesh is rank. Those of the north, and the mountainous parts, are small, and their flesh sweet. The fleeces also differ in proportion.

Scotland breeds a small kind, and their fleeces are coarse. Boethius speaks of a breed in the isle of Rona covered with blue wool, and two other kinds; but the truth of these relations ought to be enquired into, as the credulous Boethius is the only writer that has mentioned them.

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There is hardly any part of this animal that is not useful to mankind; the fleece, which we have already mentioned; the flesh is a delicate and wholesome food; gloves and different parts of our apparel are made from the skin; it is also used for covers to books; and parchment is likewise made from it: of the entrails are formed strings for various musical instruments; the milk is thicker than the cows, and yields a greater quantity of butter and cheese; the dung is a very rich manure, inso-much that the folding of sheep is become too useful a branch of husbandry to be neglected by the farmer.

Whether we consider the advantages that result from this animal to individuals in particular, or to these kingdoms in general, we may, with Columella, consider animals of the sheep kind as deserving of the first rank, with regard to their utility; for they principally defend us from the violence of the cold, and adorn our tables with numerous and agreeable repasts.

No country, however, produces such sheep, as England; either with larger fleeces, or better adapted for the business of cloathing. Spanish fleeces are
indeed

indeed finer, and some of their wool is generally necessary to work up with our own ; but the weight of a Spanish fleece stands in no degree of competition with those of Lincolnshire or Warwickshire.

The sheep which are harmless are reckoned the best sort. Like all other ruminant animals, sheep want the upper fore-teeth, but they have eight in the lower jaw : two of these teeth drop, and are replaced at two years old ; four of them are replaced at three years old ; and all at the age of four years. There are, however, some breeds in England, which the shepherds call leather-mouthed cattle, that never change their teeth ; and as their teeth are thus longer wearing, they are generally supposed to grow old sooner than the rest.

Sheep produce one or two lambs at a time ; and sometimes, (though not often) three or four. The first lamb of an ewe is generally less valuable than those of a second or third production ; the third being always supposed to be the best. They bear their young five months ; and, if they are housed, will bring forth at any time of the year.

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The woolly sheep, such as we have among us, is found only in Europe, and some of the temperate provinces in Asia. When transported into warmer countries, either into Florida or Guinea, its wool degenerates into hair, and its flesh has a different flavour: in extreme cold countries, it seems equally helpless and a stranger; and though it subsists both in Guinea and Greenland, yet it does not seem to be a natural inhabitant of either.

A ram sometimes lives to the age of fifteen years, and begins to procreate at one. When two of these animals meet together, they sometimes engage very fiercely, butting each other with their heads and horns. When rams are castrated they are called weathers, and they then grow larger and fatter, and the flesh becomes much better flavoured. Ewes are said to live ten years; but they seldom attain that age. It is remarkable that every ewe knows its own lamb, though there should be five hundred in a flock.

The sheep and lamb are the hieroglyphics of innocence; therefore St. Cyprian, in his book of Envy, says, "Let us remember by what name
Jesus

Jesus Christ calls his people, by what appellation he distinguishes his flock. He calls them sheep, that the Christians may equal lambs in innocence. He calls them lambs, that, by simplicity of spirit, they may imitate the harmless disposition of those animals." Those who would express, in hieroglyphical terms, a peaceful, mild, harmless, open-hearted, unblemished person, usually represent a lamb. Opulence, Felicity, Fruitfulness, and Plenty, are represented by the sheep. "I have a thousand lambs feeding on the mountains of Sicily," says Corydon in Virgil. Varro and Marcellus observe, that every person who did not appear at his summons, was obliged to forfeit a sheep.

Sheep will thrive upon almost any ground, and for that reason are preferred by many before the larger cattle.

The farmer should always buy his sheep from a worse land than his own, and they should be large boned, and have a long greasy wool, curling close and well. These sheep always breed the finest wool, and are the most approved of by the butcher for sale in the market.

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The fat pastures breed straight, tall sheep, and the barren hills and downs breed square short ones; woods and mountains breed tall and slender sheep; but the best of all are those bred upon new ploughed land, and dry grounds. On the contrary, all wet and moist lands are bad for sheep, especially such as are subject to be overflowed, and to have sand and dirt left on them. The salt-marshes are, however, an exception to this general rule, for their saltiness makes amends for their moisture; any thing of salt, on account of its drying quality, being of great advantage to sheep.

When sheep are turned into fields of wheat or rye to feed, it must not be too rank first; for then it generally throws them into scowerings. Ewes that are big should be kept but bare, for it is very dangerous to them to be fat at the time of their bringing forth their young. They may be well fed indeed, like cows, a fortnight beforehand, to put them into heart. *Mortimer's Husbandry.*

The feeding sheep with turnips is one great advantage to the farmers, from the crops they raise of them: they soon
fatten

fatten upon them, but there is some difficulty in getting them to feed on them; the old ones always refuse them at first, and will sometimes fast three or four days, until they are almost famished; but the young lambs fall to at once.

The common way, in some places, of turning a flock of sheep at large into a field of turnips, is very disadvantageous; for they will thus destroy as many in a fortnight, as would have kept them a whole winter. There are three other ways of feeding them on this food, all of which have their several advantages.

The first way is to divide the land by hurdles, and allow the sheep to come upon such a portion only at a time, as they can eat in one day, and so advance the hurdles farther into the ground daily until all be eaten. This is infinitely better than the former random method, though they never eat them clean even this way, but leave the bottoms and outsidcs scooped in the ground; the people pull up these indeed with iron crooks, and lay them before the sheep again, but they are generally made so foul that they do
not

not care for them; they eat but little of them, and what they do, does not nourish them like the fresh roots.

The second way is by inclosing the sheep in hurdles, as in the former, but in this they pull up all the turnips they suppose the sheep can eat in one day, and daily remove the hurdles over the ground, whence they have pulled up the turnips: by this means there is no waste, and less expence; for a person may in two hours, pull up all those turnips; the remaining shells of which would have employed three or four labourers a day to get up with their crooks out of the ground, trodden hard by the feet of the sheep; and the worst is, that as, in the method of pulling up first, the turnips are eat up clean; in this way, by the hook, they are wasted, the sheep do not eat any great part of them, and when the ground comes to be tilled afterwards for a crop of corn, the fragments of the turnips are seen in such quantities on the surface, that half the crop at least seems to have been wasted.

The third manner is to pull up the turnips, and remove them in a cart or waggon to some other place spreading
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them

them on a fresh place every day ; by this means the sheep will eat them up clean, both roots and leaves. The great advantage of this method is, when there is land not far off, which wants dung more than that where the turnips grow, which perhaps is also too wet for the sheep in winter ; and then the turnips will, by the too great moisture and dirt of the soil, sometimes spoil the sheep, and give them the rot. Yet such ground will often bring forth more and larger turnips than dry land ; and when they are carried off, and eaten by the sheep on ploughed land in dry weather, and on green sward in wet weather, the sheep will succeed much better ; and the moist soil, where the turnips grow, not being trodden by the sheep, will be much fitter for a crop of corn, than if they had been fed with the turnips on it. The expence of hurdles, and the trouble of moving them is saved in this case, and this will counterbalance at least the expence of pulling the turnips, and carrying them to the places where they are to be eaten. They must always be carried off for oxen. *Tull's Horse-hoeing Husbandry.*

“ To form a flock,” says Mr. Buf-
fon, “ from which a reasonable profit
may be expected sheep and weathers
must be purchased of about eighteen
months, or two years old ; and one
shepherd, if careful, and assisted by a
good dog, may take care of an hun-
dred. In leading them out to pasture,
he should go before them, and accus-
tom them to know his voice, to follow
him without stopping, or straying a-
mong the corn, woods, and fallow
lands, where they would do damage.
The places that best agree with them
are downs, and small eminences : low,
wet, and marshy grounds should be
avoided.

“ In dry and high grounds, espe-
cially if the herbage abound in wild
thyme, and other odoriferous plants,
the mutton is of a much finer quality
than that which is fed in moist valleys
and low plains ; unless these plains are
sandy and near the sea, the herbage
then being sprinkled with salt ; and the
sheep are no-where so good as on these
salt plains. The ewes also that are fed
in them, yield more milk, and of a
better taste.

“ These animals are remarkably fond of salt, and nothing is more healthful when given in moderation; and in some places it is customary to put into the sheep-house a bag of salt, or a saline stone, which they all greedily lick one after another.

“ Every year the flock should be examined, in order to find out such as begin to grow old, and are intended for fattening; for as they require a different management from the others, so they should also be formed into a separate flock. They should be let abroad in summer before sun-rising, in order to feed on the grass while moistened with the dew. Nothing forwards the fattening of weathers more than a great quantity of moisture; and nothing more obstructs it than the heat of the sun; so that about eight or nine in the morning, before the great heat begins, they should be brought back, and salt given them to excite thirst. About four in the afternoon they should be led a second time into cool and moist places; and after two or three months of these little cares, they will have all the appearance of being full of flesh: indeed they are generally fattened as
much

much as they can be ; but this fat proceeding only from the great quantity of water they have drank, may be said to be no more than an œdema, or bloated humour, which would in a short time turn to the rot, and can be prevented only by killing them while they are in this state of fatness. Even their flesh, far from being firm and juicy, is extremely insipid and flabby : in order, therefore, to make good flesh, besides letting them feed on the dew, and giving them a great deal of water, they should have, at the same time, more succulent food than grass. They may be fattened in every season, by only keeping them a-part in a sheep-house, and feeding them with the meal of barley, oats, wheat, beans, &c. mixed with salt, for making them drink more copiously. But in whatever manner, and in whatever season they are fattened, they must be immediately disposed of ; for they cannot be fattened twice, and they will die by diseases of the liver.

“ Every year the whole flock, weathers, ewes, and lambs, are sheared. In hot countries, where the creature may without danger be laid bare, the

wool is not sheared, but plucked off; and often they yield two fleeces in a year. In France, and the colder climates, it is cut only once a year with large shears, still leaving the sheep part of their fleece, as some defence against the severity of the climate. The season for this operation is in the month of May, after thoroughly washing them, that the wool may be as clean as possible. In the month of April it is too cold, and if delayed until June or July, the wool would not grow sufficiently during the remainder of the summer, to secure them from the winter's cold. The weathers have generally more wool than the ewes, and it is also better. That of the neck, and the top of the back, is the prime; that of the thighs, tail, belly, throat, &c. is not so good. White wool is also preferred to the brown, and black, as it may be dyed of any colour. Straight wool is better than curled; and it is even said, that the weathers, whose wool is too much curled, are not in so good a state of health as the others. A considerable advantage may also be drawn from sheep by folding them; that is, by leaving them for a proper
time

time on lands intended for improvement. In order to this, the ground must be inclosed, and the flock shut up in it every night during the summer. By this means, the dung, urine, and heat of the body of these creatures, will in a short time bring the ground into heat, whether exhausted, or naturally cold and barren. A hundred sheep will in one summer meliorate eight acres of ground, which will continue its fertility six years.

“ The taste of the flesh, the fineness of the wool, the quantity of the suet, and even the size of these animals, differ very greatly in different countries. In France, they chiefly abound in the dutchy of Berry ; those in the neighbourhood of Beauvais, and some other parts of Normandy, are the largest, and the fullest of suet. In Burgundy they are very good ; but the best are those that feed on the sandy coasts of our maritime provinces. The wools of Italy, Spain, and England, are finer than those of France. In Poitou, Provence, the neighbourhood of Bayonne, and some other parts of France, there are sheep which seem to be of a foreign breed ; they are
4 stronger.

stronger, larger, and have a great deal more wool than those of the common breed. These sheep are also more prolific than the other, it being nothing extraordinary with them to have two lambs at a time, and year twice a year. The rams of this breed, engendering with the common ewes, produce an intermediate breed, partaking of the two from whom it proceeds. In Italy and Spain, the number and variety in the breeds of sheep is still greater; but all must be considered as forming one and the same species with our sheep; though this so numerous and diversified species hardly extends beyond Europe. Those long and broad-tailed creatures so common in Africa and Asia, and by travellers called Barbary sheep, seem to be of a species different from ours, as well as the American, Vignonia, and Llama." *Buffon's Histoire Naturelle, tom. V.*

The reader is indebted to the ingenious Mr. Irwin for the following observations relating to the management of sheep in Ireland.

"Of all the quadrupeds," says he, "the sheep, perhaps, is the animal best adapted by Providence to pay the rent.

rent. It requires great attention to it; but, at the same time, little bodily trouble. The chief care should consist in their cantonment for food, in which our Irish farmers are extremely negligent (I mean those of them that have abilities to be otherwise) for they station them promiscuously over the land, inclosing only the fattening grounds, which is done but badly, and other cattle suffered to mix with them; whereas sheep, in their rearing and fattening state, should be by no means suffered to perambulate a variety of pasture.

“ But countries and circumstances differ; for though I do not approve of extensive uninclosed pastures in Ireland, it seems in Spain they do well enough; the flocks there are small, as in France; but they have a right of commonage in that country, perhaps not in any other civilized one that we know of.

“ There it is a constant practice with the shepherds, soon after shearing-time, to set out with their flocks, generally consisting of about an hundred each, and to pass from one province to another, feeding them promiscuously both

on ley and corn-lands; the meadows; and some other particular inclosed lands, as parks belonging to the nobility, and clergy especially, only excepted.

“ These itinerant shepherds often travel three or four hundred miles from their habitation with their small flock: they sometimes take part of their family, a good deal of provisions, a tent, and some well-trained dogs, and are never stopped if they keep the sheep on the open lands, and often do not return home till after lambing-time.

“ They generally have one third, or half the profit of the flock for their hire. *Museum Rusticum*, vol. 1. page 449.

“ I think,” says another writer in the *Museum Rusticum*, “ that early shearing should be preferred on many accounts: some defer this work until at or after Midsummer; but this should be avoided, as very bad consequences often ensue. By this late shearing, the maggot has an opportunity of breeding in their skins; and this frets them in such a manner, that they often pine away, and lose all their flesh.

“ This is easily prevented by early shearing; and therefore, if the weather
be

be any thing tolerable, I generally do this work about the middle of May, and sometimes the beginning of that month: by this method the new growth of the wool has time to get a-head, so as to secure the sheep from the attack of the fly. It is true, that at this time of the year the weather is often cold, and chilling rains fall, which might endanger my new-shorn sheep, was no farther care taken of them: but this danger I always guard against, by washing my sheep, after shearing, with salt-water taken from the Medway: this is of great service in killing any vermin that may harbour close to their skins, and, besides this advantage, the penetrating quality of the salt so warms this animal's mass of blood, that it is a great means of preserving it from many disorders to which it is fatally subject; such as the gripes, scab, red-water, rot, &c. &c. This, I say, has been my practice ever since I have lived in Kent; but before that time, when I was not within distance of the sea or Medway, to get salt-water from thence, I always made a brine of a proper strength with common salt and soft water, and applied it to the same use with equal benefit, though

though it cost me, indeed somewhat more. When my sheep have sores, either by the bite of flies, or by scratching, &c. I find the best remedy to be that which is commonly in use, viz. a little tar applied to the wound : many, if you ask their advice, will, by way of shewing their judgment, prescribe complicated mixtures, which have no other merit than that of being more expensive ; but be assured, that the more simple the remedy, the speedier the cure.

“ Though I shear my sheep sooner than most of my neighbours, I should also have observed, that I always shear my fat weathers first, as they are best able to bear the cold ; and I reserve my poor sheep till last, as the cold and chilling rains pinch them more than the others.”

Museum Rusticum, vol. I. page 210.

“ I never used to shear,” says Mr. Lisle, “ till the Monday before Midsummer-day ; but I now (anno 1714) find I was in an error in so doing ; and that, as my keeping is very good, by which means the wool grows the larger, and heats the sheep the more, and their fleshiness being such as to bear the cold the earlier in parting with their fleeces,

I ought to begin to shear the first week in June; and the sheep would not only thrive much the better, when the load of their wool was gone, but their new wool would also have more time to grow against Wayhill-Fair, which would make the sheep look more burley."

Lisle's Husbandry, vol. II. 275.

We cannot but in general approve of the early sheering of sheep, beginning with the fattest; but no certain day can, with reason, be fixed for doing this work; for our seasons differ so much in various years, that next year, in the beginning of May, the weather may be so warm, as to be very proper for the work; and in the following year, the middle of the same month may, on account of the cold, be too soon to begin. The best regulator for this work, as well as many others, would be the state of vegetation, from repeated observation of some particular tree or plant, on a particular soil and exposure; for to bring plants to a certain state, requires always a certain degree of heat, and this is sooner or later, according to the season. Every work of husbandry, in spring at least, might be regulated in
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the same manner, and that to great advantage, for nature is an unerring guide.

“There are,” says Mr. Mills, “in this kingdom, vast tracts of ground, known by the name of downs, on which are chiefly fed large flocks of sheep. Experience has abundantly evinced, that though the grass there is naturally short, it is an excellent food for sheep; and as the welfare of these creatures is of the utmost consequence to one of the most essential branches of the commerce of England, very great caution should be used in making any alteration in their diet, until it be well proved, by fair experiments, that a richer pasture does not injure their fleeces. I would therefore recommend, in the strongest manner, to gentlemen who have estates bordering on such downs, particularly on that extensive tract called Salisbury-Plain, which reaches from the westward of Marlborough to the sea, to bring some of their sheep into rich pastures, of different grasses, as well natural as artificial, and to keep them there for some generations, in order to ascertain, with certainty, what the effect will be.—The word generations

tions may, perhaps, here terrify at first, as implying a long space of time for these experiments, those who do not immediately consider in how few years this succession may take place.—A lamb reared from its birth on burnet, for instance, will, in two years, bring a lamb, which, in two years more, brings young, and the sixth year may see the third generation : so that by the end of seven or eight years the fact may be ascertained.” *Mills's Husbandry, vol. III. page 379.*

THE MANY HORNED SHEEP.

THE first variety of the domestic kinds, after our own, is to be seen in Iceland, Muscovy, and the coldest climates of the North. This, which may be called the many horned sheep, or the Iceland sheep, resembles our breed in the form of the body and the tail ; but differs considerably in the number of horns : they have generally four, and sometimes they are known to have eight, growing from different parts of the forehead. This animal is large and formidable, and nature seems to

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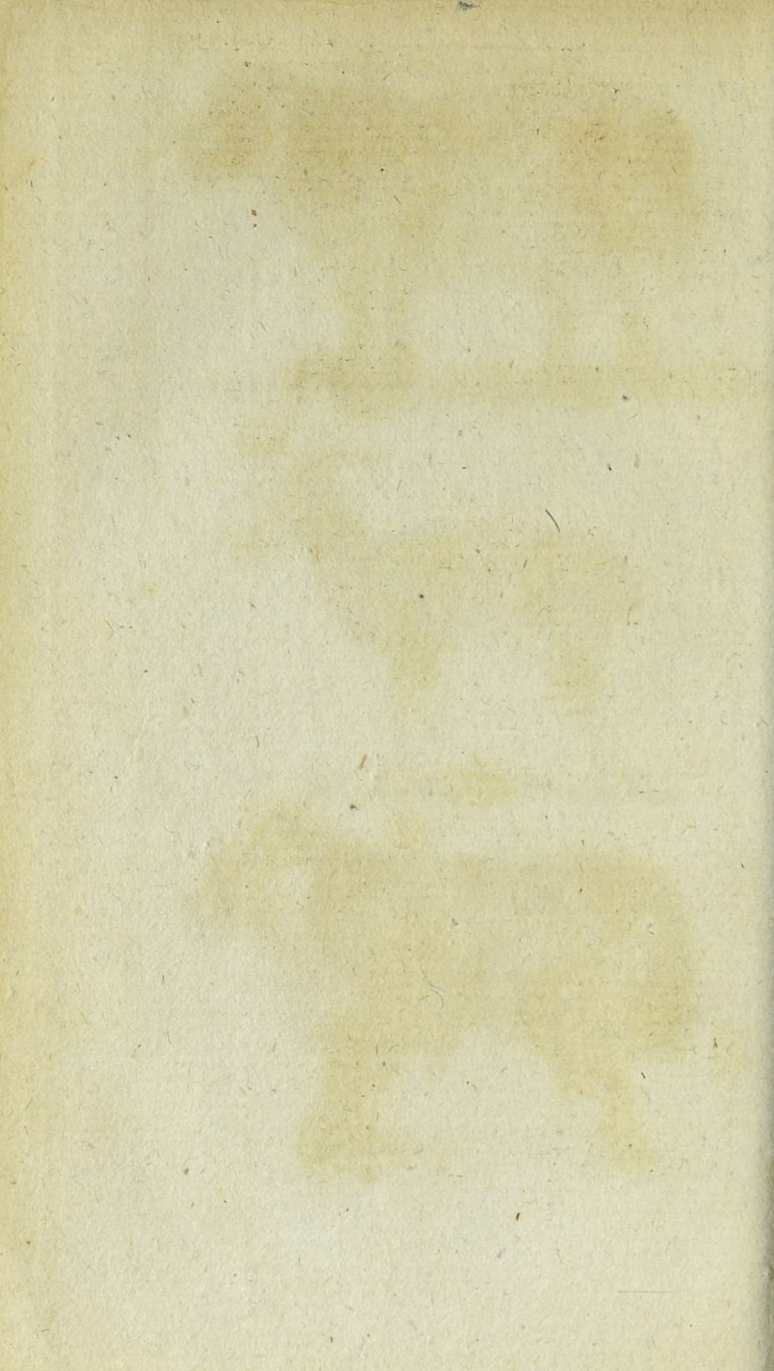
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have thus fitted it for a state of war : it is nevertheless of the nature of the rest of its kind, being gentle, mild, and timid. Its wool is long, smooth, and hairy, and very different from that of the common sheep : it is of a dark brown colour, and, under its outward coat of hair, it has an internal covering that is fine, short, and soft, and rather resembles fur than wool. There is a kind from Spain, with two upright and two lateral horns, the body covered with wool, with yellowish hairs in the fore-part of the neck, fourteen inches in length : such a sheep was shewn alive in London a few years ago.

THE BROAD TAILED SHEEP.

THE broad tailed sheep is very common in Tartary, Arabia, Persia, Barbary, Syria, and Egypt. This animal is principally remarkable for its large and heavy tail, which often weighs from twenty to thirty pounds. Mr. Pennant informs us that some of these tails weigh fifty pounds each. It is sometimes a foot broad, and is usually supported by a small board that goes

Broad tailed Sheep.*Moufflon.**Cape Sheep.*



goes upon wheels ; whence arose the story of their having carts to carry their tails. The upper-part of the tail is covered with wool, but it is bare underneath ; and the natives, who reckon it a great delicacy, are careful to preserve it from injury : these tails are of a substance between fat and marrow, and are eaten with the lean of the mutton. In the temperate climates their fleeces are, as in our breed, soft and woolly, but they are hairy in the warmer latitudes ; yet the enormous size of their tails they preserve in both. In Aleppo and Syria, these sheep are usually kept in the yards, to preserve their tails from injury.

THE SHEEP CALLED STREPSICHEROS.

THE sheep called Strepficheros is a native of Crete, and the other islands of the Archipelago, and differs from the English sheep only in having straight spiral horns, surrounded with a spiral furrow.

THE GUINEA SHEEP.

THE Guinea sheep are generally found in all the tropical climates both of Africa, and the East-Indies. They are large, with a rough hairy skin, short horns, and ears long and pendulous : they have under their chin a kind of dewlap, and a long mane, which reaches below the neck. Their form is so different from the rest, that they might be considered as animals of another kind, if they were not known to breed with other sheep. Of all the domestic kinds, these seem to approach the nearest to a state of nature : they are stronger, larger, and fleetier, than the common breed, and therefore better adapted to a precarious forest life. Like the rest, however, they seem to rely on man for support, being wholly of a domestic nature, and subsisting only in the warmer climates.

THE MOUFFLON.

ALL the varieties of sheep, which have been reduced into a state of domestic

meftic fervitude, are capable of producing among each other ; all the peculiarities of their form have been made by climate and human cultivation, and none of them appear to be fufficiently independent, to live in a ftate of favage nature. They fhould therefore be confidered as a degenerate race, formed by the hand of man, and propagated folely for his benefit.

While man thus cultivates the domeftic kinds, he drives away and deftroys the favage race, which are more headftrong, and lefs beneficial. Thefe are to be found only in a very fmall number, in the moft uncultivated countries, where they fubfift by their native fwiftness and ftrength.

The moufflon, that keeps all the marks of being the primitive race, is only to be found in the more uncultivated parts of Greece, Sardinia, Corfica, and the deferts of Tartary : the moufflon, however, has been actually known to breed with the domeftic animal.

The moufflon or mufion, though covered with hair, refembles a ram more than any other animal ; it has the eyes placed near the horns, like a ram ;
and

and its ears are not so long as those of the goat; in its horns it also resembles the ram, and in all the particular contours of its form: there is indeed a strong similitude between the horns, they are of a yellow colour; they have three sides as in the ram, and bend backwards behind the ears in the same manner. The muzzle, and the inside of the ears, are whitish, tinged with yellow.

Upon the whole, the form seems more calculated for agility and strength than that of the common sheep: the moufflon can live in a savage state, and maintain itself either by force or swiftness, amidst all the animals that live by rapine. On account of its speed, many have been inclined to rank it rather among the deer kind than the sheep: but they are certainly mistaken, as the moufflon has a mark that entirely distinguishes it from that species, being known never to shed horns.

There is a strong resemblance between the male and female of this species; but the female is less, and her horns never grow to that prodigious size they are of in the wild ram.

Such

Such is the sheep in its savage state ; a noble, bold, and beautiful animal ; but the most beautiful creatures are not always the most useful to man. Human industry, to improve its utility, has destroyed its grace.

THE GOAT AND ITS NUMEROUS VARIETIES.

SOME domestic animals, by not being of the first consequence, are considered as nothing : the services of the ass are slighted, because they are inferior to those of the horse, and those of the goat are disregarded, because the sheep so far exceeds it. Were the horse or the sheep removed from nature, the ass and the goat would be invaluable.

The goat in its present neglected state, seems to vary but little from the wild animals of the same kind. It seems in every respect, says Mr. Buffon, more calculated for a life of savage liberty than the sheep. It has more animal instinct, and is naturally more lively. It readily attaches itself to man, and appears sensible of his caresses, It is stronger, swifter, braver, more playful,

playful, brisker, and more capricious than the sheep. It is difficult to confine it to its flocks, it chooses its own pastures, and loves to stray remote from the rest. It is fond of climbing precipices; and delights in going to the very brink of danger.

The goat is frequently seen suspended upon an eminence, hanging over the sea, upon a very small base, and reposes there with security. Nature, indeed, has fitted it for traversing these declivities with ease; the hoof is hollow underneath, with sharp edges, so that it walks on the ridge of an house with as much safety as on the level ground. When two are yoked together, as is frequently practised, they will, as if by consent, take large and hazardous leaps; and yet so well time their mutual efforts, as rarely to miscarry in the attempt.

The goat is a hardy animal and very easily sustained; it is therefore chiefly the property of the poor, who have no pastures. It prefers the neglected wild to the cultivated fields of art: it delights in the heathy mountain, or the shrubby rock: the tops of the boughs, or the tender bark of young trees, is its favourite food: it bears immoderate heat

heat better than the sheep : it is neither terrified at a storm, nor incommoded by the rain ; it seems to be affected only by immoderate cold, which is said to produce a vertigo, with which this animal is sometimes afflicted.

The goat produces two at a time ; or three at the most. But in warmer climates, though it degenerates and is much smaller, yet it becomes more fruitful, and generally produces three, four, or five, at a single delivery. At the age of one year the buck is capable of propagating ; and the female at the age of seven months : but the fruits of such premature generation are weak and defective. Their best breeding-time is generally delayed till the age of eighteen months or two years. One buck is sufficient for an hundred and fifty goats ; his appetites are excessive ; but his violent ardour brings on a speedy decay, so that he becomes enervated in less than four years, and is really old before he reaches his seventh year. The goat, in some places, bears twice a year ; and, like the sheep, continues five months with young.

Goat's milk is sweet, nourishing, and medicinal ; is less apt to curdle on the
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the stomach than cow's milk ; and therefore preferable to those of a weak digestion. As the goat generally feeds upon shrubby pastures, and heathy mountains, there is a fine flavour in its milk, which is very pleasing to such as are fond of that aliment.

The goat makes the chief possession of the inhabitants, in some parts of Ireland and the Highlands of Scotland. On those mountains, where no other animal could subsist, the goat gleans a sufficient living; and supplies the hardy natives with a varied luxury. Their beds are made of their skins, which are soft, clean, and wholesome; they feast upon their milk with oat bread; some part of it they convert into butter, and some into cheese: the flesh indeed is a delicacy they seldom taste of, it being too expensive; even by the epicure, the kid is considered as a great rarity; and the flesh of the goat, when properly prepared, is preferred by some to venison.

Thus even in the wildest solitudes, the poor find comforts, of which the rich do not think proper to dispossess them: in these mountainous retreats, the people have their feasts and their
plea-

pleasures ; their faithful flock of goats attends them to those awful solitudes, and furnishes them with the necessaries of life : while they are happy in being ignorant of greater luxury.

This animal is to be found in almost every part of the world, and seems fitted for the necessities of man in both extremes.

The goat is so prejudicial to plantations, that it would be imprudent to draw him from his native rocks, except he could be hindered from cropping the tops of the boughs, or tearing the tender bark from young trees, A gentleman in Merionethshire *, broke the teeth of his goats short off with a pair of pincers, in order to preserve his trees ; but this method ought not to be recommended, especially when those animals are preserved for their milk, as the great salubrity of that medicine arises from their promiscuous feeding.

This animal contributes, in many instances, to the necessities of human life : from its hair, the white perukes are made ; for which purpose, that of the he-goat is most esteemed ; that

* British Zoology, vol. I. page 29.

which grows on the haunches is generally the longest, the whitest, and the thickest. The skin, in proportion to its good or bad hue, will sell from a guinea to about two shillings. The Welch goats are larger, and have longer and finer hair than those of other mountainous countries: besides, they are generally white, and those of France have short reddish hair, and little horns. We have seen the horns of a Cambrian he-goat three feet two inches long, and three feet from tip to tip.

The suet of this animal is in great esteem for making candles, which are far superior in whiteness and goodness to those made from that of the sheep, or the ox, and consequently bears a better price. Of the horns, the country people make handles for their tucks and pen-knives. The skin is much used in the glove-manufactory, especially that of the kid. In the army it covers the horseman's arms, and a kind of bag is made of it for carrying the foot-soldiers provisions. The flesh affords the inhabitants a cheap and plentiful provision in the winter months, when the kids are brought to market; the haunches are frequently salted and dried, and an-

swer all the purposes of bacon. The meat of a spayed goat of about six or seven years old is reckoned the best, and is generally very sweet and fat. Of this an excellent pasty is made : it is called rock venison, and is indeed not much inferior to that of the deer.

The milk of the goat is sweet, nourishing and medicinal ; it is an excellent succedaneum for ass's-milk. In many of the mountainous parts of Scotland and Ireland, this milk is made into whey, and has been surprisingly efficacious in those cases where coolers and restoratives are necessary. There is as great a resort of patients to many of these places, as there is in England to the Spaws or Baths. That the milk of this animal is so salutary, is not in the least surprising, when it is considered that it only brouzes on the tops, tendrils, and flower of the mountain shrubs, and medicinal herbs.

In some of our mountainous countries, cheese made of this animal's milk is much esteemed, when kept to a proper age ; but it has a peculiar taste.

The rutting season of goats is from the beginning of September to November : their excessive venery prevents

longevity, for they seldom live above eleven or twelve years. They sleep exposed to the sun, and seem to enjoy its warmest fervours; a sunny season makes them fat and frolicksome.

The goat is of the ruminating kind, is cloven-footed, and has no fore-teeth in the upper-jaw *.

Goats are recommended to lie among horses; their smell, as supposed, preventing many distempers in those cattle †.

THE GOAT OF ANGORA.

THE goat of Natolia, or, as Monf. Buffon calls it, the goat of Angora, has

* Goats were held in great veneration by the inhabitants of Mendes in Egypt; and the Egyptians in general never offered them in sacrifice, because their god Pan was represented with the face and legs of a goat. Under the symbol of this animal, they imagined they worshipped the principle of the fertility of all nature expressed by the god Pan. But among the Greeks, the goat was sacrificed to Bacchus, because it destroyed the vines. Venus used frequently to ride on a goat. The popular Venus is represented mounted on a goat, says Pausanias; and the marine Venus riding through the waves on a sea goat.

† Mortimer's Husbandry, vol. I. page 244.

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the ears longer than ours, and broader in proportion. The horns of the male are about the same length with the goat of Europe, but black, and very differently turned, going out horizontally on each side of the head, and twisted round in the manner of a corkscrew. The horns of the female are shorter, and encircle the ear somewhat like those of the ram.

These animals are found only near Angora, Beibazar, and Cougua, in Asiatic Turkey. Those of the last place are brown or black; and the two first of a silky fineness and silvery whiteness, in curled locks of eight or nine inches in length; which is the basis of our fine camblets. The hair is imported here in the form of thread, for the Turks will not suffer it to be exported raw, as the spinning gives employment to multitudes of poor. This variety is confined to a district of two or three days journey in extent; if they change climate, the hair grows coarser. The goat-herds are very attentive to them, and are perpetually combing and washing them.

Nothing can exceed the beauty of the stuffs which are made from the

hair of almost all the animals about Angora.

THE SYRIAN GOAT.

A second variety is the Syrian goat, somewhat larger than ours, with broad ears, which almost hang down to the ground. Sometimes their ears are so troublesome that the owners cut off one, to enable the animal to feed with more ease. The horns are not above two inches and an half long, are black, and bend a little backwards. The colour of the hair is like that of the fox, and there are two excrescences under the throat, which resemble the gills of a cock. These animals are chiefly kept round Aleppo to supply the people with milk, which is sweet and well tasted. They are driven through the streets from April to September, in the same manner that the asses are in London, and their milk is sold to the inhabitants as they pass along.

THE

Syrian Goat

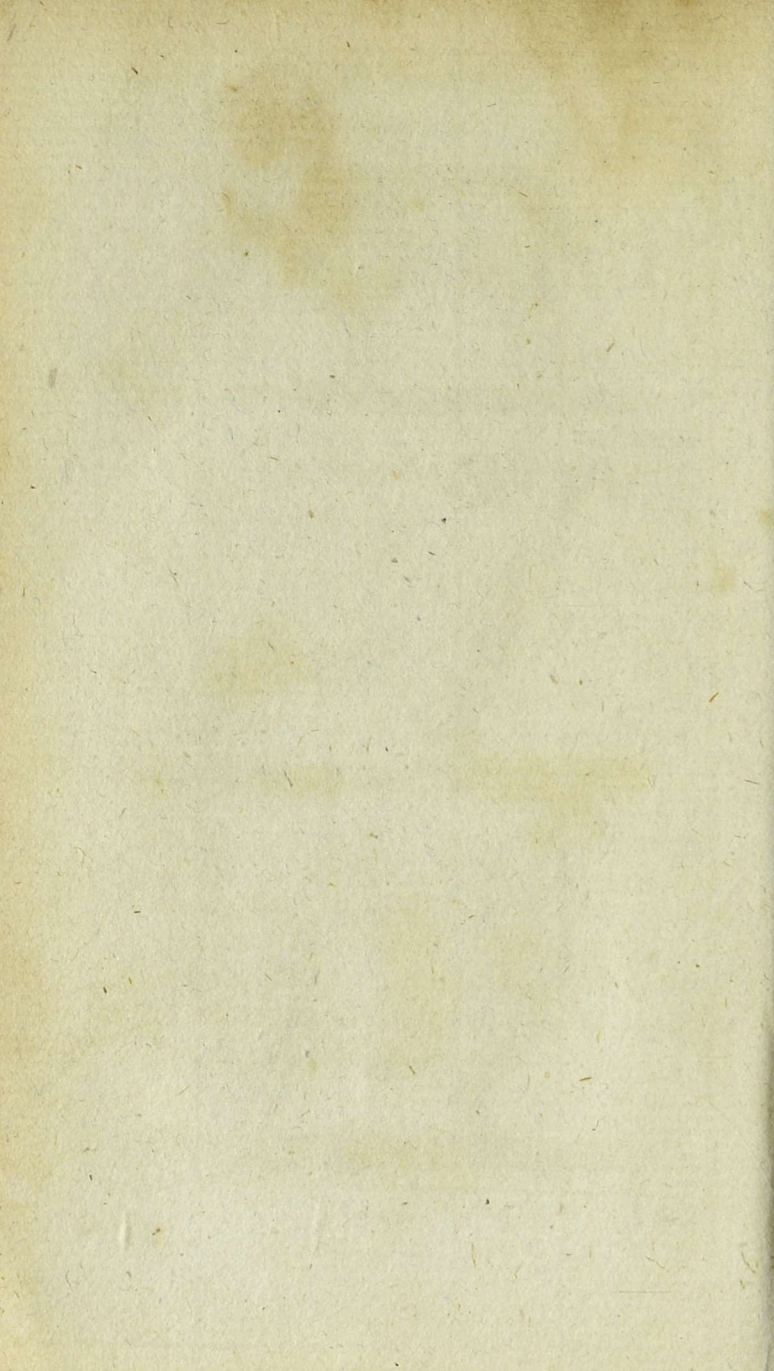


He Goat of Angora.



She Goat of Angora.





THE SMALL GOAT OF AMERICA.

THE small goat of America is of the size of a kid, but the hair is as long as that of the common breed. The horns, which are about the length of a man's finger, are thick, and bend so close to the head, that they almost penetrate the skin.

THE BLUE GOAT.

AT the Cape of Good-Hope, in Africa, there is an animal called the blue goat. In shape it resembles the domestic, but is considerably larger, being nearly of the size of a stag. Its hair is very short, and of a fine shining blue; but when the animal is dead it loses much of its beauty. It has a very long beard, but the horns are shorter in proportion than those of other goats, and are turned spirally. Its legs are long, but well proportioned; and the flesh, though lean, is well tasted. In that plentiful country, however, it is chiefly killed on account of its skin.

It is a shy animal, and very seldom approaches the Dutch settlements ; but they are found in great plenty in the more uncultivated parts of the country. In this extensive region there are others of various colours, many of which are beautifully spotted with brown, white, and red.

THE J U D A G O A T.

THE Juda or Whidaw goat, found in Africa, resembles ours, except in size, it being much smaller. This animal is common in Guinea, Angola, and all along the coasts of Africa. It is very fat, but not much larger than a hare, and its flesh has a delicious taste. In that country it is universally preferred to mutton. Linnæus says, that this and the preceding, came from America; but certainly, before its discovery by the Spaniards, the goat, and every other domestic animal, was unknown there. *Lin. Syst.* 95.

THE CAPRICORN.

THE capricorn is a variety with short horns, their ends turning forward, their sides annulated, and the rings more prominent before than behind *.

In fine, these animals seem all of one kind, with very inconsiderable distinctions between them. They differ indeed, in some respects; such as not having the same colour, hair, ears, or horns. But it is a maxim observed in natural history, that neither the horns, the colour, the quality or length of the hair, or the position of the ears, are to be considered as making an actual distinction in the kinds.

These are only accidental varieties, produced by climate and food, which sometimes change even in the same animal, and give it a seeming difference of form. When the shapes, the inclinations, and the internal conformation of seemingly different creatures are nearly the same; and more especially when they produce among each other, we do not hesitate in pronouncing the species.

* Le Capricorn de Buffon, XII. 146. tab. xv.

THE IBEX.

THERE are others, nearly resembling the goat kind, of whose kindred we cannot be equally certain. The animals in question are the shammoy and the ibex. Were there but one of these wild animals, we might readily allow it for the parent stock; but, in the present case, there are two kinds that have almost equal pretensions to this honour; and the claims of which it has been found difficult to determine.

Both the ibex and the shammoy bear very near approaches to the goat in figure; they both have horns that never shed; and even differ more from each other than from the animal in question. Mons. Buffon is of opinion that the ibex is the principal source, that our domestic goat is the immediate descendant, and that the shammoy is only a variety from that stock, a kind of collateral branch of the same family. He prefers the ibex because it has a more masculine figure, large horns, and a large beard, and the shammoy is deficient in these marks of primitive strength and

and wildness. He therefore imagines, in their original savage state, that our goat has taken after the male of the parent stock, and the shammoy after the female, and that a variety in these animals was thus produced, before they were cultivated by man.

Both these animals, however, seem well fitted for their precarious life; they are both extremely swift, and capable of running, without fear or danger, along the ledges of precipices; where the wolf or the fox, though driven by hunger, dares not venture to pursue them. They are both natives of the Alps, the Pyrenees, and the mountains of Greece and Crete; there they propagate abundantly, and continue to exist in spite of the hunter, and their other natural enemies.

In the shape of its body, the ibex resembles the goat; but his horns are much larger. They are bent backward, full of knots, and it is said there is a knot added every year. Bellonius says, some of these are found at least two yards long. The ibex has a large black beard, is of a brown colour, and has a thick warm coat of hair. A streak of black runs along the top of the back; and

and the belly, the back, and the thighs are of a fawn colour.

THE SHAMMOY.

THE shammoy, says M. Peroud, though a wild animal, is easily tamed: it is found only in rocky and mountainous places. It is about the size of a domestic goat, which it in many respects resembles. It is extremely lively and active, has short hair like that of the doe; is of an ash colour in spring; a dun colour, inclining to black, in autumn, and of a blackish brown in winter.

The shammoy is found in great plenty, in the mountains of Dauphiny, of Piedmont, Savoy, Switzerland, Germany, Greece, and Crete. They assemble in flocks from four to one hundred, dispersed upon the crags of the mountains. The large males feed at a distance from the rest, except in rutting-time, when they approach the females, and drive away the young. They couple from the beginning of October to the latter end of November; and they bring forth their young in March
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and April. The young ones keep with the dam about five months, if they are not separated by the hunters and the wolves. They live between twenty and thirty years. They generally produce two, and seldom more than three at a time.

Their flesh is good for food ; and each animal yields about ten or twelve pounds of suet, far surpassing that of the goat in firmness and goodness.

Though most animals are known to have some cry, the shammoy has scarce any. It has only a kind of feeble bleat, by which the parent calls its young ; but, when danger threatens, and it is to alarm the rest of the flock, it makes a hissing noise, which is heard at a considerable distance. This animal is extremely vigilant, and has a quick and piercing eye. Its smell is also very distinguishing. It is said that, by its smell, it can discover a man at half a league distance, and gives the earliest notice. Upon any apprehensions of danger, it begins its hissing note. Having reposed a moment after this alarm, the animal again looks round, and, perceiving the reality of its fears, continues to hiss by intervals,

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till it has spread the alarm to a vast distance. During this time, it seems violently agitated; strikes the ground with one of its fore-feet, and sometimes with both; bounds from rock to rock; turns and looks about; runs to the edge of the precipice; and, still perceiving the enemy, flies with its utmost speed. It is remarked that the hissing of the male is much sharper and louder than that of the female.

The shammy, like the common goat, feeds upon the best herbage, and selects the most delicate parts of the plants, flowers and buds. While it feeds upon the succulent herbs, it drinks but little, and chews the cud in the intervals of feeding.

The eyes of this animal are beautiful, round, and sparkling. It has two small black horns, of about half a foot long, and rising from the forehead, almost betwixt the eyes. These, instead of going backwards, or sideways, jet out forwards, and bend a little, at their extremities, backwards in a small circle. The ears are elegantly placed near the horns; and on each side of the face are two stripes of black, the rest being of a whitish yellow.

Heat

Heat is so offensive to these animals, that in the summer they are found only in the caverns of rocks, amidst fragments of unmelted ice, under the shade of high spreading trees, or of hanging precipices that face the north, and keep off the rays of the sun. Morning and evening they go to pasture, but seldom in the heat of the day. During the rigours of winter, the shammy sleeps in the thicker forests, and feeds upon the shrubs and the buds of the pine-tree. It turns up the snow with its foot to seek for herbage ; and, where he finds it green, makes a delicious repast : the more craggy and uneven the forest, the more the shammy is satisfied with his abode.

They always ascend or descend in an oblique direction ; and throw themselves down a rock of thirty feet, and safely fix upon some protuberance or fragment, on the side of the precipice, though it should be but just large enough to place their feet upon. In their descent, however, they strike the rock three or four times with their feet, to stop the velocity of their motion.

The skin of the shammy, when dressed, has been celebrated for its soft-

ness and warmth; at present, however, the leather called shammoy, is made from those of the tame goat, the sheep, and the deer.

They are hunted during the winter, partly for their skins, and partly for their flesh. The chase of the shammoy is a laborious employ; they must be got at by surprize, and are shot with rifle-barrelled guns. In their stomach is often found a hairy ball, covered with a hard crust of an oblong form.

Altmann informs us that there are two sorts of shammoy goats in Switzerland, one of which is redder and smaller than the other, and never descends into the valleys, but continues on the most inaccessible mountains during the whole winter. The other sort, which is larger and browner, sometimes comes down to the foot of the mountains, where it lives in winter on the ends of fir-tree branches.

Many medicinal virtues are ascribed to several parts of this animal. The fat, mixed with milk, is said to be good in ulcers of the lungs; and the gall to strengthen the sight, to cleanse ulcers of the cornea, and to take away spots. The stone which is found in the stomach

stomach of this animal, and is called the German bezoar, was formerly thought to have the virtues of oriental bezoar; but, even the virtues which that was said to possess, are no longer attributed to it, for it is now considered as little more than an absorbent.

THE SIBERIAN GOAT.

These animals vary in size and colour; the skin of one, which is to be seen at the British-Museum, is covered with pale ferruginous hair, which is short on the sides, but longer on the top of the neck, and a little erect: on the shoulders, and along the lower side of the neck, the hair is fourteen inches long: beneath the hair is a kind of short wool, and on the knees a bare spot, which appears to have been occasioned by kneeling to lie down. The tail of this animal is short, but the horns are twenty-five inches long, eleven in the girth in the thickest place, and nineteen inches distant from point to point. It has no beard. The mouth, the fore-head, and the ears resemble those of a ram.

Those of Corfica are smaller, and of a deepish brown mixed with a rust colour; the belly, rump, and hind legs are white; and the horns of the females are much smaller than those of the males.

Belon very judiciously styles this animal the tragelaphus, or deer; though his horns do not fall off yearly like those of the stag. Mr. Buffon supposes this creature to be the sheep in the wild state, but Mr. Pennant and other writers are of a contrary opinion.

They are found in the north-east parts of Asia; Barbary, Sardinia, Corfica, and Greece: they live amidst the mountains, and run with great rapidity among the rocks. Those of Kamtchatka are so very strong, that ten men can hardly hold one; and their horns are sometimes so large as to weigh thirty pounds, and so capacious as to afford shelter in the hollow of them for young foxes, when they happen by accident to fall off in the desarts. This animal will grow to the size of a young stag; it propagates in autumn, and brings forth one at a time, and sometimes two.

THE CAMELOPARD.

IT is a difficult matter to form an adequate idea of this creature's size. It exhibits somewhat of the shape of the deer, but is destitute of its symmetry. It has short straight horns, covered with hair, and in the fore-head has a tubercle about three inches high resembling a third-horn. These animals have been found eighteen feet high, and ten from the ground to the top of the shoulders. The hinder part, however is much lower, so that when it stands still, it has somewhat the appearance of a dog sitting.

Neither the disposition nor the formation of this animal seems calculated for a state of natural hostility; its horns are blunt; its teeth are fitted entirely for vegetable pasture; its colour is a dirty white, marked with large broad rusty spots*. It is timorous and inoffensive, and, notwithstanding its size, endeavours to avoid an enemy rather

* Dr. Goldsmith says, "his skin is beautifully speckled with white spots upon a brownish ground;" but Mr. Pennant, who saw the skin of a young one at Leyden, describes him as we have done.

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than resist him. It inhabits the forests of Æthiopia, and other interior parts of Africa. From the extraordinary length of its fore-legs, it cannot graze without dividing them to a great distance; it therefore subsists principally by brouzing on the leaves of trees; and it kneels like a camel previous to its lying down. This animal has been very rarely seen in Europe; but it was known to the Romans in early times, and appears among the figures in the assemblage of Eastern animals, on the celebrated Prænestine pavement, made by the directions of Sylla, where it is represented both grazing and brouzing in its natural attitudes. It was also exhibited at Rome by the popular Cæsar, among other animals in the Circæan games.

This animal is called by the Greeks *camelo-pardalis*, because they supposed it to be generated between a camel and a leopard.

THE ANTELOPE OR GAZELL.

THE distinguishing marks of this tribe of animals, by which they differ from

from the goat and deer, are these : their horns are made differently, being annulated or twisted ; they have bunches of hair upon their fore-legs, and have a streak of black, red, or brown, on the lower part of their sides ; and in the internal side of the ear, there are three streaks of whitish hair.

Most of these animals inhabit the hottest part of the globe ; or at least those parts of the temperate zone, which lie so near the tropics as to form a doubtful climate.

It is, however, remarkable, that notwithstanding the warmth of North-America appears suited to their nature, yet not a single species has ever been discovered in any part of the new world ; but they are very numerous in Asia and Africa.

Almost every species of the antelope have the following general agreements : they are animals of a most elegant and active make, of a restless and timid disposition, extremely vigilant, of great vivacity, remarkably swift and agile, and most of their boundings are so light and so elastic, as to strike the spectator with astonishment. Like the hare, its hinder-legs are longer than

than those before, which add to its security in ascending or descending steep places ; like the sheep, they have all a cloven hoof ; and they have also parmanent horns ; but those of the female are smaller than those of the male.

The chace of these animals is a favourite diversion with the Eastern nations, therefore the best proofs of the rapid speed of the antelope tribe may be collected from them. Bernier, in his travels, informs us, that the greyhound, which is the fleetest of all dogs, is unequal in the course ; and the sportsman requires the aid of the falcon, trained to the work, to seize on the animal and impede its motions, to give the dogs an opportunity of overtaking it. In India and Persia, a kind of leopard is made use of in the chace : it is not by swiftness of foot that this animal takes its prey, but by the greatness of his springs, by motions similar to that of the antelope ; but if, in the first attempt, the leopard should fail, the game escapes.

The fleetness of the antelope was proverbial in the country it inhabited, even in the earliest times : the Gadites
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were said to be as swift as the roes upon the mountains. What is extremely singular, this animal will stop for a moment in the midst of its course, to gaze at its pursuers, and then resume its flight.

Of all creatures in the world the antelope is supposed to have the most beautiful eye; it is extremely brilliant, and yet so meek that all the Eastern poets compare the eyes of their mistresses to those of this animal. *Aine el Czazel*, or “You have the eyes of an antelope,” is considered as the highest compliment that a lover can pay.

Of the antelope, some species form herds of two or three thousands, while others assemble in small parties of five or six. They generally inhabit hilly countries, though some reside in the plains: they brouze and feed on the tender shoots of trees, like the goat, which renders their flesh delicious; but those which are fattened in houses have not that excellent flavour.

Most of the systematic writers have classed this animal with the goat kind; but the antelope forms an intermediate genus, a link between the goat and the deer.

deer. With the first, they agree in the texture of the horns, which have a core in them ; and they are permanent : with the latter, in their fleetness and the elegance of their form. They properly fill up the interval between these two kinds of animals ; so that it is no easy matter to discover where the goat ends, and the deer may be said to begin.

THE END OF VOL. I.