

A
NEW DICTIONARY
OF
NATURAL HISTORY;
OR,
COMPLEAT UNIVERSAL DISPLAY
OF
ANIMATED NATURE.

WITH
ACCURATE REPRESENTATIONS
OF THE
MOST CURIOUS AND BEAUTIFUL ANIMALS,
ELEGANTLY COLOURED.

By WILLIAM FREDERIC MARTYN, Esq.

IN TWO VOLUMES.

VOLUME THE SECOND.

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LABEO. An appellation given by the ancients to the fish more usually called Cheilon and Chelon.

LABRUS. A genus of fishes of the acanthopterygious tribe; the characters of which are: that the branchiostege membrane on each side contains six slender flat bones when the fish is full grown, but in the younger ones five only can be perceived; that the teeth are large, arranged in the jaws, and on three bones in the fauces; that the palate and tongue are smooth; that thick fleshy lips cover the teeth; that the membrane of the dorsal fin contains double rays in it's fore-part, the one soft, and the other prickly; that the scales are large, soft, and smooth; and that the tail is undivided. Arledi enumerates ten species of this genus.

In the Linnæan system, the Labrus is a genus of the thoracic order, comprehending forty-one species. See WRASSE.

LABUYO. A Philippine appellation for a bird of the grouse kind, the urogallus of the Europeans.

LACCIA. A name given by Paulus Jovius to the shad; or, as it is sometimes called, the mother of the pilchards.

LACERTA. A large genus of animals, comprehending all those quadrupeds which are oviparous, and have long tails continued from their bodies. In the Linnæan system, the Lacerta is a genus of reptiles in the class of amphibia, distinguished by a four-footed naked body, with a tail, comprehending forty-eight species. See LIZARD.

LACERTUS. An appellation given by some writers to a fish of the cuculus kind, more usually called the trachurus, and strongly resembling the common mackarel both in shape and flavour.

LACERTUS is also used to express an animal of the garfish kind, somewhat larger than the common species, and called by Italian fishermen Auguglia Imperiale, or the imperial garfish; and by English fishermen, the girrock, in contradistinction to the common kind, which they call the

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kipper. It is thicker in proportion to it's length than the common garfish; it's snout is shorter and sharper; and, instead of teeth, it's jaws are only serrated like a file. This species is not very common.

LADY-COW. A genus of scarabæus, of which there are several species; the most common of which are the following.

LADY-COW, WITH REDDISH CASES TO THE WINGS. This well-known insect has a black head, with two white spots before; and a black breast, whitish near the edges. The cases of the wings are orange-coloured; and towards the base of each there are three black spots, and one common to both, making seven in all. The feelers are very small and clavated; and the under-part of the animal is black.

LADY-COW, WITH RED CASES TO THE WINGS, AND A BLACK SPOT ON EACH. The breast of this species is black, except a large white spot on it's side, two very small ones near the base, and two others at the insertion of the feelers; and the belly, legs, and feelers, are black. This insect is commonly found among trees and hedges in the summer season.

LADY-COW, WITH BLACK CASES TO THE WINGS, AND TWO RED SPOTS ON EACH. The breast of this insect is entirely black; and the spots on the cases of the wings are of a blood-red colour, those nearest to the breast being the largest. This species is frequently found on maple-trees, and sometimes in hedges.

LAERTA. An appellation given by some authors to a species of wasp, the sting of which is falsely reputed to be fatal. It is larger and longer-bodied than the common kind, but smaller than the hornet; and seems to be of an extremely irritable disposition, attacking every kind of animals that comes in it's way.

LAGANUM. A genus of the echini marini, of the general class of the placentæ. The characters of the Lagana are: that the mouth is placed in the centre of the base, and the aperture of the anus

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in its third region; that their superficies is whole; and that their edges are waved. Naturalists enumerate five species of this genus.

LAGOCEPHALUS. A species of orbis or globe-fish, about one foot long, and half a foot thick.

LAGOPUS. A classical appellation for the ptarmigan.

LAGOPUS is also sometimes used to express the *isatis*, an animal of the fox kind found in Lapland and Siberia. See **ISATIS**.

LAMB. The young of the sheep kind. A Lamb of the first year is called a wedder-hog, and the female an ewe-hog; the second year the male is called a wedder, and the female a sheave. Lambs are generally weaned when about sixteen weeks old. Towards Michaelmas the males should be separated from the females; and such as are not intended for rams castrated. See **SHEEP**.

LAMENTIN. A French term for the manatus or sea-cow; an animal found in various parts of the world, particularly America and Asia. See **MANATUS**.

LAMIA. See **SHARK**.

LAMIOLA. An appellation given by some authors to the maltha, or forrat, a kind of shark.

LAMIOLA is also applied by the modern Italians to a fish called in Cornwall the tope. It is a species of the squalus, denominated by the generality of authors *galeus canis*; and by Artedi, the squalus with the nostrils placed near the mouth, and small foramina near the eyes.

LAMNE. A name given by Appian, and some other Greek writers, to the common shark; or, as it is usually called, the white shark, *lamia*, and *canis carcharias*, of authors. It is properly a species of squalus; and is accurately distinguished by Artedi under the name of the squalus with a flat back, and numerous teeth serrated at the edges.

LAMPERN. An appellation frequently given to the *Petromyzon Branchialis* of Linnæus, a species of lamprey, called also the Pride of the Isis.

LAMPREY, LAMPETRA. A genus of fishes, so called because supposed to lick the rocks. The Lamprey belongs to the genus of *petromyzon* in the Linnæan and Arterian systems.

LAMPREY, COMMON; the *Petromyzon Marinus* of Linnæus. The Lamprey bears a strong resemblance to the eel, but is of a lighter colour and a clumsier figure. It differs also in the mouth, which is round, and placed rather obliquely below the end of the nose, somewhat like that of the leech. It has also a hole at the top of the head, as in the cetaceous kinds, through which it spouts water. There are seven apertures on each side for respiration; and the fins are rather formed by a prolongation of the skin, than any set of bones or spines for that purpose.

As the mouth of the Lamprey somewhat resembles that of the leech, so this fish has a property, like that animal, of adhering to and sucking any body to which it is applied. It possesses indeed a very extraordinary power of sticking to stones, from which it cannot be removed without some difficulty; and one which weighed only three pounds, we are informed, adhered so firmly to a stone of the weight of twelve pounds, that it remained some time suspended by its mouth, and at last was not easily separated. This amazing power of suction is supposed to arise from the animal's exhausting the air within its body by the

aperture over its nose; while its mouth is so closely fixed to the object as not to permit any to enter.

This adhesive quality of the Lamprey is probably in some measure increased by that slimy substance with which its body is entirely smeared; and which serves at once to shelter it from the cold, and to keep its skin soft and pliant. This mucus is separated by two long lymphatic canals, extending on each side from the head to the tail, by which it is furnished in great abundance.

From some peculiarity in its formation, this animal generally swims as near as possible to the surface; and might easily be drowned by being forcibly kept for any time under water. Muralto has given us its anatomy; but, in his very minute description, makes no mention of lungs: however, the two red glands, tissued with nerves, which he describes as lying towards the back of the head, are no other than the creature's lights. The absolute necessity the Lamprey is under of breathing in the air, renders it certain that the animal must have lungs, though no anatomist has ever described them: and as to its intestines, it seems to have but one large gut, running from the mouth to the vent, narrow at both ends, and wide in the middle. A conformation so extremely simple seems to imply an equal simplicity of appetite. In fact, the Lamprey's food consists either of slime or water, or such small water-insects as are scarcely perceptible. Perhaps its appetite may be more craving at sea, of which it is properly a native; but, when it ascends rivers, its sustenance is both small in quantity and variety.

The Lamprey usually quits the sea, for the purpose of spawning, about the beginning of spring; and, after an absence of a few months, returns again to its original abode. The manner in which it prepares for spawning is very peculiar: it digs a hole in the gravelly bottom of some river; in accomplishing which, its sucking power is peculiarly serviceable; for, if it meets with any stone of considerable size, it thereby removes it out of the way. The young are produced from eggs, after the manner of flat-fish; and the female remains near the place where they are excluded till they come forth. She is at times seen with her whole family playing round her; and, after a proper interval for their growth, she conducts them triumphantly to the ocean: some, however, which have not sufficient strength to proceed, continue in the fresh water till they die. Indeed, the life of this fish, according to Rondeletius, is but of very short duration; and a single brood is the utmost extent of the female's fertility. As soon as she has returned from depositing her eggs, she appears exhausted and flabby: she speedily feels the decays of age; and two years generally terminate her existence.

Lampreys are differently estimated, according to the season in which they are caught, or the places where they have fed. Those which leave the sea, in order to deposit their spawn in fresh waters, are the best; while such as are entirely bred in rivers, and have never entered the sea, are considered as greatly inferior. Those which are caught in the months of April or May, soon after they have quitted the sea, are reckoned very good; while such as have cast their spawn are flabby, and consequently of little value. The Lampreys of the Severn are preferable to those of any other English river: indeed, it has been an ancient custom for the city of Gloucester to present his Majesty annually with a Lamprey-pie; and, as the gift is made

made at Christmas, it is not without some difficulty that the Corporation can procure a proper quantity, though they sometimes purchase them at the extravagant price of one guinea each fish.

How much Lampreys were valued among the ancients, appears from the testimony of almost every writer who has either praised good living or ridiculed gluttony. But whether the *muræna* of the ancients resembled any known species of the fish called the Lamprey by the moderns, is not certain: we rather apprehend, from the following story, that the *muræna* of antiquity is now totally unknown. 'A senator of Rome, whose name is unworthy of being transmitted to posterity, was famous for the delicacy of his Lampreys. Tigelinus, Manucius, and all the celebrated epicures of Rome, were loud in his praises: no man's fish had such a flavour, was so nicely fed, or so perfectly pickled. Augustus hearing so much of this man's entertainments, desired to be his guest; and soon found that fame had been just to his merits: the man had indeed very fine Lampreys, and of an exquisite flavour. The emperor was desirous of knowing the method by which he attained such excellence in feeding his fish; and the monster, making no secret of his art, informed him, that his way was to throw into his ponds such of his slaves as had at any time displeased him. Augustus (we are told) did not much relish his receipt, and instantly ordered all his ponds to be filled up.'

LAMPREY, LESSER; the *Petromyzon Fluviatilis* of Linnæus. This species, which sometimes grows to the length of ten inches, is found in the Thames, the Severn, and the Dee; and, for the delicacy of its flavour, is usually preferred to the common kind. Vast quantities are caught about Mortlake, of which more than 400,000 have been sold to the Dutch in one season as bait for their cod-fishery. They are generally purchased at forty shillings a thousand; and it is said that the Dutch possess the secret of preserving them for a considerable time.

This fish resembles the common Lamprey in many respects: the mouth is formed exactly in the same manner; and it has likewise the small orifice at the top of the head, by which it ejects the water. In the upper part of the mouth there is a large bifurcated tooth; in each side there are three rows of very minute ones; and in the lower part there are seven teeth, the exterior of which on each side is the largest. On the lower part of the back there is a narrow fin; beneath that rises another, which at the beginning is high and angular, then narrows, surrounds the tail, and ends near the anus. The colour of the back is brown or dusky, sometimes mixed with blue; and the whole under-side is silvery.

LAMPREY, PRIDE; the *Petromyzon Branchialis* of Linnæus. This species is generally six inches long, and about the thickness of a goose-quill. The body is marked with numbers of transverse lines, crossing the sides from the back to the bottom of the belly, which is divided from the mouth to the anus by a straight line; the back fin is of an equal breadth; and the tail is lanceolated, and terminates in a point.

This fish is commonly found in the Isis, near Oxford; but does not seem to be peculiar to that river, though nowhere else caught in such plenty. It conceals itself in the mud; and has never been observed to possess the powers of suction, like the other Lampreys.

LAMPREY, EAST INDIAN. This species is about

a foot long: its skin is smooth and slippery; it is brown on the back; and there are yellow spots on the belly. The ventral fins are purple; and the head, which is shaped like that of the snail, is furnished with feelers. This fish is caught in ponds and lakes: its fins are said to be venomous; but its flesh is extremely agreeable.

LAMPRIILLON. An appellation given by some authors to that particular species of lamprey distinguished by the epithet of the Pride.

LAMPUGA. A name given by some ichthyologists to the fish more usually known by that of the Stromateus.

LAMPUGO. An appellation sometimes given to the hippurus, a marine fish caught on the coast of Spain, and supposed by some to be synonymous with the dorado.

LAMPYRIS. A genus of the coleoptera class of insects in the Linnæan system; the characters of which are these: the antennæ are filiform; the elytra is flexile; the thorax is plain and semi-orbiculated, covering and surrounding the head; and the sides of the abdomen are overspread with folds of down. Linnæus enumerates eighteen species, of which the glow-worm is one.

LANIUS. The Latin term for the butcher-bird.

LANNER; the *Falco Lannarius* of Linnæus. A bird of the long-winged hawk kind. The beak and legs are blue; the head and neck are variegated with large streaks of black and white; the back, wings, and tail, are sprinkled with a few small white spots; the wings, when extended, are also speckled underneath with small round white spots; and the neck and legs are very short.

This bird, which is common in France, where it continues during the whole year, is very docile, and well adapted to all the purposes of hawking. In Italy the species seems to vary a little, having yellowish brown shoulders, and being perfectly useless in falconry.

This species also breeds in Ireland; and is thus accurately described by Pennant: it is less than the buzzard; the ear is of a pale greenish blue colour; the crown of the head is of a brown and yellow clay-colour; above each eye a broad white line passes to the hind-part of the head; and beneath each a black mark points downwards. The throat is white; the breast is tinged with dull yellow, and marked with brown spots pointing downwards; the thighs and vent are spotted in a similar manner; the back and coverts of the wings are a deep brown, edged with a paler tinge; the quill-feathers are dusky; the inner webs are marked with oval rust-coloured spots; and the tail is spotted in the same manner as the wings.

LANTERN FISH. A provincial appellation for a fish of the seal kind, the *Arnoglossus* of Willughby.

LANTERN FLY. A singular species of West Indian insect which exhibits a strong light in the night-time. The structure of this creature's trunk resembles that of the cicada; and as it is incapable of emitting that shrill noise for which the cicada is so remarkable, according to Reaumur's distinctions, it belongs to that species of insect called the *procigale* or *procicada*.

All the luminous insects with which we are acquainted in this quarter of the world, diffuse their light from a part situated near the extremity of the body and under the belly; but the luminous substance of the Lantern Fly is contained in its head.

It differs also very essentially as to the degree of light, which in this Fly is so very strong, as in the darkest night to answer every purpose of a candle. The head of this creature, strictly speaking, is very short, not exceeding the length of one of the rings of the body, if measured from it's junction with the corselet to it's union with the lantern; but, if that part be accounted a portion of the head, then the head is equal in length to the whole body. This lantern, which is of an oblong square figure, has near it's origin a large protuberance that gives it a bunched or humped look. The ground-colour is an olive-brown; and on the under-side a large rib runs the whole length, and divides it in two. Over each of the eyes there is a round granulated prominence, apparently a collection of smaller eyes; and, if so, this insect is supplied with the organs of vision in a different manner from all others: but, in order to come at a perfect knowledge of this curious circumstance, it is necessary that the creature should be examined alive, and on the spot. The upper pair of wings are dotted with white in several places, and variegated near their origin with several blackish spots; and the under pair, which are more transparent than the upper, considerably shorter, and broader, have also a large beautiful round spot of a pavonaceous colour near the extremity of each. The irides are brown and olive; the last colour being very bright and clear, and the other dusky and obscure.

LAP-DOG. A species of the most generous kind of dog; called by Caius, the Spaniel Gentle; and by others, the Melitæus and Fotor. Pennant observes, that the Maltese little dogs were as much esteemed by the ladies of ancient times as those of Bologna are among the moderns; and Holiſſhed is pointedly severe on the ladies of his days, because of their excessive passion for these little animals: which amounts to positive proof that, in the reign of Queen Elizabeth, Lap-Dogs were not perfectly naturalized.

LAPLYSIA. A genus of the mollusca order of worms; the characters of which are: that the body is covered with reflex membranes; that there is a shield-like membrane on the back, and a lateral pore on the right side for the genitals; that the vent is situated on the extremity of the back; and that there are four feelers, which resemble ears. There is only one known species which has obtained the name of the sea-hare.

LAPTHIATI. An appellation given by the natives of Lemnos to a species of serpent, supposed by Bellonius to be the same with the elaps; or elaphis, of antiquity.

LAPWING; the *Tringa Vanellus* of Linnæus. A well-known bird, sometimes called the bastard plover; and by Latinists, *capella* and *vanellus*. This beautiful bird, which frequents the heaths and marshy grounds of almost every part of this kingdom, builds a slight inartificial nest on the ground, and lays four eggs of an olive cast spotted with black. It may not be improper to remark that, among water-fowl, congenerous birds always lay the same number of eggs: for example; all of this tribe lay four a-piece; plovers the like number; the puffin genus only one; and the duck tribe in general from eight to twenty.

The weight of the Lapwing is about eight ounces, the length thirteen inches and a half, and the expansion of the wings thirty inches. The bill, which is about an inch long; is black; the crown of the head and the crest are of a shining

black colour, the latter consisting of about twenty slender unwebbed feathers of equal lengths, the longest being four inches; the cheeks and sides of the neck are white; and beneath each eye there is a black line. The throat and fore-part of the neck are black; the hind-part of the neck is an admixture of white, cinereous, and red; the back and scapulars are of an elegant glossy green colour, the latter finely variegated with purple; the lesser coverts of the wings are of a resplendent black blue and green hue; the greater quill-feathers are black; the upper half of the lesser quill-feathers is black, the lower being white; and the breast and belly are white. The vent and coverts of the tail are orange-coloured; the tail is composed of twelve feathers, of which the two exterior ones are white; the upper half of the remainder is black tipped with a dull white, and the lower half is pure white. The legs are red; and the irides are hazel-coloured.

The young Lapwings run about as soon as they are hatched. The regard shewn them by their parents is very remarkable: they fly round them with great anxiety and clamour; strike at either men or dogs who approach them; and practise various artifices in order to allure them from their nests. The eggs, which are esteemed a peculiar delicacy, are frequently sold at three shillings a dozen.

These birds, which are seen in vast flocks during the winter season, become very wild, though extremely fat, their food consisting of insects and worms. About October and November, they are taken in the fens by means of nets. In some parts of this island they are migratory. They arrive in the northern parts of Scotland about the month of April; and, after they have bred and reared their young, immediately prepare for a retreat. For the space of a week or ten days before they finally leave that country for the winter, they are observed to collect in large flocks; to fly backwards and forwards, as if with an intention of trying the strength of their young before they undertake their expedition; and, after a variety of convolutions and clamorous exhortations, to direct their flight to the southward, where the weather is less severe, and their food more plentiful.

LARK. In the Linnæan system, the Lark is a distinct genus of birds of the order of passeres; the characters of which are: the tongue is bifid, membranaceous and pointed, and furnished with a rim or margin round it; the beak is straight, pointed, and bent towards the extremity; the claw of the hinder toe is considerably the longest; the toes are all divided to their origin; and the nostrils are covered with feathers or bristles. There are various species.

LARK, COMMON, OR SKY-LARK; the *Alauda Arvensis* of Linnæus. This species is about seven inches in length, and twelve and a half in breadth; and weighs about one ounce and a half. The bill is slender; the upper mandible is dusky, and the lower yellow; the crown of the head is of a reddish brown colour, spotted with black; and the hind-part of the head is cinereous. The feathers on the back and the coverts of the wings are dusky, edged with a reddish brown; the upper part of the breast is yellow, spotted with black; and the lower part of the body is a pale yellow. The legs are dusky; the soles of the feet are yellow; and the hind-claw is very long and straight. The male is distinguished from the female by being of a deeper
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a deeper brown colour; but more particularly by the length of the heel or hind-claw, which has sometimes been found to measure two inches. This bird possesses the faculty of erecting the plumage on the top of it's head at pleasure.

The Sky-Lark and the Wood-Lark are the only birds that sing as they fly. The former begins it's song before the earliest dawn: this circumstance has frequently given rise to the most delightful sensations, as well as the most pleasing poetical imagery; nor is there perhaps any thing in nature more agreeable, than to behold the Lark warbling on the wing, and to hear it raising it's notes as it soars, till it seems lost in the immense heights above us; the strains still continuing, though the bird has disappeared. To see it afterwards descending with a swell as it leaves the clouds, and sinking gradually as it approaches it's nest, the spot where all it's delights are centered, is indeed pleasing beyond expression.

The Lark builds it's nest on the ground, beneath some turf, which serves at once to hide and shelter it; sometimes in corn-fields; and, at others, in various sorts of pasturage. The female lays four or five brown eggs, thickly streaked with dark-coloured spots; and generally produces her young about the beginning of May: while she is performing the office of incubation, the male usually entertains her with his songs; and though he rises to an imperceptible height, never once loses sight, in ascending or descending, either of his beloved partner or the nest. This harmony, which begins early in the spring after pairing, continues for several months. In winter, when the songs of these birds forsake them, they assemble in vast flocks, grow very fat, and are taken in great numbers by the bird-catchers.

Though the music of any bird in captivity produces no very agreeable sensation in the breast of humanity, this little creature is frequently caged for the sake of it's singing. For this purpose the young should be taken when about ten days old, or rather earlier, as they quit their nests soon, and put into a small basket having clean short hay at the bottom; and fed with white bread and milk boiled to a thick consistence, mixed with a third part of rape-feed, soaked, boiled, and bruised. Some give them sheeps hearts minced very fine, and perhaps with as good effect; but it is absolutely necessary that, during the first week, they should be fed every two hours, and kept remarkably clean. At the expiration of that time, they should be put into a large cage, with very short hay or coarse bran at the bottom, which should be turned or shifted every day; and, in the space of twenty days, they generally feed themselves. Their food should then consist of bread, eggs, and hemp-feed; the eggs should be chopped very fine, and mixed with an equal quantity of hemp-feed; which last should be bruised till the birds are able crack it themselves. They should be supplied with a fresh grassy turf once or twice a week; and dry gravel should be sifted at the bottom of the cage. During the molting season, their food should be changed, allowing them a little meat, bread, egg, and hemp-feed alternately. When indisposed, a little old cheese, a few spiders, with a blade of saffron in their water, has been found extremely beneficial to them.

LARK, WOOD; the *Alauda Arborea* of Linnæus. This bird measures six inches and a half in length from the tip of the bill to the extremity of the tail; the expansion of the wings is twelve

inches and a half; and the weight is about one ounce and a quarter. The Wood-Lark is inferior to the Sky-Lark in size, and is of a shorter and thicker form; it's colours are more pale; and it's note, though not less sweet, is less sonorous. By these and the following characters, it may easily be distinguished from the common kind: it perches on trees, and whistles like the blackbird; while the Sky-Lark always sits on the ground. The crown of the head and the back are marked with large black spots, edged with pale reddish brown; a whitish coronet of feathers surrounds the head, extending from one eye to the other; the throat is of a yellowish white colour spotted with black; the breast is tinged with red; and the belly is white. The coverts of the wings are brown edged with a dull white; the quill-feathers are dusky, the first three being white at their exterior edges, and the rest yellow. In the Sky-Lark, the first and second feather of the wing are nearly of an equal length; but, in the Wood-Lark, the first feather of the wing is shorter than the second. The tail is black; the legs are cream-coloured; and the hind-claw is extremely long. Like the common Lark, this species sings as it flies, and sometimes also exerts it's musical faculties in the night. It builds on the ground like the common Lark, but the species are far less numerous. The male is distinguished from the female by his superior size.

The Wood-Lark lays four eggs: the young are extremely tender, and difficult to be reared; and therefore should not be removed from the nest till they are well fledged, and afterwards should be kept clean and warm. The song of this bird is by some preferred to that of the nightingale; and in the months of May, June, and July, it is often mistaken for that bird, particularly when the females are performing the office of incubation.

In a state of nature, the Wood-Lark feeds on beetles, caterpillars, and other insects. Apparently sensible of the melody of it's own song, no art can bring it to the imitation of that of any other bird, unless it be carefully brought up from the nest; then, indeed, it sometimes varies it's natural strains.

LARK, TIT; the *Alauda Pratensis* of Linnæus. This species, which frequents low marshy places, like other Larks, builds it's nest on the ground; lays five or six eggs of a dark brown colour; and produces it's young generally about the middle of April. It perches on trees; and has a remarkably fine note, greatly resembling that of the canary-bird. It is of an elegant and slender shape; five inches and a half in length, and nine in breadth. The bill is black; the back and head are of a greenish brown colour spotted with black; the throat, and the lower part of the belly, are white; the breast is yellow, spotted with black; the tail is dusky; the claw on the hind-toe is very long; and the feet are of a pale yellow colour. The cock is somewhat yellower than the hen, especially under the throat, and on the breast and legs.

The Tit-Lark, which is a bird of passage, arrives in this island with the nightingale about the end of March, and quits it about the end of August. When properly fed and attended, it is a hardy, long-lived bird.

LARK, WHITE. This bird is a native of the Lapland mountains, from whence it migrates into Sweden at the commencement of the winter season. It's body is short; it's wings are white, except the first outward feathers, which are black; and the tail and sides are also white. Like the common

common Lark, it builds it's nest on the ground, and never perches on trees.

LARK, CRESTED. This bird differs from the common Lark in having a longer crest, in being less beautiful, and in not soaring so high. It's aerial excursions are likewise shorter; and it never flies in flocks, nor frequents the banks of lakes and rivers. The crest consists of eight or nine feathers, which it can erect, spread, or contract, at pleasure. The exterior parts of some of the pinion feathers are of a dusky white or cream-colour; but the throat is beautifully spotted; and the breast and belly are of a yellowish white hue. The tail is about two inches long; and some of the exterior feathers have white borders, others red, and some black.

LARK, CRESTED, LESSER. Bolton, in his List of Yorkshire Birds, informs us, that this species is very plentiful in that county; and Ray, who asserts the same, gives us the following brief description of it from Aldrovandus: 'It is,' says he, 'like the greater-crested Lark, except that it is smaller, and less brown. Considering the smallness of it's body, it's crest is very large; and it's legs are a fine red.'

LARK, FIELD. This bird is somewhat larger than the Tit-Lark. The head, and the hind-part of the neck, are of a pale brown colour spotted with dusky lines, which appear very faintly on the neck; the back and rump are of a dirty green hue, the middle of each feather in the former being marked with black, and those of the latter plain; the coverts of the wings are dusky, edged with plain; the throat and breast are yellow, the latter being marked with large black spots; the belly is white; and the tail is dusky. The legs are of a very pale brown colour; and the hind-claw, which is extremely short for a bird of the Lark kind, serves as a principal distinction of the species.

LARK, RED. This bird, which was discovered by Edwards in the vicinity of London, is about the size of the Field-Lark. The head, the hind-part of the neck, and the back, are of a dusky brown colour; a blackish line passes through each eye, above which there is one of a dull yellow hue; the wings are dark brown; and the tail is of the same colour, except that the interior feathers are wholly white. The under-side, from the bill to the tail, is a reddish brown, marked with dusky spots; the legs are a dark brown; and the hind-claw is shorter than that of the common Lark. When the wings are collected, the third quill-feather from the body reaches to it's tip, like that of the water-wag-tail genus.

LARK, GRASSHOPPER. Ray describes this bird as having the note of the Grasshopper, but much more loud and shrill. When it sings, it perches on the highest branch of some bush, with it's mouth open and pointing straight upward, and it's wings in a disorderly form. With respect to size, it is considerably smaller than the Tit-Lark: the bill is slender and dusky; the head and upper part of the body are of a greenish brown colour spotted with black; and the quill-feathers are dusky, edged with an olive-brown. The tail, which is very long, is composed of twelve sharp-pointed feathers, the middlemost being the longest, and the others gradually decreasing. The breast and belly are of a yellowish white colour; and the hind-claw is shorter and more crooked than is usual in the Lark kind.

LARK, BLACK. The bill of this bird is dusky, and the irides are yellow: the colour is entirely a dusky brown inclining to black, with a reddish cast, except on the back part of the head, where there are some feathers of a dusky yellow colour; and the belly, where some of the feathers are edged with white. The legs, feet, and claws, are of a dirty yellow hue. This species is seldom seen in Great Britain.

LARK, WILLOW. This is a small species, but has exactly the same note and action as the Grasshopper Lark. It annually visits the willow-hedges in Flintshire, where it continues during the whole summer. The head, back, and coverts of the wings, are of a yellowish brown colour marked with dusky spots; and the quill-feathers are dusky, except on their exterior edges, where they are of a dirty white hue. The throat is white; the whole under-side of the body is a light yellow; the tail is a dark brown; the legs are a yellowish brown; and the hind-claw is short and crooked.

LARK, PETIT. This seems to be the smallest of the Lark kind. The bill is slender, sharp-pointed, and dusky; the head, the neck, the upper part of the body, and the wings, are of a dusky olive-green colour; but the latter are shaded with black, and have a dusky white border on the two first rows of the covert-feathers. The breast and the lower parts of the body are of a pale brown hue, with large faint spots of black. The tail is about two inches long; the outermost feathers are white about half way, with dusky edges; but the others are brown, with yellow edges. The feet are of a pale brown colour; and the claws are long.

LARK, SEA; the *Charadrius Hiaticula* of Linnæus. This species is common on the British shores in summer, but the number is not very considerable. It feeds on beetles and small insects; and, at the beginning of winter, totally disappears. The bill of this bird is half an inch long, the upper half being orange-coloured, and the under black. From the bill to the eyes proceeds a black line; the cheeks are likewise black; the forehead is white, bounded by a black band that passes from eye to eye; the crown of the head is of a fine light brown colour; and the upper part of of the neck is encircled with a white collar, the lower with a black one. The back and coverts of the wings are of a light brown hue; the breast and belly are white; the tail is brown tipped with a darker shade; and the legs are yellow. This bird lays four eggs, of a dull whitish colour, thinly sprinkled with black.

LARVA. An appellation given by Linnæus to insects in that state called by authors *eruca*, or caterpillar.

LARUS. In the Linnæan system of nature, a genus of the order of anseres; the characters of which are these: the bill is long, straight, and incurvated near the extremity; there is an angular prominence in the lower mandible; the nostrils are linear, and situated in the middle of the bill; the tongue is slightly cloven; the body is light, and covered with thick plumage; the wings are large; the legs are short; and the feet are small. These birds, which are almost incessantly on the wing, feed on fish, and are extremely clamorous. Linnæus enumerates eleven different species. See GULL.

Ray observes, that there are properly two subordinate genera of the *Larus* kind. The first genus is

is composed of those which are large; have even, not forked, tails; and a tubercle in the lower chap of the bill: the other genus is composed of the smaller ones, which have all forked tails, without any tubercle. Of the first genus are the great gull, the herring-gull, the sea-mall, the sea-meb, the tarrock, the pewit, the gannet, the cataracta, the martinazza, the coddly-moddy, the winder-meb; the cepphus, the brown tern, and the gaviota: of the second, or smaller kind, are the sterna, which Linnæus has made a separate genus; the fischerlin, the scare-crow, and four species of the *Larus fidipes*.

LARUS FIDIPES. A peculiar kind of bird of the *Larus* or gull kind; except that it's toes are loose, as on inland fowls. There are four known species of this genus, which all feed on fish.

LATUS. A fish of the *coracinus* or *umbra* kind, caught in the River Nile, and in the Adriatic and Mediterranean seas. It bears a strong resemblance to the common *coracinus*, but is considerably larger, and destitute of the beard depending from the jaw of that species. It's flesh is esteemed very delicate food.

LAVARËTUS. A small fish, called by some naturalists the gang-fish, and the rhingau; and by Marcgrave the *Curimata*. It seems to be of a middle nature between the trout and herring kind; is caught in vast quantities, during the months of March and April, in several of the German lakes; and, after being pickled, is sent to different parts of the world. It seldom exceeds four inches in length.

LAVIN. An appellation given by the natives of the Philippine islands to a species of hawk, beautifully variegated with yellow, black, and white. It is sometimes called *Sicub*.

LAUNCE; the *Ammodytes Tobianus* of Linnæus. This fish, called also the sand-eel, resembles the common eel in shape, being long and round, and generally about nine or ten inches in length. The back is blue, varying with green; and the sides are of a silvery white colour. It is destitute of scales; it has a sharp snout, and a wide mouth without teeth; the lower jaw is longer than the upper, but the latter is moveable, and capable of being protruded. A long narrow fin, consisting of fifty-eight rays, extends almost the whole length of the back; and there is also a pair of fins at the gills, but none under the belly. The irides are silvery. The tail is furcated; but the lobes are rounded at their extremities.

These fishes abound on the sandy shores of this island during some part of the summer. On the recess of the tides, they conceal themselves about half a foot under the surface of the water, in those places where it is left about the depth of one foot; and from these retreats they are drawn by means of hooks adapted for that purpose. Their flesh is very delicate; but it is most commonly used as a bait for other fish.

LEAPING FISH. This fish, which is a native of the Oriental seas, derives it's name from it's leaping and playing on the surface of the water. It is about the size of the herring: it's head is full of knots; it's body is of a greyish colour, spotted with black; and it has no dorsal fins. It's flesh is much esteemed.

LEATHER-MOUTHED. The English expression for *Malacostomus*; a distinctive epithet applied to such fishes as have thick lips, and no teeth in their jaws; of which kind are the tench, the carp, the bream, and the roach.

LECCIA. An appellation frequently given to a large fish caught in the Mediterranean, more generally known by the names of the *glaucus* and *amia*. It is probably a species of the *scomber*; and is distinguished by Artedi under the name of the *scomber* with two dorsal fins, and the ray of the hinder fin very long.

LEECH. In the Linnæan system, the *Leech* is a genus of *intestina*, comprehending nine different species. The distinguishing characters of this animal are; that the body is oblong, destitute of feet, and of a black colour with various spots and lines; that the mouth has three distinct apertures; and that it's motions are performed by dilating the head and tail, and raising the body into an arched form.

LEECH, COMMON; the *Hirudo Medicinalis* of Linnæus. This species, which is usually about the length of the middle finger, exhibits the general figure of a worm. It's skin is composed of rings, by means of which it acquires it's agility, and swims in the water. When touched, after being separated from it's proper element, it contracts itself in such a manner as not to exceed one inch in length. It has a small head; a black skin, edged with a yellow line on each side, and some yellowish spots on the back; and the belly, which is of a reddish colour, is marked with whitish yellow spots. But the most remarkable part of this animal is it's mouth, which consists of five different parts, confounded under one general appellation: these are two regular lips; a cavity, which is properly the mouth; certain instruments for piercing; others which serve for sucking; and, lastly, a throat or *æsophagus*, through which it swallows the blood of animals, that it is so well adapted to extract.

In a quiescent state, the upper lip of the *Leech* forms a regular semicircle; and the lower a segment of a circle whose diameter would be much more considerable. When it extends it's head in order to move, the semicircle of the upper lip forms two oblique lines, the junction of which makes a salient angle, capable of being applied to any object on which it would fix: that angle is marked with a regular black spot on the exterior edge of the lip. The extreme softness of the fibres of this part renders it very serviceable to the animal in readily assuming any figure occasionally.

Whenever the *Leech* attaches itself to any object, the two lips regularly fix, and in that state form a sort of *acetabulum*, like the hollow of the tail: this may be observed in it's fixing on the sides of the glass vessel wherein it is kept; in which situation the mouth, or the aperture between the lips, is distinctly seen. The mouth, like the lips, is formed of such extremely supple fibres, that it takes the figure of the part to which it is applied, and adheres very closely thereto. When the lips are fixed on the flesh, in order to suck, the mouth continues moveable under them, and explores the compass of the flesh inclosed in the larger circle of the lips, for the spot where the blood may be most easily extracted. Within this mouth is placed the instrument for piercing the skin, which is different from the sucker of the gnat, as may be proved by examining the wound it leaves. This wound is composed of three cuts, making three rays, and uniting in a centre under equal angles. These three openings, on the fourth day after the application, appear as if made by a fine lancet. On examining the *Leech*, the organ destined for inflicting the wound is found to be placed between

the aperture of the lips and the bottom of the mouth; and, on dissecting it, and drawing the finger gently over this part, a roughness is perceptible like that of a fine file, which evidently arises from the asperity of some substance of the hardness of bone. This is, in fact, a number of fine sharp teeth; which, when microscopically examined, are found to be composed of three series, on three ribs or jaws, each of which is placed along the middle of a strong muscle, regularly corresponding to a triangular opening, which the creature has in its mouth: when that has fixed on a proper part for the extraction of blood, these muscles exert their action, and force the teeth through the skin.

Such are the instruments which penetrate the blood-vessel. For the reception of the fluid into the body of the animal, there is a small aperture between these rows of teeth; and within this a small substance is perceptible, which by its motions appears to be a tongue, and probably acts as a piston to take up the blood flowing from the triple wound, in the centre of which it naturally stands; while the larger circle of the lips, and the other appendages, perform the office of the body of the pump. Lastly, between the root of the tongue and the beginning of the stomach, there is a space, about two lines long, in which may be discovered two different arrangements of fibres, one set flat, and the other circular: these evidently possess the power of widening or contracting the cavity of the pump, and by that means facilitate its office; the plane ones contracting its length, in order to enlarge the capacity; and the circular ones determining the blood towards the stomach, by their power of contracting the cavity, when the blood is received. The blood from hence enters into a membranaceous kind of receptacle, serving the animal for stomach and intestines, and occupying the greatest part of the body. If the air is admitted into the body by the mouth, it may be seen permeating a longitudinal canal, and filling, as it proceeds, a number of vesicles on each side: these receive the blood, and becoming replete, inflate the body to a considerable size.

But the most extraordinary circumstance relative to the conformation of this animal is, that though it admits such a large quantity of food, it has no anus, or passage to eject it from the body, after it is digested: on the contrary, the blood which the Leech has thus absorbed, remains for several months clotted within its body, blackened a little by the change, but in no respect putrified, and very little altered either in texture or consistence. In what manner it passes through the animal's body, or how it contributes to its nourishment, is, perhaps, not easily accounted for. The water in which it is kept is very little discoloured; it cannot be supposed to return the blood by the same passage through which it was admitted; it therefore only remains, that it must go off through the pores of its body, and that these must be sufficiently large to permit its exclusion.

Leeches are capable of existing in oil; and, when removed out of that liquid into water, they shed tender skins, or films, of the regular shape of their bodies, and resembling the pellicles of eels in miniature. Their living in oil seems to be a proof that the organs of respiration are not placed on the external parts of their bodies, as in many small animals, such as the wasp, the bee, and the worm, which would quickly be suffocated if the respiratory ducts were oiled. Hence it appears that the

Leech breathes through the mouth; and in fact it has a motion which seems to resemble the act of respiration in more perfect animals.

When Leeches are to be applied for medicinal purposes, it is generally thought expedient to take them from the water in which they are contained about an hour before; for thus they become more voracious, and fasten more readily. When saturated with blood, they often voluntarily quit their hold; but if it be indeed necessary to separate them from the wound, care should be taken to pull them very gently, or even to sprinkle them with salt if they continue to adhere; for, if rudely plucked away, they frequently leave their teeth in the wound, which excites a most troublesome inflammation, often attended with danger. If they seem averse to fix on the skin, they may be allured by rubbing it with milk or blood, or water mixed with sugar. As salt proves fatal to most insects, it is commonly thrown on Leeches when they have dropped from wounds, by which means they disgorge the blood they have swallowed, and are then kept for repeated applications: however, they seldom adhere after this operation, or recover their former vivacity.

The Leech, which is a viviparous animal, produces its young, one after another, to the number of forty or fifty at a birth. It is probable that, like the snail, each insect contains the two sexes; and that it impregnates, and is impregnated, in a similar manner. The young ones are chiefly found, in the month of July, in shallow running waters, and particularly where they are tepidified by the rays of the sun. The large ones are chiefly sought after; and, being put into glass vessels filled with fresh water, remain there for months, and even years, without any visible means of subsistence: but they never breed in such confined situations; and, consequently, what regards this part of their history is still enveloped in obscurity.

The Leeches of this climate seldom exceed four inches in length; but, in America and the East, they are found from six to seven: there they are so extremely numerous, that bathing in the lakes is dangerous, and walking through the marshy grounds is by no means safe. Even in some parts of Europe, they increase so as to become formidable; and Sedelius, a German physician, relates, that a girl of the age of nine years, who was tending sheep near the city of Bornst in Poland, perceiving a soldier making up to her, attempted to hide herself among some bushes in a neighbouring marsh; but the Leeches in that place, which happened to be very numerous, adhered so closely to her body, that she soon expired from the quantity of blood which she lost by their united efforts.

LEECH, HORSE; the *Hirudo Sanguisuga* of Linnæus. The body of this species is depressed; and in the bottom of the mouth there are certain great sharp tubercles, or whitish caruncles. The mouth and tail are slender; the body is pretty thick; the belly is of a yellowish green colour; and the back is dusky. This animal is very common in stagnant waters.

LEECH, MECHANICAL; the *Hirudo Geometra* of Linnæus. This species frequents the same places with the rest of the kind; and is found on trout and some other fishes after the spawning season. Its motions are performed by a particular expansion of the head and tail, as if measuring like a compass; and hence it receives its name. The body, which is filiform, is greenish, spotted with white;

white; and both ends are dilatable; and equally tenacious.

LEECH, TUBERCULATED; the *Hirudo Muricata* of Linnæus. This creature, called also the *Hirudo Marina*, inhabits the sea, adheres strongly to fish, and leaves a black impression on the place. The body, which is taper and rounded at the greater extremity, is furnished with two small horns; strongly annulated, and tuberculated on the rings; and the tail is dilatable.

LEECH PINNATED; the *Hirudo*, or *Acus Cauda Utrunque Pinnata* of Boccone. This singular animal is found adhering to the sides of the xiphias, or sword-fish. It is about four inches long; the belly is white and cartilaginous; the place of the head is occupied by a kind of hollow snout, covered with a very hard membrane, and differing extremely from the skin of the belly. This snout is thrust into the body of the fish, and with it the blood is extracted. The tail is plumiform; and under it there are two slender filaments or fibres, longer than the whole body, by means of which, when it is not fastened to the body of the fish, it clings to stones or marine plants, to prevent it from being carried away by the impetuosity of the current; and when it is affixed to the body of the fish, these serve to hold it perfectly steady.

This creature miserably torments the sword-fish; but it is in its turn equally annoyed by an animal which preys on its blood and juices: this is a sort of louse, of a brownish colour, and nearly about the size of a pea, which always attends it. So far as has yet been observed, this Leech has never been found but on the sword-fish; nor has this louse been discovered to molest any other creature besides this Leech.

LEIOBATUS. An Aristotelian appellation for a species of ray-fish; called by several of the ancients *bos marinus*; and by the moderns, *lævi raia*, or *raia oxyrynchus*. It is very accurately distinguished by Artedi under the name of the variegated ray, with ten prickly tubercles on the middle of the back.

LEMMING; the *Mus Lemmus* of Linnæus. This animal was first mentioned by Olaus Magnus; but, after the most accurate researches, is thus justly described by Wormius. 'It has,' says he, 'the figure of a mouse, but the tail is shorter, and the body about five inches long. The hair is fine, and spotted with various colours. The fore-part of the head is black, and the hind-part yellowish; the neck and shoulders are black; and the rest of the body is reddish, marked with small black spots of different figures, as far as the tail, which is about half an inch long, and covered with blackish yellow hairs. Neither the figure nor the order of the spots are the same in every individual. Round the mouth are several stiff hairs in the form of whiskers, of which six on each side are longer and stiffer than the rest. The aperture of the mouth is small; and the upper lip is divided, as in the squirrel. From the upper jaw proceed two long, sharp, and somewhat crooked cutting-teeth, the roots of which penetrate as far as the orbits of the eyes; two similar teeth in the under jaw correspond with those above; and on each side are three grinders, situated at some distance from the cutting-teeth: the first of the grinders is large, and composed of four lobes; the second of three lobes; and the third is much smaller. The tongue is pretty large, and extends to the ex-

trinity of the cutting-teeth. From the remains of herbs and straw found in its throat, we are inclined to think it is a ruminating animal. The eyes are small and black; and the ears recline on the back. The fore-legs are very short: the feet are covered with hair, and armed with five short crooked claws; the middle one very long; and the fifth, resembling a small thumb or a cock's spur, situated very high on the leg. The whole belly is whitish, inclining to yellow.'

These Lemmings, called also Lapland marmots, which are natives of Scandinavia, are often seen to pour down in myriads from the northern mountains; and, like a pestilence, to destroy all the productions of the earth. In wet seasons, all of the rat kind are known to propagate more than in dry; but this species in particular is so assisted in multiplying by the moisture of the weather; that the inhabitants of Lapland really believe that these animals drop from the clouds; and that the same magazines which furnish hail and snow, produce the Lemmings also: in fact, after long rains, they set forward from their native mountains, and (several millions in a troop) overspread the whole plains. They generally move in regular bodies, advancing by night, and halting by day: they often extend a whole square mile, and are so very thick, that the hindmost frequently touches its leader. In vain do the wretched inhabitants resist them, or attempt to stop their progress; they still continue to move forwards; and, though thousands are destroyed, others as quickly succeed, and render their destruction impracticable. They usually march in lines, about three feet from each other, and exactly parallel: their course is always from the north-west to the south-east, and regularly conducted from the beginning. Wherever their motions are directed, nothing can impede them; they proceed straight forward, impelled by some unaccountable instinct; and, from the time they first set out, never once meditate a retreat. If a lake or river happens to interrupt their progress, they immediately take the water, and swim across. A fire, or a deep well, does not turn them out of their direction; they boldly force their way through the flame, or precipitate themselves into the well, the farther side of which they are sometimes seen ascending. If they are interrupted by a boat in crossing a river, they never evade it, but mount directly up its sides; and the boatmen, who know how vain resistance would be in such a case, calmly suffer them to pass over without receiving any damage. If a stack of hay or corn obstructs their passage, instead of climbing over it, they gnaw their way through. If stopped by a house, and they can find no means of making a passage in a direct line, they continue there till they die: fortunately, however, for mankind, they eat nothing that is prepared for human subsistence; and never enter a house in order to consume the provisions lodged in it, but subsist entirely on such roots and vegetables as they meet with in their way. In crossing a meadow, they destroy every appearance of viridity, and render it perfectly desolate. If any of the human species imprudently ventures to attack one of them, the little animal is no way intimidated by the disparity of strength, but furiously flies at its opponent, and, making a kind of barking noise, resolutely maintains its hold. If, at last, the leader be forced out of its line, and separated from the rest of its kind, it utters a plaintive cry, different from that of resentment; and,

as some have asserted, courts an immediate death by suspending itself from a forked branch of some adjacent tree.

Enemies so numerous and destructive would soon depopulate the country that produced them, did not the same rapacity which prompts them to consume the labours of industry, at last impel them to destroy each other. After committing incredible devastations, they are at last observed to separate into two armies, opposed with deadly hatred, along the banks of the larger lakes and rivers. The Laplanders, who watch their manœuvres, instead of considering their mutual animosities as a happy riddance from these most dreadful pests, form ominous prognostics from the manner of their arrangements. They consider their combats as presages of war; and expect an invasion from the Russians or Swedes, according as the army towards these kingdoms happens to prove victorious. The two divisions, however, still continue their engagements till the one has overcome the other; after which they totally disappear. Nor is it well known what then becomes either of the conquerors or the conquered: some suppose that they rush headlong into the sea, and perish; others, that they destroy themselves, as some are found hanging on the forked branches of trees; and others again, that the young spring herbage proves fatal to their existence. But the most probable opinion is, that having devoured the vegetable productions of the country, and being destitute of any farther supplies, they fall to devouring each other; and, having once habituated themselves to this sort of repast, they continue it ever after. However that may be, they are often found dead by thousands, and their carcases have been known so to infect the ambient air, as to produce very malignant disorders. The plants which they have gnawed seem also to be contaminated; for such cattle as afterwards feed in those places over which they have passed, frequently languish, and die.

These animals are prolific beyond conception: and, what is very extraordinary, their breeding does not hinder their march; for an individual has sometimes been observed to carry one young one in its mouth, and another on its back. The ermine preys on these creatures without mercy; and, according to some authors, the rein-deer find in them very delectable food. The Swedes and Norwegians, who practise agriculture, consider an invasion from these vermin as a terrible visitation; but the case is very different with regard to the Laplanders, who leading a vagrant life themselves, like the Lemmings, can easily retire from one part of the country to another. These people indeed always express great satisfaction when they are visited by an army of Lemmings; they feast on their flesh with peculiar avidity; and yet, from the best accounts we have received of its nature and quality, it appears to be such food as cats and dogs turn away from with aversion. In former times, the Swedes and Norwegians exerted spiritual arms against these destructive animals; the priest performed exorcisms; and a long form of prayer was composed and repeated in order to avert the evil. Happily, however, for mankind, their emigrations seldom happen more than once or twice in the course of twenty years.

LEMUR. A genus of the order of primates, in the class of mammalia; the distinguishing characters of which are: that these animals have four upper fore-teeth, separate from each other; and

six lower ones, which are longer, compressed, and parallel: the canini are single ones; and the molars are numerous, the fore ones being longer and sharper than the rest.

LEO. The classical appellation for the lion. See **LION**.

LEO PULEX. A species of insect so called by Reaumur: it feeds on the pulex arboreus, or common tree puceron, in the same manner that the formica leo does on ants, being likewise an animal in an imperfect state.

The Leo Pulex is usually bred among the pulices, which it devours in prodigious numbers. It is originally a worm of the hexapode or six-legged kind, and afterwards becomes a green fly with four wings.

Another animal of this kind, and equally destructive to the genus of pulices, is a hexapode worm of a whitish colour, and smaller than the former, which finally becomes a round-bodied beetle. A third species is called vermishytrix, the porcupine worm, from the vast number of spiculae with which it is armed: this also finally becomes a small round beetle.

LEOCROCOTTA. An appellation given by the ancients to an imaginary animal, said to be the swiftest in nature. It is described as a mongrel, unable to propagate its own species, being generated between the hyæna and the lions; but, with respect to its existence, we have no authentic accounts. Latin authors seem to confound this creature with the mantichora; and attribute what has been said of the one to the other.

LEOPARD. An animal of the feline kind, extremely fierce, nimble, and active; the male of which is sometimes, but improperly, called pardus, and the female panthera.

LEOPARD, COMMON. This animal, called also the panther of Senegal, is a native of Senegal and Guinea. The principal difference between it and the panther, with which it is frequently confounded, are the following: the large panther is often found to be six feet long from the nose to the insertion of the tail; and the Leopard, or panther of Senegal, seldom exceeds four. The large panther is marked in different places with five or six spots, forming a kind of circle, with a large one in the centre: the latter has a more beautiful coat; the spots are smaller, and disposed in clusters, which have a pleasing effect, as the yellow ground is very brilliant. In other respects, the spots of both are black; they are both whitish under the belly; and the tails of both are long: but those of the Leopard are somewhat longer in proportion.

These animals spare neither man nor quadruped. When they cannot obtain a sufficient supply of beasts of the chase, they descend in multitudes from the internal parts of Africa, and make terrible devastation among the numerous herds that cover the rich meadows of Lower Guinea: they tear their prey in pieces both with their claws and teeth; and, though ever devouring, are always emaciated.

These Leopards are taken in pitfalls, covered over with slight hurdles, on which a bait of flesh is placed. Their flesh is said to be well tasted, and to possess the delicacy and whiteness of veal. Their skins, which are very valuable, are often imported into Europe; and the negro women make collars of their teeth, to which they ascribe extraordinary virtues.

Besides the countries already mentioned, this animal

LEP

animal inhabits several parts of India, China, and Arabia: in China it is called Poupi; and, in Arabia, Nemr.

LEOPARD, HUNTING. This species has a small head, pale orange-coloured irides, and short tawny ears; the face is slightly spotted; the body is of a light tawny brown hue, marked with a great number of small round black spots, distinct from each other; and the tail, which is longer than the whole body, is of a reddish brown colour. This animal, which is about the size of a large greyhound, has a long body, a narrow chest, and very long legs, inhabits the forests of India, and is tamed and trained for the chase of antelopes: it is carried to the scene of action in a small kind of waggon; and is chained and hoodwinked till it approaches the herd. When liberated, it does not immediately make it's attack, but winds along the ground, and endeavours to conceal itself till it gets a proper advantage; and then it darts on the timid game with surprizing swiftness. If it does not succeed in it's first efforts, which consist of four or five leaps, it misses it's prey; and for that time desists, and readily returns to it's master, fatigued, and almost breathless.

LEOPARD, LESSER. The face of this animal is spotted with black; the breast is marked with small spots; the belly is white, spotted with black; the back, sides, and rump, are of a bright yellow colour, marked with circles of spots; and the tail, which is short in proportion to the length of the body, tapers to a point. This species inhabits the East Indies. Some years since, a live specimen was imported into England, and lodged in the Tower.

LEPAS. A genus of shell-fish, synonymous with the patella. In the Linnæan system, it is a genus of testaceous worms, comprehending ten different species. It's animal is a triton; and the shell is multivalve, unequal, and fixed by a stem. The common barnacle is of this genus.

LEPIDOPTERA. An order of insects in the Linnæan system, having four wings imbricated with scales, the mouth furnished with a spiral tongue, and the body covered with hair. This order comprehends three genera, the papilio or butterfly, the sphinx, and the phalæna or moth. The subordinate species under each genus are very numerous.

LEPISMA. A genus of the aptera order of insects; with six feet formed for running; a mouth having two setaceous palpi or feelers, and two rounded at their extremity; a setose tail; and a body covered with scales. This genus includes three species.

LEPORARIA AQUILA. An appellation given by some authors to the black eagle, from his being extremely destructive to the hare kind.

LEPORINUM GENUS. A genus of animals, so called from the general resemblance they bear to the hare tribe. Their distinguishing characters are: that the feet are divided into claws; that there are two very long teeth in the fore-part of the mouth; and that the food is vegetable.

LEPRAS. A marine fish of the turdus or wrasse kind, remarkable for the variety and brilliancy of it's colouring. It seldom exceeds half a foot in length, but is very broad and flat in proportion. It is spotted like the leopard; and is universally allowed to be one of the most beautiful fishes in the Mediterranean, where it is caught in abundance. It's flesh, however, is not much esteemed, being of an insipid and watery taste.

LEY

LEPTURA. A genus of four-winged flies; the characters of which are: that the antennæ are oblong, slender, and setaceous; that the exterior wings are truncated at their extremities; and that the thorax is of a subcylindric figure. In the Linnæan system, this genus belongs to the order of coleoptera, and comprehends twenty-five species. The following kinds are most common.

LEPTURA, GREAT. This insect is of a red violet colour: the body is oblong shaped, and smallest behind; and the legs, feelers, and other appendages, except the wings, are black varying to white. The cases of the wings, in the female, are of a deep red hue; but those of the male are lighter, and fringed with black or grey. The surface of the cases of the wings, in both sexes, is adorned with a number of small hollow dots, with a few fine short hairs; and the head and breast are sometimes yellowish. This species frequents woods. Ray calls it an unicorn beetle, with the head, shoulders, and feelers, black; and of a blackish yellow hue at the extremities.

LEPTURA, MIDDLE-SIZED. This insect is of an oblong narrow shape: the general colour is a blackish brown, except that the upper edge of the breast is yellow, and that there is a yellow spot at the junction of the cases of the wings. There are likewise some undulated yellow lines running transversely on the cases of the wings, which are truncated at the points, and somewhat setose; and the legs and feelers are of a reddish brown colour. This species is frequently found among hedges in orchards and gardens.

LEPTURA, YELLOW GOLD-COLOURED. This species has black feelers, an oblong body, a small head, and dentated hinder legs. The colour resembles that of copper with an admixture of fine strong gilded yellow variegations. The head, breast, and cases of the wings, as well as the legs, are speckled with extremely minute and contiguous hollow dots, irregularly dispersed over the breast, head, and legs; but on the wings they are pretty uniform, placed in ten rows running longitudinally. The eyes are black; and the feelers are brown.

LEPTURUS. A Greek appellation for a fish with a very long and slender tail. The term is derived from Leptos, Slender; and Oura, a Tail.

LEPUS. The classical name of the hare. See HARE.

LEPUS AQUEUS. An appellation given to the crested diver, or colymbus of America; so called from it's prodigious activity in the water. It is very common in Mexico, and other parts of the American continent; but is always caught with extreme difficulty.

LEUCISCUS. A classical name, sometimes given to the dace. See DACE.

LEUCOCROTTA. An animal said to be the swiftest of any in nature; called also Leucrocotta, and Leocrocotta.

LEUCOMÆNAS. An appellation given by some authors to the smaris, a small fish very common in the Mediterranean.

LEUCORODIUS. A name sometimes used to express the platea, or spoon-bill; a very remarkable kind of stork or heron.

LEVERET. The young of the hare, during the first year of it's age.

LEYMMER. A species of the generous breed of dogs, resembling the greyhound. See DOG.

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LIBELLULA. A genus of the neuroptera class of insects; the distinguishing characters of which are: that the mouth is furnished with jaws; that the antennæ are shorter than the thorax; that the wings are extended; and that the tail is terminated by a kind of forceps.

Linnæus enumerates twenty-one species of this genus; some of which carry their wings erect when at rest, and others horizontally. See **DRAGON-FLY**.

LIGURINUS. A name used by many authors to express the bird more commonly known by that of the spinus; in English, called the siskin and aberdavine. See **ABERDAVINE**.

LILLE. An appellation given by the Rhodians to the labrus.

LIMANDA. A name sometimes used to express the passer asper of naturalists; called in English the dab. See **DAB**.

LIMARIA. A name by which Gaza, and some other authors, express the thynnus or tunny-fish; called also the Spanish mackarel.

LIMAX. A genus of animals comprehending all the naked, simply-formed snails. See **SNAIL**.

In the Linnæan system, the Limax belongs to the order of mollusca or soft worms. Animals of this genus are destitute of shells, but supplied with members. The Limax is of an oblong figure approaching to cylindrical, perforated in the side with a hole, which serves for its genitals and necessary evacuations; higher up is a fleshy kind of buckler, formed convexly above, and flat beneath; and the tentacula are four in number, of which two exhibit the appearance of eyes. There are several species of this genus.

LIMAX MARINA. An appellation frequently given to the lipparis; or, as it is commonly termed in English, the sea-snail. These creatures are caught in considerable numbers at the mouths of some of the Yorkshire rivers. The shell is composed of eight parts or joints, finely wrought, as if engraved: it is prominent without, and hollow within; externally of a dark brown colour tending to greenish; and internally whitish, tinged with a blueish green. See **CYLINDRUS**.

LIME-GALLS. A kind of Galls or vegetable protuberances formed on the edges of lime-tree leaves, occasioned by worms which inhabit them during the whole term of their lives; being found of all sizes, from the most minute to those of full growth, which is about half an inch in length: but, when their period of life as worms draws near, they desert their habitations, and fixing on others, there change into their chrysalis state. This is also the case with many worms which inhabit the excrescences on other trees: they remain in them during their worm state, but always undergo their transformations in some other situations.

LIMONIUM-GALL. A species of Gall serving for the habitation of an insect produced from the egg of a butterfly, and changing to a real caterpillar. The butterfly deposits her eggs on the leaves and stalks of this plant; and the young caterpillar, as soon as it is hatched, eats its way through the surface; and continuing its depredations after it is safely lodged within, occasions an abundant derivation of juices to the part, by means of which a protuberance is formed, sustained by a pedicle, and in every respect resembling fruit: this is of a roundish figure, and by de-

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grees acquires the size of a nutmeg. It is composed of several coats or crusts; of which the exterior ones are soft and spongy, and the interior ones hard and woody. This seems to be the only known instance of a Gall formed by a genuine caterpillar.

LIMOSA; the Scolopax Glottis of Linnæus. A long-legged aquatic bird, common in Italy; and called by some Glottis, Totano, and Pluvialis major. This animal is small, seldom weighing more than six ounces: the beak is black, but somewhat reddish near the angle of the under jaw, which reflects a little upwards. The upper part of the head, the neck, shoulders, wings, and fore-part of the back, are variegated with brown and grey; the middles of the head feathers are black, and their tips whitish; and over each eye passes a white line. The rump, the whole breast, belly, and throat, are white; the long wing-feathers are brown; the inner coverts of the wings are beautifully intermixed with double and triple bars of a dusky colour; the tail-feathers are variegated with brown and grey; and the legs, which are very long, are naked a considerable way above the knees.

These birds are seen in small flocks on our coasts, and in marshy grounds, during winter; but they soon remove to their native climates.

LIMOSA is also an appellation given by Salvian to the common mackarel; and likewise to the thynnus, or tunny-fish.

LIMPET. A genus of shell-fish, of the testacea class of worms in the Linnæan system; the characters of which are: the shell is univalve, of a gibbous shape, almost conic, without spires, always fixed to a rock or some hard body; and having its apex or summit sometimes sharp-pointed, at others obtuse, sometimes straight, at others crooked, sometimes whole, and at others perforated: which variations occasion so many specific distinctions. The enclosed animal is a slug.

Latin authors denominate this shell Patella, from its resemblance to a dish; and Greek ones term it Lepas, as if they considered it a scale or flake of a stone. Indeed, it adheres so firmly to the rocks that it may almost pass for a constituent part of it.

The means by which the Limpet affixes itself to a rock were first clearly explained by Reaumur; though the fact was so long and so well known, that it antecedently became in some places a proverbial comparison. The shell of the Limpet approaches to a conic figure; the base of which is occupied by a large muscle, which alone contains nearly as much flesh as the whole body of the fish: this muscle is not confined within the shell, but assists the creature in its progressive motion, or in fixing itself at pleasure. When in a quiescent state, which is commonly the case, it applies this muscle every way round to the surface of some stone, and so firmly attaches itself to it, that it is not easily separated even with the assistance of a knife.

Reaumur informs us that, in order to try the force of the adhesion of these fish, he tied lines, having weights at their ends, to the shells; when placed in an horizontal direction on the stones; and found that they could not be removed with a less weight than that of thirty pounds, and that they even supported this for some minutes. Hence it might naturally be supposed, that the cause of this strong adhesion originated from the animal's thrusting

thrusting the fibres of this muscle into every pore of the stone, and there keeping them inflated: but, were this the case, the adhesion must cease with the existence of the animal; whereas, if the Limpet be cut into several portions through the shell and body, every part thus separated will adhere with it's due proportion of force to the body of the stone. Neither can this adhesive principle be resolved on the known attachment of two pieces of polished marble, or that of leather to stone; for, in both those cases, whatever perpendicular force the adhesion can bear, the least force applied horizontally occasions them to slip, or slide off from each other; while the adhesion of this fish is equally powerful in an horizontal or perpendicular direction: the true cause, therefore, of this singular quality, is a viscous juice emitted from this muscle, which, though imperceptible to the eye, is nevertheless capable of producing these surprizing effects. This indeed may be perceived by the touch: for if the finger be applied to the place immediately after the removal of the Limpet from a stone, the tenacity of this juice will be extremely strong; but if any wet touches the stone after the removal of the fish, no viscosity will be perceptible, the whole substance of the glue being instantly dissolved, and it's effects totally lost. Water therefore is a sufficient solvent for this glue: but the close adhesion of the outer rim of the great circular muscle prevents the external water from acting on it, otherwise it must always be destroyed as soon as discharged. However, the under surface of the body of the animal is entirely covered with small tubercles, containing water, which the creature discharges whenever inclined to liberate itself, and the whole cement immediately dissolves before it.

The viscous humidity possessed by the Limpet for the purpose of affixing itself to rocks, is not peculiar to that animal alone: the *urtica marina* enjoys the same; and the horns of sea-urchins, by which they fix themselves, are endued with a power of discharging a similar fluid, which answers the same intention.

Linnæus enumerates thirty-six different species; of which the following are the most curious.

LIMPET, COMMON. This species has rough prominent striæ, with edges sharply crenated; and the vertex is pretty near the centre. It is extremely numerous on the British coasts.

LIMPET, TRANSPARENT. The shell of this species, which is common on the Cornish coasts, is pellucid, longitudinally marked with rows of rich blue spots; and the vertex is placed near one of the edges.

LIMPET, STREAKED. This species is an inch broad at the base, and about three parts of an inch high; the base is suboval; and the top is sharp, or pointed. The outside is of a dusky brown colour, with an olive cast; and it has ten ridges, rough, and equidistant, appearing most conspicuous towards the mouth, and becoming fainter as they approach the apex, where they totally vanish. The inside of the shell is variegated with yellow, brown, and white, disposed in irregular circles. It is a native of the East.

LIMPET, STARRY. This species has seven ribs, forming as many prickles at the rim: the shape is ovated, about an inch one way, and two-thirds of an inch the other. The top is pointed, but not exactly in the centre of the shell; and the ribs terminate in a point beyond it. The colour is whitish

externally, variegated with black clouds of spots, especially about the ribs. This shell is commonly found on the shores of the Oriental seas.

LIMPET, OBLONG, GREAT. This species is nearly three inches long at the base, and an inch and a half in diameter; the edge is smooth and even, and the height is about an inch. The surface is almost smooth, except that there are several longitudinal rays, and some transverse or circular ones. The external colour is a dusky brown, mixed with grey, and internally whitish. It abounds in the East Indies; and is likewise found on the coasts of the Mediterranean.

LINARIA. See LINNET.

LING; the *Gadus Molva* of Linnæus. According to the Artedian system, the Ling is a species of the gadi, distinguished by the clear and expressive name of the gadus with two dorsal fins, a bearded mouth, and the upper jaw longest. The Ling takes it's English name from it's length, being a corruption of the word Long. It's usual size is from three to four feet; but some have been caught which measured six or seven. The body is very slender; the head is flat; the teeth in the upper jaw are small, and very numerous; those in the lower are few, slender, and sharp; and the chin is adorned with a small beard. The first dorsal fin, which is small, is placed near the head; and the second, which is very long, reaches almost to the tail: the pectoral fins are composed of fifteen radiated rays, the ventral of six, and the anal of sixty-two; and the tail is rounded at the extremity.

The colour of these fish is liable to considerable variations: some are of an olive hue on the back and sides, and others cinereous; but their bellies are invariably white; the ventral fins are also white; the dorsal and anal are edged with the same colour; and the tail is transversely barred near it's extremity with black, tipped with white.

Ling abound on the coasts of Britain and Ireland, and form a considerable article of commerce. They are in the highest perfection on the Yorkshire coasts from the commencement of February till May, and sometimes longer. They spawn in June, depositing their eggs in the soft oozy ground at the mouths of rivers; at which period the males separate from the females.

While the Ling continues in season, it's liver is very white, and abounds with a fine-flavoured oil; but no sooner does it cease to be in season, than it's liver becomes red, and destitute of oil. The same indeed happens to the cod, and some other fishes, in a certain degree, but not so remarkably as in the Ling. In it's best state, a large quantity of oil may be extracted from the liver by a slow fire; but if a violent and sudden heat be used for that purpose, it yields very little. This oil, which is implanted by nature in the cellular membranes of these fishes, returns into their blood, and supports them during the breeding season, when they pursue the business of generation with so much eagerness, that they neglect their food.

Considerable quantities of Ling are salted for exportation, as well as home consumption; and for this purpose each fish must measure twenty-six inches or upwards from the shoulder to the tail, in order to be entitled to the bounty allowed on exportation: all under this size are called drizzles.

LINGUADO. A West Indian fish, which in many respects resembles the common foal.

LINGUTULA. A species of fish somewhat resembling

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resembling the foal, but smaller and shorter, and also much inferior in flavour. It is common in the Mediterranean; and generally known by the appellation of the *Cynoglossus*, and *Citharus flavus*, or *Citharus asper*.

LINGULACA. A name by which several ichthyologists have expressed the common foal-fish.

LINNET. A genus of birds, whose distinguishing characters are: that they are smaller than chaffinches; that their general colour is a greyish brown; that their tails are slightly forked, the outer feathers having white extremities; and that their notes are musical.

LINNET, COMMON. This bird measures five inches and a half, including the bill and the tail; the former is about half an inch, and the latter two inches and a quarter. The bill is dusky, but in spring it assumes a blueish cast; and is peculiarly thick and strong. The head is variegated with ash-colour and black; the back is a blackish red; the bottom of the breast is a lively red; and the lower part of the belly is yellowish. The lower part of the throat is a beautiful red, the edges of the feathers being yellowish; and the tail, which is a little forked, is of a brown colour edged with white, except the two middle feathers, which are bordered with a dull red.

These birds, which are much esteemed for their singing, feed on seeds of various kinds, which they peel before they eat; but they shew a particular predilection for the seed of the linum or flax, from whence they derive their name.

The Linnet usually builds in some thick bush or hedge, particularly among white-thorn or furze. The outside of its nest is composed of moss, bents, and dry weeds; and the inside of fine soft wool, mixed with a kind of down gathered from dried plants, and a few horse-hairs. It lays four or five whitish eggs, spotted like those of the goldfinch. The young are hatched towards the latter end of April or beginning of May, and may be taken from the nest when about ten days old: They must be kept very warm, and regularly fed every two hours: but when they are intended to be taught to whistle tunes, or to imitate the notes of any other bird, they should be removed from the nest when four days old; for at this time they have no idea of the notes of their kind, and will readily be taught to modulate their voice, like any sounds most familiar to their ears, and within the compass of their throats.

The Hon. Mr. Barrington observes that, in order to be certain that nestlings will not have the call of their species, they should be taken from the nest when only a day or two old; though birds of this age require great trouble in breeding, and the chance is greatly against their being reared. Their food, at this early age, should be half bread and half rape-seed, boiled and bruised; and this should be given them several times in a day. It should be daily made fresh, and administered sufficiently moist, but not in the extreme: if in the least sour, it never fails to prove fatal; and, if too stiff, it renders them costive, and proves equally injurious.

Young Linnets should be hung up, as soon as taken from the nest, under the bird whose note they are intended to learn; or, if they are to be taught to whistle tunes, they should have their lessons at the times of feeding; for they will make greater progress in a few days while young, than in a con-

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siderable space of time afterwards; and will take in the whole method of their notes before they are able to crack their seeds. Some fanciful people have also attempted to teach them the use of speech, but they have never been known to make any great progress in this art without long and unintermitted pains. After all, the native note of the Linnet is so very delightful, that little pleasure can be derived from superinducing strains foreign to its nature.

The cock may be distinguished from the hen by the plumage on his back, which is much more brown than that of the hen; and likewise by the white of his wing: to examine which, when the wing-feathers are grown, one of the wings must be stretched out with the one hand, while the body of the bird is held fast with the other; and then the white will be observed on three or four feathers: if it appears bright and clear, and extends to the wings, the bird is undoubtedly a cock; the white in the wing of the hen being much less, as well as fainter.

Linnets may be caught in clap-nets during the months of June, July, and August; but flight-birds are most plentiful about the beginning of October: these nets should be placed near such spots where they are accustomed to eat and drink.

LINNET, RED-HEADED, GREATER; the *Fringilla Cannabina* of Linnæus. This bird is somewhat smaller than the common Linnet: the head is ash-coloured, except that the forehead is marked with a blood-coloured spot; the breast is tinged with a fine rose-colour; the neck is cinereous; the back, scapulars, and coverts of the wings, are a bright reddish brown; the sides are yellow; the middle of the belly is white; and the tail, which is forked, is of a dusky hue, edged on both sides with white. The head of the female is ash-coloured, spotted with black; the back and scapulars are a dull brownish red; and the breast and sides are a dirty yellow, streaked with dusky lines.

This bird, which is extremely docile and familiar, appears reconciled to captivity in a very few minutes after being caught. It has a lively, chattering kind of song; is often caged; and requires the same sort of food, in a domestic state, as the common Linnet and the chaffinch. This species is frequently seen on the British coasts; and, in flight-time, often visits the neighbourhood of London.

LINNET, RED-HEADED, LESSER; the *Fringilla Linaria* of Linnæus. This is the least of the Linnet tribe; and scarcely exceeds half the size of the greater red-headed Linnet: it also differs from that species in having a smaller, sharper bill; by both sexes having the spot on their heads; by the legs and feet being dusky; and by their assembling in flocks, a quality not peculiar to the former.

Pennant informs us, that he discovered a nest of this species in an alder stump near a brook, between two and three feet from the ground: the external fabric was composed of dried stalks of grass and other plants, and here and there a little wool; and the lining consisted of hair, and a few feathers. The female was sitting on four eggs, of a pale blueish green colour, thickly sprinkled near the blunt ends with small reddish spots. She was so tenacious of her nest, that she suffered him to take her off with his hand; and he found that, after he had released her, she would not forsake it.

LINNET, MOUNTAIN, OR TWITE; the *Linaria Montana*. This bird is rather inferior in size to the

the common Linnet, and is therefore called by Brisson *La Petite Linotte*, or *Little Linnet*. However, its shape and colour do not materially differ from those of the common Linnet. The bill is short and yellow; and above and below each eye there is a pale brown spot. The male has a singular red spot on his rump, which sufficiently distinguishes him from the female.

This bird receives the name of *Twite* from its note, which is by no means musical: however, it is a very familiar animal, and tamed with great facility. It is taken, during the flight-season, near London, with common Linnets, and is usually called the *Twite*. It is generally supposed to breed on the continent, and to visit this island only in the winter season. It feeds, when in a state of captivity, on rape and canary seeds, but prefers the latter.

LINNET, YELLOW-HEADED. This species has a pale flesh-coloured bill, hazel-coloured eyes, and a yellow head and throat. From behind the eyes, down the sides of the neck, are drawn brown marks, which widen towards the back; the hinder part of the head, the upper side of the neck, the back, wings, and tail, are of a dirty brown colour, spotted on the back and neck with deep brown longitudinal marks; the breast, belly, thighs, and coverts under the tail, are of a light clay-colour; the breast and belly are marked with dark brown spots; and the legs and feet are of a dull flesh-colour. This bird is a native of Mexico; and was first described by Edwards.

LINNET, ANGOLA. This bird measures nearly five inches in length; and in shape, action, and note, agrees with European Linnets. The bill is of a dirty flesh-colour, bordered round its base with a row of black feathers; above and below the eyes, next the black feathers, there are several white spots; the head, neck, back, and lesser coverts of the wings, are of a brownish ash-colour with dusky spots; the quills of the wings, and the first row of coverts above them, are of a dark brown hue, with narrow yellow edges; the tail is also of a dark colour; and the feathers are tipped with grey or white. The breast, belly, and thighs, are of a dull orange-colour; the rump and coverts of the tail are a bright yellow; and the legs and feet are flesh-coloured.

LINNET, DUSKY. The bill of this species is ash-coloured; the whole plumage of the body is of a dirty brown or blackish hue; but the breast and rump incline a little to cinereous: all the feathers have their tips and borders of a lighter colour, which forms an admixture of shades; and the legs and feet are dusky.

LINNET, BLACK. This bird, which is a native of Guinea, has a light flesh-coloured bill; the whole body is covered with deep black glossy feathers, reflecting a fine purplish blue colour, except the greater quills of the wings, which are destitute of any gloss. A few small white feathers are intermixed with the inner coverts of the wings; the tail is composed of twelve feathers of equal lengths; and the legs, feet, and claws, are of a whitish flesh-colour.

LINNET, OLIVE-COLOURED. This bird has a thick, short bill, of a dusky flesh-colour. The fore-part of the head, the throat, and part of the breast, are black; the black gradually changing into a dusky white on the belly, which continues whitish as low as the covert-feathers beneath the tail. The hinder part of the head and neck, the

back, rump, tail, and wings, are of a dark olive-green colour; the tail consists of twelve feathers of equal lengths; the insides of the wings, and the under-side of the tail, are of a light ash-colour; and the legs, feet, and claws, are of a dark flesh-colour.

LION. In the Linnæan distribution of nature, a species of quadruped belonging to the felis or cat kind, having a long tail, and a pale red or tawny body.

The Lion has a large head, short round ears, and a face covered with short hair. On the upper part of the head, the neck, shoulders, and chin, there are long shaggy hairs, resembling a mane. The hair on the body and limbs is short and smooth, and long at the bottom of the belly. It has very strong limbs; and a long tail, tufted at the extremity. Its general colour is tawny, but on the belly it inclines to white. The length of the largest Lion, from the nose to the tail, is about eight feet; and that of the tail four feet. The Lioness is somewhat less, and destitute of a mane.

The influence of climate on man is marked only by slight variations; he is known to subsist in all parts of the earth, as well under the frozen poles, as beneath the torrid zone. On other animals, on the contrary, the influence of climate is stronger, and marked by sensible characters; because they differ in species, and their nature is perfect, and less diffused than that of the human species. With respect to irrational animals, indeed, the climate may be considered as congenial, and a kind of second nature: they almost all have their particular latitudes, beyond which they are unable to subsist; either perishing under a moderate cold, or dying for want of a frozen air even in a temperate climate. The rein-deer is never known to quit the hyperborean regions; and, on the contrary, the Lion degenerates whenever removed from beneath the line. The whole earth is the native country of man; but all inferior animals have each their own peculiar districts.

In warm countries, the land animals are larger and stronger than those in the frozen or temperate regions: they are also more courageous and enterprising; and all their dispositions seem to partake of the ardour of their native soil. The Lion, produced under the scorching sun of Africa, is, of all others, the most terrible, as well as the most undaunted. The wolf, or the dog, instead of attempting to rival him, scarcely deserve to attend his motions, or become his providers. Such of these animals, however, as are bred in more temperate climates, or towards the summits of cold and lofty mountains, are far more gentle, or rather far less dangerous, than those generated in the torrid vallies beneath. The Lions of Mount Atlas, the top of which is perpetually covered with snow, have neither the strength nor the ferocity of those of Bildulgerid or Zaara, whose plains consist of burning sands. It is chiefly in those fervid deserts that such enormous and terrible beasts are found, which are the dread of travellers, and the scourge of the neighbouring provinces. Happily, indeed, the species is not very numerous; and it seems to be daily diminishing: for, if we may credit the testimonies of those who have traversed these solitudes, the number of Lions is not nearly so great as formerly. The Romans, says Shaw, drew from Lybia, for their public spectacles, fifty times more Lions than are now to be found in the whole country. The same remark is made with regard

to Turkey, Persia, and the Indies, where Lions are much less frequent than in ancient times. Nor is it difficult to assign a reason for this diminution: it is obvious that it cannot originate from the increase of the force of other quadrupeds, since they are all inferior to the Lion; and consequently, instead of lessening the number, only tend to augment the supplies on which it subsists: it must therefore be occasioned by the increase of the human species, who are the only animals in nature capable of opposing these tyrants of the forest, and preventing their multiplication. The arms even of a negro or a Hottentot render him more than a match for this formidable creature; and they seldom make the attack without coming off victorious. Their usual manner is to find out the Lion's retreat; and then, with spears headed with iron, to provoke him to the combat. Four men are considered as sufficient for this encounter; and he whom the animal first attacks, receives him on his spear, while the others assault him behind. The Lion, perceiving himself wounded in the rear, turns that way, and thus gives the person he first attacked an opportunity to recover. In this way they assail him on all sides; till at last being entirely disabled, they dispatch him.

This superiority of man with respect to numbers and assiduity, which has impaired the force of the Lion, has likewise enervated his courage. Among animals, this latter quality, though natural, rises and falls, according as the exertions of their strength are successful or abortive. In the vast deserts of Zaara; in the burning sands situated between Mauritania and Negroland; in those solitary regions which lie to the north of Cafraria; and, in general, in all the deserts of Africa where man has not fixed his habitation; Lions are found in great numbers, and preserve their native courage and impetuosity. Accustomed to measure their own strength by that of every animal they meet, the habit of conquering renders them intrepid and terrible. Being ignorant of the power of man, they are not afraid to encounter him; and having never experienced the force of his arms, they hold them in defiance. Wounds enrage, but do not terrify them. They are not discouraged even by the opposition of numbers: a single Lion of the desert often attacks an entire caravan; and, after an obstinate engagement, in which he has been overpowered, instead of flying, he continues to face his enemies till the very last gasp. On the contrary, those Lions which inhabit the peopled countries of Morocco and India, having experienced the superior power of man, have lost all their courage; are frightened away even by a shout; and seldom attack any but the unresisting herds or flocks, which even women and children are capable of protecting.

This alteration in the disposition of the Lion indicates that he is susceptible of the impressions he receives; and that he must possess a docility sufficient to render him tameable to a certain degree, and to admit of a species of education: and history informs us, that Lions have been yoked in triumphal cars, and conducted to the battle or the chase; and that, faithful to their masters, they have never exerted their strength or courage but in opposition to the common enemy. Nothing, indeed, is more common, than for the keepers of wild beasts to play with this animal, to pull out his tongue, and even to chastise him without a cause: he seems to bear such usage with the utmost composure; and

instances of his revenging those unprovoked fallies of impertinent cruelty but seldom occur. However, when his rage is once excited, the consequences are terrible. Labat informs us that a certain gentleman kept a Lion in his own chamber, and employed a servant to attend it; and that he, as is usual, mixed blows with his caresses. This ill-judged association continued for some time; till one morning the gentleman was awakened by a noise in his apartment, for which, at the first, he could not assign a cause; but, on drawing the bed-curtains, he beheld a most horrid spectacle, the Lion growling over the servant's head, which he had seved from the body, and tossing it round the floor. He thereupon immediately ran into the next room, and calling for assistance, had the animal secured from doing farther mischief. This single account, however, is not sufficient to weigh against the various instances of this creature's mildness and submission: he is often bred up with other domestic animals, and observed to play innocently and familiarly among them; and, if it ever happens that his native ferocity returns, he seldom exerts it against his benefactors. But as his passions are strong, and his appetites vehement, it is not to be expected that the impressions of education will always prevail: it would therefore be dangerous, in such circumstances, to suffer him to remain too long without food, or to persist in irritating and abusing him; though numberless accounts assure us, that his anger is noble, his courage magnanimous, and his disposition grateful. He has often been known to disdain the insults, and to pardon the inoffensive liberties, of feeble enemies. He has also been known to spare the lives of those that have been thrown to be devoured by him; to live peaceably with them; to afford them a part of his subsistence; and sometimes to refrain from food himself, rather than deprive them of that life which his former generosity had spared.

The Lion cannot justly be branded with cruelty, since he acts from necessity, and kills no more than what he consumes; while the tiger, the wolf, and the hyæna, with many other inferior species, such as the fox, the marten, the pole-cat, and the ferret, kill without remorse, are fierce without cause, and, by their indiscriminate slaughter, seem rather to satisfy their malignity than their hunger.

The external appearance of the Lion detracts not from the noble and generous qualities of his mind. His figure is striking, his look confident and bold, his gait proud, and his voice terrible. His stature is not overgrown, like that of the elephant or the rhinoceros: nor is his shape clumsy, like that of the hippopotamos, or the ox; it is compact, well-proportioned, and sizeable; a perfect model of strength combined with agility. Equally solid and springy, neither loaded with fat nor flesh, and containing nothing superfluous, it seems entirely constituted of nerves and muscles: this prodigious muscular force is manifested by the surprising leaps and bounds which he performs with ease; by the brisk movements of his tail, a single sweep of which is able to prostrate the strongest man; by the facility with which he moves the skin of his face, which heightens the expression of fury; and, lastly, by the power of shaking the hair of his mane, which he not only erects, but agitates on all sides, when incensed. Indeed, a bare sight of this noble animal is sufficient to convince us of his superior force: his large head, sur-
rounded

rounded with a dreadful mane; all those muscles which are hid under the skin swelling with the slightest exertions; and the great breadth of his paws, with the thickness of his limbs; plainly evince, that no animal of the forest is capable of opposing him.

To the splendid qualities possessed by this creature as an individual, may be added the nobility of his species; by which is meant, a nature constant, invariable, and liable to no suspicion of degradation. Animals of this kind are commonly singular, and constitute a genus of themselves. They are distinguished by characters so deeply marked, that they can neither be mistaken nor confounded with any other. Thus, in man, the noblest being in the creation, the species is single; since men of all races, of all climates, and of all complexions, can mix and propagate together; and, at the same time, no animal can be said to approximate the human species by natural relation. The species of the Lion also is one of the most noble, because it is single, and cannot be confounded with those of inferior animals: while in many other genera no discriminating characters can be drawn; they engender with lower varieties, and produce a breed more unworthy, in proportion as it is more mixed.

Aristotle distinguishes Lions into the greater and the smaller; the latter, he observes, are proportionably shorter in the body, their hair is more crisped, and they are less courageous than the former: he likewise adds that, in general, all Lions are of a yellow colour. The first of these remarks, however, seems doubtful; for no travellers mention Lions with crisped hair; but almost all authors agree as to their colour, which is yellow on the back, and whitish on the sides and belly. Ælian and Oppian affirm, that the Lions of Ethiopia are as fable as the natives; that in India there are Lions entirely white, and others variegated with red, black, and blue. But these assertions appear to be unsupported by any authentic evidence: and, on the contrary, it appears that there are little or no varieties in this species; that the Lions of Africa and Asia are perfectly similar; and that those of the mountains differ from those of the plains in stature rather than colour.

But it should here be observed, that the American animal called a Lion by the Europeans, and Puma by the natives of Peru, is destitute of several of the distinguishing characters of the true Lion: it has no mane; and it is weaker, smaller, and less courageous. However, it is not altogether improbable that the mildness of the South American climate may have had such an influence on the nature of the Lion, as to deprive him of his mane, and diminish both his courage and his stature: but it seems absolutely incredible, that this animal, who inhabits the countries within the tropics only, and against whom nature appears to have shut up every avenue to the north, should have passed from the southern regions of Asia or Africa into America; these continents, towards the south, being separated from each other by immense oceans. Hence we may rationally conclude, that the Puma is not a Lion, sprung from those of the Old World, and degenerated by the influence of the climate; but that it is an animal peculiar to America, like most others of the New World.

When the Europeans first discovered America, the quadrupeds, birds, fishes, insects, plants, and almost every object of natural history, were different from those to which they had been accus-

tomed: it was therefore necessary to give names to the principal objects this new world presented. Those given them by the natives were barbarous, and extremely difficult either to be pronounced or remembered: the names of animals were of course borrowed from those of the European languages, and especially from the Spanish and Portuguese. In this scarcity of denomination, the most distant analogy in external figure or stature was sufficient to determine the name of an animal. This necessarily gave rise to endless uncertainties and confusion; which were still farther increased, not only by giving to the productions of the new world the denominations of those of the old, but also by the continual transportation of European plants and animals into America. To obviate these difficulties, we should carefully distinguish what originally belonged to the respective continents, in order to avoid the deceptions arising from improper appellations.

Condamine, whose evidence unquestionably merits the highest credit, expressly says, that he knows not whether the American animal, called a Lion by the Spaniards, and Puma by the natives of Quito, deserves the name of a Lion; and adds, that it is much smaller than the African Lion, and that the male is destitute of a mane. Fresier likewise informs us, that the animal called a Lion in Peru is very different from that of Africa; that it flies on the approach of man; and is dreadful only to the flocks and herds. He farther remarks, that its head somewhat resembles both the head of the wolf and the tiger; and that its tail is shorter than that of either of those animals. We learn also from the relations of Acofta, that the American Lions have no resemblance to those of Africa; that they have neither the stature nor the intrepidity of the true Lions; that they are neither red nor yellow, but of a grey colour; that they have no manes; and that they are accustomed to climb trees. Thus it is evident, that these animals differ from the genuine Lions in stature, in colour, in the form of their heads, in the length of their tails, in the want of manes, and in their manners and dispositions. Characters so numerous and so essential ought ever to prevent us from confounding the Puma of Africa with the noble Lion of Africa and Asia.

It has been alledged, that the Lion is not possessed of the sense of smelling in such perfection as most other animals; and it has also been observed, that a strong light greatly incommodes him. This latter remark may be justly inferred from the formation of his eyes, which, like those of the cat, seem best adapted for vision in the dark: for this reason, he seldom appears in open day, but ravages chiefly by night; and not only the Lion, but all the cat kind, are kept off by the fires which the inhabitants kindle for the preservation of their flocks and herds: the brightness of the flame dazzles their eyes; and they are afraid to venture blindly into those places which they know are replete with their enemies. It is equally true of all this kind, that they hunt rather by the sight than the smell; and it sometimes happens that the Lion pursues either the jackall or wild dog while they are hunting on the scent; and, when they have run down their prey, he comes in, and monopolizes the spoil; and from hence, probably, may have arisen the story of the Lion's provider. These little industrious animals may often provide a feast for the Lion; but they hunt merely for themselves; and consequently

consequently the Lion must be an unwelcome intruder on the fruits of their labour.

When pressed with hunger, the Lion boldly attacks every animal that comes in his way: but, as he is extremely formidable, and anxiously avoided by every beast of the forest, he is often obliged to lie concealed in those paths through which animals commonly pass, in order to take them by surprize. For this purpose, he crouches on his belly; and continues in this posture, with patient expectation, till his prey comes within a proper distance; and then springing after it, sometimes fifteen or twenty feet at a bound, generally seizes it at the first effort: if, however, he happens to miss his aim, and, after two or three reiterated springs, cannot lay hold of it, he continues motionless for a time, seems affected with his disappointment, and waits for a more favourable opportunity. In the deserts and forests, his most usual prey consists of gaelles and monkeys, with which the torrid regions abound. The latter he seizes when they happen to be on the ground; for he does not possess the faculty of climbing trees, like the cat and the tiger. He devours as much at one time as subsists him for the two or three subsequent days; and his teeth are so very strong, that he breaks the bones of the animals with ease, and swallows them together with their flesh. He seems capable of enduring hunger for a very long time; but his temperament being naturally hot, he is impatient of thirst, and drinks as often as he can find water, lapping it like the dog. He seems to require about fifteen pounds of raw flesh daily; and prefers that of live animals, particularly those which he himself kills. He seldom devours such carcases as have begun to putrify; and chuses rather to hunt for fresh prey, than to return to that which he had partly devoured before. However, though he generally subsists on fresh meat, his breath is extremely rank, and the smell of his urine intolerable.

The roaring of the Lion is so loud, that, by the echoes reverberated from the neighbouring mountains, it resembles distant thunder. This tremendous roar is the ordinary voice of this animal. When enraged, he puts forth a different kind of growl, short, broken, and reiterated; but this roaring is a prolonged cry, a kind of a deep-toned grumbling, mixed with a sharp vibrating noise: this voice he utters five or six times in one day; and, before rain, oftener. When incensed, his cry is still more terrible than his roar: this is always excited by opposition; and on those occasions, when he summons up all his terrors to the combat, nothing hardly can be more awful; he then lashes his sides and the ground with his long tail; agitates his mane; contracts the skin of his face, thereby exposing his dreadful tusks; and thrusts out his tongue, which is armed with prickles so very hard, that it is alone sufficient to lacerate both the skin and flesh, without the assistance either of the teeth or claws. Thus prepared for war, but few animals dare to attack him; and even the boldest of the human race are intimidated at his approach. The elephant, the rhinoceros, the tiger, and the hippopotamos, are the only animals which are not afraid of encountering him singly. Nevertheless, neither the leopard nor the wild boar, when provoked, shun the combat: they do not indeed commit the first outrage on the Lion; yet they fly not at his approach, but wait his onset, which he seldom makes unless compelled by hunger; and on such occasions these animals exert all their strength, and sometimes proves victorious.

History informs us of an engagement between a Lion and a wild boar, in a meadow near Algiers, which lasted for a considerable time with incredible obstinacy: but at length, both animals were observed to fall by the wounds inflicted on each other; and the ground all around to be deluged with their blood. Such instances, however, are very rare; for the Lion is in general the undisputed master of the forest. Man is the only creature who attacks him with any certainty of success, by the assistance of dogs and horses trained to the pursuit: those animals, which in a state of nature would have fled from the presence of the Lion in an agony of consternation, when conscious of the assistance of man, become pursuers in their turn, and boldly hunt their natural tyrant. Those dogs which are trained to this exercise are always of the large breed; and the horses themselves, as Gesner assures us, must be of that sort called Charoffi, or Lion-eyed; all others of this kind flying at the sight of the Lion, and endeavouring to throw their riders.

When the Lion is roused, he recedes with a slow, proud motion; he moves always obliquely, going from side to side, and bounding rather than running. When the hunters approach him, they either shoot, or throw their javelins; and in this manner disable him before he is attacked by the dogs, many of whom he would otherwise destroy. Being extremely vivacious, he is therefore not easily dispatched, but continues to fight desperately even after he has received his mortal wound. He is also sometimes taken by means of a pit-fall: the natives dig a deep hole in the ground; and covering it slightly with sticks and earth, place some enticement in his way, which frequently allures him to his destruction. But the most usual time and way of taking this animal is while he is yet a cub, and incapable of resistance. The place near the den of the Lioness is generally well known by the greatness of her depredations on that occasion: the natives therefore watch the time of her absence; and, aided by swift horses, carry off her young, which they either sell to strangers, or to the great men of the country, for considerable sums.

The Lion, while young and active, subsists by hunting; and seldom quits the deserts or forests, where he finds plenty of wild animals for his support: but, when old and unfit for the purposes of surprize, he boldly descends into more frequented places, attacks the flocks and herds which take shelter near the habitations of the shepherds or husbandmen, and depends rather on his courage than address for a subsistence. It is remarkable, however, that when he makes one of those desperate sallies, if he finds men and quadrupeds in the same field, he only attacks the latter, never molesting the human race unless provoked by them to the combat. It is also observable, that he prefers the flesh of camels to any other food. He is likewise said to be very fond of that of young elephants: he often attacks these animals before their trunks have acquired their proper size and consistence; and, unless the old ones arrive timely to their assistance, they become an easy prey.

The Lion is terrible at all seasons, and on all occasions; but particularly when he is incited by desire, or when the female has brought forth: then the Lioness is followed by several males, who fight together in the most desperate manner; till one of them proving victorious over all the rest, retires in unmolested possession of his mate. The Lioness is said to bring forth but once a year, viz. in the spring. With respect, however, to the times of gestation,

gestation, naturalists are divided; some asserting that the Lioness goes with young six months; and others, only two. The time also of the growth and age of these animals has hitherto been involved in obscurity; some asserting that they acquire their full growth in three years; and others, that they require a much longer period in coming to perfection: some saying that they live twenty or twenty-two years at the most; and others making their age double that period. Aristotle, whose decisions, though sometimes erroneous, have acquired some degree of veneration and confidence from their antiquity, says, that the Lioness produces five or six whelps at the first litter, four or five at the second, three or four at the third, and two or three at the fourth; and that after this last, which is always the least numerous, she continues barren ever after. This assertion merits but little credit; for, with respect to all animals, the first and last litters are less numerous than the preceding ones. This philosopher erred, as well as all his followers, when he maintained that the Lioness had only two pups; it being now certain that she has four. He likewise asserts, that the Lion, the bear, and the fox, are produced in an unformed state; but it is now unquestionable, that these creatures are as well formed at their birth as any other animals; and that all their members are distinctly unfolded. And, lastly, he affirms, that Lions copulate in a reversed manner; whereas a bare inspection of the parts of the male will convince us, that these animals must necessarily copulate in the ordinary way of other quadrupeds. These errors are not adduced in order to depreciate the judgment of Aristotle, but only to prove that the ancients were not infallible, and to shew that the moderns may err even on classic ground. What that philosopher likewise remarks of the Lion's neck being composed of one rigid and inflexible bone, has also been contradicted by experience; for, in every quadruped without exception, and even in man, the neck consists of seven vertebræ.

With respect to the times of gestation, and the duration of the lives of these animals, we are now enabled to speak with some degree of certainty, since several of them have bred in the Tower of London. The Lioness, according to the most exact calculation that could be made, goes with young about five months. The young, which in this climate are never more than two in number, are each about the size of a large pug dog, playful, pretty, and innocent: they continue the teat for upwards of one year, and are five years in coming to perfection. Even in an imprisoned state, Lions have been known to live to a very great age. The large male one, (Pompey) which died in 1760, had been confined in the Tower for above seventy years; and another, which had remained in a state of captivity above sixty-three years, died but a few years since. These creatures therefore are certainly longer-lived than naturalists in general have allowed them to be; and, in their native forests, it is highly probable that their age greatly exceeds the period commonly allotted to the human race.

All the passions, even those of the most gentle kind, are possessed by the Lion in a very high degree. The maternal affection of the Lioness is astonishing: though naturally weaker, and less courageous than the Lion, when she has got young, she becomes dreadfully ferocious; exposes herself

to danger with more boldness than the Lion; and attacks and destroys men and animals indiscriminately, loading herself with the spoil, and carrying it, while yet reeking, to her cubs, whom she early accustoms to cruelty and slaughter. She usually brings forth in situations the most retired and inaccessible; and, when apprehensive of having her retreat discovered, often hides her tracks, either by running back her ground, or effacing her steps with her tail. When her anxiety is great, she sometimes transports her young to a different place; and if the hunters attempt to force them from her, she becomes perfectly furious, and defends them to the last extremity.

Lions, as previously observed, chiefly inhabit the torrid zone: nevertheless, they can subsist in more temperate climates; and, anciently, even the southern parts of Europe were infested by them. In the time of Aristotle, there were likewise Lions in Thrace, Macedonia, and Thessaly: however, it is apparent that, in all ages, they preferred the hotter climates; that they seldom lived in temperate countries; and that they never visited the more northern regions.

The Arabs entertain a notion that the Lion spares the tender sex: but Dr. Shaw contradicts this idea; and also informs us, that the flesh of that animal is frequently eaten in Barbary, its taste resembling that of veal.

Plutarch says, that the Lion was consecrated to the Sun; because, of all animals having crooked claws, he is the only one born with sight; and also because he sleeps very little, and with his eyes open: but this assertion is evidently fabulous. The Egyptians consecrated the Lion to Vulcan, on account of his fiery constitution. The poets yoked Lions to the chariot of Cybele: the effigy of a Lion was also carried at the sacrifices to that goddess; because, according to Varro, her priests had discovered the art of taming Lions to such a pitch, as to render them patient both when touched and caressed.

LION CAT. An appellation sometimes given to an animal of the feline kind; called also the Cat of Angora.

LION, SEA; the Phoca Lemina of Linnæus. An amphibious animal of the seal kind, common about the coasts of several islands of the South Sea; which, when full-grown, measures from twelve to twenty feet in length, and from eight to fifteen in circumference. It is so extremely fat, that, after the skin is stripped off, there is at least twelve inches of blubber before the lean and the bones can be disclosed. The fat of some of the largest of these animals will afford upwards of a butt of oil. This creature is likewise so full of blood, that, if wounded in a variety of places, considerable streams will gush from each wound; and one of them, which was shot by a seaman under Commodore Anson, we are told, yielded more than two hogshheads of blood from the jugular artery alone.

The skin of the Sea-Lion is covered with short hair of a light dun colour; but the tail and the fins, which supply the place of feet on shore, are dusky or black. The fins, or feet, are digitated at their extremities, because the connecting web does not reach to their ends; and each of the five fingers is furnished with a nail. The general figure of this creature bears some distant resemblance to that of an overgrown seal; but the size is very disproportionate. The male has a projecting

jecting snout, hanging five or six inches below the lower jaw; and the upper part consists of a loose wrinkled skin, which the animal, when enraged, can inflate, so as to give the nose an arched appearance. The eyes are large and full; and the whiskers are long and thick. The nose of the female is blunt, and tuberosus at the top; and this, as well as the inferiority of her size, sufficiently distinguishes her from the male.

These animals, which divide their time equally between the land and the water, continue at sea all the summer, and come on shore at the commencement of the winter, where they abide the whole of that season. During this interval they engender and bring forth their young, of which they have generally two at a birth; and they suckle them with their milk till they have acquired the size of full-grown seals.

While the Sea-Lions continue on shore, they feed on such grass and verdure as grows near the banks of fresh-water streams, and generally repose in herds on the most exposed situations in their vicinity. As they seem to be of a lethargic disposition, and not easily awaked, each herd places a few of its males at some distance, by way of sentinels, who never fail to alarm their companions when any danger threatens: the noise made by them on such occasions is various; sometimes resembling the grunting of a hog; and, at others, the snorting of a horse. The males have frequent and most furious combats with each other; which generally originate from jealousy, or a monopoly of the other sex. An old Sea-Lion sometimes has, as it were, a seraglio of females, which no other of these animals dares approach; but this envied pre-eminence is never acquired without many bloody contests, of which visible marks frequently remain to the end of their lives.

Commodore Anson's sailors killed many of these animals for food; but particularly for their hearts and tongues, which they esteemed exceedingly delicious, and even preferable to those of bullocks. They were dispatched with ease; for they were incapable either of retreat or resistance, their motion being extremely unwieldy; and the blubber, rolling in waves over their bodies, prevented them from using expedition. However, while one of the seamen was employed in skinning a young one of this species, the female from whom he had taken it made towards him unperceived, and wounded him so desperately with her teeth, that he died in a few days after.

LION PUCERON. An appellation given by Reaumur to a genus of worms, which proves as destructive to pucerons as the Formica Leo does to ants. Though the Lion Pucerons be all hexapodes, they are of different origin; some being produced from the eggs of a four-winged fly, and others from those of a beetle. As the Formica Leo has two horns, the extremities of which supply the place of a mouth; so the Lion Puceron has the same appendages: but, as the former of these insects has only a retrograde motion, and is obliged to form snares for its prey, not being able to hunt for it; this creature runs very nimbly in the common way of nature, and seizes its prey without having recourse to stratagem.

The body of the Lion Puceron is long and flat; the breast is the thickest and broadest part of it, and from this it gradually tapers off to a point at the tail. It has two legs affixed to the breast, and four others to the anterior rings of the body; and,

when it moves, the posterior end of the body supplies the place of a seventh leg; for it always bends this part downwards, and draws it along the surface as it walks. The back of this creature is every where rough; and full of wrinkles, which appear as if every ring was composed of a number of small annulations.

Such is the general description of this insect, these characters suiting the various species: however, there are others, by which the whole class may be divided into three principal kinds.

These animals are more destructive to pucerons than the worms which feed on them. A small puceron is devoured by them in an instant; and the very largest does not occupy the space of half a minute. When the Lion Puceron is first produced from the egg, it is a very minute creature; nevertheless, it immediately begins to feed: it is likewise so extremely ravenous, that it does not even spare those of its own species; but as those pucerons among which it lives are more numerous, as well as more easily caught, it easily eludes the rapacity of its kind when other food is supplied in proper quantities.

It may naturally be supposed, that a creature which feeds so voraciously, arrives very soon at its full growth: and this is really the case with respect to the Lion Puceron; for in five or six days after it is hatched, the insect is ready for its final transformation, and acquires its perfect form. In order to effect this, it leaves the place where it had hitherto fed; and seeking out the fold of a leaf, or some other such convenient receptacle, it spins a web of very fine silk, which every way surrounds its body; and under this cover it passes through its nymph or chrysalis state. The silk of this web is not only very strong, but the threads are so closely laid together, that it is much more substantial than that spun by any of the caterpillar kind. It is of a roundish figure, and somewhat smaller than a pea: this convexity of figure arises from the shape of the insect's body, which is always rolled up; and the silky substance is produced from an orifice at its extremity.

The creature continues enclosed in this web about three weeks, if it enter at the beginning of summer; but if towards autumn, it remains in it all the following winter; and is in spring observed to come forth in the shape of a beautiful fly, of a remarkable large size in proportion to its original state. It is very long-bodied; and bears a strong resemblance to the libella or dragon-fly, except that its wings are larger in proportion to its body: these are of the most delicate structure imaginable, and infinitely superior to the finest gauze. When the creature is at rest, they are placed in an angle over the body, and form a sort of canopy or tent for its protection. The body and breast are wholly green, of the most beautiful tinge; and the eyes, which are large and prominent, possess the brilliancy and colour of polished gold.

The eggs of these insects, which are commonly seen on the leaves, and pedicles of the leaves, of the plum, and some other trees, appear like a number of long and slender filaments, extending about an inch in length, and about a line in breadth: ten or twelve of these are usually placed near each other, and a vast number of clusters are generally found on the same tree. The extremity of each of these filaments is terminated by a sort of prominence or tubercle of the shape of an egg. These eggs have frequently been supposed of vegetable

getable origin, a species of parasitical plants, such as the mosses and the mistletoe: but this supposition is altogether erroneous; and, if the history of the Lion Puceron is properly developed, its true origin will be found to be from the fly of that creature. The leaves and branches on which these eggs are found are usually overspread with pucerons; and the creature, providing a spot where her young may find nourishment as soon as hatched, deposits her eggs in the midst of these harmless and defenceless animals, fixing each on a slender pedicle, barely sufficient to support its weight.

LIPARIS. A fish of the general order of the anguilliformes or eel-shaped, and nearly approaching the alauda in form. Its head somewhat resembles that of the rabbit. It is caught in the Mediterranean and some other seas; and its flesh, which is of an insipid taste, either excites a nausea in the stomach, or acts as a cathartic. This animal is a species of cyclopterus in the Linnæan system.

LIPARIS is also used by some authors to express the fish frequently called the gunellus; and, by Cornish fishermen, the butter-fish.

LIPARIS NOSTRAS. A small fish, common on the Yorkshire and some other coasts of England; usually called a snail; and, by authors, limax marinus. It is about four inches long: the back and sides are of a bright brown colour; and the belly is a lively white. The head is thick and rounded; the mouth is destitute of teeth; but both the jaws are rough like files. The whole fish, which is very soft and unctuous, is easily melted into a sort of oily liquor. It is chiefly caught at the mouths of large rivers.

LIPIDOPUS. An appellation commonly given to the garter-fish; an animal having a sword-like body; the head lengthened out; the fins covering the gills with seven rays; and only three scales on the whole body, two in the place of the ventral fins, and the third proceeding from the anus. See **GARTER-FISH**.

LISSA. A name by which some authors have expressed the fish more usually called Glissa, an animal of the tunny kind.

LITORNE. A species of thrush; so called by Belon, and confounded by some authors with the greater thrush, though in fact considerably less. It is about the size of the blackbird; and resembles the hen of that species, except that the breast is yellowish, spotted with black; and the belly white. The legs and feet are black; and the top of the head, neck, and rump, are cinereous. The back is tawny; and the neck is blackish. The six prime-feathers of the wings are much darker than the rest, which incline to a red or tawny; and the bill is shorter than that of the blackbird, yellow near the base on the lower chap, but black at the extremity.

LITTORAL SHELLS. A name given by conchologists to such shells as are found near the sea-shores, to distinguish them from the pelagian shells, or such as are only found in the deep.

LITUUS. A genus of shells of the class of the polythalamii, or those which consist of several concamerations or chambers, separated from each other by shelly diaphragms, and communicating together by means of a siphunculus, running the whole length of the shell. To this general character of the class may be added, that the Lituus is always a conic shell, running in a straight line from the mouth, through a great part of the length; and from the end of this straight part to the extremity

twisting into the shape of a cornu ammonis, or spiral shell of that genus.

The Lituus receives its name from a fancied resemblance it bears to the instrument so called among the ancients. The stony matter often found in this shell, which resembles all its lineaments, is called by authors lituites; as those stones formed in the pecten are called pectinites; and those in the echini marini, echinitæ.

LIVERYMEN. An appellation given by some authors to a sort of caterpillars, remarkable for the variety of their colours. These belong to that class which live in communities, and frame nests to defend themselves from the severity of the weather. They may be ranked among the processionary kinds, always following each other with great regularity in their marches, though they sometimes disperse a considerable way from their nests, without ever losing their way. The art they shew in preserving their direction is worthy of remark. They spin the whole way they go: the first spins a thread as he crawls along; the second follows him in the same track; and a third the former; and so on, each spinning as he advances; which at length forms a fine shining track all the way they have proceeded. Several of these paths are observed to diverge from the nest, the common centre of them all; and, by means of these paths, the creatures are able at pleasure to run back directly to the nest, without a possibility of deviating from the proper course. But when one of the congeries of threads happens to break in any part, all the caterpillars beyond the rupture appear to be in the greatest confusion till they have repaired the breach.

LIVIA. A name given by some authors to a particular species of pigeon, called Pelæas by the Greeks. It strongly resembles the common pigeon in shape, but is somewhat smaller. The legs are red; the beak is white; and the body is entirely of a grey colour, except that the extremities of the tail-feathers are black, and that there is a purplish and greenish variegation about the sides and shoulders. This species is supposed by Ray to be synonymous with the sassorolla of the Italians, or the columba rupicola of Latin authors.

LIZARD. A numerous class of animals, which have been differently ranked in the scale of animated nature by most authors who have made zoology their study. Ray, rather struck with the number of their legs than their habits and conformations, has exalted them among quadrupeds; while Linnæus, attentive only to their slender forms, has degraded them among serpents. Brisson makes them a distinct class of themselves, under the appellation of reptiles. Klein considers them as inferior to beasts; and makes them a subdivision of quadrupeds, under the name of naked quadrupeds. Others again, from a consideration of their scaly coverings, and predilection for the water, have referred them to the class of fishes; while naturalists have not been wanting who have arranged them with insects.

Indeed, so equivocal is their nature, that it is difficult to determine to what class of animals Lizards are chiefly allied. They seem unjustly raised to the rank of beasts, as they bring forth eggs, and are destitute of coverings of hair; they cannot be classed with fishes, as the majority of them live on land; they are excluded from the serpent tribe by their feet, on which they run with great celerity; and from insects, by their superior magnitude;

magnitude: for, though the newt may be regarded in this contemptible light, the crocodile would be a dreadful insect indeed! Thus Lizards are in some measure excluded from every rank, while they exhibit somewhat of the properties of all: the legs and speed of the quadruped; a facility of creeping through narrow and intricate ways, like the serpent; and a power of living in the water, like fishes. However, though endued with these various powers, they have no real advantages over any other class of animated nature; for what they gain in aptitude for one element, they lose in their fitness for another. Thus, between both, they are an awkward, uncouth tribe; neither so alert on land, nor so nimble in the water, as the respective inhabitants of either abode: and, indeed, this axiom holds good throughout all nature, that in proportion as the seeming advantages of inferior animals are multiplied, their real ones are abridged; and all their instincts are weakened and lost by the variety of channels into which they are divided.

As Lizards differ from every other class of animals, they also vary widely from each other. With respect to size, the ranks of no class of beings are so opposite. What, for instance, can be more removed than the smallameleon, an inch long; and the alligator of the River of the Amazons, about thirty feet? To an inattentive observer, they would appear entirely of different kinds; and Seba expresses his astonishment that ever they came to be classed together.

Nor are these animals more various in their sizes than in their colours: they are found of every different hue; green, blue, red, chestnut, yellow, spotted, streaked, and marbled. Were colour alone capable of constituting beauty, the Lizard might often be regarded as charming; but there is something in the figure of that animal so extremely forbidding, and so inimical to our ideas of proportion and harmony, that the brilliancy of its scales, and the variety of its spots, only tend to convey an idea of more exquisite venom, and more universal malignity. The formation of these animals is also exceedingly various: sometimes they are swollen in their bellies; sometimes they are puffed up at their throats; sometimes they have rough sets of spines on their backs, like the teeth of a saw; sometimes they have teeth, at others none; sometimes they are venomous, at others harmless, and even docile; sometimes they are smooth and even; sometimes they have long, slender tails; and, at others, blunt ones.

But the principal distinction between the Lizard species arises from the manner of bringing forth their young. Some of them are viviparous; and others emit their spawn like fishes. The crocodile, the iguana, and all the larger kinds, bring forth eggs, which are hatched by the vivifying heat of the sun: the animals that issue from them are compleat on leaving the shells; and their first efforts to run are in order to procure subsistence in their native element. The viviparous kinds, in which are all the salamanders, are produced from the bodies of the females perfect and active, and undergo no future change: but those which are bred in the water, and, as is generally supposed, from spawn, suffer a very considerable change in their form; they are generated with external skins or coverings, which sometimes enclose their feet, and give them a serpentine appearance. To these adscititious skins fins are superadded above and below their tails, which assist the animals in swimming; but

when the false skins drop off, these likewise disappear; and then the Lizards, with their four feet, are compleatly formed, and exchange the water for the land.

Thus it appears that of this tribe there are three distinct kinds, differently produced, and most probably very unlike in their formation. But the history of these animals is as yet very obscure, and will perhaps ever remain so: their dispositions are in general solitary, and their very appearance is disgusting to most people; hence, therefore, neither opportunity nor curiosity are favourable for the investigation of this part of animated nature. We are still incapable of drawing the line which separates the different kinds: all we know is, that the great animals of this class are produced perfect from the eggs; that the salamanders are generally viviparous; and that some of the Water-Lizards are imperfectly formed at their first coming abroad. In all these most unfinished productions of nature, if they may be so called, the varieties in their structure increase in proportion to their imperfections; and, were it lawful to give scope to the flights of imagination, it would probably occur, that Nature, in such cases, grew tired of the odious formation, and left Accident to compleat her plan.

However, the three distinct kinds of Lizards have many features of similitude; and, in all their varieties of figure, colour, and production, this tribe is easily distinguished from the rest of animated nature, and strongly marked: they have all four legs, the two fore ones somewhat resembling the arm and hand of the human race; they have tails which are almost as thick as their bodies at the beginning, and generally run tapering to a point; they are all amphibious; and their internal structure is such, that the exercise of their lungs is not necessary to preserve life and circulation.

These indeed are lines which sufficiently separate Lizards from all other animals; but it will be very difficult to fix the limits which distinguish the three kinds from each other. The crocodile tribe and its affinities are sufficiently distinguished from all the rest by their magnitude and ferocity; the salamander tribe is distinguished by their deformity, their frog-like heads, the shortness of their snouts, their swollen bellies, and their viviparous production; but with regard to the rest, which may be considered as the proper Lizard tribe, they are too various in their habits and conformations to be reduced to any specific characters, as well as too insignificant in themselves to merit a minute investigation: we shall therefore only subjoin a description of some of the most usual species, and leave the patrons of deformity to increase the catalogue.

LIZARD, SCALY; the *Lacerta Agilis* of Linnæus. The length of this animal, from the nose to the hind legs, is about three inches; and from thence to the extremity of the tail, three inches and three quarters. It has a black list along the back, and a brown one on each side; beneath which, it has another broad one of black. The belly is yellow; and the scales are large and even, those on the back being small, and varied with black and brown. The legs and feet are dusky; and on each foot there are five toes, furnished with claws.

Lizards of this species are extremely nimble, and hence receive their Linnæan appellation. In hot weather they are frequently seen basking on the sides of dry banks, or old trees; but, on being observed, they retreat to their holes with the greatest precipitation. The food of this, and indeed of every other species of Lizards found in England,

is insects; as they themselves are of predaceous birds. All the British Lizards are perfectly harmless: it is their figure alone which disgusts us, and has occasioned their being represented in an unfavourable point of view. Related to this species are some other varieties which have occasionally been discovered in England. But the most remarkable Lizard this country perhaps ever produced, was killed in the parish of Swinford, in Worcestershire, upwards of forty years ago; which was two feet six inches in length, and four inches in girth: the fore-legs were placed eight inches from the head; the hind-legs were five inches distant from the preceding; the legs were two inches long; and the feet were quadrupartite, each being furnished with a sharp claw.

LIZARD, WARTY; the *Lacerta Palustris* of Linnæus. The length of this species is about six inches and a half, of which the tail constitutes upwards of one half of the whole. The irides are yellow; the head and part of the back are flat, of a dark dusky colour, and covered with small pimples or warts. The sides are obscured by white warts; and the belly is of a bright yellow hue, spotted with black. The fore-feet are divided into four toes, and the hind into five: they are all dusky, spotted with yellow, and destitute of nails. The pace of this animal is slow and crawling.

LIZARD, BROWN; the *Lacerta Vulgaris* of Linnæus. This species is about three inches long: the body is slender; the tail is long, small, and tapering; the upper part of the body is of a pale brown colour, marked on each side of the back with a narrow black line, extending to the end of the tail; and the belly is of a pale yellow hue, marked with small dusky spots.

LIZARD, SNAKE-SHAPED; the *Lacerta Terrestris Anguiformis* in Ericetis of Ray. This species, which is very obscurely described, seems to be of that kind which connects the serpent and the Lizard genus; having a long and very slender body, and very small legs.

LIZARD, GREEN. The Green Lizard, so called from its colour, is larger than the ordinary sort. It delights in warm countries; and is very common in Italy. During the summer season, it takes up its abode on trees, and makes a noise somewhat similar to the croaking of a frog.

LIZARD, TARANTALA. This animal, which is very frequently found in the vicinity of Rome and Naples, has a rough ash-coloured skin; and is thicker and more fleshy than the genus in general. It usually haunts the ruins of old edifices and walls; and has a most disgusting aspect, striking every beholder with a kind of terror mingled with aversion. Ray informs us, that when he first saw this animal, he shuddered as it were by instinct. It is said, however, to be perfectly harmless; and that the horror excited by it principally originates from its ugliness and filthy appearance.

LIZARD, LARGE, GREEN AND SPOTTED. This species is upwards of a foot long: the head, legs, sides, and under part of the body, are of a beautiful green colour; the top of the head is covered with broad scales, and the sides and under part of the head with smaller. It has a sort of collar under the throat; and thrusts out a black forked tongue from its mouth. The upper side, except the head and tail, is of a dark brown hue, covered with very small scales like studs, and variegated with yellowish lines crossing each other, and forming a kind of net-work. On each side, from the

fore-legs to the hinder, there is a double series of fine blue oval spots, each of which is surrounded with a dusky colour. The tail is covered with longish scales, which encircle it in regular rows to its extremity; and these are all of a dark brown hue with a greenish cast. The belly is crossed with broad transverse scales; there are five toes on each foot, with small sharp nails; and the hinder feet seem to have a thumb, and four distinct fingers. This creature is a native of Jamaica.

LIZARD, GREAT SPOTTED, WITH A FORKED TAIL. This hideous creature is about ten inches long; and furnished with a forked tongue, like the other Lizards. The top of the head is covered with broad scales of a whitish ash-colour; the sides of the head, the neck, the sides of the body, the legs, and the feet, are greyish; the eyes are black; the under-chap is reddish; and the ears are open holes. There are two black spots on each shoulder; and the middle of the back is marked with green throughout its whole length, but this colour occupies most space in the rump, and terminates in a point between the shoulders. The sides are marked with oval loose spots, as well as the exterior sides of the hinder-legs; the belly, and part of the under-side of the tail, are chequered with fine blue squares, separated from each other by a darker blue or black; the tail, as far as it is single, is blue on its upper side; but the parts of both tails, from their junction to their ends, are of a brownish ash-colour; and each of the feet have five toes, with as many small nails or claws.

Edwards, who first described this species, thinks that the circumstance of its having two tails may be accidental; but he was afterwards convinced that this peculiarity was natural, having seen others with forked tails.

LIZARD, THORNY-TAILED, INDIAN. This creature is about seven inches long: the head and legs are of a dusky green hue; and the upper side of the body is dusky, spotted and clouded with light ash-colour. It differs from all other Lizards in its tail, which is covered with large scales projecting in sharp points after a very unusual manner: the middle row of scales on the upper part does not fall over those next to the side; but the side row falls over the middle row, which has a singular and uncommon effect. The tail is of a brownish green colour, somewhat lighter below than above.

LIZARD, SCORPION. This species is a native of Carolina; and is there called the Scorpion Lizard, though it does not much resemble the animal from which it receives its name. It is very nimble in running up trees, or along the ground; is accounted extremely venomous; and seems to have a greater number of teeth than any animal of the kind.

LIZARD, CHALCIDIAN, OF ALDROVANDUS. Were this animal not furnished with small feet, it would more properly be referred to the serpent than the Lizard genus. Its feet indeed are too small to assist it in walking; but, nevertheless, they discriminate the two allied kinds. It is sometimes found three feet in length, and of a proportionable thickness; with a large head and a pointed muzzle. The skin is sometimes ash-coloured, and at others reddish, marbled with white spots. An animal of this kind, mentioned by Ray, was small, and had parallel black lines running longitudinally along the back; the eyes and ears were small; it had four crooked teeth; the tail was sharp and short; the

whole body was covered with scales; and the belly was white, mixed with blue. The lungs are invariably divided into two lobes; and, in proportion to the body, are of considerable length.

Columna took fifteen young ones out of the body of a female of this kind; some of which were enveloped in transparent pellicles, while others were entirely naked. However, Ray thinks that this was a different variety from what he saw; for it was much larger, and of a different colour.

LIZARD, SCALY, OF CLUSIUS. This singular animal is generally upwards of an ell and a half in length; and yet the head, (for it has no neck) from the very tip of the snout, is but three inches distant from the fore-legs. The trunk of the body, from the fore to the hinder legs, is eleven inches long; but the tail is upwards of forty inches. The whole body, except the throat and the lower part of the belly, is covered with broad, large, stiff scales; those on the neck and the upper part of the head being about half an inch long; while those on the middle of the body are two inches long, and one inch and a half broad. The scales on the tail gradually diminish till they terminate in a point; but those on the sides of the tail are entirely different from the rest, being hollow, and appearing double. The fore-feet are considerably shorter than the hinder ones, having their upper parts covered with scales; and the lower parts and the feet are beset with black shaggy hair. The tongue, which is sometimes nearly a foot in length, is moist, and red; and covered with a shining liquid, by means of which it catches ants, after the manner of the tamandua guacu, or ant-bear.

LIZARD, INDIAN, FLYING. This animal perches on fruit-trees; and feeds on flies, ants, butterflies, and other small insects. It is an extremely harmless creature, never injuring either man or beast.

Gentil, in his Voyage round the World, informs us that he has seen this Lizard at the Isle of Java, in the East Indies. He observes, that it flies very swiftly from tree to tree; that it is about a foot long; that it has four paws, like the common Lizard; that the skin contains a beautiful variety of colours; that the wings, which are very thin, resemble those of a flying fish; and that there are a sort of wattles about the neck, not very dissimilar to those of a cock, which give the animal a singular appearance.

LIZARD, AMERICAN, FLYING. This species has cartilaginous wings, covered with a very tough skin, resembling the fins of fish. The colour is a reddish ash, marked with bay brown oblong spots, running obliquely towards the edges. The thighs of the fore-feet constitute a part of the wings; but the hinder feet, or paws, are loose. The tail is long, slender, spotted with brown, and marked with black striæ on each side, towards the upper end; and, both above and below, covered with small thin scales.

LIZARD, AFRICAN, FLYING. The upper part of this animal's body is of a sky-blue colour, covered with small oval scales; the wings, which are strongly connected to the body of the trunk and thighs, extend from the fore to the hinder feet, after the manner of a fan; and the upper part of the wings is variegated with brown, black, and white spots, terminated with a border encircling the wings. In other respects, this species resembles the common Lizard: the tail is long and

pointed; there are two tubercles, like small horns, on the head; and the eyes are sparkling and animated. The muzzle terminates in a point; the tongue is short and thick, like that of the salamander; the teeth are very small; and the crop is strongly united to the lower jaw and neck. This creature, which is perfectly harmless, feeds on flies and worms.

LLAMA. An animal of the camel kind, found only in America. It is not known on the ancient continent; nor is it disseminated over all America, being chiefly confined to those mountains which extend from New Spain to the Straits of Magellan. As it inhabits the highest regions of the globe, it seems to require a purer air than animals of a lower situation usually enjoy. Peru is the climate where this species is most numerous; in Mexico, it is introduced rather as a curiosity than a beast of burden; but in Potosi, and other provinces of Peru, it constitutes a considerable part of an Indian's or Spaniard's wealth: its flesh is esteemed excellent food; its hair, or rather wool, is spun into beautiful cloathing; and the services of the animal while alive are still more valuable than its spoils when dead. It is the only beast of burden a native of the New World; and it is capable of carrying loads, not exceeding a hundred weight, with the greatest ease and safety, over the most dangerous mountains. It is true, indeed, that the Llama moves but slowly, seldom above fifteen miles in a day: but, though thus tardy, it is perfectly sure; for it readily descends precipices, and finds footing among the most craggy rocks, where hardly any of the human species are capable of accompanying it.

These animals are much employed in transporting the riches of the mines of Potosi from one place to another; and we are told that no fewer than three hundred thousand of them are daily in actual service on this business.

The Llama is about three feet high; the neck is three feet long; the head is small, and well proportioned; the eyes are large; the nose is long; and the lips are thick, the upper one divided, and the lower a little depending, like those of all animals which feed on grass. It has no upper cutting-teeth; the ears are four inches long; the tail is about five inches, small, straight, and slightly reverted at the extremity; the colour of the body is white, black, or brown; and the wool on the back is short, but long on the sides and belly.

This animal resembles the camel with respect to the formation of the genital parts of the male. It makes urine backwards: it couples also in the same manner; and though it finds great difficulty in the action, a whole day often elapsing before the necessary business can be accomplished, it is said to be much addicted to venery. The female seldom produces more than one at a time; and the period of its life appears to be limited to twelve years.

Though the Llama is inferior to the camel in size, strength, and perseverance, the Americans find a substitute in it, with which all their necessary wants are supplied. It appears perfectly adapted for that indolent race which it is obliged to serve: it requires no care or expence with respect to attendance or provision for its sustenance; it is supplied with a warm covering, and therefore stands in no need of being housed; satisfied

tified with vegetables, it craves neither corn nor hay; and it even exceeds the camel of the Old World in its abstinence and endurance of thirst. Indeed, of all creatures, the Llama seems least to require water, being naturally supplied with such large quantities of saliva, that it spits it out on every occasion; which spittle seems to be the only offensive weapon this harmless creature has obtained from nature for the expression of its resentment. When overloaded or fatigued, it falls on its belly, and emits a quantity of this fluid against its driver, which, though probably no ways injurious, very much intimidates the Indians; who assert that, wherever it falls, it is of such an acrimonious nature, as either to burn the skin, or excite very dangerous eruptions.

Such are these animals in a domestic state; but they are also found wild in amazing numbers, and exhibit strong marks of force and agility: the stag is scarcely more swift, or the goat and the sham-moy more dextrous in climbing. In a state of nature, all their shapes are more delicate and strong than when reduced to human servitude; their colour is tawny, and their wool short. In their native solitudes they are gregarious, and often seen in flocks of two or three hundred at a time. When they perceive an intruder, they regard him at first with astonishment, and apparently without any indications of fear or surprize; but, shortly after, as if by common consent, they snuff up the air, somewhat like horses, and at once betaking themselves to flight, seek refuge on the tops of the mountains. They seem to be more attached to the northern than the southern side of the Andes; they often climb over the snowy tracts of that immense chain; and appear to acquire fresh vigour in proportion to the inclemency of their situation.

The native Americans hunt the wild Llamas for the sake of their fleeces. If the dogs surprize any of them on plain ground, they are sometimes successful; but if they once reach the rocky precipices of the mountains, the hunters desist from the pursuit, being sensible that all their labours would eventually prove fruitless.

LOACH. An English appellation for the fish called also the groundling. It is a species of the cobitis, and distinguished by Artedi under the name of the smooth spotted cobitis with a cylindrical body. See **LOCHE**.

LOBSTER. A species of the squilla, according to some naturalists; but, in the Linnæan system, constituting a species of the cancer or crab. The general character of the kind are, that the body is cylindrical, that the antennæ are long, and that the tail is large and long. There are a variety of species.

LOBSTER, COMMON; the Cancer Gammarus of Linnæus. This species has a smooth thorax; a short serrated snout; very long antennæ, and between them two shorter bifid ones. The claws and fangs are large, the greater being tuberculated, and the lesser serrated on their interior edges; there are four pair of legs; the tail has six joints; and the caudal fin is rounded.

The Lobster is an animal of such an extraordinary form, that at first sight the head is apt to be mistaken for the tail; but it is soon discoverable that the creature moves with its claws foremost; and that the part which plays within itself by joints, like a coat of mail, is the tail. The two great claws of the Lobster constitute its instruments of provision and defence: these, by opening like a

pair of nippers, possess great strength, and take a firm hold; and being usually notched like a saw, this circumstance still farther increases their tenacity. Besides these powerful instruments, that may be considered as arms, the Lobster has eight legs, four on each side; which, together with the tail, give the animal its progressive motion. Between the two claws is placed the head, very small, and furnished with eyes, which appear like two black corneous specks on each side; and these are projectile or retractile, according to the pleasure of the Lobster. The mouth, like that of an insect, opens longitudinally, and is furnished with two teeth for the comminution of its food; but as these alone are insufficient, it has three more in the stomach, one on each side, and the other below. Between the two teeth there is a fleshy substance shaped like a tongue. The intestines consist of one long gut, reaching from the mouth to the vent: but, what is very peculiar in this animal, the spinal marrow is lodged in the breast-bone. It is furnished with two long feelers or horns, issuing from each side of the head, which seem to correct the dimness of the animal's sight, and apprise it either of its danger or its prey. The tail, or that jointed instrument at the other extremity, is its grand instrument of motion, by means of which it is enabled to raise itself in the water. Under the tail, the spawn is commonly lodged in great abundance; each particle adhering to the next by a very fine filament which is scarcely perceptible. Every Lobster is an hermaphrodite, and supposed to be self-impregnated. The ovary, or place where the spawn is first produced, is situated backward towards the tail, where a red substance is always found, composed of a number of small spawns, too minute for exclusion: from this receptacle proceed two canals, which open on each side of the junctures of the shell, towards the belly; and through these passages the small round particles, destined for the future young, descend to be excluded, and arranged under the tail, where the animal preserves them till they arrive at maturity; when, being furnished with limbs and motion, they drop off into the water.

As soon as the young quit the parent Lobsters, they seek refuge in the minute cliffs of rocks, and such crevices at the bottom of the sea where the entrances are but small, and the apertures can be easily defended: there, without any apparent means of subsistence, they grow larger by degrees, from the mere accidental substances which the water forces into their retreats. In the space of a few weeks, they acquire hard, firm shells, which furnish them both with defensive and offensive armour. They then begin to issue from their fortresses; and boldly creep along the bottom, in hopes of meeting with more diminutive plunder: the spawn of fish, and the smaller animals of their own kind, but chiefly such worms as harbour at the bottom of the sea, supply them with plenty. In this manner they crawl among the rocks, busily employed in turning the sand in quest of worms, or surprizing such inadvertent little animals as happen to come within their reach. Thus they have little to apprehend, except from each other; for among them, as among fishes, the large are the most formidable of all other animals to the smaller.

But this life of ease and abundance is of short duration. The body of the Lobster still continues to encrease, while its shell remains unalterably the same: the animal becomes too large for its habitation;

habitation; and being imprisoned within the crust which naturally encompasses it, a necessity for its emancipation soon comes on. It is generally supposed, therefore, that the young of this kind, which grow quickest, change their shells oftener than the old; which, after they have attained their full growth, frequently continue in the same habitations for two years together. In general, however, all these animals change their shells once in a year; and this operation is not only painful, but also extremely dangerous. The season of undergoing this transformation is generally about the beginning of summer; at which time their food is plentiful, and their strength and vigour are in their highest perfection. But their activity soon ceases; they forsake the open parts of the deep, and seek for more retired situations among the rocks, or certain outlets, where they may remain secure from the attacks of their various and resolute enemies. For some days previous to their change, they lose their usual voracity; they no longer laboriously harrow up the sand at the bottom, or hunt for their prey; but lie torpid and motionless, as if in anxious expectation of their approaching fate. Just before they part with their exuviae, they throw themselves on their backs, and strike their claws against each other, while every limb seems to feel the concussion; their feelers are agitated; and their whole bodies are in violent motion: they then inflate themselves after an unusual manner; and at last their shells begin to divide at their junctures, bursting particularly at the joints of their bellies, where they were before but seemingly united. They also appear to be turned inside out; for their stomachs come away with their shells. After this, by the same kind of procedure, they disengage themselves from their claws, which open at the joints; while the animals, with a tremulous motion, kick them off, and in a short time find themselves at perfect liberty.

After this transformation, these creatures become so weak and enfeebled, that they continue motionless for several hours. Indeed, so very violent and painful is the operation, that many of them die under it; and those which survive it, continue for some time in such a weak state, that they neither feed nor venture from their retreats. Immediately after this change, they contract not only the softness, but the timidity of worms. Every inhabitant of the deep is then endowed with powers which they can neither oppose nor escape; and, during this interval of imbecillity, the dog-fish, the cod, and the ray, devour them by hundreds. But this defenceless state is but of short continuance: the animals, in less than two days, are invested with skins almost as hard as before; their appetites return; and the first objects that tempt their gluttony are their own stomachs, which they lately threw up: these they devour with great avidity; and, shortly after, even their former shells.

In order to the speedy growth of the shell, it is by some conjectured that the Lobster is supplied with a very extraordinary concretion within its body, which is converted into the shelly substance: this is a chalky matter found in the lower part of the stomach of every Lobster, improperly called Crab's eyes, but usually sold under that appellation. About the time the Lobster quits its shell, the teeth in its stomach break these stones to pieces, and the fluids contained therein dissolve them. This fluid, which still remains in the new stomach, is supposed to be replete with a petrifying quality

proper for the formation of a new shell: however, the concreting power that first formed these, shews a quality inherent in the animal to produce the shell likewise.

The Lobster being completely equipped in its new shell, it immediately becomes apparent, on comparing the dimensions of the old shell with those of the new, how much the animal has increased in the space of a few days; and this is frequently found to be nearly one-third of its former size: an amazing addition in such a short interval, and which cannot be explained on any known principle of animal vegetation.

The creature, thus furnished, not only with a complete covering, but also possessed of a superior share of strength and cunning, ventures among the other animals at the bottom of the ocean with a considerable degree of courage and intrepidity; and a whole week seldom passes without its undergoing some mutilation in combating its enemies: a joint, and sometimes a whole claw, is snapped off in these encounters; and, at certain seasons of the year, these animals never meet each other without engaging. In these contests, to come off with the loss of a leg, or even a claw, seems to be regarded only as a trifling calamity; the victor carries off the spoil, and feasts on it at his leisure; while the vanquished retires from the scene of action to wait for a perfect reparation. Nor is this long in being accomplished; for, from the place whence the joint of the claw was removed, a new member soon protrudes itself in a very singular manner: this claw, when inspected at first, is but small and tender; but, in the space of three weeks, it becomes almost as large and powerful as the old one: however, these members never match exactly with each other after an accident of this kind; and hence we generally find the claws of Lobsters of unequal magnitudes.

Having described some of the most striking peculiarities of this well-known but extraordinary animal, it may not perhaps be altogether useless to reflect a little on the wonders it presents to our imagination. A creature destitute of internal bones, yet furnished with a stomach capable of digesting the hardest substances, the shells of muscles, oysters, and even its own shell; an animal acquiring a new shell and a new stomach at intervals; furnished with the instruments of generation double in both sexes, yet with an apparent incapacity of uniting; without blood circulating through its body, yet vigorous and active; and, lastly, capable of reproducing its amputated limbs, however frequently removed! These are only a few of Nature's wonders, when she sports in the deep without a spectator, and without restraint.

There are several varieties of this creature; with some differences in the claws, the size, and the places of resort; but few in the habits or conformations. It is found above three feet long; and, if we admit the shrimp and the prawn into this class, though unfurnished with claws, it is sometimes not an inch in length. All the varieties live in the water like the common kind, and can endure separation from it but a few hours.

Lobsters inhabit all the rocky shores of the British isles, particularly those where there is a tolerable depth of water: vast quantities are brought from the Orkneys, and the eastern parts of Scotland, to the London markets. They are said to be so afraid of thunder, as to be liable to cast their claws on a loud clap. In some places they are
caught

caught with the hand; but the greatest number in pots, a sort of trap, constructed of twigs, and baited with garbage: these traps are formed like wire mouse-traps; so that when the Lobsters once gain admission, they cannot possibly escape. They are fastened to cords sunk into the sea, and their stations marked by means of buoys.

Lobsters are esteemed a very rich and nourishing aliment; and they are generally in their best season from the middle of October till the beginning of May. They are chosen for the table by their weight in proportion to their size; and by the hardness of the shells on their sides, which, when in perfection, will not yield to a moderate pressure. Cock-Lobsters, as they are called, are in general better than the hen ones in winter: these are distinguished by the narrowness of their tails; and by their having a strong spine on the centre of each of the transparent processes beneath the tail, which support the four middle plates of that member.

LOBSTER, ELEPHANT. This species is shaped pretty much like the common Lobster, except that the fore-claws are longer; and the nippers, which are more thin and broad, open wider than in any of this kind. There are three small claws near the large ones; and two more, one on each side, which are small and smooth, having neither prickles nor hairs. Two of the feelers are extremely long; and the rest are short and serrated, except the centre one, which serves to defend the horny and prominent eyes. The whole body is undulated; and the tail terminates in five fins variegated with lines. This species is found on the coasts of the Mediterranean; and its flesh is highly esteemed.

LOBSTER, SPINY; the Cancer Homarus. The front of this species is broad, armed with two large spines, between which there is a smaller one that guards the eyes. The antennæ are longer than the body and tail; they are spiny at their origin; and beneath them there are two lesser ones. The claws are small, short, and smooth; the fangs are small, single, and hinged; the legs are slender and smooth; and the body and thorax are rough with spines. The tail exceeds that of the common Lobster in length: on each part above there is a white spot; the bottoms are crooked and serrated; and the tail-fin is partly membranaceous, and partly crustaceous. This animal inhabits the rocky coasts of Britain, and several of the continental shores.

LOBSTER, BROAD; the Cancer Arctus. This species, which is common to every quarter of the world, has two broad bifurcated plates before the eyes, with short furcated antennæ; and the body and tail are flat and broad.

LOBSTER, NORWAY; the Cancer Norvegicus. The common length of this species, from the tip of the claws to the extremity of the tail, is about nine inches. The snout is long and spiny; the thorax is slightly beset with spines; the body is marked with three ridges; the claws are very long, angular, and spiny; the antennæ are long; the legs are slender and clawed; and the tail is elegantly marked with smooth and short haired spaces, placed alternately.

LOBSTER, LONG-CLAWED; the Leo of Rondeletius. This species, which is found on the northern coasts of Scotland, has a smooth thorax, three sharp slender spines in front, long rough slender claws, straight fangs, and weak and bristly

legs. The antennæ, which are slender, are about two inches and a half long; and the tail and body are about five inches.

LOBSTER, STRIATED; Cancer Strigosus. This species has a pyramidal spiny snout; and a thorax elegantly plated, each plate being marked near its junction with short striæ. The claws, which are much longer than the body, are thick, echinated, and tuberculated; the upper fang is bifid; and the tail is broad. This animal never exceeds six inches in length; it frequents the coast of Anglesea; and lodges under stones and weeds.

LOCHE; the Cobitis Barbatula of Linnæus. This fish has a small mouth, placed beneath, and destitute of teeth; the upper mandible is adorned with six small beards, one at each angle of the mouth, and four at the end of the nose. The dorsal fin consists of eight rays, the pectoral of eleven, the ventral of seven, and the anal of six. The tail, which is broad, contains sixteen rays. The body is smooth and slippery; the colour of the head, back, and sides, is sometimes white; and at others a dirty yellow, elegantly marked with large spots, composed of numberless minute specks: the pectoral, dorsal, and caudal fins, are also spotted; but the belly and ventral fins are white.

The Loche is found in several of the small English rivulets, where it keeps at the bottom, and on that account is in some places called the groundling. It seldom exceeds four inches in length; and, in general, is no more than three.

LOCUST. In the Linnæan system, the Locust belongs to the genus of gryllus; comprehending the Locust, the grasshopper, and the cricket.

In the eastern parts of the world, the Locust makes a distinguished feature in the picture of nature. Accordingly, the Scriptures furnish us with several very striking images of the numbers and rapacity of these insects; they compare them to an army whose numbers are almost infinite; and describe them as rising out of the earth and pursuing a settled march, purposely to destroy the fruits of the ground, and co-operate with the intentions of Divine displeasure.

According to the best information, when the Locusts take the field, they are headed by a leader, whose flight they observe, and direct their motions as he seems disposed to proceed. They appear at a distance like a black cloud, which, as it approaches, gathers on the horizon, and almost eclipses the light of the sun. It often happens that the husbandman perceives this imminent calamity pass away, without doing him the smallest injury; and the whole swarm proceed on their course to settle on the labours of some devoted country. Unfortunate indeed is that district where these insects alight! they ravage the meadow and pasture ground; strip the trees of their leaves; rob the gardens of their beauty; and, in a few minutes, destroy the expectations of the year, and bring on an inevitable famine. In their native tropical climates, they are less dreadful than in the more southern parts of Europe; where, though the plain and the forest be stripped of their verdure, the power of vegetation is so great, that an interval of a few days frequently repairs the calamity: but, in the European climates, the verdure being the livery of a whole season, the ensuing spring alone can repair the damage. Besides during their long flights to this part of the world, they become fa-

ished by the tediousness of their journey, and consequently prove more voracious wherever they happen to settle. But what they actually devour is of much less importance than what they contaminate: their very bite is supposed to be poisonous; the marks of their devastation may be traced for several seasons; and they seem to burn up whatever they touch, and check the progress of future vegetation. But, if these insects are noxious while living, they are still more so when dead; for, wherever they fall, they infect the air in such a manner, that their stench is intolerable. Crolius informs us that, in the year of the Creation 3800, an incredible number of Locusts infested Africa; and, after having consumed every green thing, they flew towards and were drowned in the African Sea, where they caused such a stench, that the putrified carcases of millions of the human species could not have been more offensive. In the year of the Christian æra 1690, a cloud of Locusts entered Russia in three different places, and from thence spread themselves over Poland and Lithuania, in such astonishing multitudes, that the sun could not penetrate the gloom occasioned by them, and the earth was covered with their numbers: in some places they were seen lying dead, heaped on each other, to the depth of four feet; and, in others, they covered the surface of the ground like a black veil; the trees yielded to their weight, and the whole country sustained incredible damage.

In Barbary, the visits of these noxious insects are frequent and formidable. Dr. Shaw, who was a witness of their devastations there in 1724, informs us, that they made their first appearance about the latter end of March, when the wind had blown from the southern point for some days. About the beginning of April, their numbers were so prodigiously increased, that, during the heat of the day, they formed themselves into large swarms, appeared like clouds, and darkened the very sun. About the middle of May they began to disappear, retiring into the plains to deposit their eggs. The next month the young brood began to come abroad, forming many compact bodies of several hundred yards square; which afterwards moving forwards, climbed the trees, walls, and houses, and devoured every green thing. Some of the inhabitants, in order to stop their progress, cut trenches over all their fields and gardens, and filled them with water; and others placed large quantities of heath, stubble, and such-like combustible matter, in rows, and set fire to them on the approach of the Locusts. But all these precautions proved ineffectual; for the trenches were quickly filled up, and the fires extinguished, by the vast number of swarms which succeeded each other: in a day or two after one of these was in motion, others, just hatched, proceeded to glean after them, gnawing the young branches, and even the very bark off the trees. Having subsisted in this manner near a month, they attained their full growth, and casting their exuvix, emancipated themselves from their worm-like state. In order to prepare themselves for this change, they affixed their hinder feet to some bushes or twigs, or to the corners of stones; when immediately, by an undulating motion peculiar to the occasion, their heads first appeared, and, soon after, the rest of their bodies. The whole transformation was performed in the space of seven or eight minutes: after which, they continued

for some time in a languishing condition; but, as soon as the sun and air had hardened their wings, and dried up the superfluous moisture, they returned to their former voracity with additional strength and agility. However, they were soon entirely dispersed; for, after laying their eggs, they directed their course northward, and probably perished in the sea. It is said that these animals make holes of the depth of four feet, for the purpose of depositing their eggs; and that the eggs of each are about fourscore in number, of the size of caraway comfits, and bundled up together in clusters.

To recount all the devastations which these famished insects have at different times occasioned, would be endless. But what can induce them to take such distant flights, when they enter Europe, is not easily accounted for. However, it seems probable, that in dry seasons, when they are propagated in such amazing numbers, the vegetables of those situations where they are produced are not sufficient to sustain them: thus being compelled to migrate, they traverse sandy deserts, where no supplies are to be found; and still meeting with nothing to allure them from their heights, they proceed forwards across the sea, and arriving on the continent of Europe, alight on the first verdure which they discover.

The inhabitants of some countries convert this plague into an article of domestic use. In many kingdoms of the East, Locusts are regarded as a tolerable dish, and are caught by the natives in small nets provided for that purpose: they are then parched over the fire in earthen pans; and, when their wings and legs fall off, the colour of their bodies changes to that of boiled shrimps. Dampier informs us, that he has eaten them thus prepared, and considered them as pretty palatable. The natives of Barbary also are said to eat them fried with salt; and to liken their taste to that of cray-fish.

LOCUST, GREAT BROWN. This insect, which is about three inches long, has two horns or feelers an inch in length; the head and horns are of a brownish colour; the mouth and the insides of the larger legs are blueish; the shield that covers the back is greenish; the upper side of the body is brown, spotted with black; and the under-side is purplish. The upper wings are brown, with small dusky spots, having a larger one at their tips; the under wings are more transparent, and of a light brown hue tinged with green; but there is a dark cloud of spots near their tips.

Some of these Locusts were seen in several parts of England in 1748, and many dreadful consequences were apprehended from their appearance. Indeed, they have frequently threatened us with their visitations. No species is more formidable in those countries where bred. They multiply almost beyond conception, if the sun be warm, and the soil in which their eggs are deposited dry and genial. Happily for us, the coldness of our climate, and the humidity of our soil, are by no means favourable to their production; and as they are the creatures but of one year, they only visit us, and die away.

LOCUST, TONQUINESE. This species is about the thickness of a man's finger, and as long as the first joint. The Tonquinese Locusts breed in low grounds; and, in the months of January and February, they issue from the earth in prodigious swarms. At first they can scarcely fly, so that

that great numbers of them often perish in the waters. The natives, however, watch the rivers during these months, and take them up in myriads with the assistance of small nets: part of them they eat fresh, part they broil on the coals, and the remainder they pickle. Being esteemed a great delicacy as well by the rich as the poor, they are regularly brought to market, and sold as larks or quails are in Europe. Indeed, it appears from Holy Writ that the Jews anciently fed on them; for Moses, in the Book of Leviticus, permits them to eat four different species, which he was careful to specify. However, this dish has never been regarded as a luxury in Europe; and though the delicacies of the East have in general been introduced, and too frequently established, we are as yet happily behind the natives of Indostan in this particular.

LOCUST, GREAT WEST INDIAN. Considered as an individual, this is the most formidable of all the insects which compose this noxious tribe. It is about the thickness of a goose-quill; and the body is divided into nine or ten joints, which, taken together, are about six or seven inches long. It has two small eyes, projecting out of the head like those of crabs; and two filiform feelers. The whole body is studded with small excrescences not much larger than the points of pins. The shape is roundish. The body diminishes in circumference to the tail, which is bifid; and between these there is a sort of sheath, containing a small but dangerous sting. If any person happens to touch this insect, he is inevitably stung, and immediately seized with a shivering and trembling all over his body: but more dangerous symptoms may be stopped by rubbing the place affected with a small quantity of palm-oil.

LOCUST, WATER. A species of aquatic insect somewhat resembling the common Locust in shape. It is about three inches long, of which it's tail occupies about one inch and a quarter. The body is slender; and the legs are of various lengths, the fore-pair being always carried horizontally, in the form of antennæ; but they all terminate in claws. The eyes are small, and not very prominent; the upper wings are crustaceous; and the under ones are membranaceous, thin, and transparent. The middle joints of the legs are such, that the creature can only move them upwards; and an acute tongue or proboscis runs under the belly, as in the water scorpion and noto-necta.

LOCUSTA PULEX. An appellation given by Swammerdam to a genus of insects since described by Ray under the name of cicadula.

LOCUSTELLA; the Grasshopper Lark. A small bird of the Lark kind, the *Alauda Trivalis* of Linnæus. It is smaller than the common wren; of a brownish yellow colour, spotted with black: the tail is long and brown; and the belly and thighs are variegated with oblong streaks of a blackish brown. This bird feeds on insects; and emits the same kind of sound as the grasshopper, only considerably louder. It usually perches on the top of some prickly shrub; and, vibrating it's tail very briskly, chirps without intermission, particularly during the summer evenings: however, it is seldom heard after the middle of August.

LOIR. An appellation given by Buffon to the greater dormouse. See **DORMOUSE.**

LOMMIA. A web-footed aquatic fowl com-

mon on the English coasts; and called in different places the guillem, guillemot, sea-hen, kid-daw, and skout: however, the last name seems equivocal, as the natives of Scotland call the razor-bill by the same appellation.

The Lommia, or *Colymbus Troile* of Linnæus, bears a strong resemblance to the razor-bill, but is considerably larger, being equal to the common duck in size. The head, neck, wings, back, tail, and upper part of the throat, are of a mottled colour, composed of black, brown, and grey; the breast, belly, and lower part of the throat, are white; and the wings are variegated with an admixture of white. The bill is straight, black, and sharp; and the legs, which are placed far behind, are destitute of the hinder toe.

This bird builds it's nest in the high naked rocks that overhang several parts of the British coasts: it is a very simple, stupid animal; and will calmly behold it's companions shot around it, without ever meditating it's own safety. There is a variety of this bird, inferior in size to the former, which frequents the Welsh coasts during the winter season, and likewise the frith of Forth, where it is called a morrot.

LONG-LEGS. A common appellation for the tipula.

LONG-TONGUE. A bird of the woodpecker kind found near the Cape of Good Hope, having a long, sharp tongue, as hard as iron: it is as small at the extremity as the point of a needle; and used by the creature, by way of defence, whenever attacked. The feet resemble those of the nightingale, except that they are armed with sharp claws.

This curious bird is about the size of the goldfinch: it's body is spotted and mottled; but it's belly is yellow. It's flesh, which is very deliciously tasted, is esteemed extremely salubrious and nutritive.

LOON. A name given by some naturalists to the *colymbus major*, or great diver; as also to the *colymbus minor*.

LOPHIUS. A genus of the Amphibia Nantes in the Linnæan system; the characters of which are: that they have solitary spiracles near the branchia; a number of small teeth; pectoral fins, incident in the branchiæ; and only three branchiæ. The species are the *guaperva*, the *guacua*, and the *rana piscatrix*.

LORIPES. An appellation used by some authors to express the himantopus, an aquatic bird remarkable for the length and weakness of it's legs.

LORIS. A species of Lemur in the Linnæan system, being the *Lemur Tardigradus* of that author. It is a native of the Isle of Ceylon; and, of all other animals, is the longest in proportion to it's size, having nine vertebræ in the loins, whereas other quadrupeds have only seven. The body appears still longer, by being destitute of a tail. In other respects the Loris bears a strong resemblance to the maki kind, as well in it's hands and feet, as in it's snout and the glossy qualities of it's hair. It is about the size of the squirrel; and appears to be a docile, harmless little animal.

LORY. A subordinate genus of the parrot kind, which seems to connect the parrots, properly so called, with the parroquets; and, when considered in a limited sense, should be entirely white:

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white: however, there are several species, to which naturalists have given the name of Lories, that are destitute of this distinguishing character.

LORY, BLACK-CAPPED. This species, which is about the size of the turtle-dove, has an orange-coloured bill. At the base of the upper chap there is a dusky flesh-coloured skin; and the eyes are encircled with a bright gold-coloured iris, beyond which there is a bare skin of an obscure flesh-colour. The crown of the head is covered with black feathers, those on the hinder part having a blueish cast; the other parts of the head, the neck, back, rump, the covert-feathers above the tail, the breast, and the upper part of the thighs, are of a bright scarlet hue, except a space behind between the neck and the back which has a small admixture of red, and another on the lower part of the breast also mottled with red. The belly, the lower parts of the thighs, and the coverts beneath the tail, are of a fine blue colour; and the upper part of the tail is also blue, except that the central feathers have something of a blackish tinge. The inner webs of the tail-feathers are yellowish; the upper sides of the wings are green; and some of the middle feathers are yellow on the borders of their webs. The inner webs of the quills are of a beautiful yellow hue, except at the tips, where they are dusky; and the covert-feathers on the insides of the wings, which are red with a slight admixture of yellow. This beautiful bird is a native of the East Indies.

LORY, RED-BREASTED. This bird is about the size of a blue dove-house pigeon: the bill is of an orange-colour, and hooked at the point; the irides are of a reddish yellow hue; and the exterior space is occupied by a bare dusky skin. The crown of the head is black, with a purplish gloss; and the remainder of the head, neck, back, rump, and the whole under-side, are of a beautiful scarlet colour, except a yellow crescent on the breast, and some blue feathers on the thighs just above the knees. The upper-sides of the wings are green; and their ridges are of a vivid blue colour. The inner webs of all the quills are of a fine yellow hue, except at the tips, where they are dusky. The plumage of the tail is red, a little inclining to purple at the tip; the legs and feet are of a leaden colour; and the claws are strong and blackish.

LORY, SCARLET. This bird is about the size of the common pigeon: the crown of the head is red; the upper mandible, which projects over the under, is of a yellow hue; and the irides are orange, encircled with a bare ash-coloured skin. The head, neck, body, and coverts of the tail, are of a shining scarlet hue, except the feathers on the lower part of the neck behind, which are tipped with yellow. The upper part of the thighs is red, and the lower green; the greater quills of the wings are a dark green with a blueish cast, and those which fall over them are a lighter green; the ridge of the wings below the joint is blue; and the inner webs of the first ten quills are red, except at the tips, which are blackish. The upper part of the tail is of a lively blue colour, the central feathers being slightly tinted with green; the inner webs of the tail-feathers are red at their bottoms, and yellowish at their tips; and the legs and feet are blueish, inclining to black.

LORY, SCARLET, LONG-TAILED. This species, which is considerably smaller than the common pigeon, has a longer tail than any of the other species, and somewhat pointed at its extre-

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mity, the middle feathers being almost two inches longer than those on the sides. The bill is strong and orange-coloured; the nostrils are placed almost close together in a dusky skin at the base of the upper mandible; and a bare skin of a dusky colour encircles the eyes. The head, neck, and body, are a fine scarlet; the sides under the wings, the thighs, and covert-feathers of the tail, being also of the same colour; but the fore-part of the neck and breast is somewhat lighter, and the edges of the feathers are slightly marked with yellow. The greater and middle quills of the wings are red tipped with green; those next the back are of a delightful blue colour; the first row of the coverts of the wings is red tipped with green; and the lesser coverts are entirely red, except that part of the wing adjoining to the joint, which is green. The feathers on the tail are of a duller red than those of the body; the two exterior feathers, and the tips of the remainder, have a little tincture of green; and the legs and feet are blackish. This bird, which was first described by the accurate Edwards, was imported, in fine preservation, from the island of Borneo in the East Indies.

LOTA. A species of the *mustela fluviatilis*, or eel-pout; differing from the ordinary kind in being destitute of hairs or excrescences on the upper jaw; in having a flat tail resembling the point of a broad sword, whereas that of the common kind is more rounded; and in being covered with scales easily distinguishable.

LOUSE. A genus of insects of the aptera order. The body is lobated at the sides; the abdomen is depressed; the legs, being six, serve only for walking; the two eyes are simple; the mouth is capable of projecting a small sting; and the antennæ are of the length of the thorax.

LOUSE, HUMAN. If this insect is microscopically examined, it's internal deformity first strikes us with disgust. The shape of the fore-part of the head is somewhat oblong, that of the hind-part being roundish: the skin is hard; and, when extended, becomes transparent, with a few bristly hairs disseminated over it's surface. In the fore-part there is a proboscis or sucker, which is seldom visible; on each side of the head there are antennæ or horns, each divided into five joints, covered with bristly hair; and several white vessels are seen through these horns. Behind these the eyes are placed, which seem to be destitute of those divisions observable in other insects, and appear encircled with a few hairs. The neck is very short; and the breast is divided into three parts, on each side of which there are six legs, consisting of six joints, covered also with small bristly hairs. The ends of the legs are armed with two smaller and two larger ruddy claws, supplying the place of a finger and a thumb, by which the insect catches hold of such objects as it approaches. The extremity of the body terminates in a cloven tail, while the sides are all over hairy: the whole resembling clear parchment; and, when roughly pressed, making a kind of cracking noise. On a close inspection, the white veins, and other internal parts, appear; and likewise a most singular intestinal motion is perceptible from the transparency of the external covering. When the Louse feeds, the blood is seen to rush like a torrent into the stomach; and it's voracity is so great, that the excrements contained in the intestines are ejected at the same time, in order to admit a fresh supply.

The Louse has neither teeth, beak, nor any kind

kind of mouth, as some anatomists have described it, the entrance into the gullet being absolutely closed: in the room of all these, it is furnished with a proboscis or trunk, or, as it may be otherwise termed, a pointed hollow sucker, with which it pierces the skin, and extracts the human blood, it's only subsistence. This stomach is partly lodged in the breast and back; but the greatest portion of it is in the abdomen. When swollen with blood, it appears of a dark brown colour, which is visible through the skin; and varies from a faint red to a full or bright brown, accordingly as the contents of the stomach are more or less corrupted. When empty, it is of a pale white colour; but, when filled, the peristaltic motion is plainly discernible: it then appears working with very strong agitations; and somewhat resembles one animal contained within another. Superficial observers are apt to take this for the pulsation of the heart; but, if the animal be observed when in the act of sucking, it will then be found that the food takes a direct passage from the trunk to the stomach, where the remainder of the old aliment will be seen uniting with the new, and agitated up and down on every side.

If the Louse be deprived of food for two or three days, and then placed on the back of the hand, it will immediately search for aliment, which it will find more readily if that member be rubbed till it becomes red: the animal will then turn it's head, which is situated between the two fore-legs, towards the skin, and diligently explore some pore: when found, it will fix it's trunk therein; and the blood will soon be discovered, by the assistance of the microscope, to ascend through the head in a very rapid and full stream. At that time the appetite of the Louse is sufficiently keen to feed in any posture; and it then sucks with it's head downward, and it's tail elevated. If, during this operation, the skin be drawn tight, the trunk is bound so fast, that the animal is incapable of disengaging itself; but it more frequently suffers from it's gluttony, since it gorges to such a degree, as to be crushed by the slightest pressure.

Some naturalists have supposed these insects to be hermaphrodites: but this supposition seems to be erroneous; for Lewenhoeck discovered that the males only have stings in their tails: and farther conjectures, that the smarting pain sometimes inflicted by these animals is owing to the effect of these stings when incommoded by pressure or otherwise. The same accurate observer, being determined to discover the true history and manner of breeding of Lice, deposited two females in a black stocking, wearing it night and day. He found, on examination, that in six days one of them had laid above fifty eggs; and, on dissecting it, discovered as many more remaining in the ovary: whence he concluded, that, in the space of twelve days, it would have laid one hundred.

Scarcely any animals multiply so fast as these unwelcome intruders, which generally attend wretchedness, disease, and hunger; and help to swell the catalogue of calamities incident to the human race. It has been quaintly remarked, that a Louse becomes a grandfather in the space of twenty-four hours: this observation cannot perhaps be well ascertained; but nothing is more certain, than that the moment the nit (which is no other than the egg of the Louse) emancipates itself from the superfluous moisture, and throws off it's shell, it then begins to breed in it's turn.

However, nothing so much prevents the increase of these nauseous insects as cold and want of humidity. The nits must be laid in a warm place, and moderately moist, otherwise they seldom produce any thing; and this is the reason why many nits, laid on the hair of the head during the night, are destroyed by the cold of the succeeding day; and so stick for several months, till they at last lose their very external form.

Lice are found on every part of the human body; but more particularly in the heads of children. Those which breed on the miners of Sweden are said by Linnæus to be very large; and he is of opinion, that the head and the body differ in no respect from each other. The pthiasis, or Lousy disease, though little known at present, was frequent enough among the ancients: Antiochus, Herod, Epiphanes, Alcman, Pherecydes, Cassander, Callisthenes, and Sylla, are all said to have died of this loathsome disorder. The use of mercury, which was unknown among the ancients, may probably have banished it from among the moderns; for certain it is, that those vermin seldom attack any of the natives of this country who do not invite them either by sloth or famine. However, it is observable that some constitutions are more apt to breed Lice than others; and that, in certain places of different degrees of heat, they are inevitably destroyed on people who in other climates are over-run with them. Oviedo remarks, that the Spanish sailors, who are generally much infested with Lice, always lose them in a certain degree on their voyage to the Indies; and have them again on their approaching the same latitude in their return. This observation, indeed, is not only true with respect to the Spaniards, but all other nations who make the same voyage: for though they swarm with these insects on their first setting out, not one of them remains after they reach the tropics. In the Indies there are no such creatures as Lice, however filthy the natives may appear. The sailors continue free from these vermin till they come about the latitude of Madeira, on their return home. The extreme sweats which these laborious people naturally fall into between this latitude and the Indies, drown and destroy these insects; and produce nearly the same effects as rubbing the heads of children with butter and oil. The perspiratory fluid is not rank in the Indies, as in Europe, and therefore not favourable for the production of Lice; but, within those latitudes where the sweat is gross and rank, they are again bred, and their numbers become troublesome.

Such are the Human Lice; which, from their intimate connection with mankind, deserve particular notice. But it would prove an endless task to describe the various tribes that fall under this appellation, and swarm on every part of nature, animate and inanimate. There is scarcely an animal or vegetable that is not infested with it's own peculiar Lice. The sheep, the horse, the hog, and the elephant, are all molested by them; the whale, the shark, the salmon, and the lobster, are not free from their depredations; while every hot-house, and every garden, is haunted by some peculiarly destructive. Linnæus informs us, that he once discovered a vegetable Louse on a plant newly arrived from America; and, anxious to trace the little animal through it's various stages, he carried it with him from London to Leyden, where he carefully preserved it during the winter,

till it bred in the spring. But it appears that this insect did not render him all that gratitude he had a right to expect; for it speedily became the parent of a numerous progeny, and ravaged the beautiful physic-garden of that celebrated city.

LOUSE, LEAF. The insect which naturalists have described under the name of the Leaf-Louse, is about the size of a flea, and of a bright green or blueish colour. The body, which is nearly oval, is largest and most convex on the hinder part; the breast is very small; and the head is blunt, and of a greenish cast. The eyes are plainly distinguishable, being prominent on the fore-part of the head, and of a shining black colour; near them there is a black line on each side; and the legs are very slender.

These insects are usually found on the leaves of the orache, and other plants; and the weaker the leaves and buds are, they swarm on them in the greater abundance. Some plants are entirely over-spread with them; and though they are not the cause of vegetable weakness, but the signs of it, yet by wounding and sucking the leaves they increase the disease. They generally derive their colour from the plants on which they reside: those which feed on kitchen-herbs and plum-trees are of an ash-colour when full-grown, and greenish while young; such as belong to the alder and cherry-tree are black; and those which infest the leaves of apple and rose-trees, are white: but as the last-mentioned leap after the manner of grasshoppers, some naturalists have placed them in the number of the flea kind. The most singular colour assumed by these animals is red; however, some of this kind are found on the leaves of the tansey, and their juice tinges the hands with a pretty lively red. All the various species live on their respective plants, and are often engendered within the substance of the leaf. They are all viviparous; and the foetus, when ready to be brought forth, entirely fills the belly of the female. The young one does not begin to move till the horns or feelers appear out of the body of the female; and by the motion of these it first indicates its existence, moving them in every direction, and bending all their joints. When the horns and head are excluded, the two fore-feet follow, which the insect moves with equal agility; after this, the middle feet appear, and then the hinder: still, however, the creature continues to adhere to its parent, supported only at one extremity, and suspended as it were in the air, till its small and soft members become hardened and adapted for self-preservation; then the parent liberates herself from the burden by a progressive motion from the place where she was stationed, which forces the young animal to stand on its own legs, and thereby to support itself.

As the food of this insect is generally obtained at no great distance, it continues, during the summer, to eat and creep about with great agility: but, being viviparous, it is necessitated to lurk somewhere in winter, where its body may be defended from the cold; and accordingly, it endeavours to secure a retreat near such trees or plants as serve to nourish it in the beginning of spring. It never buries itself in the ground, like many other insects, because no part of its body is fitted to remove the earth; nor can it creep into every chink, its legs being too long: besides which, its body is so tender, that the least rough particle of earth would injure it. It therefore takes up

its residence in the deep fissures of the bark, and in the cavities of the stronger stalks, from whence it sallies out on the branches and leaves when the genial warmth of the sun begins to return. Neither the cold in the autumnal season, nor the lesser degree of heat in the spring, ever hurts it: it seldom, therefore, seeks for a place of shelter before the fall of the leaf; and it is generally alert enough to embrace the earliest advantage of the returning spring.

These insects shed their skins four times; after which the males acquire the like number of wings, but the females never get any. They have all long legs, which not only enable them to creep over the long hairs of trees and plants, but also to travel from one tree to another when such expeditions are necessary. Their trunks or snouts lie under their breasts; and these they thrust into the pores of plants, in order to extract their juices; for they do not gnaw them like caterpillars, but so wound them by sucking, that the leaves become spotted, and as it were over-run with scabs. Some naturalists have affirmed, that these insects are often seized and carried away by ants; but others, who seem to have paid much attention to the subject, deny this assertion: ants, indeed, shew a partiality for those trees on which a great number of these Lice are found, but then it is only to suck the juice which flows abundantly from the leaves they have wounded. This more particularly happens during the heats of summer, when other moisture is wanting; but it does not appear very probable that ants will attack these insects; for which indeed they are by no means a match. However, the Plant-Lice have three principal and constant enemies, viz. the fire-fly, the beetle, and the ichneumon: the former lays its eggs where these insects are most numerous; and the latter, which is by far the most formidable, seizes on one of the females, and drops its egg in her body, which is soon after hatched into a worm that destroys the animal from whose body it was produced.

LOUSE, WOOD, COMMON. This insect is about half an inch long, and a quarter of an inch broad: the colour is a livid black, especially when found in the vicinity of dunghills, and on the ground; but those which reside under tiles, and in places more remote from moisture, are of a cinereous colour. The Wood-Louse has fourteen feet, seven on each side; and two short feelers. The body is of an oval shape; and the sides, near the feet, are dentated like a saw. When touched, it rolls itself up into a kind of ball.

These creatures are often found among rotten timber, and on decayed trees: in winter they lie hid in the crevices of walls. The males are easily distinguishable from the females, being less, and more slender. Their eggs are white and shining, like seed-pearls, and very numerous. However, though the young, when first excluded, have every appearance of eggs, they are nevertheless alive; and, without throwing off any shells, move about with great vivacity: so that these animals may be properly stiled viviparous. They are of considerable service in medicine, being impregnated with a saline quality, which is diuretic and stimulating. Linnæus enumerates three species of the Wood-Louse.

LOUSE, SEA. An appellation given to a singular species of fish, about a foot long, and covered with a shell. It has the appearance of a round

LUG

round lump, with a very long tail, and small legs or fins on each side; the body being of a greyish colour, inclining to green. It is caught in the Oriental seas near Batavia; and its flesh, though disagreeable to Europeans, is commonly eaten by the Japanese and Chinese.

LUCERNA. A fish of the cuculus kind, approaching to the figure of the hirundo, caught in the Mediterranean and some other seas. The tail is slightly bifid; the lateral lines near the tail divide into two parts: the scales are small; on the back there is a narrow furrow edged by twenty-five spines on each side; and the gill-fins are of such uncommon dimensions, that they appear like wings. This fish preys on shrimps, and other small marine animals.

LUCERNE. A Venetian name for the fish more commonly known by that of uranoscope. It is a species of trachinus, with a number of beards on the lower jaw.

LUCIOPERCA. A fresh-water fish caught in the Danube and other large rivers, called also schilus and nagumulus. It grows to a considerable size, sometimes measuring four feet in length; and its flesh is esteemed very delicate and nutritious. It is of a longer shape than the river perch, and grows narrower towards the tail; the snout is longer and more pointed; the back is much less prominent; and the figure, on the whole, more nearly resembles that of the pike than the perch. However, the belly is broad and flat, and on the anterior part of the back there is a narrow sulcus in the centre. The scales are ranged very closely together, and fimbriated round the edges; the breast is perfectly smooth; the sides are of a brownish yellow colour; and the belly and fins are red.

LUCIUS. An appellation sometimes given to the common pike.

LUCIUS MARINUS. A name by which some ichthyologists express the merlucius, a fish commonly known in England by that of the hake.

LUCIUS MARINUS is also used by many authors to signify the sudis; called also by some, sphyæna.

LUCIUS TERRESTRIS; the land pike. A very singular species of American lizard; in many respects resembling the aquatic pike; having four weak slender legs in the room of the fins of that fish, by means of which it is barely enabled to crawl along the ground after the manner of the snake. It is commonly about fifteen inches long, and of a proportionable thickness; and is entirely covered with small strong, glossy scales, of a silvery grey colour. In the day-time it retires into holes and caverns, where it emits a loud and discordant noise. It seldom quits its retreat except in the dusk of the evening; but, when it happens to be surprized by day-light, its very awkward motions, added to its hideous figure, excite every sensation of aversion and disgust.

LUGGS. A provincial appellation for a species of insects found in great plenty on the Cornish coasts. It is of the nature of the scolopendra, and distinguished by Ray under the name of vermis scolopendroides. This creature grows to the length of twelve inches; and, instead of legs, is furnished with nineteen pair of stiff bristles, all pointing forwards. The tail is about five inches long; and the body, which is rounded, greatly resembles that of the common earth-worm.

LUGMON. A Philippine appellation for a species of turtle-dove, the female of which has a beautiful tuft of pale red feathers on her breast.

LUM

LUMBRICUS. See **EARTH-WORM.**

LUMNÆ; the *Colymbus Arcticus* of Linnæus. A name given to the black-throated diver, an aquatic bird common about Iceland, and some other parts of the hyperborean regions. This creature, which is very beautiful, is about the size of the common duck: the beak is black, sharp, and about two inches long; the head and neck are covered with grey plumage, which runs each way to a sharp edge, and appears like a hood or cowl; the back and wings are black, variegated with square specks of white; and exactly under the neck there is a large square black spot. The belly is white; the legs are short; and the feet are webbed.

The natives of those countries where these birds usually reside, regard them in some measure as sacred, and preserve them with the highest veneration; but the Icelanders, who sacrifice their partialities to necessity, are very dextrous in catching them for food.

LUMP FISH; the *Cyclopterus Lumpus* of Linnæus. A thick, short marine fish; called also the sucker, the sea-owl, and the cock-paddle.

This singular fish sometimes measures nineteen inches in length, and weighs about seven pounds: the figure of the body resembles that of the bream, being deep and very thick; the back is sharp and elevated; and the belly is broad and flat. The irides are of a pale red colour; the lips, mouth, and tongue, are a deep red; the jaws are armed with innumerable small teeth; and the tongue is very thick. Along the ridge of the back there is a row of large bony tubercles; from above the eye, almost to the rise of the tail, there is another row; beneath that there is a third; and on each side of the belly there is a fourth row, consisting of five tubercles like the rest. The whole skin is rough, and beset with small tubercles. On the upper part of the back there is a thick ridge, by some called a fin, though destitute of spines; beneath that is placed the dorsal fin, of a brownish colour, reaching within an inch of the tail; and exactly opposite, on the belly there is another of a similar form. The belly is of a vivid crimson colour; the pectoral fins, which are large and broad, almost unite at their bases; and beneath these is situated the member by which the fish adheres to rocks, a quality it possesses in a remarkable degree. This member consists of an oval aperture, surrounded by a fleshy muscular, and obtuse spongy substance, fimbriated with small filiform appendages, which concur as so many clasps.

By the assistance of these singular appendages, the Lump-fish adhere with astonishing firmness to any object on which they fix themselves: As an instance of their tenacity, one of them has been known to be thrown into a pail of water, and to unite itself so closely to the bottom, that, on seizing it by the tail, the whole pail was lifted by that means, (though it contained several gallons) and that without disengaging the animal from its hold.

These fish are caught in many parts of the British seas; and are sometimes exposed to sale in the shops of the London fishmonger's; but their flesh is flabby and insipid, and consequently little esteemed. During the spring season, they are very common on the northern coasts of Scotland, where they afford subsistence to the seals, and other predaceous animals of the deep. Great numbers are also found in the Greenland seas, about the months of April and May, when they resort to the shores

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in order to spawn. Their roes are then remarkably large; and the Greenlanders boil them to a pulp and eat them. The whole fish is extremely fat; which circumstance recommends it highly to the natives of that country, who are all attached to oily food. According to Crantz, it is called the nipifet, or cat-fish; and much admired as a northern delicacy.

There are several species of the Lump-fish. See **SUCKER**.

LUMPEN. A long-bodied fish of the mustela kind; the Galea Piscis, or Mustela Altera of Gefner; and distinguished by Artedi under the name of the blennus with fins like cirri under it's neck and transverse streaks on it's back. The body is long and slim, growing gradually slender towards the tail. The colour is a greenish yellow, with broad black lines on the back, placed transversely; and there is a little redness at the extremity of the tail. This fish is caught in the German ocean; and is frequently sold in the markets of Antwerp, and those of some other towns on the continent.

LUNA MARINA. An appellation given by Gefner to a peculiar species of star-fish.

LUNA PISCIS. A name given by some ichthyologists to the mola; or, as it is usually called in English, the sun-fish.

LUNARIS COCHLEA. A genus of shells of the limax or snail kind; the distinguishing character of which is, that the mouth is perfectly round.

These shells are univalve and umbilicated, with a depressed clavicle, and a surface sometimes smooth, but more frequently striated, sulcated, and laciniated, or covered with tubercles.

Archimedes is said to have borrowed the invention of his screw, so famous ever since his time, and still called after his name, from the form of this shell; and it is generally allowed, that architects first caught the idea of winding flights of stairs from an inspection of it's conformation.

One species of this genus is commonly distinguished by the appellation of rotunda, from it's round shape; this is so large as to contain two quarts of water; and, from an ancient custom of using this shell by way of an oil-jar in families, it obtained the name of olearia. Another species, called the dauphin-shell, is elegantly furnished with rows of points of a jagged form on all it's spires. The shell called the eperon is another species of this genus, the volutæ of which are furnished in a similar manner with points; but in this species they are smoother and sharper than in the dauphin-shell.

Rondeletius has given the name of echinophora to a particular species of the lunaris cochlea, entirely covered with rough tubercles. A very beautiful variety is also imported from America, which is extremely large, and of a fine pearly colour internally: this internal covering is much used by toy-men as a substitute for mother-of-pearl; and, with respect to beauty and durability, it is by no means inferior.

LUNDA. An appellation by which Wormius and some other naturalists have called the bird more commonly known by the name of anas arctica Clusii.

LUZZO MARINO. An Italian term for the spyhræna of the ancient Greeks and Latins. It belongs to the genus of the scombri. Gaza calls it the malleolus; and the French distinguish it by the name of spet.

LYN

LYCOSTOMUS. The name of a fish caught in the Baltic, approaching somewhat to the nature of the herring or pilchard. It is usually about five or six inches long, and very fat and fleshy. The scales, which are small and loose, fall off by a moderate friction.

Ælian, and several of the Greek writers, apply the name of Lycostomus to the anchovy; called by others the encraulus, and encrafcicolus. Artedi proves it to be a species of the clupea, or herring; and distinguishes it from the rest by the name of the clupea with the upper jaw longest.

LYNX. In the Linnæan system, a predaceous animal of the felis or cat kind; called also lupus cervarius. There are several varieties: but the discriminations are so trifling, that, after the example of some celebrated naturalists, we shall blend them chiefly under one description.

The common Lynx has a short tail, black at the end; pale yellow eyes; and long full hair under the chin. The hair on the body is long and soft, of a cinereous colour tinged with red, and marked with dusky spots, more or less distinct in different subjects; in some scarcely visible. The belly is whitish; the ears are erect and tufted with long black hairs, a character common to the several varieties of Lynxes; and the legs and feet are very thick and strong. The length of the skin of a certain Russian Lynx, from the nose to the tail, was four feet six inches; and that of the tail was only six inches. These animals sometimes vary in colour: and a variety, called wolf-lucks, is whitish, spotted with black, and larger than the common kind.

The Academy of Sciences of Paris have given a very complete description of the Lynx; and have discussed, with much critical acuteness, those facts and appellations relative to this animal which occur in the writings of antiquity. They have evinced, that the Lynx of Ælian is the same animal which they have described and dissected; and they censure with propriety those who have mistaken it for that of Aristotle. However, after making these pertinent and just remarks, it is to be lamented that they did not retain the ancient appellation of Lynx, instead of substituting that of lupus cervarius.

Oppian mentions two different species or races of the Lynx; the large one, which hunts and attacks the fallow-deer and the stag; and the smaller one, which pursues the hare only. In fact, there is a spotted Lynx, common to the northern countries; and another, whose hair is of an uniform colour, which inhabits the Levant and Barbary. Buffon informs us, that he has seen both these animals alive: they resemble each other in many respects, and both have long black pencils of hair on the tips of their ears; nevertheless, independent of the difference of colour and spots of the hair, the subsequent history and description render it extremely probable that they are distinct species.

Klein says, that the most beautiful Lynxes are natives of Africa and Asia, and particularly of Persia: that he saw one at Dresden, which had been imported from Africa, finely spotted, and high on it's limbs; that those of Europe, especially of Prussia and the northern regions, are less handsome; and that they contain few variegations of white, but are rather red, blotched with ill-defined spots. Buffon, however, seems to question this account of Klein; because no other author mentions the Lynx as being a native of the

warmer

warmer climates of Asia and Africa. Kolbe is the only writer who affirms that the Lynx is common at the Cape of Good Hope, and perfectly resembles that of Brandenburg and the north of Europe; but so many mistakes occur in the works of this naturalist, that his testimony can have but little weight, unless corroborated by that of others. All travellers agree in having seen the spotted Lynx in the north of Germany, in Lithuania, Moscow, Siberia, Canada, and other hyperborean regions of both continents; but no authentic author asserts that the Lynx is a native of the tropical regions. The Lynx of the Levant, of Barbary, Arabia, and other hot climates, is, as before remarked, of one uniform colour: he cannot therefore be the Lynx of Klein, which he describes as being finely spotted; nor that of Kolbe, which perfectly resembled the Lynx of Brandenburg. It would indeed be a difficult task to reconcile the evidence of those authors with that derived from other sources. The Lynx is unquestionably more common in cold than in warm climates; and, at least, is very rare within the tropics: however, it is certain that this creature was known to the Greeks and Romans; but we may not infer from hence, that it was either imported from Africa or the southern provinces of Asia: Pliny, on the contrary, says, that the first of these animals which was seen in Rome, was brought from Gaul in the days of Pompey. At present, however, there are none in France, unless perhaps in the unexplored parts of the Alps and Pyrenees.

The finest Lynx furs are brought from Siberia, under the appellation of the loup-cervier; and from Canada, under that of chat-cervier; because these animals, like all others, are smaller in the new than the old continent.

Klein, and other naturalists who have adopted his opinion, have probably been misled by the following circumstances. The ancients say, that India furnished Lynxes for the god Bacchus. Pliny has placed the Lynx in Ethiopia; and observes, that the hide and claws were prepared at Carpathos, an island lying between Rhodes and Candia. And Gesner has made a particular article of the Asiatic or African Lynx.

For the prevention of similar mistakes, it should be remarked, that the poets and painters have yoked the chariot of Bacchus with tigers, panthers, or Lynxes, according to their own fancy; or rather, because all ferocious animals with spotted skins were equally consecrated to that god. Thus it is the term Lynx which occasions this ambiguity; for it is evident, from comparing different passages of Pliny with each other, that the Ethiopian animal called by him Lynx, is by no means the same with the lupus cervarius or Lynx, which is a native of the northern regions.

This animal, which, as previously remarked, prefers cold to temperate countries, is one of those that might pass from one continent to another; and accordingly, it is found in North America. Travellers have described it in a manner not to be misunderstood. The Canadian Lynxes are smaller and whiter than those of Europe; and this circumstance has induced naturalists in general to regard them as distinct species.

A variety of fables have been invented by the ancients respecting the Lynx; particularly, that its sight penetrated the most opaque bodies; and that its urine became a precious stone, called lapis lyncurius: but even the animal to which they

ascribed these extraordinary qualities is as fabulous as their description. We must not therefore, in imitation of the ancient naturalists, attribute to the real Lynx the characters of this creature of imagination, the existence of which Pliny himself seems to question; for he speaks of it as an extraordinary animal, ranking it with the sphynx, the pegasus, the unicorn, and other prodigies or monsters supposed to be brought from Ethiopia, a country of which the ancients had but a very imperfect idea.

The Lynx of the moderns, though its sight cannot penetrate stone-walls, has nevertheless very brilliant eyes, a mild aspect, and an agreeable and sprightly air. The animal's urine is not convertible into precious stones; but it covers it like the cat, to which race it has a great resemblance. It possesses nothing in common with the wolf but a kind of howling, which being heard at a great distance, is often mistaken for the voice of the latter: this alone may account for the name Wolf, which has been given it, and to which the hunters have annexed the epithet Cervarius; by way of distinction.

The Lynx, which does not run out like the wolf, but walks and springs like the cat, lives by hunting, and pursues its prey to the tops of the highest trees. Wild cats, pine weasels, ermines, and squirrels, are unable to escape from this animal; and it likewise preys on birds. It watches the approach of stags, fallow-deer, and hares; darts down upon them, seizes them by their throats, sucks their blood, and opening their skulls, devours their brains: after this, it generally abandons them, and proceeds in quest of fresh game. The fur of this creature changes with the climate and season; but the winter covering is more beautiful and rich than that of summer.

LYNX, CANADIAN. This species is only two feet three inches in length from the tip of the nose to the origin of the tail, and about twelve or thirteen inches in height. The body is covered with long greyish hair, mixed with white and striped with yellow; the head is greyish, blended with white and bright yellow hairs interspersed with black; the tip of the nose, as well as the margin of the under-jaw, is black; the whiskers are white, and about three inches long; the ears are two inches high, garnished in the inside with large white hairs, and bordered with yellow; the outer side of the ear is covered with mouse-coloured hair, the external margins being black; and at the extremity of each ear there is a large thin pencil of black hairs. The tail, which is thick, short, and well furnished with hair, is only three inches long, black from the extremity to the middle, and of a reddish white colour towards the base. The under part of the belly, the hind-legs, the inside of the fore-legs, and the feet, are of a dirty white hue; and the claws are white, and about six inches long. Hence the Canadian Lynx may be regarded as a variety very different from the Lynx of the old continent: it may be even said to make a near approach to the caracal, by the pencils on its ears; but it differs from that animal, still more than from the Lynx, by the length of its tail and the colour of its hair; besides, the caracal shews a predilection for warm countries, but the Lynx for cold ones.

LYNX, NORWEGIAN. According to Pontopidan, this animal is white, or of a bright bay colour interspersed with deep spots. Its claws, like those of other Lynxes, resemble the claws of cats.

It elevates it's back, and springs forwards on it's prey with equal quickness and address. When attacked by a dog, it lies down on it's back, and repels the enemy by repeated strokes of it's claws. This author adds, that in Norway there are four species of this animal; that some of them approach the figure of the wolf; others that of the fox; others that of the cat; and, lastly, that there are some whose heads resemble those of colts. This last assertion, which appears to be exaggerated and ill founded, creates the most violent suspicion with regard to all the rest: however, the author subjoins some particulars, which are more probable. 'The Lynx,' says he, 'does not go about the country, but conceals himself in woods and caverns. He makes his retreat deep and winding, from which he can only be expelled by fire and smoke. His sight is piercing, and he spies his prey at a very great distance. He often eats no more of a sheep or a goat than the brains, the liver, and the intestines; and he digs under the doors, in order to gain admission into the sheep-folds.'

LYRA. A fish of the trigla kind, of which Artedi and Linnæus enumerate two species: the one, the piper or tibicen; the other, the Lyra cornuta, or horned harp-fish. This last is of an octagonal figure, entirely covered with bony scales of a rhomboidal shape, each having in it's middle a sharp and strong prickle bending backwards. The body is of a reddish colour; the head is very large; the snout divides towards the extremity into two long horns, on which are placed two perpen-

dicular spines, and a third above making an acute angle with the rest. It has one very long dorsal fin, and another answering to it behind the anus; there also two large fins at the gills, and two smaller on the belly. Behind the gill-fins there are two long filaments called fingers: the mouth is large, but destitute of teeth; and there are several beards on the under-jaw, two of which are longer than the rest, and branched. This fish is caught in the Mediterranean; and is a scarce species in other parts.

LYRA, A beautiful marine shell of the genus of the dolium, or concha globosa. There are three species of the Lyra: the common Lyra or harp-shell with thirteen rose-coloured ribs running along it's body; the eleven-ribbed Lyra; and the noble harp, or Lyra nobilis. This last is a most elegantly variegated shell: it's ground-colour is a deep brown; and it's variegations are very black and elegant.

LYSIMACHIA-WORM. An insect frequently found on the leaves of the Lyfimachia, or willow-herb. It has usually been esteemed a caterpillar; but is properly one of the fausse chenille, having a round head, and twenty-two legs. This creature changes it's skin several times, and finally becomes of another colour, being at first a blueish grey, and after it's last transformation in a worm state, a yellowish green. It soon becomes a chrysalis; and, after continuing in that state for the usual time, it comes forth a four-winged fly.

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MABOUYA. A most hideous species of lizard bred in the Carribbee islands, and probably in some other parts of America which lie under the torrid zone. It seldom exceeds a foot in length; but is the most deformed and ugly of any of it's disgusting tribe, and hence has obtained the name of the devil-lizard. When the tail is amputated, it bears a very striking resemblance to a toad. The toes are flat, broad, and rounded; very disproportionably divided; and the extremity of each is furnished with a small claw like the sting of a wasp.

These animals generally perch on the branches of trees, and sometimes ascend the tops of houses; but are seldom seen on the ground. When incensed, they fly on the assailant, and stick close to his body; however, they are never known to bite or injure any person. In the night, their noise is hideous and terrifying, particularly before a change of weather.

MACAQUO. An animal of the monkey kind, so called by the natives of Congo; and by Ray, Cercophiticus Angolensis major, the great Angola monkey. The colour of the hair sometimes resembles that of the wolf; and sometimes it is brown, tinged with yellow or olive. The nostrils are elate, and divided like those of the hare; the head is shaped like that of the bear; and the eyes are small.

The buttocks of this animal are destitute of hair, and on these it frequently sits erect. It always carries it's tail bent into a kind of arch. The length of the body is about a foot; the tail is somewhat shorter than the body; the legs are pretty long; and the teeth are very white. This creature is extremely lively and active; and it's voice, which is shrill, seems to express the syllables Hah! hah!

In Angola there is another variety of this animal, called the black Macaquo from it's colour, which is entirely black, except that on many parts of the back and sides some greyish hairs are perceptible. The tail is upwards of two feet in length.

MACAW, OR MACCAW. A beautiful race of birds of the parrot kind, but considerably larger. Some ornithologists include the cockatoos under this tribe; but the more accurate discriminators of nature consider them as distinct species of the parrot genus.

MACAW, BLUE AND YELLOW. This bird is equal in size to a domestic cock: the bill is arched, the upper part being hooked, and hanging over the lower; the nostrils are placed at the base of the upper mandible in a white bare skin, which extends itself to the sides of the head, round the eyes, and a considerable space beneath them: these white bare plats of skin on the sides of the head

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head are variegated with beautiful lines of small black feathers, appearing like needle-work. The irides are of a pale yellow colour; immediately under the bill there is a large black spot, turning round, and upwards on it's sides, and encompassing part of the bare white space on the sides of the head. The top of the head is adorned with fine green feathers, which gradually become blue on the neck; the upper side of the neck, the back, and the upper sides of the wings and tail, are an exceeding fine blue, with some little variation of shade. The fore-part of the neck, the breast, belly, thighs, and covert-feathers under the tail, are of a fine yellow orange-colour, except the hinder part of the thighs, where an admixture of blue appears. The covert-feathers within-side the wings are yellow; and the legs and feet are of a blackish or dusky colour. This species, which is a native of Brazil, is by no means common. It seems to be the araracanga of the Brazilians.

MACAW, RED AND BLUE. This bird is unquestionably the first of the parrot kind, if we regard either it's magnitude or the beauty and variety of the colours which adorn it's plumage. It measures nearly three feet in length from the tip of the bill to the extremity of the tail. The arch of the upper mandible of the bill, from the forehead to the point of the bill, is nearly three inches; and the longest toe, with the claw, is about two inches and a half long. The upper mandible is whitish, except near the head, where it is dusky; the lower is black or dusky. The nostrils are placed in the upper part of the bill, just within the feathers; the sides of the head are destitute of feathers, and covered with a whitish corrugated skin; the head, neck, breast, belly, thighs, upper part of the back, and lesser covert-feathers of the wings, are of a very fine bright red or scarlet colour; the quill-feathers of the wings are externally of a fine blue, and internally of a faint red; the first feathers next above the quills are a bright yellow; the blue quills which fall next the back are tinged with green; and the hinder part of the thigh is green intermixed with red. The lower belly and covert-feathers under the tail, as also the lower part of the back and coverts on the upper side of the tail, are of a very fine blue colour. The tail-feathers gradually shorten towards the sides; some of the longest or middle feathers are wholly red; the shorter, or side-feathers, are partly red and partly blue; the legs and feet are covered with blackish or dusky scales; and the toes are disposed two forwards and two backwards, as in other parrots, all armed with strong claws. This bird is a native of America, and seems only to delight in tropical climates.

MACAW, BRAZILIAN, GREEN. This bird is about the size of a tame pigeon: the bill is pretty strong; the nostrils are placed in a white skin, which passes round the base of the bill; on each side of the head there is a broad bare space of skin, of a whitish colour, thinly set with small black feathers, and in these spaces the eyes are placed, having gold-coloured irides; the feathers on the forehead, next the base of the bill, are black; the top of the head is blue, which gradually becomes green on the neck; and on each side of the lower mandible of the bill there is a black spot, terminating in points upwards. The whole body and neck, both above and beneath, are green; the wings are externally green, except the greater quills, and some of the first row of

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covert-feathers that fall over them, which are of a beautiful blue; the quill-feathers next the back are of a yellow green; the ridge of the wing in the upper part round the joint is red; the insides of the wings are red, except a little sprinkling of faint green in the lesser covert-feathers; the tail-feathers on the upper side have green webs towards their bottoms, which gradually become blue at their tips; and the outer webs of the two exterior feathers are blue their whole length. The under-side of the tail, which is wholly red, is composed of twelve feathers, narrow at their extremities; the middle feathers are long, gradually shortening to the outermost on each side; the legs and feet are covered with a black scaly skin; the toes stand two forwards and two backwards; the claws are black and strong; and between the green feathers on the thighs and the black skin of the legs are placed rings of scarlet feathers.

Sir Hans Sloane mentions this bird in his History of Jamaica; but it does not appear to be common in that island.

MACAW OF ST. DOMINGO. This bird is called Arras by the French. The head, neck, belly, and upper part of the back, are of a fiery red colour; the wings are a mixture of yellow, blue, and crimson; and the tail, which is about eighteen inches long, is entirely red. It subsists on seeds and fruits; and sometimes feeds on manchineel apples, which are a deadly poison to all other animals. The note of this bird is shrill and loud, especially when flying. The male and female always herd together: the latter forms her nest in the hole of a tree, lining it with feathers; and lays two eggs, about the size of a pigeon's. The flesh of this bird is very hard; nevertheless, it is highly esteemed by the French, whose taste, both with respect to food and dress, is well known to be extremely capricious.

MACKAREL; the Scomber of Linnæus. The nose of this fish is taper and sharp-pointed; the eyes are large; the jaws are of an equal length; and the teeth are small and numerous. The body is slightly compressed on the sides; but towards the tail it grows very slender, and somewhat angular. The first dorsal fin, which is placed a little behind the pectoral, is triangular, and consists of nine or ten stiff rays; and the second, which lies at a considerable distance from the other, is composed of twelve soft rays. The pectoral fins contain twenty rays, and the ventral six. At the base of the anal fin there is a strong spine; between the last dorsal fin and the tail there are five small fins, and the same number between the anal fin and the tail. The tail itself is broad and semilunar; the colour of the back and sides above the lateral line is a fine green, varied with blue, interspersed with black lines pointing downwards; and beneath the line the sides and belly are of a silvery colour. In short, the Mackarel is a very beautiful fish when alive, it's colours being then brilliant; and it's variegations striking; but no sooner is it caught than it's lustre begins to disappear, and no idea can be formed of it's original beauty from it's appearance when dead.

In the vernal season, the eyes of the Mackarel are almost covered with a white film, which grows in winter; and during the former period it is half blind, but recovers it's sight about the beginning of summer.

Mackarel visit the British shores in vast shoals during

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during the summer months. They are indeed of less general utility than other gregarious fishes, because they are very tender and unfit for distant carriage; nevertheless, their flesh being rich, and agreeable to most palates, affords many a comfortable repast to those who are situated within a moderate distance of the sea-shores. In Cornwall they are pickled and salted; and thus preserved as a resource against the scarcity attendant on winter.

The Mackarel furnished the precious garum of the Romans, and consequently was highly esteemed among that people. This garum was a sort of pickle, which gave a high relish to their fauces; and, besides, was of some service when medicinally applied. It was extracted from different kinds of fish; but that drawn from the Mackarel had the preference: the best was made at Carthage, vast quantities of Mackarel being caught near an adjacent isle, called from that circumstance *Scombraria*; and, if we may credit Pliny, the garum prepared by a certain company in that city bore a high price, and was distinguished by the title of *Garum Sociorum*.

Mackarel are easily caught with a bait; sometimes with a piece of clean white paper; and frequently with a red rag: the best time for taking them is during a fresh gale of wind, which has thence obtained the name of a Mackarel gale.

MACKAREL, HORSE; the *Scomber Trachurus* of Linnæus. An appellation commonly given to a peculiar species of Mackarel, generally known in Cornwall by the name of the scad. It is the *trachurus* of most ichthyologists; but Bellonius calls it the *Lacertus*, and the old Greek writers the *Saurus*. Artedi distinguishes it by the name of the *Scomber*, or Mackarel, with the lateral lines aculeated, and with thirty rays in the pinna ani.

This fish is about sixteen inches long: the nose is sharp; the eyes are very large; the irides are silvery; the lower jaw is somewhat longer than the upper; and the edges of the jaws are rough, but without teeth. The covers of the gills are marked with a large black spot; the scales are large, and very thin; the lower half of the body is quadrangular; and on each side there is a row of thick strong scales, prominent in the middle, and extending to the tail. The first dorsal fin consists of eight strong spines; and the second, which lies just behind it, consists of thirty-four soft rays, and reaches almost to the tail. The pectoral fins are narrow and long, and composed of twenty rays; and the ventral contain six branched rays. The vent is placed in the middle of the belly; and the anal fin extends from it to the tail, which is much bifid. The head and the upper part of the body are varied with green and blue; and the belly is silvery. The flesh, which is firm and well tasted, possesses the flavour of the common Mackarel.

MACROCERCI. An appellation given by Dr. Hill to a large genus of animalcules, distinguished from all others by having tails longer than their bodies.

MACROPEIDIUM. A name given by some naturalists to the common tipula.

MACROPTERA. A term derived from *Makros*, Long; and *Pnoe*, Breath; and applied to express that class of hawks whose wings are so long, that when closed they reach to the ends of their tails. Of this genus are the bald buzzard,

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the kite, the hen harrier, the honey buzzard, the common buzzard, the sacre, the gir-falcon, and some others.

MACRORYNCHÆ. A term derived from *Makros*, Long; and *Rugchos*, a Beak: the character of a large order of the feathered tribe. Birds of this order have beaks much longer than their heads, oblique nostrils, and a *fulcus* running from them towards the apex of the beak.

MACROULE. An appellation given by many authors to the largest species of coot: it is of a deeper black colour than the common kind, and has a large bald spot on its head.

MACTRA. A genus of shells, bivalve, unequal sided, equivalve; the middle tooth complicated, with a little concavity on each side; and the lateral teeth remote, and mutually received into each other. There are several species.

MACUCAQUA. A Brazilian bird of the gallinaceous kind; called also the *gallina sylvestris*, or wild hen. It is destitute of a tail: its flesh is extremely well tasted; and its eggs are somewhat larger than those of the common hen, and of a blueish green colour. This bird, which feeds on such fruits as fall from trees, runs with great rapidity, but is incapable of taking long or high flights.

MÆNAS. A fish shaped like the perch, but broader and more compressed. It generally grows to the length of six inches. The colour is a light green or yellow; and there are dark transverse spaces and blueish lines which run longitudinally, with a large black spot on each side. The tail is a little bifid; the eyes are large; and the irides are silvery. The mouth appears small when shut, but when open is of a considerable width; for the upper lip expanding itself like a tube, is contracted again when the mouth is shut; and the upper part having a kind of prop, is received into a sheath formed in the upper jaw, which formation is peculiar to this fish. It is caught in the Mediterranean.

MÆNAS CANDIDA. An appellation given by many naturalists to the *smaris*.

MAGAURI. A Brazilian bird of the stork kind. It is of the size of the common white stork: the neck is a foot long; the beak is straight, pointed, and of a considerable length; the legs are long and naked; the tail is short; and the head, neck, and body, are covered with snow-white feathers, which on the throat are very long, very white, and valuable. The tail and wing-feathers are long and black; and the legs are red.

MAGGOT. A common appellation for the fly-worm bred in flesh, which derives its origin from the egg of the great blue flesh-fly. Notwithstanding the general aversion of mankind to this animal, its figure and structure render it worthy of a naturalist's attention; and, from an accurate examination of this, we may learn the general history of the class of worms produced from the eggs of flies.

The body of the Maggot, which is white and fleshy, is composed of numerous anulations, and, like that of a caterpillar, is capable of assuming different figures at pleasure. Though destitute of legs, it can nevertheless move very swiftly; and, in its first attempt to advance, its body is extended to its greatest length, and assumes something of the figure of a pointed cone. The acuminate part of this cone is the head of the animal, which is only separated from the next ring by

by the same kind of sulcus that divides one annulation from another. In some stages of the creature's existence we may perceive two short horns protruded from the head, but two brown scaly hooks are more commonly observable; these, however, are sometimes concealed, by being retracted into a sheath with which the insect is furnished: these hooks are bent into an arch, the concavity of which is toward the plane of the animal's position; and they are thickest at their insertion into the head, diminishing gradually till they terminate in a fine sharp point.

The hooks being placed in a parallel direction, cannot possibly unite, and therefore are incapable of serving as teeth to comminute the Maggot's food; but they assist in pulling it to pieces, and thereby render it of a proper size to be received by the mouth.

Besides these two hooks, this insect has a kind of dart, about a third part of their length, and placed at an equal distance between them. This is also of the same colour and consistence with the former: it is perfectly straight, and terminates in a fine point. The hooks appear sharply pointed; and this dart seems designed, by reiterated strokes, to divide the pieces of flesh these have separated from the mass into smaller parts. Exactly below the apertures for the egress of the hooks, the mouth of the animal is placed, which is seldom visible unless pressed; but if the pressure be properly managed, the opening will immediately become perceptible; and within it appears a small protuberance, which is probably either the tongue or the sucker of the animal.

The back of the Maggot lowers itself by degrees as it approaches the extremity of the belly; and near the place where the back begins to sink, are placed the two principal organs of respiration: these appear externally like two roundish brown spots, very easily distinguishable by the naked eye, the rest of the body being wholly white; but, with the assistance of glasses, each of these spots appears to be a brown circular eminence, a little elevated above the rest of the body. On each of these spots three oblong oval cavities may also be observed, situated in a parallel direction to each other, and their length nearly in a perpendicular direction to that of the body of the animal. These apertures are so many stigmata, or air-holes, destined to admit the air necessary for the life of the insect: they are six in number, three on each side of the body.

The body of the Maggot being strongly transparent, an opportunity is thereby afforded of observing that a large white vessel runs the whole length of it. The course of these vessels may be easily traced the whole length of the animals; but towards the hinder part they are most distinct, and are always observed to terminate in the brown spots previously mentioned; which leaves little room to doubt that they are the principal tracheæ. These posterior tracheæ have been accurately remarked by several naturalists. But besides these, there are two others, which seem to have been very imperfectly known: they are situated in the anterior part of the animal, and may be discovered by following the direction of the tracheæ on each side; for though these diminish their diameters as they approach the head of the animal, the place of their termination may be easily seen, which is in the junction of the second and third ring. In this place the naked eye discovers a small

spot at the extremity of each; which, viewed with a microscope, appears to be a plain stigma, semi-funnellated, and elegantly indented, as if fringed at the edges. These stigmata in the anterior part of the body are as uniform and constant in the Maggot as the posterior ones: but it seems destitute of those which the caterpillar tribe are supplied with along their sides; though, from the structure of the fly which has these stigmata, it is probable they are only concealed in the nascent insect.

The ramifications of the two great tracheæ appear very beautiful in this creature, especially on it's belly; but no vessel analogous to the great artery in the caterpillar class can be traced in it, though it's great transparency would render it easily distinguishable.

MAGNANINE. A small bird described by Aldrovandus, Gesner, and some other authors: it seems to correspond with our hedge-sparrow, commonly known among naturalists by the name of curruca.

MAGPYE; the *Corvus Pica* of Linnæus. A well known and beautiful bird of the corvus kind. It's black, it's white, it's green and purple, with the rich and gilded variegations of it's tail, are as fine as any that adorn the most charming of the feathered tribe. But it has too many affected qualities to depreciate these natural perfections: vain, restless, loud, and quarrelsome, it is every where an unwelcome intruder; and misses no opportunity of doing mischief.

The bill of the Magpye bears a great resemblance to that of the butcher-bird, having a sharp process near the end of the upper mandible. It likewise resembles that bird in the shortness of it's wings, and the form of it's tail, each feather shortening from the two middlemost. But it agrees still more in it's food, living not only on worms and insects, but also on small birds, when it can seize them. A wounded lark, or a young chicken separated from the hen, are sure plunder; and the Magpye will even sometimes set upon and strike a blackbird. The same insolence prompts it to tease the largest animals when it's petulance can be secure from punishment. It is often seen perched on the back of an ox or a sheep, pecking up the insects found there, chattering, tormenting the poor animal, and stretching out it's neck for combat if the creature offers to turn it's head backward in a menacing manner. It also explores the nests of birds; and if the dame escapes, the eggs or the nestlings make up for the deficiency. The thrush and the blackbird are frequently plundered by this petty assassin; and to this cause may in a great measure be ascribed the scarcity of their species. No food seems to come amiss to this bird: it participates with ravens in their carrion, with rooks in their grain, and with the cuckoo in birds eggs. But it seems actuated by a providence seldom usual with gluttons; for when it is satisfied for the present, it saves the remainder of the feast for some future occasion. In a tame state, it will even hide it's food when it has done eating; and, after a time, it will return to the secret hoard with renewed appetite and voracification.

Indeed, all the habits of the Magpye discover a degree of instinct unusual to other birds. It's nest is not less remarkable for the manner in which it is composed, than for the place selected for that purpose: it is usually placed conspicuous enough, either in the middle of a hawthorn bush,

or on the top of some high tree. The place, however, is always found difficult of access: for the tree pitched on generally grows in some thick hedge-row, fenced by brambles at the root; or sometimes one of the higher bushes is selected for this purpose. When a place is found as inaccessible as possible by nature, the next care of the Magpye is to fence the nest above, to defend it from all the various enemies of the air: the kite, the crow, and the sparrow-hawk, are to be provided against; for as their nests are sometimes plundered by the Magpye, it is reasonable to conclude that they will take the first opportunity to retaliate. To prevent this, the Magpye exerts all it's labour, and expends all it's ingenuity. The body of the nest is composed of hawthorn branches; the thorns projecting outwards, but, by means of mutual insertions, strongly united together. The inside is lined with fibrous roots, long grass, and wool; and then carefully plaistered with mud and clay. The fabric being thus rendered firm and commodious, the Magpye's next care is to form the canopy which is to defend it above. This is composed of the sharpest thorns, wove together in such a manner as to deny all entrance except at the door, which is just large enough to permit egress and ingress to the proprietors. In this fortress the male and female hatch and bring up their brood with security, sheltered from almost every enemy but the roving school-boy. The Magpye lays six or seven eggs, of a pale green colour, spotted with brown.

In a domestic state, this bird preserves it's natural character with strict propriety and uniformity. The same noisy, mischievous habits, attend it to the cage, that marked it in the woods; and being more cunning, so it is also more docile than any other bird taken under human protection. Those who are desirous of teaching it to speak, have an absurd custom of cutting it's tongue, which puts the poor animal to pain, without improving it's speech in the smallest degree. It's language is sometimes very distinct; but it's articulations are too shrill and sharp to be a perfect imitation of the human voice, which the hoarse-toned raven and parrot can counterfeit with more exactitude.

MAHOMET PIGEON. An English appellation for a species of pigeon, called by Moore *Columba Numidica Alba*. It is of the shape and size of the Barbary pigeon, and has all the characters of that species: but is always perfectly white; which being contrasted with the red circle round the eyes, has a most pleasing effect.

MAJA. A bird described by Nieremberg as very common in the isle of Cuba, and frequenting the rice fields in large flocks. It is said to be small, of a yellowish colour, extremely delicate and well tasted, and remarkable for having a stomach on the upper part of the neck.

MAIAGUE. A Brazilian bird of the web-footed kind, with the hinder toe loose. It is about the size of the common goose: the head is large and round; the neck is long, and always carried in an arch; the beak is strong, and hooked at the end; and the colour of the whole body is a blackish brown, except that the throat is yellow. It frequents the mouths of rivers, feeding on fish; builds on the ground; runs, flies, and dives, with great activity; and consequently is caught with extreme difficulty. It's flesh is delicate and nutritious.

MAINIS. An appellation used by Aristotle, Athenæus, and others of the old Greek writers, for the fish now called mena, menerela, and menola. It is a species of the sparus; and is distinguished from all the other species of that genus by having four large teeth; and a variegated body, ornamented with a black spot in the middle of the sides.

MAKI. An appellation sometimes used to express the animal called otherwise the maucauco. See MAUCAUCO.

MALACODERMATA. A term used to express such animals as have only soft skins for their coverings; in opposition to the ostracodermata, which have hard shelly substances for their external covering; of which last kind are crabs and lobsters.

MALACOPTERYGII. A term derived from the Greek Malakos, Soft; and Pterugion, a Fin; and used to express a large order of fishes without any prickly fins. Fishes of this order have bony fins; and to it belong the carp, and many more.

MALACOSTOMOUS. An appellation given to a large genus of fishes, known in English by the name of the leather-mouthed kind. These fishes are wholly destitute of teeth in their jaws, having those members placed in their throats, near the orifice of the stomach.

The term is derived from Malakos, Soft; and Stoma, a Mouth. Fish of this genus have their swim, or air-bladder, divided into two parts: the carp, tench, bream, and chub, are of this kind.

MALACOSTRACA. A term used by Aristotle to distinguish what the moderns call crustaceous animals, from those which he calls ostracodermata, or testaceous, as it is now expressed.

MALARMAT. An appellation given by authors to the fish called by some *lyra altera* and *cornuta*: it is a species of the trigla; and is distinguished by Artedi under the appellation of the trigla with many cirri, and an octagonal body.

MALE. The he-kind of animals; or that sex which has the generative members placed externally.

MALKARABÆLA. A Ceylonese species of serpent, remarkably variegated with white and dusky brown in various figures.

MALL, OR SEA-MALL. A bird of the larus or gull kind, called also the common gull, distinguished by Linnæus under the name of *larus canus*. It bears a strong resemblance to the *larus cinereus major*, or herring-gull; but is considerably smaller, not weighing above a pound. The head and neck are grey, with some brown spots; the lower part of the neck is white; the back is grey; the breast and belly are as white as snow; and the tail is also perfectly white.

These birds breed on the ledges of cliffs impending the sea; and in winter are found in vast flocks on the British shores. See GULL.

MALLARD. See DUCK.

MALLEMUCKE. An appellation sometimes used to express the fulmar.

MALLEOLUS. A name given by Gaza, and some other naturalists, to the *sphyræna* of Aristotle and other ancient writers. It is a beautiful fish, and seems to belong to the scombræ or mackarel kind. Salvian has figured it under the name of *sudis*.

MALMIGNATTO. A Corfican name for a species of large insect peculiar to that island, supposed

posed by some to be the same with the tarantula of Apulia.

In Corsica there are but few noxious or mischievous animals: it neither contains serpents nor beasts of prey; but it is infested with two species of this venomous insect. One has a round body, and the other an oblong one: they have each six legs; and from this, and several other peculiarities, they appear to be of the ant kind, and perfectly separated from the spider tribe. The round-bodied kind, by its bite, occasions violent pains, a sensation of cold, and cramps all over the body. The long-bodied one is still more venomous: its sting occasions an immediate lividness of the flesh, with intolerable cramps and convulsions, and sometimes it totally checks the natural evacuations. In both cases, the cure is performed by cutting and cauterizing the wound, and dressing it with Venice treacle; and also by giving the patient the same ingredient dissolved in wine.

MALPOLON. A species of Ceylonese serpent beautifully variegated with red marks, in the form of stars.

MALTHA. A voracious fish of the shark kind, the *forat* and *lamiola* of authors; a diminutive of *Lamia*, signifying a small shark. The teeth, which are broad and pointed, like those of the shark, consist of several rows; the nose is short; and the flesh is lax and soft.

MAMMALIA. The first class of animals in the Linnæan system; divided into seven orders, namely, primates, bruta, feræ, glires, pecora, beluæ, and cete; comprehending forty genera, and two hundred and nineteen species.

MAN. In the Linnæan system, the head of a class of animals, which he calls primates: but for the most philosophical and curious account of this lord of the creation we are indebted to the eloquent and penetrating Buffon, who with a precision that does honour to his genius, and an elegance that captivates while it instructs, has traced him from his origin to his end; laid open the springs of action; explored the diversity of the human species; and exhibited nature in its fairest, as well as in its humblest dress. Following therefore the lights he has set before us, though occasionally consulting other authorities, we shall present our readers with such a general history of Man as may at once be interesting and instructive.

If Man be compared with the other classes of animated nature, we shall find him to possess most of those advantages united, which the rest only partially enjoy. Infinitely superior to all others in the mental powers, he is also superior to them in the aptness and proportion of his form. He would indeed be one of the most wretched beings on earth, if, with a sentient mind, he was so constructed as to be incapable of obeying its impulses: but Nature has otherwise provided; as, with the most extensive intellects to command, she has furnished him with a body the best adapted for obedience.

In infancy, however, that mind and this body form the most helpless union in all animated nature; and, if any thing can give us a compleat picture of imbecillity, it is a human being just come into the world. Incapable of employing its organs or its senses, the infant stands in need of every species of succour and assistance: it is more helpless than the young of any other animal; its doubtful life seems every moment vibrating on the borders of death. It neither pos-

sesses abilities to move or support its body; it is barely able to announce by cries the pain it endures; and, as if Nature intended to apprise the little innocent that it is born to misery, its first sounds are those of sorrow and lamentation.

An infant just born may be said to pass from one element to another; for, from the watery fluid in which it was surrounded, it now immerses into air, and instantly feels the impressions of that active fluid. The air acts on the olfactory nerves, and on the organs of respiration; and this action produces a shock, a kind of sneezing, which expands the chest, and gives the air a free passage into the lungs by a dilatation of their vesicles. The air having remained there for some time, is heated and rarified to a certain degree; and the stimulus or spring arising from the dilatation of the fibres re-acts on this rarified fluid, and expels it from the lungs. To explain the causes of the alternate motion of respiration, would lead to disquisitions not adapted for the present subject: suffice it to say, that this function is essentially necessary to the existence of Man, and of many other animals. If respiration ceases, the animal must perish: when once commenced, it never stops till death; for, after the fœtus begins to respire, it continues this action without interruption. It is, however, probable, that the foramen ovale of the heart does not close immediately on the birth, and consequently part of the blood may pass through that aperture. The whole mass of blood, therefore, does not enter at once into the lungs; and a new-born child may perhaps be deprived of air for a considerable time without suffocation. In order to throw some light on this dark subject, Buffon so placed a pregnant bitch, that her puppies were brought forth in warm water, in which he kept them above half an hour at a time: however, he saw no change in the animals thus newly brought forth; they continued the whole time vigorous; and, during the space they continued there, it is very probable that the blood circulated through the same channels through which it passed while they continued in the womb.

The air, on its first entrance into the lungs, generally meets with some obstacle, occasioned by a fluid substance collected in the wind-pipe; this obstacle is greater or less, in proportion to the viscosity of the liquor: but the infant, at its birth, raises its head, which formerly reclined on the breast; and by this operation the canal of the wind-pipe is lengthened; the air of course rushes in, forces this fluid into the cells of the lungs, which it dilates; and in this manner the mucous substance, which opposed the free passage of the air, is diffused through the whole substance of the lungs. The regular admission of fresh air soon dries up this superfluous moisture; or, if it should still incommode the infant, it excites a cough, and is expectorated.

As we are incapable of remembering any thing that happens at this early period of our existence, it is impossible to paint the feelings excited in the child by the first impressions of the air; but the cries and groans it utters immediately after birth, are certain indications of the pain occasioned by the action of the atmosphere. Equally sensible of any degree of heat as well as cold, in every situation it utters complaints; and pain appears to be its first and only sensation.

Almost all animals have their eyes closed for some

some days after being brought into the world. Infants open their eyes the moment they come into the world; but they are fixed and dull; they possess none of that lustre and brilliancy they afterwards acquire; neither have they those motions which accompany distinct vision. The light alone seems to make the greatest impression on them; for the pupil contracts or dilates in proportion to the quantity of that essence. But still the infant is incapable of distinguishing objects; the organs of vision are still imperfect; the cornea is wrinkled; and perhaps the retina is too soft and lax for receiving the impressions of external bodies, and for producing the sensations peculiar to distinct vision.

The same remark may be applied to the other senses. They have not yet acquired that force and consistency which is requisite; and, even when they arrive at this state, it is long before the sensations of the infant can be just and complete. The senses, indeed, are instruments of which we must gradually learn the use; that of reason is the most noble and the most surprising, but at the same time it is the most vague and illusory. The sensations produced by it, if not constantly rectified by the sense of touching, would uniformly lead us to false conclusions. The sense of touching is the criterion of all the other senses; it alone is essential to animal existence, and is universally diffused through every part of the body. But even this sense is very imperfect on our first entering into the world: a new-born infant indeed discovers symptoms of pain by its lamentations; but it has no expression that indicates an idea of pleasure. It is not till after forty days that it begins to smile; and about the same period it begins to weep also, for its former cries were not productive of any tears. In the countenance of a new-born child no vestiges of passions are to be traced; the features of the face have not acquired that consistence and elasticity which are necessary for expressing the sentiments of the mind. All the other parts of the infant's body are extremely feeble; and their motions are awkward and ill-directed. It is unable to stand erect; its thighs and legs are still bended, from the habit contracted while in the womb of the mother; it can neither stretch out its arms, nor grasp any thing with its hands; and, if abandoned in this condition, it would remain on its back, without being able to turn either to one side or another.

Hence it may reasonably be concluded, that the pain felt by infants recently born, and which they express by crying, is merely a corporeal sensation, similar to that of other animals, which likewise cry the moment they are brought forth; and that the mental sensation commences not till about six weeks after birth; for smiles and tears are the effects of two internal sensations, which both depend on the action of the mind. The former is an agreeable sensation, originating from the sight or remembrance of a known and desirable object; the latter is a disagreeable agitation, compounded of sympathy and anxiety concerning our own welfare. Both these passions presuppose a certain degree of knowledge, a power of reflecting and comparing ideas. Smiles and tears are indications of pleasure and pain peculiar to the human race; but the cries, the motions, and other marks of bodily pains and pleasures, are common to Man, and most other animated beings.

The size of an infant at full time is generally

about twenty-one inches; though some exceed, and others fall much short of this standard. The head is large in proportion to the body; but this disproportion gradually disappears as the infant increases in magnitude. The skin of a new-born child is very fine, and of a reddish colour, its transparency rendering the blood beneath conspicuous. Some say that this redness is greatest in those children that afterwards display the finest complexions; and it seems reasonable that it should be so, since the thinnest skins are always the fairest.

The formation of the bodies and members of infants, immediately after their birth, is by no means perfect: the parts are too much rounded; and, even when the child is in full health, they have a tumid appearance. A kind of jaundice generally comes on at the expiration of three days; and, at the same time, milk may be squeezed out by the fingers from the breasts of infants. As the growth of the child increases, the flesh hardens; the bones lengthen by degrees; and the human figure more and more acquires its due dimensions. In such children, however, as are but feeble or sickly, the head always continues too big for the body, and the belly generally appears swollen.

In the mild climates of Europe, infants are always washed in warm liquors; but there are whole nations, inhabiting regions colder than ours, where the infants are plunged into cold water as soon as they are born, without receiving the slightest injury. The Laplanders are even said to leave their new-born children in the snow till their respiration is almost stopped with cold, and then to plunge them into a tepid bath: this severe treatment is repeated three times a day for the first year; and, after that period, the children are bathed thrice a week in cold water. The inhabitants of the hyperborean regions are firmly persuaded, that cold bathing renders Men more healthy and robust; and therefore they inure their children to this habit from their very birth. We are indeed wholly ignorant how far our bodies may be rendered capable of suffering, of acquiring, or losing, by the power of habit. The American savages, when covered with sweat, plunge themselves into cold water with impunity; and the women throw their drunk husbands into the rivers, in order to remove with more expedition the effects of intoxication. The mothers bathe in cold water, together with their infants, the moment after they are delivered; and yet fewer by far die of child-bearing than in other countries, where a practice of this kind would be regarded as inevitable death.

In the civilized parts of Europe, the infant has hardly escaped from the womb of its mother, and enjoyed the liberty of stretching its limbs, before it is again condemned to a more cruel and unnatural bondage. The head of the little innocent is fixed; its legs are fettered; its arms are tied down to its sides; and it is rendered incapable of moving a single joint, by the horrid practice of using swaddling-bands. How much more wisely do the Siamese, the Indians, the Japanese, the negroes, and the savages of America, act, who lay their infants naked into hanging beds of cotton, or put them into cradles lined with fur? These customs are both sensible and humane: the restraint of swaddling-bands must be painful and ungrateful; and the efforts made by infants to disentangle themselves have a more direct tendency

dency to distort their members, than any positions they could assume, if left in the full possession of liberty.

But if the efforts for liberty made by infants thus fettered be hurtful, the inactivity to which they are condemned is perhaps still more fatal. The want of exercise retards their growth, and diminishes their strength; and of course, those children who are allowed full freedom of motion will ever be the most healthy and vigorous. It was this motive which induced the Peruvians to leave the arms of their infants perfectly loose, in a wide bag: afterwards, when they grew older, they put them up to the middle in a hole dug in the earth, and lined with linen; their arms, by this contrivance, were at full liberty; and they possessed the power of moving their heads, and bending their bodies, without a possibility of falling and hurting themselves; and, as soon as they were able to step, the breast was presented to them at a small distance, to entice them to walk. The children of negroes are still exposed to greater difficulties before they can approach the nipple: they cling round one of their mother's haunches with their knees and legs; and adhere so fast, that they support themselves without the assistance of the mother. They lay hold of the breast with their hands; and they continue to suck, without inconvenience or danger of falling, while the mother is employed about her usual avocations. These children begin to walk, or rather to creep, at the end of the second month; and by exercise they acquire the faculty of running, in this posture, nearly with equal velocity as they do on their feet.

Infants, when newly born, pass most of their time in sleeping; but their sleep is often interrupted. As they likewise require frequent nourishment, they ought to have the breast frequently. At first they sleep almost continually; and they seem never to wake, except when stimulated by hunger or pain: their sleep therefore is generally terminated by a fit of crying. As, in cradles, they are obliged to lie in the same position, and are chained down by bandages, this situation soon becomes painful; and cries and groans announce their sensations, though the reasons of them are frequently misinterpreted.

For the two first months, the infant should receive no other food than the milk of the mother or nurse; and, if it's constitution be delicate, this nourishment alone should be continued during the third and fourth months. In Holland, Italy, Turkey, and through the whole Levant, children are allowed no other food during the first year. The savages of Canada nurse their children four or five, and sometimes six or seven years. In this country, as few nurses have a sufficient quantity of milk to satisfy the desires of their children, in order to spare it, they give them, even from the beginning, a composition of boiled bread, milk, water, and sugar. This nourishment appeases hunger; but as the stomach and intestines are yet too weak to digest such a gross viscid substance, the children are greatly injured by it, and often die of indigestion.

In cases of necessity, the milk of quadrupeds may supply that of the mother: but then the milk should seldom be given in the gross; and it seems by far the best method to oblige the child to suck the animal's teat. During the first year, infants are incapable of mastication; their food should therefore be such as is at once nutritive, and yet

easy of digestion. The rudiments of the teeth, for some months, are covered with the gums, which are so soft, that they can have little effect on hard substances. The incisores, or cutting-teeth, are eight in number, four in each jaw; these generally appear about the seventh month, though in some cases not till the expiration of the first year. These teeth are often premature; for some children have them at their birth; and foetuses have been found with teeth completely formed long before the ordinary time of gestation is accomplished.

The rudiments of the teeth are lodged in sockets, covered with the gums. In the process of their growth, they extend their roots to the bottoms of the sockets, and break through the gums: this process observes not the ordinary laws of nature, which acts occasionally on the human body, without exciting any painful sensation. Here nature makes a violent and painful effort, which is often attended with fatal consequences. Children, during the season of dentition, lose their usual sprightliness, and become peevish and fretful. The gums are at first red and swelled; and when the circulation of the blood is nearly stopped by the pressure of the teeth, they turn whitish. Children perpetually apply their fingers to the affected part, in order to remove the irritation; but, to procure still farther relief, they are frequently furnished with a piece of ivory, coral, or some other hard smooth substance, which they rub against the gums: this operation relaxes the parts, affords a momentary cessation of pain, renders the gums thinner, and facilitates their separation; but notwithstanding every precaution, the rupture of the gums is always accompanied with pain and danger. When the gums are uncommonly strong and rigid, they resist the pressure of the teeth for a considerable time, and occasion a violent inflammation, which often proves fatal; to avoid which, the simple operation of cutting the gums is often beneficial.

The dentes canini, canine or dog-teeth, which are four in number, and situated next to the incisores, generally appear in the ninth or tenth month. About the end of the first, or during the course of the second year, the sixteen molares, or grinders, four on each side of the canine teeth, perforate the gums; but these periods of dentition vary greatly in different children. The cutting-teeth, the dog-teeth, and the first four grinders, are generally shed during the fifth, sixth, or seventh year; and are commonly replaced in the seventh, though sometimes not before the age of puberty. The shedding of these sixteen teeth is occasioned by the expansion of the rudiments of a second set, situated at the bottom of the sockets, and by their growth protrude the first set: but there is no second set below the other grinders; and therefore they are never shed but by accident, and their loss is seldom repaired. There are still four other teeth situated at the extremity of each jaw. In some persons, these teeth are entirely wanting; they seldom appear before the age of puberty, and sometimes not till a more advanced period: they are therefore distinguished by the name of wisdom-teeth, and either appear successively, or two at a time. It is owing to this irregularity in the wisdom-teeth that the whole number of teeth is not uniformly the same, which varies from twenty-eight to thirty-two.

Though the bodies of infants be extremely delicate,

licate, they are less sensible of cold than at any other period of life: hence it would appear, that their internal heat is proportionally greater, and the quickness of the pulse in children seems to verify this opinion. Small animals, for the same reason, have unquestionably more heat than large ones; for the action of the heart and arteries increases in proportion to the comparative smallness of animals, which takes place in the same as well as in different species. The pulse of an infant, or a man of diminutive stature, is more frequent than that of an adult or large man. The pulse of an ox is slower than that of a man; while, on the contrary, a dog's pulse is quicker: and the motion of the heart in very small animals (as for instance, in the sparrow) is so very rapid, that the strokes can scarcely be numbered.

The life of an infant is very precarious till the age of three or four, from which time it becomes more secure; and when a child arrives at its seventh year, it is then considered as a more certain life, as Buffon asserts, than at any other age whatever. It appears from Simpson's Tables, that of a certain number of children born at the same time, a fourth part are found dead at the end of the first year; more than two-thirds at the end of the second; and at least half at the end of the third: so that those who live to be above three years old are indulged with a longer term than half the rest of their fellow-creatures. Nevertheless, life, at that period, may be considered as mere animal existence; and rather a preparation for, than an enjoyment of those satisfactions, both of mind and body, that render life of real value: and hence it is more natural for mankind to deplore a fellow-creature cut off in the bloom of life, than one dying in early infancy; the one, by living up to youth, and thus wading through the disadvantageous parts of existence, seems to have earned a short continuance of his enjoyments; the infant, on the contrary, has served but a short apprenticeship to pain, and, when taken away, may be considered as rescued from a long continuance of misery.

Something very particular may be remarked in the growth of the human body. The embryo in the womb continues to increase still more and more, till it is born: on the other hand, the child's growth is less every year till the age of puberty, when it seems to start up on a sudden. Thus, for instance, the embryo, which is an inch long in the first month, grows but one inch and a quarter the second; it then grows one and a half in the third; two and a half in the fourth; and in this manner it continues increasing, till, in the last month of its continuance, it is actually found to grow four inches. But it is otherwise with the child when born: if we suppose eighteen inches at that time, it grows in the first year six or seven inches; in the second, but four; in the third, about three; and so on, at the rate of about one inch and a half, or two inches each year, till it arrives at the age of puberty, when Nature seems to make one great last effort to complete her work, and unfold the whole animal machine.

The evolution of the mind of a child seems to correspond with that of the body. The comparative progress of the understanding is greater in infants than in children of three or four years old. If we only reflect a moment on the amazing acquisitions which an infant makes in the first and second years of its life, we shall have abundant reason for admiration. Launched into a world

where all is new and unknown, the first months are spent in a kind of torpid amazement; an attention distracted by the multiplicity of objects that press to be known. The first exertion, therefore, of the little learner, is to correct the illusions of the senses, to distinguish between one object and another, and to exert the memory so as to know them again. In this manner a child of a year old has already made a thousand experiments; all which it has properly ranged, and distinctly recollects: light, heat, fire; sweets, and bitters; sounds, pleasing or terrible; are all distinguished at the expiration of a very few months. Besides this, every person the child knows; every individual object to which it is attached, its rattles, or its bells; may all be considered as so many lessons to the unfolding mind, with which it has not become acquainted without repeated exertions of the understanding. At this period of life the knowledge of every object cannot be acquired without the same effort which, when grown up, is employed on the most abstract idea: every thing the infant hears or sees, all the marks and characters of nature, are as much unknown, and require the same attention to attain, as if the reader were set to learn the Arabic alphabet; and yet how soon does the little student understand them all, and display proofs of early industry!

It is a very pleasing amusement to pursue the young mind while employed in its first attainments. At the age of one year, the same necessity that first engaged its faculties increases as its intimacy with nature enlarges: its studies, therefore, if the expression may be hazarded, are no way relaxed; for having experienced what afforded pleasure at one time, it seeks a repetition of the enjoyment from the same object; and in order to procure this, that object must be pointed out. Hence a new necessity arises, which, very often, neither its little arts nor importunities can remove; so that the child is at last obliged to name the objects it desires to possess or avoid.

In attempting to speak, which is usually when about a year old, children find a thousand difficulties. It is not till after repeated efforts that they are able to pronounce any one of the letters; nor without a considerable exertion of the memory, that they can retain them: for this reason we frequently hear them attempting a sound which they had learned, but forgot; and when they fail, the attempt is attended with apparent confusion. The letters soonest learned are those which are the easiest in their articulation: thus A and B require an obvious disposition of the organs, and consequently their pronunciation is soon attained. This may perhaps be the reason why children, in some countries, speak sooner than in others; for the letters most frequently occurring in the language of any country, being such as are of easy pronunciation, that language of course is most readily attained. R and Z, which require a more complicated position, are learned with greater difficulty. In this manner the children of the Italians are said to speak sooner than those of the Germans; the language of the former being smooth and open, that of the latter crowded with consonants and guttural sounds.

In all countries, however, children are found able to express the greatest part of their wants by the time they arrive at the age of two years; and from the moment the necessity of learning new words ceases, they relax their industry. It is then that

that the mind, like the body, seems every year to make slower advances; and, in order to excite attention, many various systems of education have been invented and adopted.

Almost every writer who has treated on the education of children, has been ambitious to point out a mode of his own, chiefly professing to advance the health and improve the intellects at the same time. These usually begin with invectives against the common practice, and by urging a total reformation. In consequence of this, nothing can be more wild and imaginary than their different systems of improvement. Some recommend, that children should every day be plunged in cold water, in order to strengthen their bodies. They will have them converse with the servants in nothing but Latin, in order to strengthen their mental faculties. Every hour of the day must be appropriated to its peculiar studies; and the child must be taught to make these very studies an amusement, till, about the age of ten or eleven, it becomes a prodigy of premature improvement. Directly opposite to this, we have others, whom the courtesy of mankind call philosophic writers; and they recommend, that the child should learn nothing till the age of ten or eleven, at which the former has attained so much perfection: with them the mind is to be kept void till it acquires a proper distinction of some metaphysical ideas about truth; and the promising pupil is debarred the use even of his own faculties, lest they should conduct him into prejudice and error. After this manner some men, whom fashion has celebrated for profound and fine thinkers, have given their hazarded and untried conjectures on one of the most important subjects in the world, and the most interesting to humanity. When men speculate at freedom on innate ideas, or the abstracted distinctions between will and power, they may be permitted to enjoy their vagaries at pleasure, as they are harmless, though they may be wrong: but when they alledge that children are every day to be plunged in cold water, and indiscriminately inured to cold and moisture, whatever be their constitutions; that their feet are to be kept constantly wet, to prevent their catching cold; and never to be corrected when young, for fear of breaking their spirits when old; these are such noxious errors, that all rational men should exert their endeavours to oppose them. Many children have these opinions, begun in speculation, injured or destroyed in practice; for as first principles are of the last importance, so nothing can be more fatal than when pernicious ones are early imbibed.

Should any particular system be requisite, it is one that would serve to prove a very plain point, that very little system is necessary. The natural and common course of education is in every respect the best; namely, that in which the child is permitted to play among its equals and coevals, from whose similar instructions it often gains the most useful stores of knowledge. A child is not to be deemed perfectly idle because playing about the fields, or hunting butterflies; it is all this time storing its mind with objects, on the nature, properties, and relations of which, future curiosity may speculate.

It has ever been found chimerical to attempt making a child's learning its sole amusement: nor, if this could be attained, would it answer any important purpose. A child ought to be

allowed its proportion of play, and it will receive benefit thereby; and for every reason also it ought to have its proportion of labour. The mind, by early exertion, will be thus habituated to fatigue and subordination; and whatever be the person's future employment in life, he will be the better qualified to endure it; he will thus be enabled to support the drudgeries of office with content, or to fill up the vacancies of life with variety. The child should therefore be early initiated in its duty; and be taught to know, that the task is to be performed, or the punishment endured. If it be possible to allure it to its duty by reward, no ill consequences can result from such a humane practice: but it is too generally found, that on most minds rewards have little cogency; and if fear and apprehension are totally banished, the most powerful stimulants to action will be wanting. Perhaps, on some occasions, and on some dispositions, both rewards and punishments may operate in their turn: in this manner a child, by playing with its equals abroad, and studying with them at school, will acquire more health and knowledge than by being trained up under the tuition of any speculative system-builder; and will be thus qualified for a life of activity and obedience, of elegance or authority.

It is true indeed that, when educated in this manner, the boy may not be so seemingly sensible as one bred up under solitary instruction; and, perhaps, this early maturity is more specious than useful. It has frequently been found, that many of those children who have been such early prodigies of literature before the age of ten years, have not made an adequate progress till twenty: it should therefore seem, that they only began learning manly things before their time; and while others were busied in picking up that knowledge adapted to their age and curiosity, these were forced on subjects unsuitable to their years; and, on that account alone, appearing extraordinary. The fund of knowledge in both may be nearly equal; but with this difference, that each is yet to learn what the other knows.

But whatever may have been the acquisitions of children at ten or twelve years of age, their greatest and most rapid progress is made when they arrive near the age of puberty. It is then that all the powers of nature seem at work in strengthening the mind, and perfecting the body: the youth acquires courage, the virgin modesty; the mind assumes new powers, with new sensations; it conceives with greater force, and remembers with greater energy. About this time, therefore, which is various in different countries, more is learned in one year than in any two of the preceding; and on this age in particular the greatest weight of education should be thrown.

Both poets and philosophers have united in painting the season of youth as that of pleasure: but this can only be true in savage countries, where but little preparation is made for the perfection of human nature, and where the mind is of little assistance in filling up the measure of enjoyment. It is otherwise in those climates where nature is carried to the highest pitch of refinement; in which this season, which some devote to the excess of sensual delight, is wisely made subservient to the succeeding and more rational one of manhood. Youth, with us, is but a scene of preparation;

paration; a drama, on the right conduct of which our future happiness is to depend. The youth who gives full range to his appetites, too soon seizes the cup, before it has received its best ingredients; and, by anticipating his pleasures, robs the remainder of his life of its share: so that his early ardour only produces a manhood of imbecility, and an age of pain and remorse.

The time of puberty commences at different periods in different countries, and always more late in men than in women. In the warm climates of India, the women are marriageable at nine or ten, and the men at twelve or thirteen. Cities also make a considerable difference in this respect, where the inhabitants lead a more soft and luxurious life than in the country. The symptoms of puberty are seldom similar; but it is usually known by a swelling of the breast in one sex, and a roughness of the voice in the other. At this season also, the women seem to acquire new beauty; while the men lose all that delicate effeminacy of countenance which characterized them while boys.

In proportion as countries are more barbarous or civilized, the nuptial satisfaction is either degraded or improved. In those miserable regions where strength constitutes law, the stronger sex exerts its power, and becomes the tyrant of the weaker: while the African is indolently taking his pleasure in the fields, his wife is obliged to till the ground, to perform all the drudgeries of domestic life, and to provide for their mutual support. Thus, in all barbarous countries, the men throw all the laborious offices on the women; and, regardless of beauty, force the softer sex on those employments which are neither adapted to their constitutions nor their natures.

However, in countries where the natives are half emerged from barbarism, and particularly where Mahometanism is found to prevail, the men run into the very opposite extreme. Equally brutal with the unpolished African, they exert their tyranny over the weaker sex, and consider them as being formed merely to gratify their depraved desires. The chief, and indeed the only aim of a rich Asiatic, is to be possessed of many women; and to be able to furnish a seraglio is the sole tendency of his ambition. As the savage was totally indifferent to beauty, he, on the contrary, places it in too high estimation: he excludes the person who possesses it from any share in the duties and avocations of life; and, as if willing to engross all charms to himself, increases the number of his captives in proportion to the progress of his fortune. After this manner he vainly expects to augment his enjoyments, by seeking from many that felicity which nature and providence equally prove is only to be expected in the society of one. He lives a gloomy tyrant amid wretches of his own making; he feels none of those endearments which originate from affection, none of those delicacies which arise from a communication of sentiments and an interchange of delight. His mistresses, secluded from the world, and totally ignorant of all that passes there, have acquired no arts to entertain his mind, or calm his anxieties; the day passes over their heads in full silence or languid repose; appetite can furnish but few opportunities of varying the scene; and all that falls beyond it must be irksome expectation.

From this unnatural monopoly of women has

arisen that jealousy and suspicion which ever attend the miser: hence those low and cruel modes of keeping the women guarded, and of making and procuring eunuchs to attend them. These unhappy creatures are of two kinds, the black and the white. The white are generally emasculated in the country where they reside, and are but partially deprived of the exterior signs of virility. The blacks, who are generally imported from the interior parts of Africa, are deprived of every mark of the masculine gender: these are chiefly chosen for their deformity; the thicker the lips, the flatter the nose, and the blacker the teeth, the more valuable the eunuch; so that the contemptible jealousy of mankind here inverts the order of nature; and the poor wretch finds himself estimated in proportion to his deficiencies. In Italy, where this barbarous custom of emasculation is still retained, it is only intended to improve the voice; and the laws being aimed against the practice with all necessary severity, only the poorest and most abandoned put it in execution, and even those with all imaginable secrecy. However, not one in ten who has thus lost his virility, is found to turn out a singer; but such is the luxurious folly of the times, that the success of one amply compensates for the failure of numbers. It is difficult to account for the alterations which castration occasions in the voice, and other parts of the human body. The eunuch is differently shaped from others; his legs are of an equal thickness above and below; his knees are feeble; his shoulders are narrow; and his beard is thin and downy: thus his person is rendered more deformed, while his desires are said to continue the same. In Asia, some of these eunuchs actually have their seraglios as well as their masters; and even in Britain, we have had an instance of a beautiful woman being married to one of them of the most unpromising appearance, and whose emasculation was publicly known.

To acquire the mere necessaries of life seems to be the only aim of the savage; sensual pleasures are the sole study of the semi-barbarian; but the refinement of sensuality by reason is the boast of real civilization. Among the nations who still continue in a state of original rudeness, nothing is so ardently desired as to prostitute their wives and daughters to strangers for the most trifling considerations; they esteem it a dishonour not to be the foremost who are thus received into favour: while, on the other hand, the Mahometan preserves the fidelity of his wife by confining her person, and would instantly put her to death if he suspected her chastity. Among the politer inhabitants of Europe, both these barbarous extremes are avoided: the woman's person is left free, and no restraint is imposed but on her affections. The passion of love, which may be regarded as rude desire chastened by delicate propriety, is only known and practised in this quarter of the world; so that what other nations guard as a matter of right, the more refined European is satisfied to solicit as a favour. In this manner, the concurrence of mutual desire contributes to increase mutual satisfaction; and the power on one side of refusing, makes every blessing more grateful when obtained by the other. In uncivilized countries, women are considered merely as useful slaves; in such as are somewhat more refined, they are regarded as lovely toys; but in countries entirely polished, they enjoy juster privileges, the wife

wife being esteemed a faithful friend, as well as an agreeable mistress. Her mind is still more prized than her person; and, without the improvement of both, she can never expect to become perfectly agreeable; for good sense alone can preserve what her beauty has gained.

It has been previously hinted, that female beauty improves about the age of puberty; but were we to attempt a definition of beauty, and what constitutes its perfection, we should find nothing more difficult to determine. Every country has different ideas respecting this indefinable quality; and even the same country thinks differently at different æras. The ancients had a very different taste from what prevails at present. The junction of the eye-brows was considered by Tibullus as constituting a very peculiar grace in the enumeration of his mistress's charms. Narrow foreheads were approved; and scarcely any of the Roman ladies, celebrated for their other perfections, but are also praised for the redness of their hair. The nose also of the Grecian Venus was such as would appear at present an actual deformity; as it fell in a straight line from the forehead, without the smallest sinking between the eyes.

Among the moderns also, every country seems to have peculiar ideas of beauty. The Persians admire large eye-brows, joining in the middle: the edges and corners of the eyes are tintured with black; and the apparent size of the head is increased by a variety of bandages formed into a turban. In some parts of India, black teeth and white hair are desired with ardour; and one of the principal employments of the Thibetan women is to redden their teeth with the infusion of certain herbs, and to render their hair white by a particular kind of permanent powder. The passion for coloured teeth obtains also in China and Japan; where, to complete their idea of beauty, the object of desire must have little eyes, nearly closed; feet extremely small; and a large waist. Some American tribes flatten the heads of their children, by keeping them, while young, squeezed between two boards, so as to make the visage much larger than it would naturally be; others flatten the head at top; and some render it as nearly round as possible. The inhabitants of the western coasts of Africa have a very extraordinary taste for beauty; a flat nose, thick lips, and a jetty black complexion, are there regarded as the most indulgent gifts of nature; such indeed they are all, in some degree, found to possess: however, they take care to increase the natural deformities, as they appear to us; and they have many additional methods of rendering their persons more frightfully pleasing. The whole body and visage, among some nations, are scarred with a variety of figures; which is not effected without great pain and repeated incisions, and even sometimes parts of the body are amputated.

But it would be endless to remark the various arts which caprice or custom has employed to distort and disfigure the body, in order to render it more attractive: in fact, every nation, how barbarous soever, seems unwilling to acquiesce in the human figure as nature has left it, and has its peculiar arts of heightening beauty. Painting, powdering, amputating, perforating the ears and nose, confining the shape in some parts, and expanding it in others, are arts practised in many countries; and, in some degree, admired in all.

These arts were probably first introduced in order to conceal epidemic deformities; custom, by degrees, reconciles them to our view; and, after looking on them for some time with indifference, we at last regard them with a kind of delight. However, it must be confessed that many customs which fashion has sanctioned and confirmed among the polished Europeans, are not less ridiculous and disgusting than some of those which obtain among the most uncivilized savages; habit only reconciles us to their use, and vanity alone can render them tolerably easy to endure.

At the age of puberty, or in a few years after, the human body attains its full stature. The growth of some persons stops at the fourteenth or fifteenth year; and, in others, it goes on till they arrive at twenty-two or twenty-three. During this period, most men are of a slender make, their thighs and legs are small, and their muscular parts are not properly filled up: but by degrees the fleshy fibres augment; the muscles swell, and assume their figure; the limbs become proportioned and rounder; and, before the age of thirty, the bodies of men acquire their most perfect symmetry. With respect to women, their bodies arrive at perfection much sooner. As their size is smaller, and their muscles and other parts less strong and compact than those of men, they arrive more early at maturity: hence the persons of women are found to be as complete at twenty as those of men are at thirty.

The body of a well-shaped man ought to be square, the muscles marked with boldness, and the features of the face distinctly defined. In women, all the lines should be rounder and softer, and the features more delicate. Strength and majesty are the attributes of man; grace and softness the peculiar embellishments of the other sex. In both, every part of their conformation declares them to be the sovereigns of the earth. Man supports his body erect; his attitude is that of command; and his countenance, which is turned towards the heavens, is impressed with the signatures of superior dignity. The image of his soul is depicted in his face; and the excellence of his nature penetrates through his material form, and animates his features with a divine grace. His majestic deportment, and the firmness of his movements, announce the superiority of his rank: he touches the earth with his extremity only; he views it at a distance, and seems to despise it. His arms are not bestowed on him, as on other creatures, for pillars of support; his hands tread not the earth, and lose not by friction and pressure that delicacy of touch which furnishes him with so many of his enjoyments. His hands and arms are formed for the most noble purposes; to execute the commands of his intellect, to lay hold of distant objects, to remove obstacles, to defend him from injuries, and to seize and retain objects at pleasure.

When the mind is at ease, all the features of the visage seem to be settled in a state of profound tranquillity: their proportion, their harmony, and their union, display serenity of sentiment, and seem to accord with the calm that subsists within. But, when the soul is agitated, the human visage becomes a living picture, where the passions are expressed with equal delicacy and energy; where every emotion is represented by a correspondent feature; and where every impression anticipates the will, and reveals by obvious and pathetic characters

ractions those hidden agitations we are often solicitous to conceal.

However, it is in the eyes that the passions are most strongly marked, and most readily discovered. The eye belongs to the soul more than any other corporeal organ: it participates of every mental emotion, the softest and the most tender, as well as the most violent and tumultuous; it exhibits these emotions in all their energy and purity; and infuses into the soul of the spectator the fire and agitation of that mind from which they originate. In fine, the eye reflects the light of thought, and the glow of sentiment; it is the sense of the understanding, and the language of intelligence. Such persons as squint, or are short-sighted, have less of this external soul, as it may be termed, whose principal residence is in the eye: these defects injure the physiognomy, and give to the finest countenance an air of vacancy and stupidity. As nothing but strong and violent passions are perceptible in visages of this kind, and as they exhibit no marks of delicacy or vivacity of sentiment, we are apt to form unfavourable impressions of such persons; which, however ill founded, are eradicated with difficulty. We are so accustomed to suffer ourselves to be influenced by external appearances, that if no symptoms of thought and reflection appear in a man's countenance, we too hastily pronounce him to be destitute of ability: we even are weak enough to draw conclusions from the cut of the cloaths, or the curls of the periwig. Men ought therefore to pay some attention to these minute articles; because, in the eyes of strangers, they constitute a part of ourselves, and contribute not a little to the opinion they form of our understanding and manners.

The vivacity or languor of the eyes gives the strongest marks to the physiognomy; and their colour contributes still more to enforce their expression. The different colours of the eyes are dark hazel, light hazel, green, blue, grey, and whitish grey. These distinct colours arise from those of the little muscles which serve to contract the pupil; and they are often found to change their tints through disorder or old age. The most usual colours of the eye are the hazel and the blue; and both these shades are sometimes united in the same eye. The eyes commonly called black, when narrowly inspected, are only of a dark hazel colour: they appear black in consequence of their being contrasted with the surrounding white. Those of a less deep hazel are likewise reckoned black, but are not equally beautiful. Shades of orange, hazel, grey, and blue, are frequently to be seen in the same eye; but, wherever there is a blue tint, it becomes the prevailing colour, and outshines all the rest. The black and the blue are the most beautiful colours, and communicate most fire and vivacity of expression to the eye: in black eyes, there is more force and impetuosity; but the blue excel in sweetness and delicacy. The former eliminate a perpetual and uniform flame, because their colour appears always the same, and reflects the same rays; but the modifications of light are distinguishable in the blue, because different rays are reflected by the various tints of which they are composed.

This variety, which is found in the colour of the eyes, is peculiar to Man, and a few other animals; for, in general, the colour in any one indi-

vidual is that of all the rest. The eyes of oxen are brown; those of sheep are of a watery colour; those of goats are grey; and it may also be generally remarked, that the eyes of most white animals have a reddish glare. Aristotle alledges that, among Men, grey eyes are the strongest; that blue eyes are weaker; that prominent eyes are short-sighted; and that brown eyes are more incapable of distinct vision in a faint light than others.

Though the eye, in motion, seems to be drawn towards either side, yet it only rolls round the centre, which gives the pupil the appearance of approaching or receding from the angles of the orbit, and of being elevated or depressed. In Man, the eyes are more nearly joined than in any other animal; for, in some creatures, they are so remotely situated, that it is impossible for both to distinguish the same object at the same time: this, however, in them, is rather an advantage than an inconvenience; as they are thereby enabled to watch round them, and guard against the dangers of their precarious situation.

Next to the eyes, the features which give the most striking character to the face are the eye-brows, which being totally different from every other lineament, their effect is augmented by the contrast: they form a deep shade in the canvass, and give relief to the other colours. That celebrated artist Le Brun, in giving a painter directions with regard to the passions, places the principal expression of the face in the eye-brows: from their capability of elevation and depression, most of the furious passions are characterized by them; and such as have this feature extremely moveable, are usually known to have an expressive face. By means of these we can imitate all other passions, as they are raised and depressed at pleasure; their elevation denotes all those passions which pride or pleasure inspires; and their depression marks those which are the effects of contemplation and pain.

The eye-lashes have also some effect in giving expression to the eye, particularly when they are long and close: they soften it's glances, and improve it's sweetness. Men and apes are the only animals that have eye-lashes both on the upper and lower lids; all other creatures want them on the lower lid.

The eye-lids serve to guard the ball of the eye from external injuries, and to keep the cornea moist. The upper lid rises and falls; the lower has scarcely any motion: and though their opening depends on the will, yet it often happens that the will is unable to keep them from closing when sleep or fatigue oppresses the mind. They are sometimes also affected with convulsive motions, which we are unable to restrain. In birds and amphibious animals, the lower lid alone is endowed with motion; and fishes and insects are totally destitute of these appendages.

The forehead occupies a large part of the face, and essentially contributes to it's beauty: it should be well-proportioned; neither too flat nor too prominent; neither too narrow nor too short; and it should be regularly adorned with hair, both above and on each side. It is well known how much the hair tends to improve the face; baldness is therefore a capital defect; and the practice of employing superficial hair, which is now so general, should be confined to such as are naturally bald, for borrowed locks often alter the true character of the face.

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face. The highest part of the head is that which becomes bald the soonest, as well as that part which lies immediately above the temples. The hair under the temples, and at the back of the head, is very seldom known to fall; and women are much less apt to become bald than men. Buffon, indeed, seems to think they never become bald at all; but we have too many instances to the contrary among us, not to contradict this hasty assertion. Of all parts or appendages of the body, the hair is found most different in distinct climates; and often contributes not only to mark the country, but also the disposition of the Man. It is in general thickest where the constitution is strongest; and more glossy and beautiful where the health is most permanent. The ancients considered the hair as a kind of excrement, produced like the nails; the part next the root protruding that immediately contiguous: but the moderns, after the most accurate investigation, have discovered, that every hair may be truly said to live, to receive nourishment, and to fill and distend itself like the other parts of the body. They have observed, that the roots do not turn grey sooner than the extremities, but that the whole length of the hair changes colour at once; and instances have been known of people turning grey in a single night. Each hair, viewed through a microscope, is found to consist of five or six lesser ones, complicated in one common covering, appearing knotted like some sorts of grass, and sending forth branches at the joints. It is bulbous at the root, by which it imbibes its moisture from the body; and it is divided at the points; so that a single hair, at its extremity, resembles a brush. Whatever is the dimension or the shape of the pore through which the hair issues, it accommodates itself to the same, being thick, slender, round, square, or triangular, according to the formation of the pores.

The colour of the hair varies in different tribes and races of people. The Americans and Asiatics have black, straight, shining hair; the inhabitants of the torrid climates of Africa have black, short, and woolly hair; the Scandinavians have red, long, and curled hair; and the hair of the natives of our own and the neighbouring countries is of various colours and proportions. Many, however, pretend to say, that the disposition of every Man bears a resemblance to that of the inhabitants of those countries whom he resembles in the colour and nature of his hair. Thus, those who have black hair, like the Asiatics, are said to be grave and acute; and those who have red hair, like the Scandinavians, to be bold and choleric: but this only rests on conjecture. However, the length and strength of the hair is a general mark of a good constitution; and as that hair which is strongest is most commonly curled, so curled hair is usually regarded as an addition to beauty. The Greeks thought very differently in this respect; and they seem to have taken one of their peculiar national distinctions from the length and straightness of the hair.

The nose is certainly the most prominent feature in the human face; but, as it has very little motion, even in the most violent passions, it contributes more to the beauty than to the expression of the countenance; and unless it be deformed, or vastly disproportioned, it is much less regarded than those features which are capable of motion. The form of the nose, and its remarkable prominence, are peculiar to the human species. Most

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animals have nostrils separated by a partition; but none of them have an elevated and advanced nose: even apes may be said to have nostrils only; for though the nose of an ape has the same position as that of a Man, it is so short and flat, that it can hardly be regarded as similar. By this organ, men, and other animals, breathe and smell.

Next to the eyes, the mouth and the lips have both the greatest motion and expression. Strong passions have vast influence over this part of the face; and the mouth marks its different modifications by its different forms. The organ of speech still more enlivens this part, and gives it more animation than any other feature of the face. The ruby colour of the lips, and the white enamel of the teeth, give it such a superiority over every other feature, that it seems principally to attract our regard. In fact, the whole attention is fixed on the lips of the person who speaks: however rapid his discourse, however various the subject, the mouth assumes correspondent situations; and the deaf have often been known to see the force of those reasonings which they could not possibly hear, but only saw imitated by the action of the lips.

The lower jaw possesses a variety of motions; while the upper has been deemed immovable by some naturalists; and, among the rest, by Buffon: however, an easy experiment will convince us, that it has no inconsiderable share of motion. If the head is kept fixed, with any thing between the teeth, the edge of a table for instance, and then the mouth opened, we shall find that both jaws recede from it at the same time; the upper jaw rises, the lower falls, and the table remains untouched between them. Indeed it is extremely clear that the upper jaw has motion as well as the under; and, what is remarkable, it has its proper muscles behind the head, for thus raising and depressing it. Whenever, therefore, we eat, both jaws move at the same instant, though very unequally; for the whole head being connected with the upper jaw, of which it constitutes a part, its motions are less perceptible than those of the other. In the human embryo, the under-jaw is very much advanced before the upper: in the adult, it hangs a great deal more backward; and those whose upper and under row of teeth are equally prominent, and strike directly against each other, are generally called under-hung, which is always considered as a great defect in beauty. The under-jaw of a native of China falls greatly more backward than that of an European. In examples of the most violent passion, the under-jaw has often an involuntary quivering motion; and often also a state of languor produces another, which is that of yawning. Every one is sensible how very sympathetic this kind of languid motion is; and that for one person to yawn, is sufficient to put a whole company into similar convulsions.

When the mind is suddenly affected with ardent desire or keen regret, we feel a sort of starting or internal oppression, which acting on the diaphragm, and that on the lungs, produces a sigh: and when the mind contemplates the cause of its emotion, and perceives no method of accomplishing its desire, or of banishing its regret, the sigh is repeated, and sorrow, or mental pain, succeeds. If this pain of the mind be great and unexpected, it produces tears; the air rushes quickly

quickly into the lungs, and gives rise to many inspirations, accompanied with involuntary shocks. Each inspiration makes a louder noise than that of sighing, and is distinguished by the appellation of sobbing; and as these sobs succeed each other very rapidly, the voice is broken and interrupted. But in groaning, which is a species of sob long continued, the accent of the voice is more distinguishable. Groans are longer or shorter in proportion to the degree of sorrow or dejection; but they are generally frequently repeated. The time of inspiration forms the interval that takes place between each groan; and the intervals are nearly equal, both in their distance and duration. The plaintive shriek is a groan expressed with vehemence, and with an elevated tone of voice: the shriek, when very sharp, generally continues on the same tone through its whole extent; but, when moderate, it commonly ends in a lower tone. But there is a silent agony, in which the mind appears to refuse all external expression, and broods over its distresses in gloomy reserve: this is the most painful and dangerous degree of grief; accidents or friendship may moderate the louder and more querulous kinds of woe; but all remedies for this must be derived from within; and there despair, the most deadly enemy, too often lurks.

Laughter is an interrupted sound, often repeated, and accompanied with a kind of convulsive motion of the belly, which is alternately elevated and depressed. To facilitate this motion, the breast and head are sometimes thrown forward, the chest remains immovable, the angles of the mouth recede from each other, and the cheeks become inflated. Every time that the belly is depressed, the air rushes out of the mouth, and occasions a sound which, during the fit, is often repeated, sometimes in the same tone, and at others with a variety of articulation. In immoderate and convulsive laughter, as well as in the most violent passions, the lips open wide: but, in the more tranquil emotions, the angles of the mouth recede, without any opening of the lips; the cheeks swell; and, in some persons, dimples are formed near the corners of the mouth. This charm properly belongs to the graces; and is commonly attended with an agreeable smile, which is an expression of benevolence and internal satisfaction. A smile is also a mode of expressing contempt and ridicule; but, in these malignant smiles, the lips are pressed close together.

The cheeks are such uniform features, that they have little motion or expression, except from that involuntary glow or paleness with which they are clothed in different passions: but they unite the features, and give a contour to the countenance; and therefore contribute more to beauty than to expression.

Blushing proceeds from various passions, as shame, anger, pride, joy, and modesty: paleness is generally the effect of anger, and is invariably the attendant on fright and fear. This change of colour is involuntary: it exhibits the transactions of the mind without its consent; and is an effect of sentiment over which the will has no controul. The other indications of passion may easily be disguised: a moment's reflection enables us to stop the action of the muscles of the face, which characterize particular passions, and even to change their direction; but to impede or alter the redness and paleness of the face is beyond the power of the most artful, because these depend on a pecu-

liar motion of the blood, occasioned by the action of the diaphragm, the chief internal organ of sensation.

The whole head, as well as the features of the face, takes peculiar attitudes from different passions: it bends forward, to express humility, shame, or sorrow; it reclines on one side, in languor, or in pity; it is elevated in pride; erect and fixed in obstinacy and self-conceit; it is thrown backwards in astonishment or surprize; and rolls from side to side in ridicule, contempt, and indignation.

But besides the expression of the head and features, which strongly mark every emotion of the soul, the arms, the hands, and indeed the whole body, contribute to the expression of the passions. Gesture also concurs with the action of the features in expressing the different feelings of the soul: in joy, for instance, the eyes, the head, the arms, and the whole body, are agitated with quick and various movements; in languor and grief, the eyes are sunk, the head reclines, the arms are suspended, and the whole body remains fixed and immovable; and in admiration, surprize, and astonishment, every motion is stopped, and the person remains in the same uniform attitude. These expressions of the passions are not lodged within our power: but there is another species of expression, which consists in an agitation of the eyes, head, arms, and body; and these motions seem at the same time to be the effect of reflection, and to depend on the will; they appear to be the efforts of the mind to defend the body, and may be esteemed secondary symptoms, by which particular passions may be traced. In love, hope, and ardent desire, we elevate the head, and turn towards Heaven, as if imploring assistance; we stretch forward the head, to make a nearer approach; and we extend the arms, and open the hands, in order to grasp and embrace the beloved object: on the other hand, in fear, hatred, and sorrow, we push the arms forwards with precipitation, to repel the object of aversion; we turn the head and the eyes backward; we recoil; and at last fly to escape from what we fear or detest. These motions are so sudden, that they appear involuntary: but this deception is the effect of habit; for these motions are produced by reflection; and, by their alacrity, discover the perfection of those qualities of the body which enable it to obey, with such amazing promptitude, the volitions of the mind.

The passions being agitations or movements of the soul, for the most part connected with impressions of sensation, they may be expressed by motions of the body, and particularly by those of the countenance. Some judgment may therefore be formed of the affections of the mind by the motions of the body; and the real situation of the soul may be discovered by examining the changes in the features: but as the mind has no figure which can bear any relation to that of matter, no reasonable conjecture can be formed of the general disposition of any mind by the lineaments of the countenance, or by the figure of the body with which it is connected. A deformed person may contain an amiable mind: nor should we pronounce respecting the natural disposition, merely because the features happen to be disagreeable; for there is no analogy between features and the nature of the soul which can justify any decision on this subject.

Nevertheless, the ancients were much addicted

to this specious, though false notion; and in every age Men have started up who were ambitious to support a scientific divination derived from a pretended skill in physiognomy: but nothing is more evident, than that this species of divination can be extended no farther than to the affections of the mind, when expressed by the motion of the eyes, visage, and other parts of the body. The form of the nose, of the mouth, and of the other features, has no more connection with the natural disposition, than the stature, or size of the limbs, has with the faculty of thinking. Hence the divination of physiognomists is altogether chimerical, and void of any real foundation.

No part of the human head contributes less to the expression of the face than the ears; they are placed too remote, and are frequently concealed by the hair. But in quadrupeds, the ears are more apparent; and by them we can discover whether the creatures are in a state of vigour or imbecility; their motions denote sentiment, and correspond with the internal feelings of the animal. The human ears, though furnished with muscles, have scarcely any motion, either voluntary or involuntary. Small ears are generally esteemed most beautiful; but large ones are best calculated for hearing.

Among some nations, the lobes of the ears are artificially enlarged by piercing them, and placing in them pieces of wood or metal, which are changed successively for others of greater dimensions, till the lobes become enormous. It is difficult to investigate the origin of this singular custom; but it is equally so to trace that of piercing the ears, and sometimes the nostrils, in order to adorn them with rings, unless we ascribe it to those naked savages who contrived to carry in the most commodious manner whatever appeared to them to be precious and valuable.

The whimsical variety in the customs of different nations is still more apparent in the manner of managing their beards. Some, and among others the Turks, shave their heads, but allow their beards to grow. Most Europeans, on the contrary, shave their heads; and wear their own, or borrowed hair. The negroes shave their heads in figures at one time; in stars at another, after the manner of friars; and still more commonly in alternate stripes; while even their little boys are trimmed after the same mode. The Talapoins of Siam shave the heads and eye-brows of such children as are entrusted to them. Indeed, every nation seems to have entertained distinct prejudices, at different æras, in favour of some one part of the beard. Some prefer the hair on the upper lip to that of the chin; others esteem hair on the cheeks; some curl it; and others wear it straight: it has sometimes been cut into a peak; and, at others, whiskers have been in the highest estimation. We are informed by a credible author, that a considerable part of the religion of the Tartars consists in the management of their whiskers; and that they waged a long and bloody war with the Persians, declaring them infidels merely because they would not give their beards the orthodox cut. The Persian monarchs carried the care of their beards to the most ridiculous excess, wearing them matted with gold thread; and even the kings of France of the first races had them knotted and buttoned with gold. But, of all other nations, the Americans take the greatest pains in cutting their hair, and plucking their beards: the under

part of the beard, and all except the whisker, are carefully eradicated; so that many have supposed they were naturally destitute of hair on those parts; and even Linnæus himself has adopted this error. Their hair is also cut into bands; and no small care is employed in adjusting the whisker. We must not therefore consider a fastidious attention to dress as a mark of refinement, since savages are more difficult in this particular than the most fashionable Europeans: the more barbarous the people, the fonder of finery. In Europe, the lustre of jewels, and the splendor of the most brilliant colours, are generally given up to the women, or to the effeminate part of the other sex; who are willing to be ridiculous, provided they can be fine. But, in Asia, these trifling fineries are eagerly sought after by all conditions of men. The passion for glittering ornaments is still stronger among the absolute barbarians, who often exchange their whole supply of provisions, and whatever else they may be possessed of, for a few glass beads, or a fragment of a looking-glass.

But though fashions seem to be founded on caprice and fancy; yet, when generally adopted, they merit examination. Mankind has always held in estimation such things as excite attention; and convey flattering ideas of riches, power, and grandeur. The value of diamonds, and other precious stones, arises from their scarcity or their brilliancy. The same observation will apply to those shining metals, the weight and incumbrance of which are so little regarded when spread over our cloaths. Ornaments of this kind are rather intended to excite the attention of others, than to add to the sum of our own enjoyments; and but few are capable of distinguishing the person from the dress, or of estimating the man independent of his finery.

Every thing rare and brilliant will, therefore, ever continue to be fashionable, while men derive more eminence from riches than from virtue; and while the means of acquiring respect are so widely different from real merit. The first impression we generally make, arises from our dress; and this varies in conformity to our inclinations, and the manner in which we wish to be considered. The modest man, or he who wishes to assume that character, dresses with a simplicity corresponding to the nature of that virtue; while the vain-glorious neglects nothing that tends to support his pride, or to flatter his vanity; and seems willing to incur the dislike of the spectator, provided he can command his notice.

Another very general object of dress is to increase the size of our figure, and so to occupy more room in the world than nature has allotted us. We endeavour to enlarge our dimensions by high-heeled shoes, and expanded garments; but however bulky our dress, our vanity is still more enormous. The largeness of the physician's wig originates from the same pride as the smallness of the queue of the beau. The former wishes to have the extent of his learning measured by the apparent dimensions of his head; and the latter to diminish his head, in order to display the gaiety and sprightliness of his genius.

But there are some modes which seem to have a more rational object; namely, that of concealing the defects of nature, or rendering them less disagreeable. In the general aggregate of mankind, there is a greater number of deformed bodies and unpleasing faces, than of handsome figures and beautiful

beautiful countenances. The former, as being the most numerous, give law to fashion; and their laws are generally framed to answer their own purposes. Most women never think of paint till the natural bloom of their cheeks is faded; and the younger and more beautiful are obliged to submit to the capriciousness of taste, though not compelled by the same necessity. In all parts of the world this practice is more or less prevalent; and powdering and frizzing the hair, though not so general, seems to have arisen from a similar controul.

But, leaving external ornaments, and the draperies of the human picture, let us revert to the figure itself. The head of man, whether considered internally or externally, is differently formed from that of every other animal, the monkey kind only excepted, in which we must confess there is a striking similitude. The bodies of almost all quadrupeds are covered with hair: with respect to man, the head alone has this ornament before the age of puberty; and it is more amply furnished with hair than the head of any other animal.

There is a great diversity in the teeth of all animals: some have them in both jaws; others in the under jaw only; in some they are widely separated from each other; and in others close and united. The palates of some fishes are nothing else but bony plates, studded with points, which perform the offices of teeth. All these substances, in every animal, derive their origin from the nerves, the substances of which harden by being exposed to the air; and the nerves that terminate in the mouth, being thus exposed, acquire a bony solidity. In this manner the teeth and nails in men are formed; and in this way also the beaks, the hoofs, the horns, and the talons, of other animals, are found to be produced.

The neck, which supports the head, and unites it to the body, is much larger and stronger in the generality of quadrupeds than in Man. Fishes, and other animals which are destitute of lungs similar to ours, have no necks whatever; but birds in general have longer ones than other animals. Those which have short claws, have also short necks; and such, on the contrary, as have long claws, have their necks in proportion.

The external formation of the human breast is widely different from that of every other animal. It is larger in proportion to the size of the body; and none but men, and such animals as use their fore-feet instead of hands, have the bones called clavicles or collar-bones. The breasts of women are larger and more prominent than those of men; but their consistence and structure are nearly the same; for the breasts of men can secrete milk. Among animals, there is a great variety in the number and situation of their paps: some, as the monkey and the elephant, have only two placed on the fore-part of the breast; others, as the bear, have four; some, as the sheep, have only two situated behind the hinder legs; and others, as the bitch and the sow, have them in great numbers on the belly. The form of the breasts varies in different animals, and even in the same animal at different ages. The bosoms of females seem to unite all our ideas of beauty, where the outlines are continually changing, and the gradations soft and regular. It is alledged, that women whose breasts are pear-shaped, make the best nurses; because the mouths of the children comprehend not

only the nipples, but part of the breasts themselves.

Both in Men and Women, the graceful fall of the shoulders constitutes no small part of beauty. In apes, though otherwise formed like the human race, the shoulders are high, and drawn up on each side towards the ears. In Man, they fall by a gentle declivity; and the more so in proportion to the perfection of his form. In fact, high shoulders are always considered as a deformity, for they are always so in very sickly persons; and people, when dying, always have their shoulders drawn up in a very singular manner. The muscles that serve to raise the ribs have their origin chiefly near the shoulders; and the higher we raise the shoulders, with the more facility we erect the ribs likewise. It happens, therefore, with respect to the sickly and dying, who breathe with difficulty, that they are obliged to raise their ribs by the assistance of their shoulders; and thus their bodies assume, from habit, that form which they are so frequently obliged to use. Pregnant women are also commonly high-shouldered; for the weight of their inferior parts drawing down their ribs, they are obliged to use every effort to elevate them; and thus the shoulders are raised of course. During pregnancy also, the shape not only of the shoulders, but also of the breast, and even the features of the face, undergo a considerable change; for the whole upper fore-part of the body being covered with a broad thin skin, called the myoides, which at that time is drawn down, it also drags with it the natural skin, and consequently the features of the face. By these means the visage takes a particular form: the lower eye-lids, and the angles of the mouth, are drawn downwards; by which means the eyes are enlarged, and the mouth is widened.

The arms of Men have but little resemblance to the fore-feet of quadrupeds, and much less to the wings of birds. The ape is the only animal possessed of hands and arms; but these are much more rudely fashioned, as well as less exactly proportioned, than in Men.

The form of the back, in Man, is not much different from that of four-footed animals, except that the reins are more muscular in the former; but the buttocks are peculiar to the human body. What goes by that name in other creatures, is only the upper part of the thigh: Man being the only animal that supports himself perfectly erect, the largeness of this part is owing to the peculiarity of his position.

The human foot is very different from that of all other animals, the monkey not excepted. The foot of the ape is rather a kind of hand; its toes are long, and placed like fingers, the middle one being much the longest; and it has no heel. The sole of the foot is likewise larger in Man; and his toes are better adapted for preserving the equilibrium of the body in walking, running, and leaping.

The nails of Men are less than those of any other animals: if they protruded much beyond the extremities of the fingers, they would obstruct the dexterity of the hand. Such savages as allow them to grow to an unnatural length, use them for flaying and tearing animals: but though their nails are longer and stronger than ours, they can by no means be compared to the hoofs or claws of animals. In China, long nails are esteemed as a mark of breeding and education; and as their immoderate

immoderate length would render every sort of manual labour inconvenient, if not absolutely impossible, they are also regarded as a badge of exemption from toil, and an ensign of superior endowments.

With regard to the proportions of the human figure, we have no exact knowledge; for the beauty of the best statues is better conceived by observing than by measuring them: Those of antiquity, which were at first copied after the human form, are now become the models of it; nor is there one Man found whose person approaches to those inimitable performances that have thus, in one figure, united the perfections of numbers. It is sufficient to say that, from being at first models, they are now become originals; and are used to correct deviations in that form from whence they are taken. We must not, however, pretend to give the proportions of the human body as taken from these, there being nothing more arbitrary, and which good painters themselves more despise. Some, for instance, who have studied after models, divide the body into ten times the length of the face, and others into eight. Some pretend to tell us, that there is a similitude of proportion in different parts of the body: thus, that the head is the length of the face; the thumb the length of the nose; the space between the eyes the breadth of an eye; the breadth of the thigh, where thickest, double that of the thickest part of the leg, and treble the smallest; that the arms, when extended, are equal to the length of the figure; and that the legs and thighs are half the length of the body. All this, however, is extremely arbitrary; and the excellence of a shape, or the beauty of a statue, results from the attitude and position of the whole, rather than from any determined measurements, begun without experience, and sanctioned by caprice. It may in general be remarked, that the proportions alter in every age, and are obviously different in the two sexes. In women, the shoulders are narrower, and the neck is proportionably longer, than in Men; the hips also are considerably larger, and the thighs shorter. These proportions, however, vary greatly at different stages of life: in infancy, the upper parts of the body are much larger than the lower; and the legs and thighs do not nearly constitute half the height of the whole figure. In proportion as the child increases in age, the inferior parts lengthen; so that the body is not equally divided till it arrives at it's full stature.

There are great varieties in the size of Men. Those are said to be tall who measure from five feet eight to six feet in height; the middle stature is from five feet five to five feet eight; and they are said to be of a diminutive size who fall short of these proportions. However, it ought to be remarked, that the same person is always taller in the morning than on going to bed at night; there being sometimes the difference of an inch. The reason of this diversity of stature is obvious. Between all the joints of the back-bone a glutinous liquor is deposited, which serves, like oil in a machine, to give the parts an easy play on each other: this lubricating liquor, or synovia, according to anatomists, is poured in during the season of repose, and is consumed by exercise and employment; so that after hard labour scarcely any of it remains, but all the joints grow stiff, and their motion is painful and uneasy. Hence, therefore, the body diminishes in stature: for this

moisture being drained away from between the numerous joints of the back-bone, they lie close on each other, and their entire length is thus very sensibly diminished; but sleep, by restoring the fluid, again swells the spaces between the vertebræ; and the whole is extended to it's former dimensions.

As the human body varies in size, so it also differs in weight; and the same person, without any apparent cause, is found to be heavier at one time than another. If, after partaking of a plentiful repast, the person should find himself heavier, it would appear in no respect extraordinary; but the fact is, the body is very often found heavier some hours after eating than immediately succeeding it. If a person, fatigued with the toils of the day, eats a hearty supper, and is weighed on going to bed; after a sound sleep, if he is again weighed, he will be found considerably heavier than before: whence this adventitious weight is derived, it is not easy to conceive; the body, during the whole night, rather perspiring than imbibing any fluid, and rather losing than gaining moisture.

Though the human body is externally more delicate, it is however very nervous, and perhaps stronger, for it's size, than that of the most robust quadruped. In forming a comparison between the force of a lion and that of a Man, it ought to be considered, that the lion is armed with teeth and talons; and that these dreadful weapons convey a false idea of real strength. Nature has not furnished Man with offensive arms; and, perhaps, happy had it been for him, if Art had never put into his hands weapons more terrible, as well as more destructive, than the paws of the lion.

But there is a juster method of instituting a comparison between the strength of Men and that of other animals; namely, by the weight they are able to carry. It is affirmed, that the porters of Constantinople carry burdens of nine hundred pounds weight: and Desaguliers tells us that, by means of a certain harness, by which every part of a Man's body was proportionably loaded, the person he employed in this experiment was able to support, in an erect posture, a weight not less than two thousand pounds. A horse, which is about seven times our bulk, would be thus able to raise a weight of fourteen thousand pounds, if his strength were in the same proportion. But the fact is, a horse cannot carry on his back above two or three hundred weight; while a Man, of confessedly inferior strength, can support two thousand pounds. The reason of this is sufficiently obvious: a load on a Man's shoulders is placed to the greatest advantage; while, on the contrary, on the back of a horse, it is placed to the greatest disadvantage. Let us for a moment suppose a Man standing as upright as possible under the aforementioned enormous weight; then all the bones of his body may be compared to pillars supporting a building, and his muscles will have very little employment in this dangerous duty: however, they are not absolutely inactive; as Man, let him stand ever so upright, will have some bending in different parts of his body. The muscles therefore give the bones a partial assistance, and that with the greatest possible advantage. In this manner a Man may be capable of supporting even a greater weight than two thousand pounds; namely, by strapping the load round the bearer's shoulders, by means of a machine somewhat resembling that
which

which is used for the carriage of milk-buckets. The load thus placed on a scaffold on each side, and the Man standing erect in the middle, all parts of the scaffold, except that whereon he stands, are made to sink; and thus the Man maintaining his position, the load becomes suspended, and the column of his bones may be fairly said to bear it up: if, however, he should incline the least to either side, he must inevitably drop, and no exertions of his own can again raise the weight. But the case is very different with regard to a burden laid on the back of a horse: the column of the bones there lies in a different direction; and a weight of five hundred pounds would probably break the back of the strongest horse. The greatest force of a horse, and of other quadrupeds, is exerted when the load is placed in such a position, that the column of the bones can be properly applied, which is lengthwise. When, therefore, we estimate the comparative strength of a horse, we must not regard what he can carry, but what he can draw: and, in this case, his amazing superiority over Man is easily discovered; for one horse can draw a load which ten Men would be unable to move.

The strength of animals may likewise be estimated by their agility and perseverance in labour. Men exercised in running outstrip horses, or at least continue their speed much longer. In a journey also, a Man will walk down a horse; for, after they have both continued to proceed several days, the horse will be quite tired, and the Man will be less fatigued than at first setting out. The royal messengers of Ispahan, who are runners by profession, will travel thirty-six leagues in fourteen hours. Travellers assure us, that the Hottentots outstrip lions in the chase; and that the savages who hunt the elk, pursue with such celerity, that at last they tire it down, and take it. Many other relations are handed down of the amazing speed of savages; and of the long journeys they accomplish on foot over the most craggy and desolate mountains, where there is no path to direct, and every obstacle to obstruct their progress: these people are said to travel a thousand leagues in six weeks, or two months at most. If we except birds, whose muscles are proportionally stronger than those of any other animals, no other creature could support such long-continued fatigues. But the civilized Man is ignorant of his strength; nor is he sensible how much he is weakened by effeminacy, nor to what extent he might recover his native force by an habitual and vigorous exercise of his powers.

Men of extraordinary strength sometimes appear: but, among the ancients, it was a quality of much greater use than at present; as, in time of war, the same Man who had strength enough to carry the heaviest armour, had also ability sufficient to strike the most fatal blow. In this case, his strength was at once his protection and his power. We should not, therefore, be surprized, when we hear of one Man terrible to an army, and irresistible in his career, as we find some generals represented in ancient history. But we need not hesitate to assert, that this prowess was exaggerated by flattery, and exalted by terror. An age of ignorance is ever an age of wonder: at such times mankind, having no just ideas of the human powers, were pleased rather to represent what they wished than what they knew; and exalted human strength, to fill up the whole sphere of their

limited conceptions. Great strength is an accidental endowment; two or three persons in a country may possess it, and these may institute a claim to heroism. But, what may induce us to question the veracity of these accounts, is, that the heroes of antiquity are represented as the offspring of heroes; their prodigious strength is delivered down from father to son; and this we well know is not suitable to the course of nature. Strength is not hereditary, like titles; which inclines us to believe, that this great tribe of heroes, who are all represented as the descendants of heroes, are more indebted to their titles than their strength for their attributes.

With regard to the splendid characters of Homer, they are all delineated as princes, and the sons of princes; and the meaner ranks of warriors seem only brought into the field for these to protect or destroy. But nothing can be more improbable, than that those men, who were bred in the luxury of courts, should be strong; while the whole body of the people, who received a plainer and simpler education, should be comparatively weak. This seems to infringe the general laws of nature: and it is absurd to believe that all the sons of heroes should thus inherit, not only the dominions, but the strength of their progenitors. We may therefore conclude, that they owe the greatest share of their imputed strength to the dignity of their stations; and that, like all fortunate princes, their flatterers happen to have gained credit. In later ages, indeed, we have some instances of amazing strength which cannot be questioned; but in these Nature is found to pursue her ordinary course, and we find their strength merely accidental. These strong men have originated from the lowest ranks, and gradually risen into notice as their adventitious superiority had more opportunities of being displayed. Among this number may be ranked the Roman tribune, who obtained the name of the second Achilles; and who, with his own hand, is said to have killed, at different times, three hundred of the enemy; and, when insidiously attacked by twenty-five of his own countrymen, though past his sixtieth year, to have killed fourteen of them before he himself was slain. Of this number was Milo; who, when he stood upright, could not be moved from his place. Pliny also mentions one named Athenatus, who walked across the stage at Rome loaded with a breast-plate which weighed five hundred pounds, and buskins of the same weight. But, of all the prodigies of strength recorded in authentic history, Maximinius, the Roman emperor, may be reckoned the chief. Whatever we are told respecting him is well attested: his character was too exalted not to be perfectly known; and that very strength, for which he was celebrated, at last procured him no less a reward than the empire of the world. Maximinius was upwards of nine feet high, and one of the best-proportioned men in the whole empire. He was a Thracian by birth; and, from being a simple herdsman, rose, through the several gradations of office, till he became Emperor of Rome. The first opportunity which offered of exerting his strength, was in the presence of a numerous assembly of citizens in the theatre, where he overthrew twelve of the strongest men in wrestling, and outstripped two of the fleetest horses in running; all in one day. He could draw a loaded chariot, which two strong horses were unable to move; and

and could break the jaw of a horse with one blow of his fist, and his thigh with a kick. In war, he was always engaged in the foremost ranks, where he displayed feats of activity that could only be equalled by his successes; and happy had it been for him and his subjects, if, from being formidable to his enemies, he had not become still more so to his subjects. He reigned for some time at enmity with all the world; all mankind wishing for his death, yet none daring to strike the blow: and, as if Fortune had resolved, that through life he should continue unconquerable, he was killed at last by his own subjects while asleep.

In more modern ages, we have several instances of bodily strength, and not a few of amazing swiftness; but these merely corporeal perfections are now considered as of small advantage, either in peace or war. The fatal invention of gunpowder has in some measure levelled all flesh to one standard, and wrought a total change in martial education through all parts of the world. In peace also, the discovery of new machines almost every day, and the application of the strength of irrational animals to the purposes of life, have rendered human strength of less value. The boast of corporeal strength is therefore consigned to savage nations, where, from the deficiency of art, it may still be useful; but, in more polite countries, few will plume themselves much on that strength which other animals may be taught to exert with more facility and advantage.

If the largeness and thickness of our muscles are compared with those of any other animals, we shall find that in this respect we have the advantage; and if strength or swiftness depended on the quantity of the muscular flesh alone, we should most probably be the strongest and most active of any. But this is not the case; a great deal more than the size of the muscles is requisite to constitute activity and force: those, therefore, who have written elaborate treatises on muscular force, and estimated the powers of animals from the largeness of their muscles, have laboured to little purpose.

Men are much stronger than women; and, in some countries, the former sex have availed themselves of this superiority, in cruelly and tyrannically enslaving those who were formed with equal pretensions to participate in all the advantages which life can confer. Barbarous nations compel their women to submit to a life of continual labour; on the wife rests all the drudgeries of domestic duty; while the husband, reclined at his ease, is first served with the fruits of his partner's industry. From this indolence he is seldom roused, except by the calls of appetite, or to make some variety in his entertainments. A savage has no idea of taking pleasure in exercise; and he is surprized to see an European walk backwards and forwards for his diversion and entertainment: for his own part, he could be contented to remain forever in the same situation, perfectly satisfied with the enjoyment of sensual pleasure and undisturbed repose. The women of these countries are the most abject slaves on earth: sensible of their imbecillity, and unable to resist, they are obliged to submit to those hardships which are naturally inflicted by such as consider corporeal force as capable of establishing pre-eminence. It is not till after some degree of refinement that women are treated with lenity; and not till politeness is universally established, that they are permitted to

share in all the privileges of the other sex. The first impulse of savage nature is to confirm their slavery; the next, of semi-barbarians, is to appropriate their beauty; and that of the truly polite, to engage their affections: in civilized countries, therefore, women unite the force of modesty to the energy of natural charms; and thus obtain a superiority which bodily strength could never procure them.

Having traced Man from his infancy to manhood, a period when all the powers are in their highest perfection, all the senses most entire; we may next consider a few of his wants and endowments, previous to closing the scene with some account of old age and death.

Man, though invested with superior powers, and possessed of more numerous privileges, with respect to his necessities, seems to be inferior to the meanest animals. Nature has introduced him into life with a greater variety of wants and infirmities than the rest of her creatures, unarmed in the midst of enemies. However, the number of his wants is merely given to multiply that of his enjoyments; since the possibility of being deprived of any good teaches him the value of it's acquisition. Every want becomes a pleasure in the redressing; and the animal that has most desires may be deemed capable of the greatest variety of enjoyments. Among the many thousand imaginary wants peculiar to Man, he has two in common with all other animals, which nevertheless he feels in a greater degree than they: these are the want of sleep, and hunger. Every animal with which we are acquainted, seems to endure the want of these with more patience, and less injury to health, than Man; and such little animals as surround our steps may often afford a lesson of calm resignation, in supporting hunger and watchfulness, to the boasted philosopher.

Hunger is a more destructive foe to mankind than watchfulness: but, though fatal without it's proper antidote, it may always be removed by food; and to acquire this, Men have been known to encounter certain death. However, hunger appears to be more terrible in it's approaches than in it's duration; for the pain occasioned by famine decreases in proportion to the failure of strength. At first the desire of food is dreadful indeed; but, after the first or second day, it's pains become less terrible, and a total insensibility at length kindly relieves the wretched sufferer. But though the effects of hunger are terrible to the last degree, when we investigate the cause that produces them, we find the subject involved in doubt and intricacy. This longing eagerness is probably imparted for a very obvious purpose, namely, to replenish the body when wasted by fatigue and perspiration: the calls of appetite will admit of no denial; nor can either pleasures or advantages divert their cogency.

The desire of eating has by some been imagined to arise from the attrition of the coats of the stomach against each other. Others have supposed that it's juices, wanting their necessary supply, turn acrid, or, as some say, pungent; and thus fret it's internal coats, so as to produce a train of the most uneasy sensations. Boerhaave unites the conjectures of all who preceded him, and ascribes hunger to the combined effects of both these causes; asserting, that the pungency of the gastric juices, and the attrition of it's coats against each other, excite those pains which nothing but food

can alleviate: these juices continuing still to be separated in the stomach, and every moment becoming more acrid, mix with the blood, and infect the circulation; which being thus contaminated, becomes weaker and more contracted; and the whole nervous frame sympathizing, an hectic fever, and sometimes madness, is produced; in which terrible state the famished creature expires. Thus, the Man who dies by hunger may be said to be poisoned with the juices of his own body; and is destroyed less by the want of nourishment than through the vitiated state of what he has already swallowed.

But though hunger seems to be more dreaded than any other malady, more die of repletion than inanition; and, when abstinence is voluntary, it is sometimes supported an almost incredible length of time. In the Records of the Tower, there is an account of a native of Scotland, imprisoned for felony, who, for the space of six weeks, refrained from every kind of sustenance; and, on account of this voluntary penance and strength of constitution, received the royal pardon.

When the American Indians undertake long journies, and a stock of provisions sufficient to support them the whole way would be too much for them to carry; to obviate this inconvenience, instead of taking the necessary quantity, they contrive a method of palliating their hunger, namely, by swallowing pills composed of calcined shells and tobacco: these pills divest them of all appetite, by producing a temporary disorder in the stomach; and, no doubt, the frequent repetition of this wretched expedient must eventually prove fatal.

Man is certainly less able to support hunger than any other animal: nor is he better qualified to bear a state of watchfulness. Indeed, sleep seems much more necessary to him than any other creature; as, when awake, he may be said to exhaust a greater proportion of the nervous fluid, and consequently to stand in need of an adequate supply. Other animals, when most awake, are but little removed from a state of slumber; their inert faculties, imprisoned in matter, and rather exerted by impulse than deliberation, require sleep more as a cessation from motion than from thought. But with respect to Man it is far otherwise; his ideas fatigued with their various excursions, demand a cessation, not less than the body from toil.

Fortunately for mankind, sleep generally arrives in time to relieve the mental powers, as well as the bodily frame: however, Man finds it more difficult than any other animal to procure repose; and some are obliged to court its approaches for several hours successively before they incline to rest. It is often in vain that all light is excluded, all noise removed, and warmth and softness conspire as it were to invite sleep; the restless and active mind still retains its former vigilance; and reason, that wishes to resign the reins, is obliged, in spite of herself, to maintain them. In this disagreeable state, the mind ranges from thought to thought, willing to lose the distinctness of perception by increasing the multitude of images. At last, when sleep makes nearer approaches, every object of the imagination begins to blend with that which lies next it; a part of their distinction fades away; and ensuing sleep fashions out dreams for the remainder.

In sleep, the whole nervous frame is relaxed,

while the heart and lungs seem more forcibly exerted. This fuller circulation produces also a tension of the muscles; it may be considered as a kind of exercise, continued through the whole frame; and by this the perspiration becomes more copious, though the appetite for food is entirely removed. Too much sleep dulls the apprehension, weakens the memory, and unfits the body for supporting fatigue: on the contrary, too little sleep emaciates the frame, produces melancholy, and wastes the constitution. Some degree of care is therefore requisite to regulate the quantity of sleep, and to take just as much as will restore nature without oppressing it.

The celebrated Philip Barrettiere, who was considered as a prodigy of learning at the early age of fourteen, was known to sleep regularly twelve hours in the twenty-four: the extreme activity of his mind, when awake, in some measure called for an adequate alternation of repose. A life of study, it is well known, unfits the body for receiving this gentle refreshment; and the approaches of sleep are averted by intense reflection: when, therefore, it comes at last, its continuance should not be hastily interrupted.

Sleep is indeed, to some, a very agreeable period of their existence. Hence a question has been agitated in the schools, Which is the most happy? the Man who is a beggar by night, and a king by day; or he who is a beggar by day, and a king by night? It is given in favour of the nightly monarch by him who first started the question: for the dream (says he) gives the full enjoyment of the dignity, without its attendant inconveniences; while, on the other hand, the king, who supposes himself degraded, feels all the misery of his fallen fortune, without trying to experience the comforts of his humble situation. Thus, by day, both states have their peculiar distresses: but, by night, the exalted beggar is perfectly blessed, and the king compleatly miserable. This, however, is rather fanciful than just; the pleasure which dreams are capable of conveying seldom reaching to our waking pitch of felicity: the mind often, in the midst of its highest visionary satisfactions, demands of itself, whether it does not owe them to an illusion? and not unfrequently awakes with the reply.

But it is seldom, except in cases of the highest delight or the deepest distress, that the mind has power thus to disengage itself from the empire of fancy: in the common course of its operations, it submits to those numerous fantastic images which succeed each other; and which, like many of our waking thoughts, are generally forgotten.

There are others on whom dreams appear to have a very different effect; and who, without seeming to remember their impressions the succeeding morning, have yet evidenced, by their actions during sleep, that they were very powerfully impelled by their dominion. Numberless instances of such persons occur, who, while asleep, have performed many of the ordinary duties to which they have been accustomed when awake; and, with a ridiculous industry, have completed by night what they failed in accomplishing by day. In the German Ephemerides, mention is made of a young student, who being enjoined a severe exercise by his tutor, went to bed despairing of success. On awaking, however, the next morning, to his great surprize, he found the task fairly executed in his own hand-writing. At the first,

it is said, he was induced to ascribe this strange production to the operations of an infernal agent; but his tutor, willing to scrutinize the affair to the bottom, assigned him another exercise, still more arduous than the former, and took proper steps for observing his proceedings during the night. The young gentleman, on being so feverely tasked, experienced the same inquietude he had formerly done: he went to bed pensive and dejected, pondering on the task of the successive day; and, after some time, fell asleep. Shortly after, his tutor, who continued to observe him from a private corner, was surprized to see him rise, and advance very deliberately to a table; where taking pen, ink, and paper, he sat down very methodically to thinking. It seems that his being asleep only served to quicken the powers of his imagination; for he quickly dispatched the task assigned him, put his chair aside, and returned to bed in order to finish his sleep.

The ridiculous history of Arlotto is well known; who performed such a number of singular actions during his sleep, that a whole volume is filled with an account of them. He was an Italian Franciscan friar, extremely rigid in his manners, and remarkably devout and instructive in his daily conversation: however, during his sleep, he acted a very different character, and was often detected in the most atrocious crimes. He once actually attempted a rape in the night; and awaking next morning, was surprized to find himself in the hands of justice. His brethren of the convent watched him while he went very deliberately into the chapel, and there attempted to commit sacrilege: they sometimes permitted him to carry the chalice and the vestments away into his own chamber, and the next morning amused themselves with the poor man's consternation at being informed of his nocturnal adventures. But, of all his sleeping transactions, that seems the most ridiculous, in which he was called to pray for the soul of a person departed. Arlotto having performed this solemn office with all due reverence, retired to rest in a chamber provided for him; but he had no sooner fallen asleep, than he began to reflect, that the dead body had got a ring on one of the fingers, which he wished to appropriate to himself: accordingly he left his bed, naked as he was; and entering a room full of women, endeavoured to seize the ring with great composure. In consequence of this exploit, he was carried before the court of inquisition, and accused of witchcraft; for which he would probably have been condemned, had not his peculiar character accidentally come to the knowledge of the inquisitors.

From these instances it would appear, that the imagination is equally active by night as by day; and that it often involuntarily intrudes where it is least commanded or desired. While awake, and in health, this busy principle cannot much deceive us: it may raise a thousand phantoms before us, build schemes of happiness, or shudder at ideal misery; but the senses are all alive and sound to evince it's falsity. Our eyes shew us that the prospect is not present; our hearing and our touch depose against it's reality; and our taste and smelling are equally vigilant in detecting the imposition. Reason, therefore, at once determines on the cause; and the fleeting intruder, Imagination, is restrained, or banished from the mind. But it is otherwise in sleep: the senses being as much as

possible at rest, having lost their peculiar functions, the imagination is then left to riot at large, and to lead the understanding captive. Every incurfive idea then becomes a reality; and the mind being destitute of every power that can correct the illusion, receives them for truths.

Having mentioned the senses as correcting the errors of the imagination, it naturally follows, that we should examine the senses themselves, as far as they relate to our perceptions; to which object we shall principally confine ourselves.

The eyes, by which we enjoy the sense of vision, are very early formed in the human embryo: in the chicken also, they are the first double organs that make their appearance, and are more prominent than any other parts. In viviparous animals, it is true, and particularly in Man, they are not so large, in proportion, as in the oviparous; but still they are more quickly expanded than the remainder of the system. The same remark applies to the organ of hearing: the little bones which compose the internal parts of the ear are entirely formed before the other bones, though much larger, have acquired any part of their growth or solidity. Hence it appears that those parts of the body which are furnished with the greatest quantity of nerves, are the first in formation: thus the brain and the spinal marrow are the first perceptible parts in the embryo; and in general it may be said, that wherever the nerves throw out their ramifications, there the parts are soonest begun, and most compleatly finished.

On examining the eyes of a child some hours, or even days, after it's birth, it will immediately be perceptible that it is incapable of using them. The humours of the organ not having acquired a sufficient consistence, the rays of light strike but confusedly on the retina, or expansion of nerves at the back of the eye. It is not till a month after they are born, that children fix their eyes on objects; for, before that time, they turn them indiscriminately every where, without appearing to be affected by any. At six or seven weeks old, they plainly discover a choice in the objects of their attention; they fix their eyes on luminous objects; and are attracted by the most brilliant colours. Hitherto, however, they only seem to fortify the organ for seeing distinctly; but they have still many illusions to correct. The first great error in vision is, that the eye inverts every object; and till children learn the real position of bodies by the sense of feeling, every object appears turned upside down. A second error in the vision of infants arises from the double appearance of objects; because a distinct image of the same object is formed on the retina of each eye. This error also can only be corrected by the touch; and though in reality every object we see appears inverted and double, yet the judgment and habit have so often corrected the sense, that we no longer submit to it's imposition, but behold every object in it's just position, the very instant it appears. Hence, if we were deprived of feeling, our eyes would deceive us, both with regard to the position and number of objects.

To render it evident that we see objects inverted, we have only to observe the manner in which images are represented, transmitted through a small aperture in a darkened room; when all the images from without are delineated on the wall in an inverted position: for, as all the rays which pass from the different parts of the object

without,

without, cannot enter the aperture in the same extent they possessed on leaving the object, since, if so, they would require the aperture to be as large as the object; and as each part, and every point of the object, emits the image of itself on every side, and the rays, which form these images, pass from all points of the object as from so many centres; so none of them can pass through the aperture but those that arrive at it in different directions. Hence the small hole becomes the centre of the whole object, at which the rays flowing from the lower, as well as the higher parts of the object, arrive in converging directions; and consequently they must cross each other in the central point, and thus represent the picture of the object on the opposite wall in an inverted position.

In like manner, it is easy to conceive that all objects appear double, whatever our present sensations may seem to tell us to the contrary. To convince us of this, we have only to compare the situation of any one object on shutting one eye, and then compare the same situation by shutting the other. If, for instance, we shut the right eye, we shall find it hide a certain part of the room visible, and another part of the room concealed which before was visible: however, if both eyes be opened, the part concealed will appear to lie between the two extremes. But the fact is, we behold one image of the concealed object on the right, and another on the left; though, from habit, we suppose that we see but one object placed between both, our sense of feeling having corrected the object of sight. And thus also, if instead of two eyes we had two hundred, we should at first imagine the objects increased in proportion, till one sense had corrected the errors of another. Having therefore two eyes, may be supposed from these premises to be rather an inconvenience than a benefit, since one eye would answer the purposes of sight as well, and be less liable to illusion. But it is remarkably otherwise: two eyes greatly contribute, if not to distinct, at least to extensive vision. When an object is placed at a moderate distance, by the means of both eyes we comprehend a larger share of it than we possibly could with one; the right eye taking in a greater portion of it's right side, and the left of it's correspondent side. Thus both eyes, in some measure, see round the object.

In either eye there is a point, which has no vision whatsoever; so that if one of them only is employed in seeing, there is a part of the object to which it is totally blind. To be convinced of this, we have only to try a very easy experiment: if we take three black patches, and stick them on a white wall, about a foot distant from each other, and about the height of the observer's eye; then retire six or seven feet back, and shut one eye; by trying for some time, we shall find, that while we distinctly behold the black spots to the right and left, that which is in the middle remains totally unseen. In other words, when we bring that part of the eye where the optic artery runs, to fall on the object, it will then become invisible. This defect, however, in either eye, is always corrected by both, since the part of the object unseen by one will be very distinctly perceived by the other.

Besides the former defects, we can have no idea of distances from the sight, without the help of the touch. Naturally, every object we see appears to be within our eyes; and a child, who has as yet

made little use of the sense of feeling, must suppose that every thing it sees makes a part of itself: such objects only appear more or less bulky, as they approach or recede from it's eyes; so that a fly that is near, will seem larger than an ox at a distance. Experience alone can rectify this mistake; and a long intimacy with the real magnitude of every object quickly informs us of the distance at which it is seen. The Man who is most remote in a file of soldiers, appears in reality much less than the Man next to us: however, we do not perceive this difference, but continue to think him of equal stature; for the numbers we have seen thus lessened by distance, and have found, by reiterated experience, to be of the natural size, instantly correct the sense, and every object is viewed with nearly it's natural proportion. But it is otherwise if we observe objects in such situations where we have not had sufficient experience to correct the errors of the eye: if, for instance, we look at Men from the top of a high steeple, in that case they appear very much diminished, as we have not had an opportunity of correcting the sense sufficiently in that situation.

But though a small degree of reflection will serve to assure us of the truth of those positions, it may not be amiss to corroborate them by an authority which cannot be called in question. That eminent anatomist Cheselden having couched a boy of thirteen for a cataract, who had hitherto been blind, and thus at once restored him to sight, curiously marked the progress of his mind on that occasion. This youth, though till then incapable of seeing, yet was not totally blind, but could tell day from night, as persons in similar situations always may: he could also, with a strong light, distinguish black from white, and either from the vivid scarlet dye; however, he perceived nothing of the form of bodies; and, without a bright light, not even colours themselves. At first, he was couched only in one of his eyes; and when he saw for the first time, he was so totally incapable of judging of distances, that he supposed his eyes touched every object which he saw, in the same manner as his hands might be said to feel them. The objects most agreeable to him were such as had plain surfaces and regular figures; though as yet he could form no idea of their different figures, or assign a reason why one pleased him more than another. He delighted most in green colours; but black objects, as if recalling to his remembrance his former blindness, he regarded with horror. When those things were shewn him to which he had been formerly familiarized by the sense of feeling, he beheld them with earnestness, in order to remember them a second time; but as he had too many to recollect at once, he forgot the greatest number. He expressed great surprize on finding that those persons and things he loved best, were not the most beautiful to the sight; and even testified displeasure that his parents were not so handsome as he conceived them to be. Two months almost elapsed before he could discover that a picture resembled a solid body: till then he only considered it as a flat surface, variously shadowed; but, when he began to perceive that those kind of shadings actually represented human beings, he endeavoured to examine by his touch, whether they had not the usual qualities of such bodies; and was much disappointed to find what he expected a very unequal surface to be smooth
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and even. At first, he was incapable of supporting a large quantity of light; and he saw every object much larger than the life; but, in proportion as he saw objects that were really large, he seemed to think the former were diminished; and though he knew the chamber he used in the house, yet, till he saw the latter, he could not be brought to conceive how an house could be larger than a chamber. Before the operation, he had no great expectations from the pleasure he should derive from a new sense: he was only excited by the hopes of being able to read and write; and said, that he could receive no greater enjoyment from walking in the garden with his sight, than he had without it, since he ranged there at his ease, and was acquainted with every walk. But when he began to make use of this new sense, he was transported beyond measure: every new object seemed a new source of delight, and his pleasure was great beyond expression.

Chefelden makes mention of many more who were restored to sight in this manner: they all seemed to concur in their perceptions with this youth; and were particularly embarrassed in learning how to direct their eyes to the objects they wished to observe.

Thus it is, that our feeling corrects the sense of seeing, and that objects which appear of so many different sizes, at different distances, are all reduced, by experience, to their natural standard. But not only the feeling, but also the colour, and the splendor of the object, contribute, in some measure, to assist us in forming some idea of the distance at which it appears. These objects which we behold most strongly marked with light and shade, we readily discover to be nearer than those in which the colours are more faintly spread, and which, in some measure, take a part of their hue from the air between them and us. Luminous objects also are seen at a greater distance than such as are obscure; and most probably for this reason; because, being less correspondent in colour to the air which interposes, their impressions are less effaced by it, and they continue more distinctly visible: thus a black and distant object is recognized at a less distance than a bright and glittering one; and a fire by night is visible much farther off than by day.

The distance at which any object can be seen is seldom the same in both eyes: there are few Men who have both these organs equally strong; and when this inequality is great, the strongest eye is most generally employed; and hence proceeds that aukward look, which is commonly known by the appellation of squinting or strabism.

Many reasons conspire to induce us to believe, that such persons as are near-sighted see objects larger than other persons; and yet the contrary is most certainly true, for they see them less. Buffon informs us, that he himself is short-sighted; and that his left eye is stronger than his right: he has very frequently observed, on looking at any objects, such as the letters of a book, that they appear less to the weakest eye; and when he places a book, so that the letters appear double, the images of the left eye, which is strongest, are greater than those of the right, which is the most feeble. He farther tells us, that he has examined several other persons who were in similar circumstances, and has always found that the best eye saw every object the largest. This he ascribes to habit; for near-sighted people being accustomed to approach the object more closely, and to view but a small part

of it at a time, when the entire object is seen, it appears less to them than to others.

As the eyes of infants are less than those of adults, they must likewise see objects in a diminished light; for the object formed on the back of the eye will be large, in proportion as the eye is capacious: and infants having it less, cannot enjoy so large a picture of the object. This may be a reason also why they are unable to see so distinctly, or at such distances, as persons arrived at maturity. Old people, on the contrary, see bodies which are close to them very indistinctly, but those at a greater distance with more precision; and this probably arises rather from an alteration in the coats, or perhaps humours of the eye, than from their diminution, as is generally supposed. For instance; the cornea may become too rigid to adapt itself, and to assume a proper convexity for perceiving minute objects; and it's very flatness will be sufficient to adapt it for distant vision.

When we cast our eyes on an object extremely brilliant, or fix and detain them too long on the same object, the organ is hurt and fatigued; it's vision becomes indistinct; and the image of the body, which has thus too violently or too perseveringly employed us, is painted on every thing we look at, and mixes with every object that occurs: and this is an obvious consequence of the eye taking in too much light, either immediately, or by reflexion. Every body exposed to the light for a time, imbibes a quantity of it's rays: when being brought into darkness, it cannot so readily discharge. Thus, if the hand be exposed to the full glare of day-light for some time, and immediately snatched into a dark room, it will still appear luminous, and become dark in a few hours. It is thus with the eye; which, either by a transient gaze at the sun, or a steady continuance on some less brilliant object, has admitted too much light; it's humours are, for a while, unfit to receive, till the superabundant light is discharged, the rays of a milder nature have found admittance.

How inimical to the sight the violence of light and luminous objects is, may be easily seen in such people as inhabit countries covered with snow during the greatest part of the year, who commonly become blind before their time. Travellers who cross these regions are obliged to wear crapes before their eyes, in order to preserve them. The same precaution is equally necessary in the sandy deserts of Arabia: the reflexion of the light is there so strong, that it is impossible to support the effect without incurring the most imminent danger of totally losing the sight. Such persons, therefore, as are obliged to read or write for any length of time, should use a moderate light; and though it may seem insufficient at first, the eye will by degrees accustom itself to the shade, and be less injured by the mediocrity of the light than it's excess.

The sense of hearing, like that of seeing, being intended to give us notice of remote objects, is subject to similar errors, and equally imposes on the understanding, when we have no opportunity of rectifying by the touch the ideas it excites. The faculty of hearing communicates no distinct intelligence of the distance of sonorous bodies: a great noise at a distance, and a small one when near, produce the same sensation; and unless we derive information from the other senses, we cannot distinguish the remoteness of the one from that of the other. When we hear an unknown sound,

we can neither judge of the distance, nor of the momentum of the stroke that gives rise to it; but whenever we can ascertain the species of any individual sound, we are enabled to guess both at the distance and the momentum of the stroke. If, for example, we hear the report of a cannon, or the sound of a bell, we compare them with those of the same kind we have formerly heard, and thus form a pretty exact judgment of their distance and force.

Every body striking against another produces a sound, which is simple, and but one in non-elastic bodies, but often repeated in such as are elastic. If we strike a bell, or a stretched string, which are both elastic, a single blow produces a sound, which is repeated by the undulations of the sonorous body, and is multiplied as often as it happens to vibrate: these undulations each strike their own peculiar blow; but they succeed each other so rapidly, that the ear supposes them one continued sound, whereas they are many. A person who should, for the first time, hear the toll of a bell, would very probably be able to distinguish these breaks of sound; and, in fact, even constant experience cannot prevent us from perceiving an intension and remission in the sound. After this manner, sonorous bodies are of two kinds; those non-elastic ones, which being struck, return but a single sound; and those more elastic, returning a succession of sound; which uniting together, form one tone. This tone may be considered as a great number of sounds, all produced after each other by the same body; as we find in a bell, or the string of a harpsichord, which continue to sound some time after they are struck. A continued tone may also be produced from a non-elastic body, by repeating the blow quick and often; as when we beat a drum, or draw a bow along a fiddle-string.

Regarding the subject in this light, if we should multiply the number of blows, or repeat them at quicker intervals on the sonorous body, it is evident that this will have no effect in altering the tone; it will only render it more even, or more distinct. But it will be otherwise if we increase the force of the blow: if we strike the body with double weight, this will produce a tone twice as loud as the former. If, for instance, a table is struck with a rod, the sound will be very different from that produced by striking it with a cudgel. Hence, therefore, we may infer, that all bodies emit a graver and a louder tone, not in proportion to the number of times they are struck, but to the force that strikes them: and if this be true, it is evident that those philosophers who make the tone of a sonorous body to depend only on the number of its vibrations, and not on the force, have mistaken what is only an effect for a cause. A bell, or an elastic string, can only be considered as a drum beaten; and the frequency of the blows can make no alteration whatever in the tones. The largest bells, and the longest and thickest strings, have the most forcible vibrations; and therefore their tones are the loudest and gravest.

In order to discover how sounds thus produced become harmonious, it must be observed, that no one continuing tone, however loud and swelling, can give us pleasure: we must have a succession of tones, and those in the most pleasing proportion. The nature of this proportion may be conceived thus: if we strike a body incapable of vibration with a double force, or, what amounts to the same

thing, with a double mass of matter, it will produce a sound that will be doubly grave. Music has been said, by the ancients, to have been first invented from the blows of different sized hammers on an anvil: suppose then we strike an anvil with a hammer of one pound weight; and again with one of two pounds, it is plain that the latter will produce a sound twice as grave as the former. But if we strike with a two-pound hammer, and then with a three, it is evident that the latter will produce a sound one-third more grave than the former; and if we strike an anvil with a three-pound hammer, and then with a four, it will likewise follow, that the latter will be a quarter part more grave than the former. Now, on comparing these sounds, it is obvious that the difference between one and two is more easily perceived than between two and three, three and four, or any numbers succeeding in the same proportion. The succession of sounds will therefore be pleasing in proportion to the ease with which they may be distinguished. That sound which is double the former, or, in other words, the octave to the preceding tone, will of all others be the most pleasing: the next to that, which is at two or three, or, in other words, the third, will be most agreeable; and thus universally, those sounds whose difference may be most easily compared, are the most melodious. The professors of music have therefore contented themselves with seven different proportions of sound, which are called notes, and sufficiently answer every purpose of pleasing harmony: not but that they might adopt a greater diversity of proportions, and some have actually done so; but in these the differences of the proportions are so imperceptible, that the ear is rather fatigued than charmed in making the distinction. However, in order to give variety, they have admitted half tones: but in all countries where music is yet imperfectly understood, such are rejected, as the natives can perceive no music but in the obvious tones. The Chinese, for instance, have neither flats nor sharps in their music; but the intervals between the other notes are in the same proportion with ours.

Sound, like light, is not only propagated at a distance, but capable of being reflected; but the laws of this reflection, it must be confessed, are but imperfectly understood. All we know is, that sound is principally reflected when its motion is interrupted by hard bodies: a mountain, a house, or a wall, reflects sound, and sometimes in such perfection, that we imagine it proceeds from a quite contrary direction to that of its original motion. Smooth concave substances, such as vaults and hollow rocks, increase the reverberation, but no art can constitute an echo; and some who have been at great labour and expence to effect such a project, have only erected shapeless buildings, whose silence proved a mortifying lecture on their presumptuous folly.

The internal cavity of the ear, which is fitted for the purpose of echoing sound with the greatest precision, is hollowed out of the hard part of the temporal bone, like a cavern in a rock. In this cavity sounds are repeated and articulated: this repetition of sound excites vibrations in the solid parts of the lamina of the cochlea, which are communicated to the membranous part of the lamina; and this membranous part is an expansion of the auditory nerve, which conveys the different vibrations to the mind. As the osseous parts are solid and

and insensible, they can receive and reflect sounds only while the nerves possess the power of producing sensation. Now, in the organ of hearing, the only nervous part is a portion of the spiral lamina; all the rest is solid: hence this part may be regarded as the immediate organ of hearing, as may be proved by the subsequent reflections.

The external ear is only an accessory to the internal: its concave windings may augment the quantity of sound; but we can hear very well without the external ears, as appears from dogs and other animals which have these organs amputated. Nor is the membrane of the tympanum more essential to the perception of sound than the external ear; for many have heard distinctly after this organ was either totally or partially destroyed. The semicircular canals, however, appear to be more necessary: these are a kind of winding tubes in the os petrosum, that seem to direct and conduct the sonorous particles to the membranous part of the cochlea, on which sound acts, and its sensation is produced.

One of the most common disorders incident to old age, is deafness, which probably proceeds from the rigidity of the nerves in the labyrinth of the ear. This disorder also sometimes arises from a stoppage of the wax, which art may easily remedy. In order to discover whether the defect be an internal or an external one, let the deaf person put a repeating watch into his mouth; and, if he hears it strike, he may be assured that his disorder proceeds from an external cause, and is in some measure curable: for there is a passage from the ears into the mouth by what anatomists call the eustachian tube; and by this passage people often hear sounds when they receive none through the larger channel; and this also is the reason why we often see persons who listen with great attention, hearken with their mouths open, in order to admit the sound by every aperture.

It has often been remarked, that those who have unmusical ears, and bad voices, hear better with one ear than the other. Buffon, who made many experiments on persons of this description, always found that their defect in judging properly of sounds proceeded from the inequality of their ears; for as they receive by both unequal sensations at the same time, they must necessarily form an unjust idea. In this manner, as those people hear falsely, they also, without being conscious of it, sing falsely. Such persons are also frequently deceived with regard to the side from whence the sound arrives, generally supposing it to come on the part of the best ear.

Trumpets or funnels, employed in assisting the hearing, answer the same end as convex glasses to old or decayed eyes. The parts necessary to hearing, as well as those essential to vision, become obtuse and insensible through age; and therefore each of them equally requires the assistance of art to augment the quantity of the medium through which their peculiar sensations are transmitted. Trumpets for facilitating hearing might be rendered as extensively useful to the ear as telescopes are to the eye: but these trumpets would not be employed to advantage except in solitary and silent places; for neighbouring sounds are uniformly collected and blended with those at a distance, and produce in the ear nothing but a confused noise.

Hearing is a much more necessary sense to Men than to other animals. To the latter it is only a

warning against danger, or an encouragement to mutual assistance; but to Man, it is the source of most of his pleasures, and without it the rest of his senses would be of little service. A person born deaf must necessarily be dumb; and his whole sphere of knowledge must be bounded only by sensual objects. We have an instance, in the Memoirs of the Academy of Sciences, of a person who, though born deaf, was restored to perfect hearing at the age of twenty-four years. The account runs thus:

‘A young Man, of the town of Chartres, about twenty-four years of age, who had been deaf from his birth, began all at once to speak, to the utter astonishment of all who knew him. He informed his friends that, for three or four months preceding, he had heard the sound of bells; and that he was extremely surprized at this new and unknown sensation. Some time after, a kind of humour issued from his left ear, and then he heard distinctly with both. During these three or four months, he listened to every thing; and, without attempting to speak loud, he habituated himself to utter softly the words spoken by others. After labouring hard in acquiring the pronunciation of words, and in learning the ideas annexed to them, at length thinking himself qualified to break silence, he declared that he could speak, though still imperfectly. Soon after, he was interrogated by some able divines concerning his former condition: their principal questions turned on God, the soul, and moral good and evil; but of these subjects he seemed not to have the smallest conception. Though he was born of Catholic parents, attended mass, and was instructed to make the sign of the cross, and to assume all the external marks of devotion, he had no comprehension of their real meaning. He had formed no distinct idea of death; and seemed to exist purely in an animal state. Wholly occupied about sensible objects, and with the few ideas he had acquired by the eye, he drew no conclusions from them. He was by no means destitute of abilities; but the understanding of a Man, when deprived of the intercourse of society, has so little exercise or cultivation, that he never thinks but when sensible objects obtrude themselves on his mind: the great source of human ideas arises from the reciprocal intercourse of society.’

Notwithstanding, it is very possible to communicate ideas to deaf Men which they previously wanted, and even to give them very precise notions of some abstract subjects by means of signs and letters. A person born deaf may, in time, with sufficient pains, be taught to write and read; to speak; and, by the motion of the lips, to understand what is said to him: however, it is probable, that as most of the motions of speech are made within the mouth by means of the tongue, the knowledge arising from the motion of the lips is very confined; and persons labouring under the defect of hearing have always a harsh and dissonant articulation, because they can form no idea of musical sounds, or the harmony of just elocution. Indeed, deaf persons who had acquired any tolerable share of learning, were formerly regarded as prodigies; but there have been so many instances of success lately, and so many have gained celebrity in this mode of instruction, that, though still a matter of some curiosity, it ceases to be an object of wonder.

Of all the senses possessed by Man, perhaps there is none in which he is more inferior to other animals

animals than in that of smelling. With respect to Man, it is a sense which acts in a narrow sphere, and as frequently excites disgust as pleasure; but, with regard to many other animals, it is diffused to a very great extent, and never seems to prove offensive. Dogs not only trace the steps of other animals, but also discover them by their scent at a very great distance; and, while they are thus exquisitely sensible of all smells, they appear to be satisfied with all.

But though this sense is in general so very weak in Man, it is much more powerful in such nations as abstain from animal food than among Europeans. The Indian Bramins, we are informed, possess a power of smelling equal to that of most other creatures: they can smell the water which they drink, which to us seems quite insipid. The negroes of the Antilles also, by smell alone, can distinguish between the footsteps of a Frenchman and those of a negro. It is probable, therefore, that this organ is obtunded by a luxurious course of life; and that the pleasures which might arise from odorous smells are sacrificed to the gratification of the taste. However, smelling is a sense that may, in some measure, be dispensed with; and instances are not wanting of persons who have been entirely destitute of it, without experiencing any considerable inconvenience from its loss. In a state of nature, it might have superior utility in guiding us to proper nourishment, and deterring us from that which is unwholesome; but, in our present situation, such information is little wanted, and indeed but little attended to. In fact, the sense of smelling often conveys false intelligence. Many substances which emit a disagreeable odour, are nevertheless salubrious, and pleasant to the taste; and such persons as study epicurism as an art, seldom think a meal fit to please the appetite till it begins to offend the nose: on the contrary, there are many things whose smell is grateful, which yet are noxious, or fatal to the constitution. Physicians in general think that perfumes are unwholesome; and that they relax the nerves, produce head-aches, and retard digestion. The machineel apple, which is known to be poisonous in a very high degree, possesses a most grateful odour; and some of those mineral vapours which often prove fatal in the stomach, smell like the sweetest flowers, and thus continue to flatter till they destroy.

From hence it would appear, that the sense of smelling is rather an attendant on a necessary pleasure, than a means of directing us in the choice of food. Indeed, if we examine the natives of different countries, or even distinct natives of the same, we shall find no pleasure in which they differ so widely as that of smelling. Some persons are charmed with the odour of a rose; others cannot endure it. Savage nations in general are highly delighted with the smell of asafœtida; among Europeans, it is considered as one of the most nauseous odours in nature. It would therefore seem, that our delight in perfumes is in a great measure acquired by habit; and that a very little industry would bring us totally to invert the perception of smells. This much is certain, that many bodies which at a distance produce an agreeable perfume, when approached too near, have a most ungrateful odour. Musk and ambergris, in small quantities, are considered by most persons as highly fragrant; and yet, in larger proportions, their scent is intolerable.

From a combination of two bodies, each of

which individually is destitute of smell, a very powerful perfume may be drawn. Thus, by grinding quick-lime with sal ammoniac, a very foetid mixture may be produced. On the contrary, from a mixture of two bodies, separately disagreeable, a very pleasant aromatic odour may be gained: a mixture of aqua fortis with spirits of wine will produce this effect. But not only the alteration of bodies, by means of each other, but also the smallest variation in our health or feelings, makes a very great change in this sense, and frequently deprives us of it totally. A slight cold often intercepts the sense of smelling, and as often alters the nature of odours. Some persons, after their recovery from a disorder, retain an unconquerable aversion to those smells which charmed them most before; and many have been known to express an antipathy to some animals whose presence they instantly perceived by the smell. From all which it may be fairly deduced, that the sense of smelling is an uncertain monitor, easily deranged, and unfelt where mostly wanting.

The sense of tasting bears the strongest affinity to that of smelling. This some have considered as a nicer kind of touch, and have accordingly undertaken to account, in a very mechanical manner, for the difference of flavours. Such bodies, say they, as are pointed, happening to be applied to the papillæ of the tongue, excite a very powerful sensation, and give us the idea of saltness: such, on the contrary, as are of a rounder figure, slide smoothly along the papillæ, and are perceived to be sweet. In this manner, with minute labour, they have gone through the varieties of imagined forms in bodies, and have assigned to each of them imaginary effects. All that can be determined with precision on the nature of taste is, that the substances to be tasted must be either somewhat moistened, or in some measure dissolved by the saliva, before they can produce a proper sensation. Provided the tongue itself, and the body to be tasted, are extremely dry, no taste whatever ensues: the sensation is then changed; and the tongue, instead of tasting, can only be said to feel the object. For this reason, children have a stronger relish of tastes than those who are more advanced in life. This organ, with them, from the greater moisture of their bodies, is preserved in greater perfection; and is consequently better adapted to perform its functions. Most persons remember how great a pleasure they experienced in sweets while children; but their taste growing more obtuse through age, they are obliged to excite it by artificial means: then they call in the assistance of poignant sauces, of strong relishes, and salts and aromatics; all which the delicacy of their tender organs in childhood were unable to endure. With age, the taste grows callous to natural relishes, and is artificially formed to others more unnatural; so that the highest epicure may be truly said to have the most depraved taste, as, from the obtuseness of his organs, he is obliged to have recourse to such a variety of expedients for gratifying his vitiated appetite.

As smells are frequently rendered agreeable by habit, so also are tastes. Tobacco and coffee, so pleasing to many, are nevertheless at first disagreeable to all: it is not without perseverance that we begin to relish them; but we force nature so long, that what was constraint in the beginning at last becomes inclination.

Feeling

Feeling is the most gross, and yet the most useful of all the senses. Man often survives the loss of the rest; but of this he can never be totally deprived but with life. Though this sense is diffused over all parts of the body, it frequently happens, that those members which are most exercised in touching, acquire the greatest degree of accuracy: thus, the fingers, by long habit, become greater masters in the art than any others, even where the sensation is more delicate and fine. It is from this habit therefore, and their peculiar formation, and not, as some have supposed, from their being furnished with a greater quantity of nerves, that the fingers are thus perfectly qualified to judge of forms. Blind people, who are obliged to use them much oftener than others, have this sense in much greater perfection: so that the delicacy of the touch arises rather from the habit of constantly employing the fingers, than from any fancied superiority in their formation.

Such animals as are furnished with hands appear to have most sagacity. Apes imitate the mechanical actions of Men so completely, that they seem to be excited by the same sensations: but no animals which are destitute of hands can form any distinct ideas of the shape of objects by which they are surrounded; because they want that organ which serves to examine and measure their forms, their elevations, and their depressions. A quadruped probably conceives as erroneous an idea of any thing near it, as a child would of a distant rock or mountain; and hence we often see animals frightened at things with which they ought to be better acquainted. In them the muzzle is the principal organ of feeling, which is divided into two parts by the mouth; and this, with the assistance of the tongue, serves to touch bodies, before they are seized with the teeth. It is also probable that animals furnished with many instruments of feeling have a superior faculty of distinguishing and choosing whatever is agreeable or convenient for them. Hence fishes, whose bodies are covered with scales, and destitute of any organs for feeling, must be the most stupid of all animals; and serpents, by their undulatory motion, may be better adapted to judge of the figures of bodies. But all these can have but very imperfect ideas of feeling; and when animals are deprived of this, the rest of their senses are extremely fallacious.

Feeling, therefore, may be said to be the guardian, the judge, and the test of all the other senses; it establishes their information, and detects their errors. All the other senses are altered by time, and contradict their former evidence: but the touch still continues the same; and, though extremely confined in its operations, it is never found to deceive.

To a person who enjoyed the use of the other senses only, the universe would prove but a scene of illusion; every object would be misrepresented, and all its properties unknown. Buffon has portrayed a Man, newly brought into existence, describing the illusion of his first sensations, and pointing out the gradations by which he arrived at reality. He considers him as waking amidst the productions of nature; and, in order to animate his narrative in the strongest manner, has set forth this ideal being as endowed with the gift of speech, and describing his first sensations in the subsequent manner.

‘ I recollect the moment when my existence

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commenced; it was a moment replete with a variety of sensations, hope, wonder, and apprehension. I neither knew what I was, where I was, nor from whence I came. I opened my eyes; and how were my feelings increased! The light, the celestial vault, the verdure of the earth; and the liquid lustre of the waters, gave animation to my spirits, and excited pleasures which surpassed the powers of expression.

‘ At first I conceived that all these objects existed within me, and constituted a part of myself. When nearly absorbed in this idea, I turned my eyes towards heaven: I beheld the sun; his splendor overpowered me. I involuntarily shut out the light, and felt a slight degree of pain; for, during this moment of darkness, I imagined that a considerable share of my being was annihilated.

‘ Reflecting with grief and astonishment on this great and sudden change, I was roused with a variety of sounds: the singing of birds, and the murmuring of the breeze, formed a concert which awakened the most sweet and enchanting emotions; I listened a long time, and seemed fully convinced that these harmonious sounds had their existence within me. Totally engrossed with this new species of existence, I had already forgot the light, though the first part of my being that I had recognized. I again opened my eyes by accident, and was delighted to find that I recovered the possession of so many brilliant objects: this pleasure surpassed every former sensation, and suspended for a time the charming melody of sound. I fixed my eyes on innumerable objects: I soon perceived that I possessed the power of losing and of recovering them; and that I could, at pleasure, destroy and renew this beautiful portion of my sensations.

‘ I could not see without astonishment, nor hear without anxiety, when a gentle breeze wafted perfumes to my nostrils. This new and delightful feeling agitated my frame, and gave a fresh addition to my self-love.

‘ When occupied by all those sensations, and filled with pleasures so delicate and so multifarious, I suddenly arose, and was transported by the perception of an unknown faculty. I made but a single step, when the novelty of my situation rendered me immovable. My surprize was extreme; I imagined my being fled from me: the movement I had made confounded the objects of vision; and the whole creation seemed to be in disorder. I raised my hand to my head; I touched my forehead and my eyes, and felt every part of my body. The hand now appeared to be the principal organ of my existence: the perceptions afforded by this instrument were so distinct and so perfect, the pleasures conveyed by it were so infinitely superior to those of light and sound, that for some time I attached myself entirely to this substantial part of my being, and I perceived that my ideas began to assume a consistence and a reality which I had never before felt. Every part of my body which I touched with my hand reflected the sensation, and produced in my mind a double idea. By this exercise I soon learned, that the faculty of feeling was expanded over every part of my frame; and I began to recognize the limits of my existence, which, till now, seemed to be of an immense extent. I surveyed my body, and I supposed it to be of such immense magnitude, that all other objects, in comparison, seemed only luminous points. I followed my hand with my

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eyes, and observed all its motions; but of all these objects my ideas were confused and fallacious. I imagined that the motion of my hand was a species of fugitive existence, a mere succession of similar causes: I brought my hand near my eye; it then seemed to be larger than my whole body, for it concealed from my view almost every other object. From this I began to suspect that there was some illusion in the sensation conveyed by the eyes. I distinctly perceived my hand was only a small part of my body, but I was unable to comprehend how it should appear so enormously large: I therefore resolved to depend for information on the sense of feeling alone, which I experienced had never deceived me; and to be on my guard, for the future, against all other modes of sensation.

‘I found this precaution extremely beneficial. I renewed my motions, and walked with my face turned towards heaven; I struck against a palm-tree, and felt a slight degree of pain. Seized with terror, I ventured to lay my hand on the object, and discovered it to be a body distinct from myself, because it gave me not a double sensation, which I experienced on touching my own body: I turned from it with horror; and perceived, for the first time, that there was something external, something which did not constitute a part of my own existence. I was reconciled to this discovery with difficulty; but after reflecting on the event which had happened, I concluded that I ought to judge concerning external objects in the same manner as I had judged concerning the parts of my body; and the sense of feeling alone could ascertain their existence. I resolved, therefore, to feel every object which fell under my inspection: I felt a desire of touching the sun; I accordingly stretched forth my hands to embrace the heavens, but they met without feeling any immediate resistance.

‘Every experiment I made served only to augment my astonishment, for all objects appeared to be equally near; and it was not till after an infinite number of trials, that I learned to use my eyes as a guide to my hand. As the hand gave me ideas totally different from the impressions I received by the eye, my sensations were contradictory; the judgments I formed were imperfect; and my whole existence was anarchy and disorder.

‘Deeply meditating on the nature of my being, the contradictions I had experienced filled me with humility: the more I reflected, my doubts and difficulties increased. Fatigued with so many uncertainties, and with anxious emotions which successively arose in my mind, my knees bended, and I soon found myself in a situation of repose. This state of tranquillity added fresh vigour to my senses: I was stretched under the shade of a delightful tree; fruit of the most beautiful vermilion colour hung down from it, within reach of my hand; this I gently touched, and it instantly separated from the branch. In laying hold of this substance, I imagined I had made a great conquest; and I rejoiced in the faculty of grasping in my hand an entire being which made no part of myself. Its weight, though trifling, seemed to be an animated resistance, which I felt a pleasure in being able to overcome. I lifted the fruit near my eye; I examined its figure and its colours; a delicious odour allured me to bring it near my lips, and I inhaled long draughts of its perfumes. When wholly possessed with the sweetness of its

fragrance, my mouth opened, and I discovered that I enjoyed an internal sense of smelling much more delicate and refined than that conveyed by the nostrils: in a word, I tasted the fruit. The novelty of the sensation, and the deliciousness of the flavour, filled me with transport and astonishment: till now I had only enjoyed simple pleasures; but taste gave me an idea of voluptuousness. The enjoyment was so congenial and intimate, that it conveyed to me the notion of property or possession: I imagined that the substance of the fruit had become part of my own, and that I was endowed with the power of transforming bodies.

‘Delighted with this idea of power, and with the pleasures I experienced, I continued to pull, and to eat: but an agreeable languor gradually weakened my senses; my limbs grew heavy; and my mind seemed to lose its active powers of reflecting. The dulness of my sensations rounded all external forms, and conveyed only weak and ill-defined ideas: at this instant my eyes became shut, the light was excluded, and I sunk down with my head on the grass.

‘Every thing that had amused my waking hours now disappeared, and darkness and confusion usurped their right of dominion; the train of my ideas was interrupted, and I lost the consciousness of my existence. My repose was profound; but having no mode of measuring time, I was ignorant of its duration: my awaking appeared to be a second birth, for I only perceived that I had ceased to exist. This temporary annihilation excited the image of fear, and gave me an idea that my existence was not permanent. Another difficulty started in my mind: I suspected that sleep had robbed me of some portion of my faculties; I tried my different senses, and endeavoured to recognize all my former powers. When surveying my body, in order to ascertain its identity, I was astonished to find at my side another form perfectly similar to my own: I conceived it to be another self; and, instead of losing by sleep, I supposed that my being was doubled. I ventured to lay my hand on this new form: with rapture and astonishment I perceived that it was not myself, but something more glorious and desirable; and I imagined that my existence was about to dissolve, and to be wholly transfused into this copy of my being. I perceived her to be animated by the touch of my hand: I saw her catch the expression in my eyes; and the lustre and vivacity of her own made a new source of life thrill in my veins. I ardently wished to transfer my whole being to her; and this wish completed my existence, for now I discovered another sense. At this instant the sun had finished his course; I perceived with pain, that I lost the sense of seeing; my enjoyment was too exquisite to allow me to dread annihilation; and the present obscurity recalled in vain the idea of my former sleep.’

Having exhibited Man as possessed of various senses, as a being enjoying powers which unfold by slow degrees; we shall now consider him in his last stage, and explain the cause and nature of his decay.

Every object in nature has its improvement and decay. The human form no sooner arrives at maturity, than it instantly begins to decline. The waste is at first insensible, and frequently several years revolve before we perceive any considerable alteration: but we ought to feel the weight

of our years better than their number can be estimated by strangers; and as those are seldom deceived who judge of our age by external characters, we would be still more sensible of it from internal signs, if we were more attentive to our feelings, and deceived not ourselves by vanity and fallacious hopes.

When the body has acquired it's full stature, and is extended to it's just dimensions, it begins to increase in thickness; and this augmentation is the first step towards a decay, being merely an addition of superfluous matter, which inflates the body, and loads it with an useless weight: this matter, which is denominated fat, about the age of thirty-five, or forty, begins to cover the muscles, and interrupt their activity; every action then requires a greater exertion to perform it; and the increase of size is at the expence of ease, activity, and strength.

The bones also become every day more solid. In the embryo they are almost as soft as the muscles and the flesh; but, by degrees, they harden, and acquire their natural vigour: but still, however, the circulation is carried on through them; and how hard soever the bones may seem, the blood holds it's current through them, as through all other parts of the body. Of this we may be sufficiently convinced by an experiment, which was first accidentally discovered by the late ingenious Mr. Belcher. Perceiving, when on a visit at a friend's house, that the bones of hogs which were fed on madder were red, he tried it on various animals, by mixing this plant with their usual food, and found that it tintured the bones in all: an evident demonstration that the juices of the body had a circulation through the bones. He fed some animals alternately on madder and their common food for some time, and found their bones tintured with alternate layers, in conformity to their manner of living. From all this he naturally concluded, that the blood (as before observed) circulated through the bones, as it does through every other part of the body; and that how solid soever they seemed, yet, like the softer parts, they were furnished, through all their substance, with their proper canals. Nevertheless, these canals are of very different capacities, during the different stages of existence. In infancy, they are capacious; and the blood flows through the bones with almost the same facility as through the other channels. In manhood, their size is greatly diminished; the vessels are almost imperceptible, and the circulation through them is proportionably slow. But, in the decline of life, the blood which meanders through the bones no longer contributing to their growth, of necessity tends to increase their rigidity. The channels which are every where disseminated through the human frame, may be aptly compared to those pipes that are frequently seen internally incrustated by the water running through them for a long continuance; both every day contract their diameters, by reason of the small rigid particles deposited within them: thus, as the vessels are by degrees diminished, the juices also, necessary for the circulation through them, are diminished in proportion; till at length, in old age, those pillars of the human fabric are not only more solid, but more fragile.

The cartilages, or gristles, which may be regarded as soft, imperfect bones, likewise receive nutritious juices, which gradually augment their density: they become more and more solid as we

advance in years; and in old age they are almost as hard as bones themselves. This rigidity of the cartilages renders the motion of the joints extremely difficult, and produces a total cessation of external movements.

As the cartilages become rigid, and unfit the joints for motion; so also that mucous liquor, which is always separated between the joints, and serves to give them an easier and readier play, is now furnished in less and less quantities. It becomes thicker and more clammy; and hence, in old age, every joint is not only stiff, but awkward. At every sudden or violent motion, this clammy liquor is heard to crack; and it is with difficulty that the muscles overcome it's resistance.

The membranes which cover the bones, the joints, and the rest of the body, as we advance in years, become more dense and dry: those which surround the bones soon lose their flexibility; and at the age of twenty, they are incapable of farther extension. The muscular fibres suffer a similar change, in proportion to the time of life; though, to the touch, they feel softer as age increases: but it is the skin, and not the muscles, which occasions this perception. After the body is arrived at it's full growth, the fat increases; and, by being interposed between the fibres of the muscles, and between the skin and the muscles themselves, makes them feel softer, when in reality their density is greatly augmented. Of this assertion we have an incontestible proof, by comparing the flesh of young with that of old animals: in the former, it is tender and delicate; but, in the latter, hard, dry, and unfit for use.

The skin is the only part of the body that age does not contribute to harden: that stretches to every degree of tension; and we have dreadful instances of it's pliancy in many disorders incident to human nature. In youth, therefore, while the body is vigorous and increasing, it still gives way to it's growth: but though it thus adapts itself to our increase, it does not in the same manner assimilate itself to our decay. The skin which was filled and glossy in youth, when the body begins to waste, does not possess sufficient elasticity to shrink entirely with it's diminution: it hangs therefore in wrinkles, which no art can remove; for the wrinkles of the body generally proceed from this cause. But those wrinkles which mark the face proceed in general from another cause; namely, from the variety of positions into which it is put by the speech, the food, and the passions. Every grimace, and every passion, corrugates the visage in different forms: these are sufficiently visible in youth; but what was at first accidental or transient, becomes unalterably fixed in the visage as it grows older. Hence we may reasonably conclude, that an exemption from passions not only adds to the happiness of the mind, but also preserves the beauty of the face; and the person who has not felt their influence, is less strongly marked by the decays of nature.

In proportion as we advance in years, the bones, the cartilages, the membranes, the flesh, the skin, and every fibre of the body, become more solid, hard, and dry: every part shrinks, every motion becomes more slow; the circulation of the fluids is performed with less freedom; perspiration diminishes; the secretions alter; the digestion becomes slow and laborious; and the juices, no longer serving to convey their accustomed nourishment, those parts may be said to
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live no longer when the circulation ceases. Thus the body dies by little and little; all its functions are weakened by degrees; life is driven from one part of the frame to another; universal rigidity prevails; and death at last closes the scene.

As the bones, the cartilages, the muscles, and all other parts of the body, are softer in Women than in Men, those parts must of consequence require a longer time to arrive at that rigidity which accelerates death. Women, therefore, ought to enjoy a longer period before they grow old than Men: and this is actually the case; for if we consult such tables as respect the duration of human life, we shall find that, after a certain age, they are much longer lived than Men, all other circumstances the same; and that a Woman arrived at her sixtieth year stands a much better chance than a Man of the same age to live till eighty. On the whole, we may infer, that such persons as have been slow in reaching maturity, will also be slow in growing old; and this remark holds good not only with respect to Man, but all other animals.

The whole duration of the life of either vegetables or animals may in some measure be determined from their manner of coming to maturity. The tree, or the animal, which is but a short time in attaining to its utmost pitch, perishes much earlier than such as are less premature. In both, the increase upwards is first accomplished; and till they have acquired their greatest degree of height, they do not begin to spread in bulk. Man grows in stature till about the age of seventeen or eighteen; but his body is not completely developed till near thirty. Dogs, on the other hand, arrive at their utmost size in one year, and generally attain their full proportions in another. Man, however, who is so long in growing, sometimes lives to the age of fourscore, or even an hundred years; but the dog seldom to above that of twelve or thirteen. In general also, it may be said, that large animals live longer than small ones, as they usually take more time in arriving at maturity: but with respect to all animals, one thing is equally certain, namely, that they carry the causes of their own decay about them; and that their deaths are necessary and inevitable. The ideas of those visionaries who conceived the possibility of perpetuating human life by the use of certain medicines, would have perished with themselves, if self-love did not always induce us to believe what exceeds the powers of nature, and to be sceptical with regard to the most certain and invariable truths. The universal panacea, the transfusion of the blood, and other methods which have been proposed to render the human frame immortal, are as chimerical as the fountain of youth is fabulous.

When the natural stamina are good, life may perhaps be prolonged for a few years, by moderating the passions, by temperance, and by abstemiousness. The famous Cornaro, who lived to above an hundred years, though his constitution was naturally feeble, is a strong instance of the advantages of an abstemious life. Moderation in those passions which are most injurious to repose may also contribute to extend the term of our existence. The celebrated Fontenelle was naturally of a very weak and delicate habit of body: the smallest irregularities affected him, and he had frequently suffered severe fits of illness from the slightest causes. But the remarkable equality of

his temper, and his seeming exemption from passion, prolonged his life to upwards of a hundred years: and it was observed, that nothing could vex or render him uneasy; that every occurrence seemed equally pleasing; and that no event, however adverse, appeared to come unexpected.

However, no human art can prolong the period of life to any considerable extent. We are indeed told of Men who exceeded the ordinary duration of human existence; such as Par, who lived to the surprising age of one hundred and forty-four; and Jenkins, to that of one hundred and sixty-five: yet those Men used no peculiar arts to prolong life; on the contrary, it appears that they, as well as some others remarkable for their longevity, were peasants, who supported the greatest fatigues, and who had no settled regimen, but often indulged in accidental excesses.

The varieties of climate, and of the modes of living, make no real difference as to the period of our existence, which is the same in the European, the Negro, the Chinese, the American, the civilized and the savage, the rich and the poor, the citizen and the peasant. Neither does the difference of races, of food, or of accommodation, make any considerable alteration in the duration of life: Men who feed on raw flesh, or dried fish; on sago, or rice; on cassada, or roots; live as long as those who are nourished with bread and prepared victuals. It is therefore apparent, that the duration of life has no dependence either on manners, customs, or the qualities of particular food; and that, if luxury and intemperance be excepted, nothing can alter those laws of mechanism which regulate the number of our years.

If there be any real difference in the various periods assigned to Man's existence, it ought principally to be ascribed to the quality of the air. It has been observed that, in elevated situations, there have been found more persons advanced in years than in such as are low or champagne. The mountains of Scotland, Wales, Auvergne, and Switzerland, have furnished more instances of longevity than the plains of Poland, Holland, Flanders, or Germany. But, in general, the duration of life is nearly the same in most countries. Man, if exempted from accidental diseases, is often found to live to ninety or a hundred years: our ancestors did not exceed that date; and, for many hundreds of years, we have sufficient evidence that this term has undergone little alteration.

Should it be asked, why the first races of Men lived so much longer than at present, and by what means their lives were extended to nine hundred and sixty years; it may be replied, that the productions of the earth, on which they fed, might perhaps be of a different nature, at that time, from what they are at present. It may likewise be answered, that the term was abridged by divine command after the earth was sufficiently stocked with inhabitants; since, if every person were now to live and generate for nine hundred years, mankind would be increased to such a degree, that there would be no room for subsistence: so that the plan of Providence would be altered, which invariably provides a supply in proportion to the production of life.

Independent of accidental diseases, which are more frequent and dangerous in the latter periods of life, old people are subject to natural infirmities, originating solely from the decay of different

ferent parts of the body; The muscles lose their tone, the head shakes, the hands tremble, the legs totter, the sensibility of the nerves decreases, and every sense is obtunded. But the incapacity of generating is the most characteristic infirmity of old age; and this impotency may be ascribed to two causes, viz. an alteration in the seminal fluid, and a defect of tension in the external organs.

All the causes of decay which have been enumerated act continually on the human frame, and gradually lead to its dissolution. However, nature approaches to this awful period by slow and imperceptible degrees; life is consuming day by day; and some one of our faculties, or vital principles, is every hour dying before the rest: so that death is only the last shade in the picture; and it is probable that Man suffers a greater change in proceeding from youth to age, than from age to the grave. When our existence first commences, our lives may scarcely be said to be our own: as the child grows, life increases in the same proportion; and arrives at its height in the prime of manhood. But as soon as the body begins to decrease, life decreases also; for, as the human frame diminishes, and its juices circulate in smaller quantities, life diminishes and circulates with less vigour: so that, as we begin to live by degrees, after the same manner we begin to die.

Why then should we be afraid of death, if we have no reasonable apprehensions of its consequences? Why should we dread that moment which is prepared by a thousand others of the same order; the first pangs of sickness being probably greater than the last struggles of departure? Death, with regard to most persons, is as calmly endured as the disorder that brings it on. If we make enquiries of those whose business it is to attend the sick and the dying, we shall find that, except in a very few acute cases, where the patient dies in agonies, the greatest number depart quietly, and apparently without pain: and even the agonies of the former rather tend to alarm the spectators than torment the patient; for how many have we not seen, who have been accidentally relieved from this extremity, and yet retain no memory of what they then endured? In fact, they had ceased to live during the time they ceased to have any sensation; and their pains were only those of which they possessed the idea.

The greatest part of mankind, therefore, die without being sensible of the fatal stroke; and of those few who preserve their faculties entire to the last moment, there is scarcely one that does not also preserve the hopes of still recovering from his disorder. Nature, for the happiness of Man, has rendered this impression stronger than his reason. A person dying of an incurable disorder, which he must know to be so by frequent examples of his case, and which he perceives to be so by the inquietude of all around him, by the tears of his friends, and the departure or the appearance of his physician, is nevertheless still possessed with the fond hopes of conquering his malady. His interest is so great, that he only attends to his own representations; the judgment of others is regarded as an hasty conclusion; and while death every moment makes new inroads on his constitution, and extinguishes life in some part, hope still seems to escape the universal ruin, and is the last hold that yields to the conqueror.

A sick Man will observe to those around him, that he feels the hand of death, that the king of

terrors is just about to arrive, and that his recovery is impossible; but if, either from zeal or indiscretion, he is informed of his approaching dissolution, his countenance instantly changes, and he betrays all that anxiety which naturally attends the first intimation of death. The Man, it is evident, gives no credit to his own assertions: he may probably entertain some doubts respecting his situation; but his hopes are always superior to his apprehensions; and if he were not alarmed by the shew of grief which surrounds him, and which too often embitters the sick man's couch, he would perhaps never perceive the approach of his dissolution.

Death, therefore, is not that dreadful thing which we are apt to suppose it when contemplated at a distance: it is a spectre which terrifies us before we approach it more closely; our ideas of its terrors are conceived in prejudice, and dressed up by fancy; we regard it, not only as the greatest misfortune, but also as an evil accompanied with the most excruciating tortures; and we have even increased our apprehensions by reasoning on the extent of our sufferings. 'It must be dreadful,' say some, 'since it is sufficient to separate the soul from the body: it must be of long duration, since our sufferings are proportioned to the succession of our ideas; and these being painful, must succeed each other with extreme rapidity.' After this manner has false philosophy laboured to augment the miseries of our nature, and to aggravate the terrors of that period which is generally lost in insensibility. Neither the mind nor the body can suffer beyond certain bounds: the mind is, at that time, mostly without ideas; and the body too much enfeebled to be capable of perceiving its torment. A very acute pain produces either death, or fainting, a state similar to death: if it becomes excessive, it destroys itself, and the mind ceases to perceive when the body can no longer endure. Thus excessive pain admits of no reflection; and wherever there are any indications of it, we may be sure that the sufferings of the patient are not greater than we ourselves remember to have felt.

But, with respect to the moment of death, many are the instances in which the dying person has discovered that very reflection which presupposes an absence of the greatest pain; and consequently, that pang which finishes life can never be so great as those violent throws of pain which have preceded. When Charles XII. of Sweden received that blow which terminated in an instant both his enterprises and his existence, he clapped his hand on his sword: this mortal pang, since it did not exclude reflection, could not be excessive. He found himself attacked; he reflected that he ought to defend himself; it is evident therefore that he felt no greater pain than he would have done from an ordinary stroke. This action could not be the result of a mechanical impulse; for it is apparent that the most precipitate movements of the passions depend on reflection, and are nothing but habitual exertions of the mind. It is therefore the prejudices of persons in health, and not the body in pain, which occasion our suffering from the approach of death: we have all our lives contracted a habit of depicting to ourselves excessive pleasures and pains; and nothing but repeated experience can convince us how seldom the one can be suffered, or the other enjoyed to extremes.

Should the gradual cessation of life, or the in-

sensible approaches of our end, require any farther confirmation, nothing can more effectually prove them than the uncertainty of the signs of death. If we consult the writers on this subject, and particularly Winslow and Bruhier, we shall receive full conviction, that between life and death the shade is often so undistinguishable, as to elude all the powers of the medical art: they inform us, that the colour of the face, the heat of the body, and the flexibility of the joints, are uncertain indications of life; and, on the contrary, that the paleness of the countenance, the coldness of the body, the rigidity of the extremities, the cessation of motion, and the abolition of the senses, are very equivocal signs of death. The same remark may be made with regard to the apparent cessation of the pulse, and of respiration: these motions are often so slow, that they elude all our perceptions. A mirror or a candle is applied near the mouth of a person supposed to be at the last gasp; and if the mirror be sullied, or the flame vibrates, it is concluded that life is not extinguished: but these effects are often produced after death has actually taken place; and sometimes they appear not though the patient be still alive. When we wish to be convinced of the death of any person, we apply fumes of tobacco, and other irritating substances, to the nostrils; we endeavour to excite the organs by violent agitations; by pricking, or scarifying the hands and feet; by applying red-hot iron or wax to different parts of the body; and by raising loud and unusual cries: but instances have occurred where all these, and similar trials, have proved abortive; and the person supposed to be dead has afterwards recovered the powers of life.

Hence, nothing can be more apparent, than that a certain condition of life has the strongest resemblance to actual death. Both humanity and reason, therefore, require, that we should be cautious of abandoning the body, and of committing it too precipitately to the grave. No determinate number of hours are sufficient to distinguish a real from an apparent death; since instances are not wanting of persons returning from the tomb at the expiration of two or three days. Why should we accelerate the interment of those persons, the prolongation of whose lives we most ardently desire? Why should a practice subsist, in the abolition of which all Men are equally interested? Are not the frequent abuses recorded by physicians sufficient to deter us from too precipitate inhumations? Before Dr. Hawes, with a humanity that will immortalize his name, discovered the method of restoring life to persons apparently drowned, how many, do we suppose, were hurried to an untimely grave, who might have enjoyed life for a considerable term of years, and proved a comfort to their families, as well as an advantage to society?

Winslow informs us, that the body, though living, is sometimes so compleatly deprived of every vital function, that it has every external appearance of death. 'But,' he remarks, 'both religion and charity require, that a reasonable time should be allowed to discover whether any signs of life may not still manifest themselves; otherwise we become actual murderers, by inhuming persons who are not dead.' If we may credit the greatest number of authors, three days, or seventy-two hours, are sufficient for this purpose; and if, during this period, no symptoms of life appear, but, on the contrary, the body begins to emit a cadaverous odour, which is an infallible sign of death, we may then bury it without scruple or hesitation.

Having traced the history of life and death with regard to individuals, we shall now consider both in relation to the whole species.

Man dies at every age; and though the duration of his life be longer than that of most animals, it is unquestionably more various and uncertain. Attempts have been made to ascertain these uncertainties, and by observations to fix some standard to the mortality of mankind at different periods of life: and, from the most accurate calculations on this subject, it appears that a new-born infant has an equal chance of living eight years; that a child of the age of one year will live thirty-three years; that an infant of two will live thirty-eight years longer; that a Man of twenty stands a chance of living thirty-three years more; and that a Man of thirty may live about twenty-eight years more. It is farther observed, that seven years is the age at which the longest duration of life is to be expected, for there is then an equal chance of surviving forty-two years and upwards; that at twelve years, one-fourth of life is expired, since we have no reason to hope for above thirty-eight or thirty-nine years more; that at twenty-eight, or twenty-nine years, we have lived half our days, since there are only twenty-eight more to be expected; and, lastly, that at the age of fifty, three-fourths of life are elapsed, the remaining chance extending only to sixteen or seventeen years.

These physical truths, however mortifying, may be alleviated by moral considerations. The first fifteen years of our existence may be regarded as nothing; every thing that passes during this long period is either obliterated from the memory, or has so little connection with the views and objects which afterwards occupy our attention, that it entirely ceases to be interesting: the train of our ideas, and even the nature of our existence, suffer a total change. Our lives can scarcely be said to commence till we have learned to arrange our thoughts, to direct them towards futurity, to assume a kind of consistency of character, similar to that state at which we are ultimately destined to arrive. Considering therefore the duration of life in this point of view, which is the only real one, at the age of twenty-five we have passed one-fourth of our days; at that of thirty-eight, one-half; and, at the age of fifty-six, three-fourths.

Hitherto Man has been described, in general, as he appears in every nation and every quarter of the globe; and as an individual endowed with excellencies above the rest of the creation. But we now come to consider the advantages which one race of Men enjoys over another, and the various kinds with which our earth is inhabited.

If the minute differences of mankind are compared, there is scarcely one nation on the earth that entirely resembles another; and there may be said to be as many different kinds of Men as there are countries inhabited. One polished nation does not differ more from another than the merest savages from those barbarians who lie contiguous to them; and it frequently happens, that a mountain or a river divides two barbarous tribes dissimilar to each other in manners, customs, features, and complexions. But however perceptible these discriminations may be, they do not form such as come within a general picture of the varieties of mankind. Custom, accident, or fashion, may produce considerable alterations in neighbouring nations; their being descended from ancestors of a different climate or complexion, may contribute to make accidental distinctions, which every day become

become less conspicuous; and it may be said, that two neighbouring nations, however unlike at first, will assimilate by degrees; and, by long intercourse, the difference between them will become almost imperceptible. It is not therefore between contiguous nations that we are to look for any marked varieties in the human species: it is by comparing the inhabitants of opposite climates and distant countries; those who live within the polar circles with those beneath the equator; those who reside on one side of the globe with those who occupy the other.

But though there are some marked varieties in the human race, the differences between mankind are much smaller than between the other tribes of animals. Of the lower race of creatures, the changes are so great, as often entirely to disguise the natural animal, and to distort or disfigure its shape: but the principal differences in Man originate rather from the tincture of his skin than the variety of his figure; and in all climates he preserves his erect deportment, and the marked superiority of his conformation. If we survey the habitable globe, there seem to be but six distinct varieties in the human species; each of which is strongly marked, and declares the kind to have had little intercourse with others. But there is nothing in the figure or faculties that indicates a different original; and the varieties of climate, food, and custom, are sufficient to account for every perceptible alteration.

Beginning at the north, we meet with the first distinct race of Men round the polar regions. The Laplanders, the Esquimaux Indians, the Samoied Tartars, the inhabitants of Nova Zembla, the Greenlanders, and the natives of Kantschatka, may be considered as one peculiar race of people, strongly resembling each other in their stature, complexion, customs, and mental endowments. These nations lying under a rigorous climate, where nature has spread her productions with a parsimonious hand, and where provisions are both scarce and unwholesome, their bodies have shrunk to the nature of their food; and their complexions have suffered, from the effects of the cold, almost a similar change to that which heat is known to produce; their colour being a deep brown, in some places inclining to black. These therefore are generally of a short stature, and awkward shape, with countenances as savage as their manners are barbarous.

These nations not only resemble each other in deformity, in smallness of stature, and in the colour of their hair and eyes; but also in their dispositions and manners: they are all equally stupid, gross, and superstitious. The Danish Laplanders have a black Cat, to which they communicate their secrets, and which they consult in all their important affairs; for example, whether such a day shall be allotted to hunting or fishing. Among the Swedish Laplanders, a drum is kept in every family, for the purpose of consulting the Devil; and though they are a robust and nimble people, such is their pusillanimity, that they never could be persuaded to face an enemy in the field of battle. Gustavus Adolphus endeavoured to embody a regiment of Laplanders; but he found it impossible to accomplish his design, for it would seem that they can live only in their own country and after their own manner. In order to enable themselves to travel on the snow, they use a kind of skates made of fir-wood, about two ells long, and

half a foot broad: these skates are raised before, with a hole in the middle for tying them firmly on the feet; and with them they run on the snow with such celerity, as easily to overtake the swiftest animals. They carry with them poles pointed with iron at one extremity, and sharpened at the other: these poles serve to push them along, to direct their course, to prevent them from falling, to check the impetuosity of their motions, and to kill such game as they may have overtaken. Assisted by their skates, they descend the steepest mountains, and scale the most craggy precipices; and in this exercise the Women are not less expert than the Men. They likewise use the bow and the cross-bow; a contrivance seemingly peculiar to all barbarous nations, the invention of which at first required no small degree of skill. They also launch javelins with vast force; and, according to some authors, can hit a mark, not larger than a crown-piece, at the distance of thirty yards, and with such vigour as would transfix a human being. They are hunters by profession; and particularly pursue the ermine, the fox, the ounce, and the marten, for the sake of their skins: these they barter with their southern neighbours for brandy and tobacco, both which articles they use to excess. Their food consists principally of dried fish, and the flesh of rein-deer and bears; their bread is composed of the bones of fishes pulverized, and mixed with the interior bark of pine-trees; and their common beverage is train-oil, or water in which juniper-berries have been infused.

If considered in a moral point of view, these people possess all the virtues of simplicity, and all the vices of ignorance. They prostitute their wives and daughters to strangers; and even consider it as a particular honour if their scandalous offers are accepted. They entertain no idea of religion, or of a Supreme Being; the greatest number of them are idolaters; and their superstition is as profound as their worship is contemptible. But, wretched and ignorant as they are, they indulge the foolish pride of estimating themselves above the rest of mankind; and Krantz assures us, that when the Greenlanders are assembled on any particular occasion, nothing is more customary among them than to hold up the Europeans to ridicule. They are indeed involuntarily compelled to yield them the pre-eminence as to understanding and mechanic arts; but they think these acquirements of the most humble order, and almost beneath their notice: they therefore account themselves the only civilized and well-bred people on earth; and it is an usual observation among them, when they see a modest quiet stranger, that he is almost as polite as a Greenlander.

It is a common practice among all the inhabitants of the remote hyperborean regions now under consideration, to make subterraneous communications, during the winter, from one hut to another, whereby they can visit their neighbours without going abroad. A night consisting of several months obliges them to illuminate their dreary abodes with lamps, in which they burn the same whale-oil that they usually drink. In the summer season they scarcely enjoy more comfort than in winter, being obliged to live perpetually amidst a thick smoke: this is the only means they have hitherto contrived to guard themselves against the annoyance of gnats, which are perhaps more numerous in this frozen country than in the torrid zone. But, notwithstanding this melancholy and hard

hard mode of living, they are seldom attacked by sickness, and all arrive at extreme old age; and even their old Men are so vigorous, that it is sometimes difficult to distinguish them from the young. Blindness, however, is very frequent among them, and is perhaps the only malady to which they are subject. As their eyes are perpetually dazzled with the reflection from the snow in winter, autumn, and spring; and as they are involved in smoke during summer; few of them retain their sight after being advanced in years.

From the foregoing description, which is in a great measure applicable to all the hyperborean nations, it is evident that this whole race of people may be considered as distinct from any other. Their long continuance in a climate the most inhospitable, their being obliged to subsist on food the most coarse and ill prepared, the savageness of their manners, and their laborious lives, have all contributed to diminish their stature and deform their bodies. In proportion as we approach the north pole, the size of the natives appears to diminish: the higher the latitude, the more diminutive the inhabitants; till we arrive at those latitudes which are destitute of every human creature.

The miserable natives of these regions seem fitted by nature to support the rigours of their situation. As their food is but scanty, and at best precarious, their patience in hunger is amazing; a Man who has been without food for the space of four days, can manage his little canoe amidst the most furious waves, and calmly subsist in a tempest that would quickly dash an European boat to pieces. Nor is their strength inferior to their patience; and both equally claim our admiration. One of their women will carry a piece of timber, or a stone, nearly double the weight of what an European could lift. The sable tincture of their skins seems partly to originate from their dirty manner of living, being generally daubed with train-oil; and partly from the rigours of their climate, as the rapid transitions from the cold and raw air in winter to the burning heats in summer shade their complexions by degrees, till, in a succession of generations, they at last become almost black. As the countries in which they reside are the most barren, so the natives seem to be the most barbarous of any on the face of the earth. Their more southern neighbours of America treat them with the same contempt that a polished nation would a savage one; and we may thence form some idea of the rudeness of those manners which even a Canadian can account barbarous.

But the different gradations of nature are imperceptible; and while the north is peopled with such wretched inhabitants, on the frontiers of these regions are sometimes traced Men of larger stature and more compleat conformation. A whole race of the dwarfish breed is frequently observed to descend from the north, and settle more to the southward; and, on the contrary, it sometimes happens that southern nations are seen higher up, in the midst of those diminutive tribes, where they have kept their residence time immemorial. In this manner the Ostrac Tartars seem to be a race which have travelled down from the north, and to be originally sprung from the diminutive savages already described. There are also Norwegians and Finlanders, of proper stature, who inhabit higher latitudes even than Lapland: these, however, are but accidental migrations, and serve as shades to unite the distinct varieties perceptible in the human race.

The Tartars, from whom the higher hyperborean nations are probably descended, seem to form the second great distinction in the human species. The Tartar country, taken in a general view, comprehends the greatest part of Asia, and is consequently a common appellation given to a number of nations of various figures and complexions. But though there are some shades of diversity in each of them, they all agree in being very dissimilar to the people of any other country. The upper parts of the visages of all these nations are very broad, and wrinkled even in early youth; their noses are short and flat; their eyes are small and sunk in their heads, in some tribes five or six inches asunder; their cheek-bones are high; the lower parts of their visages are narrow; their chins are long, and advanced forwards; their teeth, which are of an enormous size, grow separate from each other; their eye-brows are thick and large, and cover their eyes; their faces are broad and flat; their complexions are olive-coloured; and their hair is black: they are of a middling stature, extremely strong, and robust; their beards are thin and straggling; their thighs are large; and their legs are short. The Calmucs are the most deformed of all; and in their appearance there is something really frightfully forbidding. They all lead an erratic life, remaining under tents constructed with hair or skins. They live on horse-flesh, and that of camels, either raw or a little sodden: they also eat fish dried in the sun; and their most usual beverage consists of mare's milk fermented with millet, ground to a powder. All the Men shave their heads, except a lock of hair on the top, which they suffer to grow sufficiently long to form into tresses on each side of the face; and the Women, who are blessed with few personal charms more than the Men, wear their hair, which they fillet up with bits of copper, and other similar ornaments.

The majority of these nations have no religious institutions, no settled notions of morality, nor any decency in their behaviour. They profess robbery as an art: and the natives of Dagestan, who live in a more polished vicinity, make a traffic of Tartar slaves who have been stolen, and sell them to the Turks and Persians. Their chief riches consist in horses, of which perhaps they possess more than any people in the world. They are habituated to live in the same apartments with these favourite animals; and spend so much time in training them, that at last they bring them to such amazing docility, that they seem actually to understand the very intentions of their owners.

To this extensive race of Men the Chinese and Japanese must also be referred, however different they seem in their manners and customs. It is the figure of the body that now claims our attention; and between the natives of these countries a surprizing resemblance may be observed. It is generally allowed, that the Chinese have broad faces, small eyes, flat noses, and small beards; and that they are broad and square-shouldered, and rather inferior to the Europeans in stature. These are marks which entirely correspond with those of the Tartar tribes, and they may therefore be considered as being sprung from the same origin. Chardin observes, that in all the people from the east and north of the Caspian Sea to the peninsula of Malacca, the lines of the face and the formation of the visage are the same. Hence we may conclude, that all these nations are descended from one common stock, however different

ferent either their complexions or their manners may appear: for, with regard to the complexion, that proceeds entirely from the climate and the food; and as to the manners, these are generally the result of different degrees of wealth or dominion. That they spring from one stock, is evident also from this: that the Tartars who settle in China quickly resemble the Chinese; and, on the contrary, that the Chinese who settle in Tartary, soon assume the figure and manners of the Tartars.

The Japanese are so very similar to the Chinese, that they may be regarded, without hesitation, as the same race of men: they only differ in being rather browner, because they live in a more southern climate. They are described, in general, as having brown complexions, short statures, broad flat faces, very little beards, and black hair. Their customs and ceremonies are nearly the same; their ideas of beauty are similar; and their artificial deformities of blackening the teeth, and bandaging the feet, are entirely alike in both countries. They both therefore proceed from the same stock; and though they essentially differ from their brutal progenitors, they owe their civilization wholly to the mildness of the climate in which they reside, and the peculiar fertility of the soil. To this tribe also may be referred the natives of Cochin-China, Siam, Tonquin, Aracan, Laos, and Pegu; who, though all different from the Chinese, and each other, have nevertheless such a strong resemblance, that we cannot mistake their original.

The Southern Asiatics constitute the third variety of the human race: the form of their persons and features may be easily distinguished from that of the Tartar tribes. The nations who inhabit the peninsula of India seem to be the principal stock from whence the inhabitants of the numerous islands disseminated throughout the Pacific Ocean have been peopled. All the authentic voyagers remark their general agreement in person; and particularly Captain Cook, who, though he was at a loss to account for their migrations, seemed to consider all the inhabitants of the South Pacific islands, many of which he had the glory of discovering, as undoubted descendants of the nations who inhabit the continent of India. These people are in general of a slender shape, with long straight black hair, and often aquiline noses. Thus they resemble the Europeans in stature and features; but differ greatly in colour, and habit of body. The Indians are of an olive complexion, and in the more southern parts quite black; though the word Mogul, in their language, signifies a White Man. The women, who are extremely delicate, are of an olive colour as well as the Men; their legs and thighs are long; and their bodies are short; which is opposite to what is observed among the women of Europe. They are by no means so fruitful as the European women; but they feel the pains of child-birth much less sensibly; for, the very day after parturition, they are generally employed about their usual avocations. In fact, these pains seem greatest in all countries where the women are most delicate, or the constitution enfeebled by indolence or luxury. Among all savage nations, the women are in a great measure exempt from painful labours; and even the industrious wives of peasants in our own country feel less severely than those whose rank raises them above toil and wholesome exercise. Throughout the whole continent of India, children arrive much earlier at maturity than in Europe.

They often marry and consummate, the husband at ten years of age, and the wife at eight; and they frequently procreate children at that age: however, such women as commence mothers at that early period, cease bearing before they arrive at thirty; and at that time they appear wrinkled, and exhibit every other indication of old age.

The natives of India have long been noted for their effeminacy and pusillanimity; and every adventurer, who has attempted to invade their country, has in general effected his purpose. The warmth of the climate wholly influences their manners; they are indolent, luxurious, and obsequious: fully satisfied with sensual gratifications, they derive no pleasure from thought; and, contented with slavery, are very indifferent what master they serve. Many of their tribes eat not any thing that has ever possessed life; they anxiously refrain from injuring the meanest insects; and have even erected hospitals for the maintenance of all kinds of vermin. The Asiatic dress consists of a loose flowing robe, rather adapted to the purposes of peace and indolence than of industry and war. Indeed, the vigour of the Asiatics is in general correspondent to their dress and food: they subsist on rice; they are dressed in effeminate silk vestments; and, from the time of Alexander to the present, we have had but few instances of their success in arms. They may therefore be considered as a feeble race of sensualists, too dull to find rapture in pleasures, and too indolent to convert their gravity to wisdom. To this class may be referred the Persians and Arabians, and the inhabitants of all those islands which lie scattered in the ocean.

The Negroes of Africa may be regarded as the fourth striking variety of mankind. This gloomy race of mortals is found to blacken all the southern parts of Africa, from eighteen degrees north latitude to the Cape of Good Hope. Some writers indeed have maintained, that the Caffres, who inhabit the southern extremity of that vast continent, are not to be ranked among the Negro race; however, the difference between them, in colour and features, is so minute, that they may without any impropriety be included in this general picture. Each of the Negro nations, it must be confessed, differs from another: like us, they have their peculiar countries for beauty; and different nations, as in Europe, plume themselves on the superiority of their personal attractions. Those of Guinea, for instance, are extremely ugly, and emit an almost intolerable scent; while those of Mosambique are reckoned beautiful, and are perfectly free from any disagreeable effluvia. The Negroes in general are of a black colour, with smooth soft skins; which latter quality proceeds from the downy softness of the hair that grows upon them, the strength of which gives a roughness to the feel in those of white complexions. The hair of their heads is totally different from what is usual in Europe, being soft, woolly, and short. Their beards also partake of the same qualities; but differ in this, that they soon turn grey, which the hair of their heads is seldom found to do; so that many may be seen with white beards and black hair, at one and the same time. Their eyes are generally of a deep hazel colour; their noses are flat and short; their lips are thick and tumid; and their teeth are of an ivory whiteness. The colour of their teeth indeed seems to constitute their principal beauty, it being not a little set off by that of their skin.

Some have asserted that the features of the Negroes are deformed by art; but this position is undoubtedly false, since, in Negro children born in European countries, the same deformities prevail, the like flatness of the nose, and the same prominence of the lips. They are generally clumsy and ill-shaped: the breasts of their women, after the bearing of one child, depend below their navels; and it is customary with them to suckle their infants at their backs, by throwing their breasts over their shoulders. As their persons are thus naturally deformed, according to our ideas, their minds are equally unsusceptible of noble or generous passions. The climate seems to relax their mental more than their bodily faculties: they are incapable of powerful exertions; and may be characterized as a stupid, indolent, and mischievous race. The Arabians themselves, many colonies of whom have migrated southward into the interior parts of Africa, seem to have degenerated from their ancestors; and every trace of their ancient learning and beauty being obliterated, they have become almost imperceptible from the aborigines of the country. Nor is this remark inapplicable to the Portuguese, who, about two centuries back, settled along this coast: they are become almost as black as the Negroes; and, according to some authors, are more savage and barbarous.

As the origin of black Men has at all times been an object of enquiry, it may not be altogether unentertaining in this place to adduce the different opinions of mankind with respect to this curious subject. The ancients, who knew only those of Nubia, regarded them as the last or terminating shade of the tawny colour; and confounded them with the Ethiopians, and other African nations, who, though extremely brown, are yet far removed from perfect blackness. They thought that the differences of colour among the human species proceeded solely from the varieties of climate, and that blackness was occasioned by a perpetual exposure to the scorching rays of a tropical sun. But this opinion, though very specious, was much weakened after it was discovered that the inhabitants of more southerly climates, and even under the equator itself, as those of Melinda and Mosambique, were not black, but rather tawny; and when it was farther discovered that blacks, when transported into more temperate climates, lost nothing of their original hue, but communicated it to their descendants. However, if we attend to the migrations of different people, and to the time necessary for effecting a change in their colour, we shall perhaps find the opinion of the ancients to have been well founded. Many ages are probably necessary to change the white colour into perfect blackness; but it is probable that, in a succession of generations, white people transported from the north to the equator would undergo this change, especially if they adopted the manners, and accustomed themselves to the food, of the new country.

Indeed, it is evident that the existence of Negroes is confined to those districts of the earth where all the necessary circumstances concur in producing a constant and excessive heat: this heat is so essential, not only to the production, but even to the preservation of Negroes, that it has been remarked in the West India islands, where the heat, though great, is not equal to that of Senegal, that Negro infants are so liable to be affected by impressions from the air, that their pro-

prietors are obliged, for the first nine days after birth, to keep them in close warm chambers; and, if these precautions are neglected, the children thus exposed to the air immediately after birth are commonly affected with a tetanus, or locked jaw, which seldom fails to prove fatal. M. Littré, who dissected a Negro, remarked, that the end of the glans, which was not covered with the prepuce, was black; and that the part of it which was covered, was perfectly white. This observation demonstrates, that air is necessary to produce the blackness of Negroes. Their children are born white, or rather red, like those of other persons: but, two or three days after birth, their colour changes into a yellowish tawny, which becomes gradually darker till the seventh or eighth day, when they grow totally black. It is a well known fact, that all children, two or three days after birth, are affected with a kind of jaundice, which among white people soon passes off without leaving any impression: but, on the contrary, in Negroes, it gives an indelible tinge to the skin, which becomes always more and more black. Kolbe remarks, that he has seen Hottentot children, who came into the world as white as European, become olive-coloured in consequence of this jaundice, which spreads over the skin three or four days after birth, and never goes off. This jaundice, and the impression of the air, however, are only the secondary, and not the primary causes of blackness; for it has been observed, that the children of Negroes, as soon as born, have black genitals, and black spots at the roots of their nails. The action of the air and the jaundice may perhaps help to expand this colour; but it is certain that the rudiments of blackness are communicated to them by their parents; that in whatever quarter of the world a Negro is brought forth, he will be equally black as if he had been born in his own country; and that if there be any difference in the first generation, it is so small as scarcely to be perceptible. However, this fact does not imply that the colour will continue the same after many successive generations: on the contrary, there are many reasons for presuming, that as this colour is originally the effect of a long continued heat, it will be gradually effaced by the temperature of a cold climate; and consequently, that if a colony of Negroes were transplanted into a northern province, their descendants of the tenth, eleventh, or even twelfth generation, would be much fairer, and perhaps as white as the aborigines of that climate.

Anatomists have investigated the seat of this black colour. Some of them alledge, that it neither resides in the skin, nor the scarf-skin, but in the cellular membrane between them; that this membrane, after long maceration in hot water, retains it's original blackness; but that the skin and scarf-skin appear to be as white as those of other Men. Dr. Town, and some others, have maintained that the blood of Negroes is black, and that their blackness originates entirely from this circumstance. Buffon seems inclined to believe this reasoning; having observed that, among Europeans, the blood of those persons who have tawny, yellowish, or brown complexions, is blacker than that of such as are fairer. Barrere, who seems to have examined this subject very minutely, tells us, and Winslow agrees with him, that the scarf-skin of negroes is black; and though it's extreme thinness and transparency may give it a white appearance,

pearance, that it is really as black as the blackest horn, when reduced to the same degree of thinness. These accurate authors also assure us, that the skins of Negroes are of a reddish brown colour, approaching to black: this colour of Negroes, if we may credit Barrere, is produced by their bile, which he affirms, from several dissections he made in New France, instead of being yellow, is as black as ink. The bile, when absorbed and dispersed through the body, tinges the skin of white people yellow; and, if it were black, it would probably produce a black colour. But, with respect to us, as soon as the effusion of the bile ceases, the skin resumes its natural whiteness. We must therefore suppose that the bile of Negroes is perpetually effused; or, as Barrere alleges, that it is so abundant, as to be naturally secreted in the scarf-skin, and to tinge it of a black colour. On the whole, it seems probable that both the bile and the blood of Negroes are browner than those of white people, as their skins are likewise blacker. But one of those facts cannot be admitted to prove the cause of the other; for if the blackness of the blood or bile be allowed to give the same colour to the skin, then, instead of demanding why the skin of Negroes is black, we ought to enquire why their blood or their bile is of that colour? This species of false reasoning, in place of solving the question, renders it still more intricate. It appears, therefore, that the heat of the climate, and the exposure to fervid air, are the chief causes of blackness among the human species. When this heat is excessive, as in Senegal and Guinea, the Men are perfectly black; when it is somewhat less violent, the blackness is not so deep; when it becomes more temperate, the Men are only brown; and, lastly, when it is altogether temperate, the inhabitants are white; but when the cold becomes extreme, it produces effects similar to those of violent heat.

The original inhabitants of America compose a fifth race, differing as much from all the rest in colour as they are distinct in habitation. The natives of America (except in the northern extremity, where they resemble the Laplanders) are of a reddish copper-colour; and though, in the old world, different climates produce a variety of complexions and customs, the natives of the new continent seem to resemble each other in every essential respect: they are all nearly of one colour; all have black, thick, straight hair; and thin black beards, which however they take care to pluck out by the roots. They have in general flat noses, high cheek-bones, and small eyes. These deformities of nature they endeavour to increase by art: they flatten the noses, and often the whole heads, of their children, while the bones are yet tender, and susceptible of every impression. Their bodies and faces they paint of various colours; hair on any part of them, except their heads, is considered as a deformity, which they are careful to eradicate; and their limbs are generally more slender, as well as far less strong, than those of Europeans.

All these savages appear to be naturally pusillanimous; they are seldom known to face their enemies in the field, but fall on them unawares; and the violence of their fears serves to increase the rigours of their cruelty. Habituated to want, they are amazingly patient in adversity: distress, by becoming familiar, seems less terrible to them; so that their patience originates rather from cus-

tom than fortitude. They all carry a serious and grave air, though without mental application; and, in proportion as they are cruel to their enemies, they are benevolent and equitable to each other. In all their actions, they seem to have adopted this maxim, that—

‘ A generous friendship no cold medium knows;
But with one love, or one resentment, glows.’

In short, the customs of savage nations are almost every where the same; a wild, independent, and precarious life, produces a peculiar assemblage of virtues and vices: hence patience and hospitality, indolence and rapacity, content and sincerity, are not less frequent among the savages of America, than among all other barbarous nations that inhabit the terraqueous globe.

The sixth and last grand division of human beings comprehends the Europeans, and those nations which border on Europe. In this class we may reckon the Georgians, Circassians, and Mingrelians; the natives of Asia Minor, and the northern parts of Africa; together with a part of those countries which lie north-west of the Caspian Sea. The inhabitants of these regions vary a good deal from each other; but they generally agree in the colour of their bodies, the fairness of their complexions, the largeness of their limbs, and the strength of their mental faculties. Some arts indeed have been invented among other nations, but here they have been brought to perfection: nor are the natives of the climates now under consideration more distinguished for personal beauty, than for their progress in the arts and sciences, the elegancies of life, and politeness of behaviour.

In barbarous countries, the inhabitants go either naked, or are awkwardly clothed in furs, or adorned with feathers; in countries semi-barbarous, the robes are loose and flowing; but here the dress is less adapted for show than expedition: it is extremely convenient, and at the same time unites every necessary ornament.

To some one of the classes already enumerated we may refer the people of every country; and in proportion as nations have been less visited by strangers, or have enjoyed less intercourse with the rest of mankind, we find their persons and manners more strongly impressed with some one of the characters before mentioned. On the contrary, in those places where trade has long flourished, or where enemies have made many incursions, the races are usually found blended, and probably fall under no particular variety: thus, in the islands of the Indian Ocean, where commerce has been carried on time immemorial, the inhabitants seem to be a mixture of all the nations on earth; white, olive, brown, and black Men, are all huddled together in the same city, and propagate a mixed breed, that can be referred to none of those classes into which naturalists have thought proper to arrange mankind.

It is easy to perceive that, of all the colours by which mankind is diversified, white is not only the most beautiful to the eye, but also the most advantageous. The fair complexion, if it may be so termed, seems like a transparent covering to the soul; all the variations of the passions, every expression of joy or sorrow, animates the countenance, and, without language, indicates the state of the mind. In the slightest change of health also, the colour of the European face is the most exact index, and often forewarns us of those disorders which we do not yet perceive: not but that

the African black, and the Asiatic olive complexions, admit of their alterations also; but these are neither so distinct, nor so visible, as with us; and, in some countries, the colour of the visage is never found to change, but the face continues in the same settled shade in shame, sickness, rage, and desperation. The colour therefore most natural to Man ought to be that which is most becoming. It is observed that, in all regions, children are born fair, or red at least; and that they grow more black or tawny in proportion as they advance in years: it should consequently seem, that Man is naturally white; since the same causes that darken infants, may have originally operated, in slower degrees, in blackening whole nations.

We have already accounted for the diversity of colour perceptible in the human race; and shall now make a few observations on the stature of different nations. The primary cause of this seems chiefly to result from the nature of the food, and the quantity of the supply; however, the severity of heat or cold may in some measure diminish the growth, and produce a dwarfishness of size. But, in general, food is the great agent in producing this effect: where that is supplied in large quantities, and where it's quality is wholesome and nutrimental, the inhabitants are generally found above the ordinary stature; on the contrary, where it is supplied in a sparing quantity, or very coarse in quality, and void of nourishment, the inhabitants degenerate, and sink below the common size of mankind. In this respect the human race resemble other animals, whose bodies, by proper feeding, may be considerably improved and augmented. An ox, on the fertile plains of India, grows to a size four times as large as the diminutive animal of the same kind bred on the arid and barren Alps; and horses bred in champaign countries are larger than those reared in mountainous situations. Thus it is with Man. The inhabitants of the vallies are usually taller than those of the hills. The natives of the Highlands of Scotland are short, broad, and hardy; while those of the Lowlands are tall and well-shaped. The inhabitants of Greenland, who live on dried fish and seals, are less than those of Gambia and Senegal, where nature supplies them with vegetables and animal food in the fullest luxuriance.

With regard to the form of the face, it seems rather to be the result of custom than nature. Nations who have long considered some artificial deformity as beautiful, who have industriously diminished the size of the feet, or flattened the nose, by degrees begin to receive the impression they are taught to assume; and nature, in a course of ages, shapes itself to the constraint, and assumes hereditary deformity. It is common enough for children to inherit even the accidental deformities of their parents; and we have frequent instances of squinting in fathers, which they received either from frights or habit, communicated to their offspring. In this manner casual deformities may become natural ones; and, by assiduity, be continued, and even increased, through successive generations. From this cause probably may have arisen the small eyes and long ears of the Tartars and Chinese nations; and from hence may have originated the flat noses of the blacks, and the flat heads of the American Indians.

This cursory survey of mankind may be sufficient to prove that all the variations in the human figure, as far as they differ from our own, are pro-

duced either by the rigour of the climate, the bad quality or the scantiness of the provisions, or by the savage manners of the country. They are actual marks of the degeneracy in the human form; and we may consider the European figure and colour as standards to which all other varieties may be referred, and with which they may be compared. In proportion as the Tartar or American approaches nearer to European beauty, we consider the race as less degenerated; and in proportion as he differs more widely, he may be regarded as having made greater deviations from his original form.

Reason and revelation equally incline us to believe that we have all sprung from one common Parent; and we have good reason also to conclude, that the Europeans resemble him more than any of the rest of his descendants. However, it must not be concealed, that the olive-coloured Asiatic, and even the jetty black Negro, claim this honour of hereditary resemblance, and assert that white Men are mere deviations from original perfection. Singular as this opinion may appear, they have that celebrated naturalist Linnæus on their side, who supposes Man a native of the tropical climates, and only a sojourner more to the north. But, to waive a controversy on a matter of remote speculation, one argument may suffice to prove the contrary, and to shew that the white Man is the original stock from whence the other varieties have sprung. It is not uncommon to see white children produced from black parents; but a black offspring has never been known to be the production of two whites. Hence we may conclude, that whiteness is the colour to which mankind naturally tends: for as, in some flowers, the parent stock is distinguishable by all the artificial varieties breaking into it; so, in Man, that colour must be the original which never alters, and to which all the rest are accidentally seen to change.

MAN OF THE WOOD. See APE, GREAT.

MAN OF WAR BIRD; the Pelicanus Aquilus of Linnæus. This bird is about thirty-six inches long from the tip of the bill to the extremity of the tail; and the expansion of the wings is upwards of six feet. The tail is forked; and it's outside feathers are thirteen inches long. The bill has two channels running the whole length of the upper mandible; it is of a reddish colour, and widens towards the base to the breadth of two inches. The whole bird, except the throat and breast, is of a ferruginous or blackish colour; the belly, the insides of the wings, and the under-side of the tail, being somewhat lighter than the rest. On the breast appears a white bed of feathers of a cordiform shape, the point tending to the throat, and the two obtuse angles passing under the wings. The tail is composed of ten feathers, the two middlemost being shorter by one-half than the exterior ones. The legs are feathered to the knees, and short in proportion to the size of the bird; the four toes are all united by webs, as in the pelican, the cormorant, and other birds of a similar genus; and the legs and feet are of a dirty yellowish colour.

This bird is a native of the warmer climates only, where it is found at sea, at a great distance from land. It seems to be the Rabchorçado of Willughby, or the Indian forked-tail. Du Tertre describes it under the name of La Fregate; so called from it's long flights, and obstinate contests with other marine birds.

MANAKIN, BLUE-BACKED. A curious little

little bird found in Surinam, the *Pipra* of Linnæus. The bill is of a dark brown colour, blackish at the point; the feathers round the base of the upper mandible of the bill are black; the crown of the head, from eye to eye, is covered with fine red or scarlet feathers of a longish make, which it can erect in the form of a crest; the back is of a fine blue colour; and all the remaining plumage is black, with a shining gloss. The legs and feet are dusky, except the outer sides of the legs, which are yellow; the exterior and middle toes are connected at their bottoms; and the tail consists of twelve feathers.

MANAKIN, RED AND BLACK. This bird has a whitish bill: the whole head, neck, breast, and part of the belly and thighs, are of a fine scarlet or red colour; the back, wings, and tail, are black, with a purplish gloss; the lower belly, and the covert-feathers under the tail, are of a dusky black hue; and the legs and feet are a reddish brown. The inner covert-feathers of the wings, and the inner webs of the quills toward their bottoms, are of a pale orange-colour.

MANAKIN, COCK, PURPLE-BREASTED; the *Ampelis Cotinga* of Linnæus. This very beautiful bird, which is a native of Brazil and Terra Firma, has a short bill in proportion to its size, of a black colour, the point of the upper mandible projecting a little over the lower. The head, the hinder part of the neck, the back, the lesser coverts on the upper sides of the wings, the rump, and the covert-feathers both above and beneath the tail, are of a fine blue colour; the quills, and the row of coverts above them without-side, are black, slightly edged with blue; and the inner coverts of the wings are black, edged with greenish blue. The tail is composed of twelve feathers of equal lengths, black above, the exterior feathers being slightly edged with blue; and both the tail and the quill-feathers are dusky beneath. The throat, the fore-part of the neck, and the middle of the belly, are of a dark purple colour, beautifully marked with circular scarlet spots. A blue belt crosses the breast, and immediately below it there is a scarlet one. The sides under the wings, the thighs, and the lower belly, are of a fine blue colour. The legs and feet are blackish; and the outer toes adhere a little at their bottoms to the middle ones.

MANAKIN, WHITE-FACED. This bird is a native of Guiana and Terra Firma in South America. The bill is straight, sharp-pointed, and black; the crown of the head, the throat, and the fore-part of the head all round the bill, are white; and the feathers on the crown are long, narrow, and pointed, forming a crest when erect. From the hinder part of the head, behind the eyes, and round the throat, is extended a black or dusky broken line, encircling all the white space on the head and throat; part of the neck behind, the upper part of the back, and the wings externally, are of a dark blueish ash-colour; the inner coverts of the wings are cinnamon-coloured; and the quills beneath are cinereous. The hinder part of the head, the fore-part of the neck, the breast, belly, rump, tail on both sides, and covert-feathers both above and beneath it, are of a bright cinnamon colour. The legs and feet are of a light reddish yellow hue; the claws are dusky; the feathers above the knees are also dusky; and the outer and middle toes adhere to each other almost to the claws.

MANATUS, or SEA-COW. A genus of

animals having pinniform fore-legs, and the hind parts terminating in a tail horizontally flat.

MANATUS, COMMON. This animal, in nature, very nearly approaches the whale. Like that creature, it brings forth in the water, and suckles its young in that element. Like the whale, it is destitute of any mode of expressing its pleasure or its pain; and, like that animal, has an horizontal broad tail, without even the rudiments of hind feet. Indeed, what obtain the name of feet, are little more than fins, adapted for swimming: they are never used to assist the animal either in walking or landing; for it never goes ashore; nor, like the seal, attempts to climb rocks.

The *Manatus* somewhat resembles the seal in the shape of its head and body. The fore-legs, or hands, are short and webbed, much in the same manner with those of that animal; but have only four claws, and these too are proportionably shorter than those of the seal, and placed nearer the head; consequently, they are not adapted to assist its motions on land: but, in the hinder parts, it essentially differs from all animals of the seal kind; the tail being perfectly that of a fish, and expanded like a fan, without even the vestiges of those bones which form the legs and feet of the seal kind.

This animal grows to an enormous size; and Dampier asserts, that some are twenty-eight feet long, and weigh about eight thousand pounds. The skin is of a blackish colour, very tough and hard, and full of inequalities, like the bark of an oak; and on it are sprinkled a few bristly hairs, about an inch in length. The eyes are exceedingly small in proportion to the magnitude of the animal. It has no external ears, but only two orifices, scarcely large enough to admit a quill; the tongue is pointed, and extremely small; the mouth is destitute of teeth, but furnished with two solid white bones, extending the entire length of both jaws, which serve instead of grinders; the lips are double; and near the junction of the two jaws, the mouth is full of white tubular bristles, answering the same purpose as the laminæ in whales, to prevent the food from issuing out with the water. The lips are also thick-set with bristles, serving, instead of teeth, to cut the strong roots of the marine plants, which floating ashore, point out the vicinity of these animals.

The female produces but one at a time, which she grasps in her paws, and holds to her breast, where it sticks close, and accompanies her wherever she goes.

The *Manatus* can scarcely be called amphibious, as it never entirely leaves the water, only raising its head out of the stream in order to reach the grass on its margin. It subsists entirely on vegetables; and therefore never ventures far into the open sea, but frequents the edges of the shores; and chiefly the large rivers of South America, where it is often seen above two thousand miles from the ocean. It is also found in the seas of Kamtschatka, where it feeds, in a similar manner, on such weeds as grow near the shore. At the bottoms of some of the Indian bays, these animals are seen innocently grazing among turtles, and other crustaceous fishes, neither offering nor apprehending any insult. In calm weather, when unmolested, they keep together in large companies near the mouths of rivers; and, during floods, they approach so close to the land, as even to suffer themselves to be stroked with the hand.

These animals associate in small families, consisting

sisting of a male, a female, a half-grown young one, and a very small one; one family keeping at a small distance from another. The females oblige their young to swim before them, while the other old ones surround, and guard them on every side. The affection between the male and the female is so strong, that if the latter should happen to be attacked, the former will defend her to the utmost; and, if she is killed, he attends her body to the shore, and for several days successively continues to swim about the place where she was landed.

The Manatus brings forth in autumn, and is supposed to go with young about a year. It has neither voice nor cry, and makes no kind of noise except what proceeds from breathing. Its internal parts resemble those of the horse; its guts being longer than those of any other animal, the horse only excepted.

These creatures are extremely voracious; and, when their hunger is appeased, they fall asleep on their backs. Martyr informs us, that one of them lived in a lake of Hispaniola twenty-five years; was so very tame as to come to the margin on being called; and would even ferry people over on its back to the opposite shore. The backs and sides of these creatures are usually above water; and as their skins are covered with a species of lice peculiar to themselves, great numbers of sea-gulls continually perch on their backs, and pick up the insects.

These animals remain in the American and Kamtschatkan seas during the whole year; but are so exceedingly lean in winter, that it is an easy matter to count the number of their ribs. They are usually taken by means of harpoons; but, after being struck, the united efforts of thirty men are required in order to draw one of them ashore. Sometimes, after they have been transfixed, they will fasten their paws on the rocks, and adhere so closely, as to leave their skins behind them before they can be disengaged. Whenever one of them is struck, its companions repair to its assistance: some of them endeavour to overturn the boat, by getting under it; others to break the rope, by pressing it down; and some strike at the harpoon with their tails, in order to force it out, and this expedient sometimes proves successful.

When exposed to the sun, the fat or blubber of the Manatus, which lies under the skin, has a most delicious smell and taste, and is infinitely preferable to the fat of any other sea animal: it has also this peculiar property, that the heat of the sun will not render it rancid, nor in the least injure it. In taste, it resembles oil of almonds; and, in all cases where butter is used, it is a most excellent substitute: any quantity of it may be eaten without the smallest injury to health, as it has no other effect than that of keeping the body open. The fat of the tail is of a firmer and harder consistence; and, when boiled, is even more delicate than the former. The flesh is redder and coarser than beef; and may be kept several days, in the warmest weather, without putrifying: it requires a considerable time in boiling, and afterwards tastes like common beef. The fat of young ones possesses the flavour of pork, and the lean resembles veal. Some are of opinion that the flesh of the Manatus resembles that of a turtle; which indeed may be very probable, since both animals are found in the same element, and subsist on the like food.

There is another variety of this animal, the

Trichechus Manatus of Linnæus, principally found in fresh-water rivers, though sometimes on the sea-coasts. A specimen of this creature, in the Leverian Museum, is six feet and a half long; and its greatest circumference is three feet eight inches: but Dampier measured several in the West Indies, which were ten or twelve feet long, and four or five feet in circumference; Clusius examined one which was sixteen feet long; and Gomora asserts, that some of them measure twenty feet.

This species chiefly differs from the former in having a round tail; whereas the other is whale-tailed. That singular animal called the Sea-ape seems also to be a variety of this genus. See APE, SEA.

MANBALLA. The Ceylonese name of a species of serpent; called also the canine or dog-serpent, from its manner of flying at every thing that comes in its way, after the manner of English dogs. It is of a deep brown colour, beautifully variegated with white.

MANDRIL. A species of baboon or monkey.

MANGABEY. The White-eyed Monkey, described by Buffon.

MANGO-FISH; the *Polynemus Paradisæus* of Linnæus. This fish is entirely of an orange or gold colour, somewhat resembling the tinge of the golden ones of China. From the under-side of the gills, on each side, shoot forth seven stiff hairy substances, the uppermost being sixteen inches long, from which they gradually shorten to two inches: above these, on each side, there is a pretty long sharp fin; and at the beginning of the belly, exactly below the gills, there is another pair of fins. A single fin appears on the belly, below the vent; and on the back there are two single fins. The tail is much forked; and a fine oblique line passes over its scales, on each side, from head to tail. The fins and tail are somewhat darker than the rest of the body. The Mango-Fish, first described by Edwards, is a native of the Oriental seas.

MANGOUSTE. An animal so called by Buffon. See *ICHNEUMON*.

MANICOU. See *OPOSSUM*.

MANIS. In the Linnæan system, a genus of brutes, in the class of mammalia, having no teeth, a taper extensible tongue, the mouth narrowed to the snout, and the body covered with scales. There are two species; one with five, and the other with four toes, on the feet.

MANIS, LONG-TAILED; the *Manis Tetradactyla* of Linnæus, and the *Phatagin* of Buffon. The back, sides, and upper part of the tail, of this animal, are covered with large strong scales. The mouth is small, and destitute of teeth; the tongue is long; the nose is slender; and the head is smooth. The body, legs, and tail, are guarded by large sharp-pointed striated scales; and the throat and belly are covered with hair. The legs are short; there are four claws on each foot, one of which is very small; and the tail is a little taper, but blunted at the extremity. This creature is peculiarly distinguished by its tail, that is considerably more than twice the length of its body, which does not exceed fifteen inches; the tail being at least three feet four inches long. It is a native of Africa, and the warm eastern latitudes; and approaches so nearly to the genus of lizards, as to appear to form a link of the chain of beings which connects the proper quadrupeds with the reptile

reptile class. These animals not being very numerous, it is imagined their fecundity is very confined.

MANIS, SHORT-TAILED; the Manis Pentadactyla of Linnæus, and the Pangolin of Buffon. This animal, which is a native of the torrid climates of the ancient continent, is of all others the best protected by nature from external injury. The body is three feet long; and the tail is about the same length. Like the lizard, it has a small head, but no teeth; a long nose, a thick neck, a long body and tail, short legs, five toes on each foot, and ears resembling those of the human species. But the principal distinction of this animal is the scaly covering which defends it in all parts, except under the shoulders, the lower part of the head and neck, the breast, the belly, and the inner side of the legs; these being covered with a smooth soft skin. At all the interstices between the shells of this extraordinary creature strong bristly hairs are perceptible, yellowish towards their roots, and brown at their extremities. The scales are of different sizes, and appear as if stuck on the body somewhat like the leaves of an artichoke, the largest being always towards the tail: the substance of these scales resembles horn; and they are externally convex, and internally concave.

After the Manis has acquired its full growth, it is said that these scales will resist a musket-ball: it has therefore nothing to apprehend from the efforts of any creature but man. On any approaching danger, it rolls itself up, like the hedge-hog, presenting nothing to the assailant but the sharp edges of its scales. The length of the tail, which might be thought easily separable, increases the creature's security, by being wrapped round the rest of its body. The shells are so thick and pointed, that they repel every animal of prey; serving as a coat of armour, that wounds while it resists. In vain do the tiger, the leopard, the panther, and the hyæna, attempt to force it; in vain they tread it under foot, and roll it about with their paws; the Manis remains perfectly secure within, while its invaders suffer for their temerity. Man alone seems furnished with arms to compel it to surrender: and accordingly the negroes, who consider its flesh as a very great delicacy, beat it to death with very large clubs.

But though formidable in its appearance, there cannot be a more inoffensive animal than the Manis or Pangolin. Were it disposed to injure larger animals, nature has rendered it incapable, by denying it teeth: the bony matter which supplies the teeth of other animals, is probably exhausted in this, in supplying the scales that cover its body; but as it subsists entirely on insects, nature has fitted it for that purpose in a very extraordinary manner. Having a long nose, it may naturally be supposed to have a long tongue also; but, in order to add to its length, it is doubled in its mouth, which enables the animal to extend it many inches beyond the tip of the nose: this tongue is round, very red, and covered with an unctuous liquor, which gives it a shining hue. As ants are the insects on which the Manis chiefly feeds, when it approaches an ant-hill, it lies down near it, concealing its retreat as much as possible; and, stretching out its long tongue among the ants, keeps it for some time motionless. These insects, allured by the slimy substance with which it is smeared, immediately flock to it in great numbers; and when the Manis supposes it has

got a sufficiency, it withdraws its tongue, and swallows myriads of them at a gulp. As all the force and cunning of this animal is exerted against these noxious insects, it is extraordinary that the negroes should be so eager to kill it; but as these savages pursue their immediate good without being solicitous about future consequences, they therefore hunt this creature, for the sake of its flesh, with the utmost avidity.

The Manis chiefly inhabits the most obscure parts of the forest, and digs itself a retreat in the cleft of some rock, where it brings forth its young. It is a solitary species, and very rarely to be met with. It has no particular cry, but sometimes makes a kind of snorting noise.

MANONOETOC. An appellation given by the natives of the Philippine Islands to a species of horned owl common in those climates.

MANTIGER, sometimes called the Tufted Ape. This animal, which is very fierce and falacious, will sit on its rump, and support itself with a stick; and in this attitude will hold a cup, and drink out of it. The nose and head are fourteen inches long, the former being of a deep red-colour; the face is blue, and naked; the eye-brows are black; and the ears resemble those of the human race. The top of the head is ornamented with an erect tuft of hair, and on the chin is another; there are two long tusks in the upper jaw; the fore-feet resemble hands; the nails on the fingers are flat; the thumb of the hind-feet is less perfect; and the nails are imbricated. The fore-part of the body, and the inside of the legs and arms, is naked; the outside is covered with mottled brown and olive hair; that on the back is dusky; the buttocks are red and bare; and the length of the animal, from the nose to the rump, is three feet and upwards. It subsists wholly on fruit and vegetables.

MANTICHORA. A name given by the ancient Roman authors to a fierce and terrible creature, the knowledge of which they borrowed from the Greeks. We have formed the word Mantiger on the sound of the Roman appellation, though expressing a very different sense; and some of our zoologists figure to us, under this denomination, a terrible creature, partly from the accounts of Pliny exaggerated, and partly from their own imaginations, with three rows of teeth, and such a figure as no animal ever possessed.

The whole history of this animal seems to originate from the love of the wonderful; and very probably the Mantichora, properly speaking, was no other than one of the larger hyænas, which being at first imperfectly described, fiction was added to supply the deficiency, and at last even the shadow of truth was lost.

MANTLE, DUCAL. A kind of shell. See **DUCAL MANTLE.**

MANUCMANUC. A Philippine appellation for a beautiful species of parrot frequently found wild in the woods of that country. It is about the size of the common parrot, and delightfully variegated with different colours.

MANUCODIATA. A name by which some express the birds of paradise.

MARACANA. A Brazilian bird of the parrot kind, but larger than the common species. It is entirely covered with blueish-coloured feathers, and is a very common species. Marcgrave, who first mentioned this bird, gives us no other description of it except that it is very fond of fruits.

MARACANA

MARACANA ARARA. A Brazilian bird of the macaw kind, and about the size of the common parrot. It has a long tail like the macaw, and a black bill of the same shape. The skin about the eyes is white, and spotted with black feathers; the head, neck, and wings, are of a deep green hue; but the top of the head is of a more faint green, somewhat inclining to blueish. The wings and tail are green above, and blue below, with dark blue extremities; and at the rife of each wing there is a red spot, with another above the base of the bill.

MARE. The female of the horse kind. See **HORSE.**

MARECA. A Brazilian species of duck, much valued for it's flesh. It is shaped like the common European duck: the head is grey; but on each side there is a beautiful red spot, at the insertion of the beak, and a whiteness on the lower part under the eyes. The breast and belly are cinereous, variegated with black spots; the legs and feet are black; the tail is grey; and the wings are elegantly variegated with grey and brown, but in their centres is a large mixture of that glossy green perceptible on the necks of common drakes.

There is another species of the Mareca, of a dusky olive brown colour on the back, white on the throat, and grey on the breast and belly; but it is more particularly distinguished by the fine bright red colour of it's feet.

MARENA. A fish of the harengiform kind, approaching nearly to the nature of the common pilchard; but differing from it in being destitute of the serrated longitudinal line under the belly; and that it lives in lakes, not in the ocean. It seldom exceeds five inches in length: it's back is blackish; it's sides are white and silvery; and it's scales are very loose, and easily separated from it's body. It's flesh is well-tasted, and extremely firm.

MARIKINA. An appellation given to a species of monkey, having a mane round it's neck, and a tuft of hair at the extremity of it's tail, like a lion.

MARIS. A name used by Pliny, and other ancient Roman writers, to express a large fish allied to the accipenser or sturgeon. From the descriptions of these authors, there is great reason to believe that it was the fish called *Huso*, or *Ichthyocolla*, by the moderns, of which isinglass is made. Artedi makes this a species of the accipenser or sturgeon, and distinguishes it by the appellation of the *Accipenser* without tubercles.

MARIS. A name given by some ichthyologists to a fish commonly called *Sonaris*; and by some *Leucomenides*, from it's whitish colour, and external resemblance to the fish called *Mænis* and *Mæna*. Like the last-mentioned fish, it is a species of *sparus*; and is distinguished by having a black spot on each side, and the tail and belly-fins red.

MARITACACA. An appellation sometimes used to express the animal more commonly known by that of the opossum.

MARMOSE. An animal described by Buffon, greatly resembling the opossum. In fact, it principally differs in size, being considerably less; and instead of a bag to receive it's offspring, it has only two longitudinal folds near the thighs, within which the young, which are prematurely brought forth, continue to suckle: these, when first produced, do not exceed the size of a bean;

but continue sticking to the teat till they have arrived at greater maturity.

MARMOT FISH. See **FALX.**

MARMOTTE; the *Mus Marmotta* of Linnaeus. This animal is almost as large as a hare; but is as corpulent as a cat, and has shorter legs. It's head somewhat resembles that of the hare, except that it's ears are much shorter, and almost concealed by the fur. The body is clothed with very long hair; beneath which there is a fine short fur, of different colours, generally brownish ash mixed with tawny; and the legs and the lower parts of the body are reddish. This animal has four toes before, and five behind; the length of the body, from the nose to the tail, is about sixteen inches; and the tail, which is tufted and well furnished with hair, is about six inches long.

The Marmotte is chiefly a native of the Alps, though it inhabits Poland, the Ukraine, and Chinese Tartary. When taken young, it is tamed more easily than other wild animals, and almost as perfectly as any of those which we call domestic. It is taught to dance with facility, to wield a cudgel, and to obey the voice of it's master. Like the cat, it has a natural antipathy to dogs; and, when it is accustomed to the family, and can rely on it's master's assistance, it attacks even the largest mastiffs. From it's squat, muscular shape, it unites great strength with great agility. It has four large cutting-teeth, like all animals of the hare kind; but it uses them to far greater advantage, since, in the Marmotte, they are very formidable weapons of defence. However, it is in general a very harmless, inoffensive animal; and, except in it's enmity to dogs, seems to live in friendship with every creature when unprovoked. If proper care is not taken, it is very apt to gnaw household furniture, and even to perforate wooden partitions; from which circumstance, perhaps, it has been compared to the rat. As it's legs are very short, and formed somewhat like those of the bear, it often sits up, and even walks on it's hind-legs; but with it's fore-paws it feeds itself after the manner of a squirrel. Like all animals of the hare kind, it runs most swiftly up hill: it also climbs trees with great ease; and ascends the cliffs of rocks, or the contiguous walls of houses. It is ludicrously said of the Savoyards, who are the only chimney-sweepers of Paris, that they have acquired this art from the Marmotte, which is bred in the same country.

These animals indiscriminately feed on whatever is presented to them; flesh, bread, fruits, herbs, roots, pulse, and insects; but they are particularly fond of milk and butter. Though less inclined to petty thefts than cats, they are nevertheless watchful in finding admission to dairies, where they lap the milk after the manner of cats, purring all the while like these animals, as expressive of satisfaction. Indeed, milk is their only beverage in a domestic state; they seldom drink water; and absolutely refuse wine. When pleased or caressed, they often yelp like puppies; but, when irritated or frightened, they emit a piercing kind of note, extremely grating to the ear. They are very cleanly; and, like cats, retire on necessary occasions; but their bodies have a disagreeable smell, particularly during the heats of summer: this communicates a tincture to their flesh, which being very fat and firm, would be desirable food, did not this flavour always predominate.

Hitherto

Hitherto we have only described affections in this animal which it enjoys in common with many: but shall now particularize one which distinguishes it from all others of this kind, and indeed from every other quadruped except the bat and the dormouse; namely, that of sleeping during the winter. The Marmotte, though a native of the highest mountains, and where the snow is never wholly dissolved, nevertheless seems to feel the influence of the cold more than any other animal, and has all its faculties as it were chilled up in the brumal season. This extraordinary suspension of life and motion, for more than half the year, deserves our admiration; and excites our attention to consider the manner of such a temporary death, and the subsequent revival.

The Marmotte, usually about the end of September or beginning of October, sets itself to prepare its habitation for the winter, from which it is never seen to issue till about the beginning or middle of April. This animal's little retreat, which is formed with great precaution, and fitted up with abundant art, is a hole on the side of a mountain, extremely deep, with a spacious apartment at the bottom, somewhat longer than broad; in which several Marmottes can reside at the same time, without injuring each other, or tainting the air they breathe. The feet and claws of this animal seem formed for digging; and, in fact, it burrows into the ground with amazing facility, scraping up the earth like a rabbit, and throwing back what it has thus loosened behind it. But the form of its hole is still more wonderful: it resembles the letter Y; the two branches being two openings, which conduct into one channel, terminating in the general apartment, that lies at the bottom. As the hole is made on the declivity of a mountain, there is no part of it level but the apartment at the end. One of the branches or openings issues out, sloping downwards; and this serves as a kind of sink or drain to the whole family, where they deposit their excrements, and where the moisture of the place is drawn away. On the contrary, the other branch slopes upwards; and this serves as the means of ingress and egress. The apartment at the end is very warmly lined with moss and hay, of both which ample provision is laid in during the summer. This being a work of great labour, it is undertaken in concert: some cut the finest grass, others gather it, and others take their turns in dragging it into the hole. On this occasion, we are told, one of them lies on its back, permits the hay to be heaped on its belly, and keeps its paws upright, in order to allow greater room; and in this manner, lying still on its back, it is dragged by the tail, hay and all, to the common retreat. Some assign this as a reason why the hair is generally worn away on their backs, as is usually the case: however, a better reason may be assigned, viz. from their continually rooting up holes, and passing through narrow openings. Be this as it may, certain it is that they all live together, and work in common, to render their habitation as convenient as possible: in it they pass about three-quarters of their lives; into it they retire on the approach of a storm; in it they continue while it rains; there they remain while apprehensive of danger; never stir out, except in fine weather; nor ever venture far from home, even in the most agreeable seasons. Whenever they go abroad, one of them is placed as a centinel, sitting on a lofty rock; while the rest

amuse themselves in playing along the green fields, or are employed in cutting grass, and making hay for their winter's convenience. Whenever any enemy, as a man, a dog, or a bird of prey, approaches, the trusty centinel apprizes its companions by a kind of whistle; on which they all make homeward, the centinel himself bringing up the rear.

But it must not be supposed that this hay is designed for the food of these animals: on the contrary, it is always found in as great plenty in their holes at the end as at the beginning of winter; and is only sought for the convenience of their lodging, and the advantages of their young. As to provision, they seem kindly apprized by nature that, during the winter, they shall not want any; so that they make no preparations for food, though so diligently employed in fitting up their abode. As soon as they perceive the first approaches of winter, during which their vital motions are to continue suspended, they labour very diligently to close up the two entrances of their habitation; which they effect with such solidity, that it is easier to remove the earth any where else. At that time they are very fat, and some of them weigh above twenty pounds: they continue so for even three months more; but by degrees their flesh begins to waste, and they are usually very lean at the expiration of that season.

When their retreat is laid open, the whole family is then discovered, each rolled into a ball, and covered under the hay. In this state they seem so entirely lifeless, that they may be taken up, and even killed, without evidencing any great sensation of pain; and those who find them in this situation, generally carry them home, in order to breed up the young, and eat the old ones. A gradual and gentle warmth will revive them: but, if too hastily exposed to the heat of the fire, it never fails to prove mortal.

Properly speaking, says Buffon, these animals cannot be said to sleep during the winter; it may rather be called a torpor or stagnation of all their faculties: this torpor is produced by the congelation of their blood, which is naturally much colder than that of other quadrupeds. The usual heat of men, and other animals, is about thirty degrees above congelation; but the heat of these is not above ten degrees. Indeed, their internal heat is seldom greater than that of the temperature of the air, which has frequently been tried, by plunging the ball of the thermometer into the body of a living dormouse, when it never rose beyond its usual pitch in air, and sometimes sunk above a degree. It is not surprizing, therefore, that these animals, whose blood is naturally so cold, should become torpid when the external air is too powerful for the small quantity of heat in their bodies yet remaining; and this always happens when the thermometer is not more than ten degrees above congelation. This coldness Buffon has experienced in the blood of the bat, the hedge-hog, and the dormouse; and with great propriety he extends the analogy to the Marmotte, which, like them, lies torpid during the winter. This torpid state continues as long as the action which produces it; and it is very probable that it might be prolonged by artificial means: if, for instance, the animal were rolled up in wool, and placed in a cold cellar, it would remain perhaps a whole year in its state of insensibility. However, when the heat of the air exceeds ten degrees, these creatures are ob-

served to revive; and, if continued in that degree of temperature, they do not become torpid, but eat and sleep like other quadrupeds. Hence we may form some conception of the state in which they remain during the winter. As in some disorders, where the circulation is extremely languid, the appetite is diminished in proportion; so in these the blood scarcely flowing, or only through the larger vessels, they require no nourishment to repair what is lost by its permeations. They are observed indeed, by slow degrees, to become leaner in proportion to the slow attrition of their fluids; but this is not perceptible till after the expiration of some months. Man is often known to derive nourishment from the ambient air; and these animals also may in some measure be supplied in the same manner; and having sufficient motion in their fluids to keep them from putrefaction, and just nourishment enough to supply the waste of their languid circulation, they retain a kind of existence between life and sleep.

Marmottes produce but once a year, and usually bring forth three or four at a time. They speedily arrive at maturity; consequently, the extent of their lives is pretty limited, seldom exceeding nine or ten years: so that the species is neither numerous nor widely diffused.

MARMOTTE, MARYLAND; the *Mus Minax* of Linnæus. This animal is about the size of a rabbit; and, in most particulars, greatly resembles the common or Alpine Marmotte, except in having a blueish snout and a longer tail. It is found in Virginia, Pennsylvania, and the Bahama Islands: it lives on the spontaneous fruits of the earth, and other vegetable productions; and, during winter, it sleeps under the hollow roots of trees. Its flesh, which is esteemed excellent, tastes somewhat like that of a pig. When surprized, it makes a very precipitate retreat to its hole. We have no certain information whether this animal sleeps during winter in the climate of the Bahama Isles.

MARMOTTE, QUEBEC; the *Mus Empetra* of Pallas. This species has short round ears, a blunt nose, full cheeks, and a dusky face. The hair on the back is grey at the bottom, black in the middle, and whitish at the tips; and the belly and legs are of an orange colour. The toes, which are black, naked, and divided to their origin, are four in number, besides the rudiments of another on the fore feet, and five on those behind. The tail is short and dusky; and the body is somewhat larger than that of the rabbit. This creature inhabits Hudson's Bay and Canada.

MARMOTTE, UKRAINE; the *Arctomys* of Pallas. The length of this species, from the nose to the tail, is about sixteen inches; and the tail is about five inches long. The ears, which are small, thick, and oval, are covered with greyish white down, except the edges, which are fringed with longish hairs; and the eyes are small. The upper part of the body is greyish, intermixed with long black or dusky hairs tipped with grey; and the throat is rust-coloured. The rest of the body, and the insides of the limbs, are of a yellowish rust-colour; on the fore feet there are four toes, besides a short thumb furnished with a strong claw; and the hind feet have five toes.

These animals inhabit the high but milder and sunny sides of mountainous countries abounding with loose rocks and stones: they are found in Poland, and the South of Russia, among the Carpathian Hills; they swarm in the Ukraine, about the Boristhenes, in the southern desert of Great Tar-

tary, and in the Alcaic mountains east of the Irtis. They lie torpid during the winter, except when kept tame in the stove-warmed rooms of the country; and even then finding a defect of that warmth which their commodious subterraneous retreats would afford, in cold nights they seek for shelter in the very beds of the inhabitants.

MARMOTTE, EARLESS; the *Mus Citellus* of Linnæus. This animal has no external ears, but only a small orifice on each side of the head, for the admittance of sound; it has a blunt nose, a long slender body, and a very short tail; and its colour is a dark grey, or a yellowish brown. There is another variety of this species, which differs a little in colour; the upper part of its body being grey, with some red spots speckled with yellow.

These varieties inhabit Bohemia, Austria, Hungary, and all that track of country lying between the Wolga and India. They burrow, and form magazines of corn and nuts; sit on their posteriors while they eat, like squirrels; and generally bring forth from five to eight young. They are both herbivorous and carnivorous animals, feeding on plants, and destroying the young of small birds and the lesser species of mice.

The Bohemian ladies formerly wore cloaks ornamented with the furs of these animals; and even at this time they are used for linings, and appear excellently adapted for that purpose.

MARMOTTE, TAILLESS. This species, which is a native of Hudson's Bay, has short ears; its head and body are of a cinereous brown colour, the ends of the hairs being white; in its upper jaw there are two cutting-teeth, and four below; and it has no tail.

MARMOTTE, CAPE. This animal has two very long fore-teeth, bare, sharp, and pointing downwards; and those of the lower jaw point out horizontally, and are incapable of being covered by the lips. The head and cheeks are black; and on the hind part of the former there is a white spot. The body is of a cinereous brown hue, but lightest on the belly; it has no external ears; and the tail is short.

This animal is found at the Cape of Good Hope, in Africa; and seems to be of that kind mentioned by De la Caille.

MARSUIN. An appellation sometimes given to the phocæna, or porpoise; a fish frequently confounded with the dolphin.

MARSUPIALE. A name given by Tyson to the creature commonly known under the appellation of the opossum. The peculiar distinction of this animal from all others consists in its having a pouch under its belly, into which it receives its young in time of danger.

MARTEAU. An appellation given by French naturalists to a peculiar species of oyster, called also *Malleum* by others. This is one of the most curious shells in nature: its figure resembles a hammer with a very long head; its body, which is of a moderate thickness, has two long arms; and its colour is brownish, with a beautiful tinge of violet blue.

MARTICHORA. A name given by the ancient Greeks to the animal called also *Mantichora*, and *Mantiger*.

MARTIN; the *Mustela Martes* of Linnæus. An animal of the weasel kind; of which there are two varieties, sometimes distinguished by the name of the beech, or common Martin; and the pine, or yellow-breasted Martin.

This creature is generally about eighteen inches long

long from the nose to the tail; and the tail is about ten inches more. It differs from the polecat in being some inches longer; its tail also is longer in proportion, and very bushy at the extremity; its nose is more flat; its cry is sharper and more piercing; its colours are more elegant; and, what still increases its beauty, its scent is by no means offensive, but rather considered as a most grateful perfume. In short, the Martin is the most beautiful of all British beasts of prey: the head is small, and elegantly formed; the eyes are lively; the ears are broad, rounded, and open; the back, sides, and tail, are covered with a fine thick downy fur, with longer hair intermixed, the roots of which are cinereous, the middle bright chestnut, and the tips black; the head is brown, with a reddish cast; the legs, and the upper sides of the feet, are of a chocolate colour; and the under sides are covered with a thick down, like that of the body. The feet are broad; the claws are large and sharp, and extremely well adapted for the purpose of climbing; but, as in all others of the weasel kind, incapable of being sheathed. The throat and breast are white; the belly is of the same colour with the back, except that it is rather paler; and the hair on the tail is very long, especially at its insertion.

The other variety of this animal, commonly called the Yellow-breasted Martin, differs not essentially from the former, except that it has a yellow breast, whereas the other has a white one: the colour of the body also is darker; and, as it lives more in woods than the former, its fur is more beautiful and glossy, and consequently more valuable. Buffon calls the former variety the Fouine, the latter the Martin; and he supposes them to be a distinct species: but as they differ only in a few shades of colour, it seems totally needless to confound the history of nature with such trivial discriminations.

The Martin displays much grace and agility in all its motions; and there are few animals in our woods that will dare to encounter it. It easily vanquishes quadrupeds much superior to it in magnitude: the hare, the sheep, and even the wild cat itself, though stronger, is not a match for the Martin; and though carnivorous animals seldom shew any desire of engaging each other, the wildcat and the Martin are such inveterate enemies, that they seldom meet without a combat. Gesner mentions one which he domesticated, that was extremely playful and pretty. It visited the neighbouring houses, and always returned home when hungry: it was particularly attached to a dog with which it was bred up; and used to play with it after the manner of a cat, lying on its back, and biting without injury or anger. Buffon likewise informs us, that he kept a tame Martin, though neither so tractable nor so social as the former: it was indeed divested of its ferocity, but continued without attachment; and was still so wild, as necessarily to be confined by a chain. Whenever a cat appeared, it prepared for a combat; and if any poultry came within its reach, it darted on them with avidity. Though tied by the middle of its body, it frequently escaped. At first, it returned after an absence of a few hours, but without seeming to be satisfied, and as if its only motive was food; the second time it continued longer abroad; and, the third, returned no more. It was a female; and, at the time of its final departure, was about eighteen months old. It fed on whatever

was presented to it, except salad or herbs; and it was remarkably fond of honey. It drank often, and sometimes slept for two days successively; and, in like manner, often continued two or three days without sleep. Before it composed itself to rest, it drew itself up into a round figure, and hid its head, covering it with its tail. When awake, it seemed perpetually agitated; and evinced the most predatory disposition when any animal it could overpower chanced to come in its way.

France abounds more in both varieties of the Martin than Britain: however, we have both kinds, though not very plentifully. The white-breasted or common Martin draws near to houses and villages, in order to commit its petty ravages among the sheep and poultry. The other variety frequents the woods, where it leads a very savage life, building its nest on the tops of trees, and subsisting entirely on such animals as are perfectly wild like itself. On the approach of night, it usually quits its solitude in quest of prey, hunting after squirrels, rats, and rabbits: it also destroys great numbers of birds, robs their nests of the young and eggs, and frequently removes the latter to its own, without in the least injuring their shells.

Whenever the Martin finds itself pursued by dogs, (for which purpose there is a peculiar breed) it instantly makes for its retreat, which is generally in the hollow of some tree, towards the top, and which it is impossible to reach without cutting down the trunk. Its nest is generally the original tenement of the squirrel, on which that little animal bestowed abundant pains; but the Martin having dispossessed and killed the proprietor, immediately enlarges its dimensions, improves the softness of the bed, and there brings forth its young. Its litter seldom exceeds three or four at a time; and their eyes are at first closed, but in a short time they arrive at a state of perfection. To compensate for her deficiency of milk, the Martin brings her brood eggs and birds, accustoming them from the beginning to rapine and carnage. When she conducts them from the nest into the woods, the birds speedily recognize their enemies, and attend them with every indication of alarm and animosity; and wherever the Martin proceeds with her cubs, a flock of small birds is observed to threaten and insult her, alarming every thicket, and frequently directing the hunter in his pursuit.

These animals are much more numerous in North America than in any part of Europe. They are also found in all the northern parts of the world, from Siberia to China and Canada. In every country they are hunted for their furs, which are very valuable, particularly if procured at the beginning of winter; and many thousands of their skins are annually imported into England from Canada and Hudson's Bay.

MARTIN. The name also of a bird of the swallow kind; the *Hirundo Urbica* of Linnæus. This bird is inferior to the swallow in size, and its tail is less forked. The head, and the upper part of the body, except the rump, are black, glossed with blue; the breast, belly, and rump, are white; and the feet are covered with a short white down. It forms its nest under the eaves of houses, with the same materials, and in the same form, as the house-swallow; except that it covers it above, leaving only a small hole for its admission. During the period that the young brood continue in the nest, the old one feeds them,

them, adhering by her claws to the outside; but, as soon as they quit it, she feeds them while on the wing, by a very quick and almost imperceptible motion. Like the swallow, this bird disappears in winter, and most probably seeks the same retreats.

MARTIN, SAND; the *Hirundo Riparia* of Linnæus. This species is the least of the swallow tribe that frequents this island. The head, and the whole upper part of the body, are mouse-coloured; the throat is white, encircled with a mouse-coloured ring; the belly is white; and the feet are smooth and black.

The Sand Martin builds in the chinks of sand-pits, and in the banks of rivers; penetrating some feet below the surface, and making its way through the soil in a wonderful manner with its feet, claws, and bill. The nest is composed of hay and straw, and lined with feathers. The eggs are white, and commonly five or six in number.

MARTINAZZO. A species of water-fowl of the larus or gull kind; the *Larus Nævius* of Linnæus; and commonly known in English by the name of the waggel, or the great grey gull. This bird usually weighs from three to four pounds. It is entirely of a mottled colour, composed of brown, grey, and white; but is much darker on the back than on the belly. The back and wing-feathers are all brown in the middle, and grey at the edges; but those of the rump are chiefly white; and the legs are of a dull dirty white hue.

It is pretended by some that this gull will swallow the smaller lari, and persecute and terrify them till they void their half-digested excrements, which he afterwards picks up, esteeming them preferable to fresh food: and hence he has sometimes received the appellation of the dung-hunter.

MARTINO PESCATORE. An appellation given by Salvian, and some other ichthyologists, to the *Rana Piscatrix* of authors, the *Lophius* of Artedi.

MARTIORA, or MARTICORA. A name by which the ancient Greeks expressed the *Mantichora* of the Romans. See **MANTIGER**.

MASARINO. A Portuguese appellation for the bird more commonly known by its Brazilian name *Curicaca*. It is of the curlew kind, and approaches to the size of the goose.

MASON BEE. See **BEE, MASON**.

MASTIFF-DOG. A species of the canine tribe, of vast size and strength, and a very loud barker.

Great Britain was anciently so famous for its Mastiffs, that the Roman emperors had an officer resident in this island, whose sole business consisted in breeding and transmitting from hence to the Amphitheatre such as would prove equal to the combats of the place. Strabo informs us, that the Mastiffs of Britain were trained up to battle, and used by the Gauls in their wars.

MATKNELTZEL. The name of a bird approaching to the snipe kind, called by Gesner *Gallinula Erythra*; and by the common people of Germany, *Mattkern*. It is entirely of a reddish colour, except the belly, which is white; but on the back the tinge is more dusky, and variegated with black spots. This bird frequents watery places; and is common in Italy and Germany.

MATTAGESS. An English appellation for the largest species of the *lanius*, or butcher-bird.

This word is borrowed from the Savoyards, and signifies the Murdering Pye; a term that has been given it from its savage disposition, and from its resemblance to the magpye in the shape of its tail. See **BUTCHER-BIRD**.

MATUITUI. A Brazilian bird of the turdus or thrush kind, about the size of the common starling. See **CURICACA**.

MATURAQUE. An American fish of the harengiform kind, having only one short fin on the back. It seldom exceeds the length of four inches: its head is very broad, and covered with a shelly crust; and its flesh is reckoned extremely well tasted. It is found only in lakes.

MAUCAUCO. A distinct genus of animals of the lemur tribe, in the Linnæan distribution of nature, with six cutting and two canine teeth in each jaw, a sharp-pointed visage like that of the fox, and feet formed like a hand. There are several species.

MAUCAUCO, RING-TAIL; the Lemur *Catta* of Linnæus. This is a beautiful little animal, about the size of a cat; but the body and limbs are more slender, and of a longer make; and its hind-legs are much longer than the fore ones. The tail, which is double the length of the body, is covered with fur, and alternately marked with broad rings of black and white. But, what is principally remarkable, is the extraordinary size of the eyes, which are surrounded with a broad black space. The end of the nose is black; the face is white; the ears are erect; the head is covered with dark cinereous hair; that of the back and sides is of a reddish colour; and all of it is soft, glossy, and delicate, smooth to the touch, and erect like the pile of velvet. When it sleeps, it brings its nose to its belly, and its tail over its head.

This animal, which is a native of Madagascar and the neighbouring islands, is extremely gentle; and though it resembles the monkey in many respects, it neither possesses malicious nor mischievous habits. Like the monkey, however, it is perpetually in motion; and, like all four-handed animals, moves in an oblique direction. It is exceedingly cleanly; has a feeble cry; and, when young, is easily tamed. In a wild state, it is a gregarious animal, associating in flocks of thirty or forty.

MAUCAUCO, TAILLESS; the Lemur *Ecaudatus* of Linnæus. This species, which inhabits Ceylon and Bengal, lives in the woods, where it feeds on fruits; is particularly fond of eggs; and will greedily devour small birds. In its indolence and inactivity, it resembles the sloth, creeping slowly along the ground, and uttering a plaintive noise. It has a small head, and a sharp-pointed nose; its eyes are surrounded with a black circle, and between them there is a white space. A dark ferruginous line, bifurcated on the forehead, runs from the top of the head along the middle of the back to the rump. The ears are small; the toes are naked, and the nails flat. The length of the body, from the nose to the rump, is sixteen inches. It is covered with short, soft, and silky ash-coloured and reddish fur.

MAUCAUCO, WOOLLY; the Lemur *Mongooz* of Linnæus. This animal, which inhabits Madagascar and the adjacent isles, is about the size of a small cat; and has a soft, glossy, thick fur, a little curled or waved, of a deep brownish ash-colour. The eyes are large, and encircled with an orange-coloured ring; and the tail, which is very

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very long, is of one uniform colour. The breast and belly are white; the hands and feet are dusky and naked; and all the nails, except that on the inner toe of the hinder foot, are flat.

These animals, which are of various colours, sometimes have white or yellow paws, and faces wholly brown or black. They sleep in trees; live on fruits; are very sportive, good-natured, and delicate; and their actions indicate a strong resemblance to the monkey kind.

MAUCAUCO, BLACK OR RUFFED; the Lemur *Caudatus Niger* of Linnæus. This animal is considerably larger than a cat, and its hair is much longer. It may easily be distinguished from the other species by the hair round the neck standing out like a ruff. It also differs in its disposition, which is fierce and savage; and it makes such a loud noise in the woods, that the voices of two may be readily mistaken for those of a large troop. The colour of the whole animal is generally black; though sometimes there are varieties, white spotted with black. The irides are orange-coloured; and the tail is very long.

This creature inhabits Madagascar; and though naturally fierce, may be easily domesticated when young.

MAUCAUCO, LITTLE. This curious species seems to be the rat of Madagascar, described by Buffon. It is somewhat less than the black rat; its head is rounded; its nose is sharp; and its whiskers are long. There are two canine teeth in each jaw, four cutting ones in the upper, and six in the lower. The ears are large, roundish, naked, and membranaceous; and the eyes are very large and full. The tail, which is hairy, is about the length of the body; the upper part of the body is cinereous, the lower being white; and the space round the eyes is dark.

This animal is supposed to live in palm-trees, and to feed on fruits. It holds its food with its fore-feet like the squirrel, is extremely lively, and rolls itself up in a ball when it sleeps.

MAUCAUCO, FLYING; the Lemur *Volans* of Linnæus. This creature has a long head, a small mouth and teeth, and little round ears. From the neck to the hands, and from the hands to the hinder feet, extends a broad skin, like that of the flying squirrel; and the same skin is also continued from the hinder feet to the extremity of the tail, which is included in it. The body, and the external part of this skin, are covered with soft hair, hoary, or black and ash-coloured; and the legs are clothed with soft yellow down. On each foot are five toes; the claws of which being slender, sharp, and crooked, enable the creature to adhere very firmly to whatever it fastens on.

This animal is about three feet in length; and its tail, which is very slender, is a span long. It is a native of the Molucca islands, and the Philippines, where it feeds on fruits. It is certainly a very distinct species from the bat and the flying squirrel; but, from the ignorance of the form of its teeth, its genus is somewhat doubtful, though placed among the *Maucaucos* on the authority of Linnæus.

MAVIS. The common appellation of the song-thrush, or throistle.

MAUROUSE. A creature of the deer kind, mentioned by Joffelyn; and apparently synonymous with the *Dama Virginiana* of Ray: this, however, is by no means certain, the description of that naturalist being very imperfect.

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MEDUSA. A genus of insects of the order of *gymnarthria*. The body of the *Medusa* is of an orbiculated convex figure, of a gelatinous substance, and destitute of hair; and the tentacula, or plicæ, which supply their place, are situated in the centre of the under part of the animal. Naturalists have described this genus under the name of *urtica marina*, and *pulmo marina*. These animals are sometimes seen swimming in clusters on the surface of the sea; and they are said to constitute the principal nourishment of the whale.

There are various species of the *Medusa*; but the most remarkable was that discovered by Mr. Banks, on his passage from Madeira to Rio de Janeiro; which, when brought on board by means of the casting-net, had the appearance of metal violently heated, and emitted a white light. With these animals were taken small crabs, of three different species, entirely new, each of which yielded as much light as the glow-worm, though the creature was less by nine-tenths. These luminous animals gave that appearance to the sea which has been mentioned by many navigators, and for which various reasons have been assigned: it appeared to emit flashes of light, exactly resembling those of lightning; and so frequent, that several were visible at the same moment.

MELANCHORYPHUS. A bird so called by the ancients, in the nest of which they tell us that the callais, or turquoise, was found. The whole seems to be a very ridiculous story, and to be entirely founded on the resemblance of colour between that stone and the eggs of this bird, which is generally supposed to have been the black-cap.

MELANURUS. A fish commonly caught in the Mediterranean; and sometimes, though seldom, in the British seas; called by some writers *occulata* and *occhiata*. The body is oblong and rounded; the back is slightly prominent, and of a blueish cast; and the sides are of a silvery white, variegated with dusky transverse streaks. It seldom exceeds five or six inches in length; and its tail has a remarkable black spot on it, whence it receives its present name.

MELAONES. A term used by some writers to express a kind of worm found in meadows about the month of May; which, when bruised, emits a most agreeable smell. This name is also given by some to a species of beetle.

MELEAGRIS. See **TURKEY.**

MELEAGRIS NUMIDA. See **GUINEA HEN.**

MELES. An appellation sometimes used to signify the badger.

MELET. A name given by ichthyologists to a small transparent sea-fish; called by some authors *hespetus* and *anguilla*; and, by others, *atharina*.

MELLITTA. A genus of the *echini marini* of the general class of the *placentæ*; the distinguishing characters of which are, that the shells are plain and flattened, their edges arched and waved, and the superficies marked with two or more oblong apertures, reaching to the base. There are two known species of this genus; a smooth one with a circular vertex; and a scutellated kind, resembling the shell of the tortoise, and having a pentagonal vertex.

MELOLANTHUS. An appellation given to a peculiar species of beetle, found in all parts of Britain, and in many other countries, among trees

trees and hedges. The French denominate it the hanneton; and in England it is known by the names of cock-chaffer, dorr, and several others.

The name *Melolanthus* was first given to this insect by Aristotle; and it seems to be derived from its feeding on the blossoms of the crab or wild apple. The grubs of these beetles are frequently very injurious to every species of vegetable production, by working under ground. In Ireland, such numbers have sometimes appeared in the winged state, that they have obtained the name of locusts from the vulgar. The first time they visited that island in such numbers, of which we have any account, was in 1688: they then appeared in the south-west part of the county of Galway; and, carried on their way by the wind, they soon spread over the interior parts of that county, and were seen every where in inconceivable quantities. They usually remained quiet in the day-time; but were seen covering the leaves and branches of trees and hedges, and in many places hanging in prodigious clusters, after the manner of bees when swarming. Immediately after sun-set, they left the hedges; and taking wing, collected in bodies, making a confused humming noise like that of distant drums. They sometimes formed themselves into such large bodies, as to darken the very air for three or four miles square. At other times, they flew so very low, that it was scarcely possible for a person to make his way through them; and, by striking against the faces and necks of women and children, they left very disagreeable marks behind them. This, however, was but a trifling inconvenience, when compared with the mischief they did in the fields, for they soon stripped the trees of their leaves, and destroyed every mark of verdure.

MERGANSEER. A large water-fowl, called also the goosander, and by some the harle. In the Linnæan system, it is the *Mergus Merganser*. The bill of the male is about three inches long, narrow, and finely serrated; the colour of the bill, as well as of the irides, is red; the head is large, and the feathers on the hind-part are long, loose, and of a black colour beautifully glossed with green; the upper part of the neck is of the same hue; the lower part, and the under-side of the body, are a fine pale yellow; the upper part of the back and the inner scapulars are black; and the lower part of the back and the tail are ash-coloured. The tail consists of eighteen feathers; the greater quill-feathers are black, the lesser being white, and some of them edged with black; the coverts at the insertion of the wings are black, the rest being white; and the legs are of a deep orange-colour. The female of this species is called the dun-diver.

These birds frequent our rivers and lakes, especially in severe winters. During the summer season, they retire far north, for the purpose of breeding; and are never seen in the southern parts of Great Britain. They live almost entirely on fish; which communicates such a rankness to their flesh, that it is scarcely eatable.

MERGUS. A distinct genus of birds of the order of anseres in the Linnæan system. The distinguishing characteristic of this genus is, that the beak is somewhat cylindrical, and has a crooked point. But, according to Ray, the characters are these: the feet are webbed, the three fore-toes being connected by a membrane, but the hinder one left loose; and the beak is narrow, hooked at the extremity, and serrated. There are several species belonging to this genus.

MERGUS CIRRATUS MINOR. An appellation given by Gesner to the *Capo Negro*, a species of duck, called in English the tufted duck.

MERLANGUS. A name given by Bellonius, and some other writers, to a small species of whiting, the *Afellus Mollis*; called by the Venetians *Mollo*, and by some nations the *Capelon*.

MERLANUS. A name by which some ichthyologists have expressed the common whiting, the *afellus mollis sive albus*.

MERLIN. A bird of the falcon kind; called also *Æfaton*, *Smerlus*, and *Merlina*. The Merlin does not breed in this island, but migrates here in October, about the time that the hobby disappears. It flies low, and is often seen skimming from one side of a hedge to the other in search of prey. Its length is about twelve inches, and its breadth twenty-five. The bill is of a blueish lead-colour; the irides are very dark, almost black; the head is ferruginous; and each feather is marked with a blueish black streak along the shaft. The back and wings are of a deep blueish ash-colour, adorned with ferruginous streaks and spots, and edged with the same; and the quill-feathers are almost black, marked with reddish oval spots. The tail is five inches long, crossed with alternate bars of dusky and reddish clay-colour; the breast and belly are of a yellowish white hue, marked with oblong brown spots pointing downwards; and the legs are yellow.

This bird was formerly used in hawking; and though small, is inferior to none. It was also employed in taking partridges, which it commonly killed by a single stroke on the neck.

MERLUCIUS; the *Gadus Merlucius* of Linnæus. A classical appellation for the hake, called also the *afellus alter*. It is a pretty large fish, sometimes measuring upwards of two feet: it resembles the pike in figure; and hence its name *Merlucius*, quasi *maris lucius*, the sea-pike. The back is of a pale greyish hue, and the belly a dirty white; the head is flat and broad; the mouth is very wide; and the teeth are long and sharp, particularly those of the lower jaw. The scales are small; and the tail is even at the extremity.

The *Merlucius*, or hake, is caught in the English and other seas; but being a coarse fish, it is seldom admitted to the tables of the opulent, either fresh or salted.

There was formerly a stationary fishery of hake on the Nymph Bank, off the coast of Waterford: two shoals of these fish appeared there twice in a year; of which prodigious quantities were salted, and sent to Spain, particularly to Bilboa.

MERMAID. A marine animal supposed to be partly a fish, and partly of the human species. Many naturalists dispute the existence of this creature: on the contrary, others as strenuously affirm it; and if the testimonies of particular writers may be credited, there seems to be sufficient evidence to establish its reality.

Larroy informs us that, in the year 1187, such a monster was fished up in the county of Suffolk, and kept by the governor for the space of six months. It bore so near a resemblance to man, that nothing seemed wanting to complete its humanity but the use of reason and speech. One day, however, it found means to effect its escape; and, plunging into the sea, was never more heard of.

We are told by Parival, that, in the year 1430, after a dreadful tempest which broke down the banks that confine the sea in the United Provinces, some

some females of the town of Edam, in West Friesland, going into a boat, in order to milk their cows in a meadow which was overflowed, perceived a Mermaid entangled amongst some mud. They liberated it; and putting it into their boat, brought it to Edam; equipped it in women's apparel, and taught it to spin. It readily swallowed human food; and, if we may credit this grave journalist, acquired some notions of the Deity, making it's reverences very devoutly whenever it passed a crucifix; but never attempted to speak.

In the year 1560, near the Isle of Manar, on the coast of Ceylon, some fishermen are said to have brought up, at one draught of a net, seven Mermen and Mermaids; of which several Jesuits are said to have been witnesses. It is also added, that the physician to the viceroy of Goa examined them with a great deal of care; and, after dissecting them, asserted that all their parts, both internal and external, perfectly resembled those of the human species.

Another creature of the same species is said to have been caught in the Baltic in the year 1531, and sent as a present to Sigismund King of Poland, with whom it lived three days, and was viewed by all the court. We are likewise informed, that the King of Portugal, and the Grand Master of the order of St. James, had a suit at law in order to determine which party had a right to those monsters.

MEROPS; the Apiaster of authors: in English, the bee-eater. This bird, which resembles the king-fisher in shape, is about the size of the blackbird. The beak is long, black, and a little crooked; the irides are of a fine red colour; the head is long and large; the feathers at the insertion of the upper chap are of a blueish green hue; those in the centre of the head are white; the crown, a little more backward, is of a reddish brown colour; and on each side runs a black line from the angle of the beak through the orbit of the eyes. The neck and shoulders are green, with a reddish cast; the belly and breast are blue; the tips of the long feathers are blackish, the rest being variegated with a bright green and a fine orange-colour. The legs, which are very short and thick, are of the same shape as those of the king-fisher.

This bird is very common in Italy, and particularly so in the island of Crete; but it is never seen in England. It feeds on bees and other insects, and sometimes on seeds.

In the Linnæan system, the Merops forms a genus of picæ, characterized by a bent, compressed, carinated beak; a tongue fringed at the apex; and feet formed for walking. Besides the common bee-eater, there are six other species.

MEROS. A very large American fish, growing to five or six feet in length; and sometimes called by it's Brazilian name, Cugupu-guacu. The head is very large; the mouth is wide, and destitute of teeth; the irides are yellow; and the eyes are black. It has five fins; one running the whole length of the back, and reaching nearly to the tail, the anterior part of which is narrow, and armed with small sharp spines; the other part being broader, and sustained by softer rays. Behind the anus there is another; there are two behind the gills, which are large and broad; and the tail-fin, which is very large, particularly at it's origin. The scales are small; the head, back, and sides, are of a brownish grey colour; and the belly is white. The flesh is accounted well-tasted.

MERULA. A name sometimes given to the blackbird. See **BLACKBIRD** and **AMZELL**.

MERULA. A name also used to express a marine fish of the turdus or wrasse kind, of a short flat figure, and an insipid watery taste. The back, sides, and belly, are wholly of a dull, dead blueish black colour; as are also the fins and tail. This fish is found on the coasts of Italy, but eaten by the poorer sort of people only.

MERULA AQUATICA. A classical appellation for the bird called in English the water-ouzel.

MERULA FLUVIATILIS. A name given by some ichthyologists to the common tench. Artedi makes it a species of the cyprini, distinguishing it under the appellation of the black mucous cyprinus with an even, not forked tail.

MERULA SEXATILIS. A name whereby authors sometimes express the fish otherwise called Tordo Marino.

MESANGIA. A bird common in France and Italy, of the shape and size of the ficedula, and differing very little from it, except that it has a black spot on the head. This is probably the Melancoryphos of the ancients; who supposed, as well as many moderns, that the ficedula changed into this bird. The ficedula, or fig-eater, visits the gardens of France only when the figs are ripe, which are it's proper food; and, after devouring them in an insatiable manner, retires again. Soon after, the Mesangia, or black-cap, makes it's appearance; and is commonly supposed to be the same bird, with the addition only of the above-mentioned beautiful spot on it's head.

The ancients seem to have been very much attached to this transmigration of birds; for Aristotle tells us, that the Upupa is the same bird with the cuckow, only changed in colour, and the disposition of it's feathers. In confirmation of this, Æschylus informs us that, according to the opinion of his times, the cuckow sings all the summer, and then disappears; and that, soon afterwards, it arrives in a new form, with a plume on it's head; and is then called the Upupa.

MESORO. An appellation given by Salvian to the fish called in English the butterfly-fish, the blennus or blennius of ichthyologists.

MESORO is also used by the Italians to express the fish commonly called the Uranoscopus, or star-gazer.

METUPORANGA. A Brazilian bird, called by some Tepetototl, and by Aldrovandus Gallus Indicus. It nearly approaches to the gallinaceous fowls of the same country called Mitu and Pauxi, but varies from them in being destitute of a tail; and likewise from the Mitu, in having a protuberance of the size of a cherry over it's beak.

MEW. See **GULL**, **WINTER**.

MICHALALATLI. A name by which the Mexicans, according to Nieremberg, express the bird called otherwise Achalalactli.

MIDA. A worm or maggot, from which the purple fly found on bean-flowers, and hence called the bean-fly, is produced.

MIDAS EAR-SHELL. An appellation sometimes given to the trumpet-shell.

MILLEPEDA. A name used by some conchyologists to express a species of murex of the spider-shell kind, so called from the vast number of prominences in the shape of points termed feet in this series of shells, arising from it's lip, which is greatly extended. The body of this shell is full of tubercles; and the tail is long and crooked.

MILLEPEDES.

MILLEPEDES. A well-known insect, called also *afellus*, a species of *oniscus*; in English, the wood-louse. Ray describes seven different species of this insect, some of which are very common, and others rare. They are of sovereign use in medicine; particularly the blue kind, which rolls itself up in a ball: but there is another sort of a pale brownish grey colour, smaller, flatter, and thinner than the former; and having the last division of the body, not annular, but pointed; and a bifid tail, which possesses nearly the same qualities. They abound in cellars; and are also found under stones and logs of wood in moist and cold situations.

Millepedes are universally known to possess the most valuable medicinal properties: they are diuretic and absterfive; for which reason they are not only frequently made use of in disorders of the kidneys, but also in obstructions of the viscera, and particularly in the jaundice. They abound with a nitrous salt, which they probably derive from the earthy food on which they subsist: this appears to be somewhat volatilized by its digestion and circulation in the insect; as salts of this kind always are, in proportion to the digestive powers of the animal into whose blood they enter. This occasions their deterfive powers to extend farther than the larger glands, and enables them to scour even the minutest passages; and by keeping the nerves clear from viscidities, and such matter as clogs their springs, they are extremely efficacious in palsies, epilepsies, and all the numerous train of nervous disorders.

Remarkable cures have been also performed by these insects in strumas, and inveterate tumours or ulcers; but it is questionable whether their virtues are so considerable as have been generally supposed, at least when prescribed in the customary doses: they are best administered in substance, or bruised in white wine, the liquor being used after settling.

MILLEPEDES, GREATER, LIVID. This insect is about half an inch long, and of an oval shape: the body is entirely of a livid colour, except at the edges of the segments, which are whitish; and on each side there is a whitish spot near the hinder legs. The skin is tough and glossy; the legs are short; and the tail is blunt, without any division.

MILLEPEDES, WATER. This species is about half an inch long, and nearly a quarter broad. The colour is a pale brownish grey; and the whole body is so thin, that it seems almost transparent. It is composed of seven joints, exclusive of the head and tail; the tail is forked, and each fork is bifid at its extremity; the legs are slender, pretty long, of a pale brown colour, and transparent, being seven in number on each side; and the feelers consist of three joints each. This creature is commonly found in ponds and ditches.

MILLEPEDES, SEA. This insect is an inch long, and half an inch broad; the colour is whitish; the back is somewhat rounded; the belly is flat; and the sides are sharp. There are seven legs on each side; the three pairs before are small and smooth; but those behind are large, long, and hairy. The body consists of seven joints, besides the head and tail; which last is three-quarters of an inch long, and somewhat of a triangular shape, being marked with two convex parallel rays on each side.

MILLER'S THUMB. An English appellation for the fish called also the bull-head, the

Cottus of ichthyologists in general, and the *Cottus Gobio* of Linnæus. It is commonly found in such clear streams as water this island, and generally at the bottom, where it deposits its spawn in a hole formed for that purpose. It seldom exceeds three inches and a half in length. The head is large, broad, and thin at its circumference; and on the middle part of the covers of the gills there is a small crooked spine, turning inwards. The eyes and teeth are small; the figure of the body grows gradually slender towards the tail; the colour in general is dusky mixed with yellow, but the belly is whitish.

MILLMOTH. An insect approaching to the nature of the beetle, but having no sheath-wings. It is common in the houses of millers and bakers, and other persons who deal in flour.

MILVAGO. An appellation given by Gesner, and some other authors, to a fish called by ichthyologists in general *milvus*, and *cuculus*; and by some *lucerna*, and the flying-fish. It is a species of the trigla; and distinguished by Artedi under the name of the trigla with a bifid snout at the extremity, and the side-lines forked near the tail.

MILVUS. The classical name of a bird of the falcon kind. See *KITE* and *BUZZARD*.

MINOR, OR MINO. A curious East Indian bird, of which there are two varieties, a greater and a less, differing principally from each other in the colour of the bill, which in the lesser is a fine red, and in the greater a pale yellow. The irides are of a pale yellow hue, and a broad stripe of yellow runs below the eyes from the back part of the head. The upper part of the body is black, with a few white marks on the exterior wing-feathers; the under parts are more dusky; the legs are of an orange colour; and the claws are black. This bird, with proper attention, may be taught to speak.

MINNOW. An appellation sometimes given to a small fish, the *phoxinus* of authors. In the Artedian system, this is a species of the *cyprinus*; and in the Linnæan, the *cyprinus phoxinus*, with the dorsal fin consisting of eight rays, a brown spot on the tail, and a pellucid body. The lateral line of this fish is of a golden hue; the back is flat, and of a deep olive-colour; and the sides and belly are liable to considerable variations, in some being of a rich crimson hue, in others blueish, and in some white. The body is slender and smooth, the scales being extremely small; and the tail is bifid, and marked near the base with a dusky spot. The whole length seldom exceeds three inches. The Minnow abounds in many of the small gravelly streams of this island.

MINX. An American animal of the otter kind, the *Mustela Lutreola* of Linnæus. It has roundish ears; a white chin; and its body is covered with tawny and dusky hair, the short hairs being yellowish, and the long ones black. The feet are broad, webbed, and covered with hair; and the tail, which is dusky, terminates in a point.

The late Mr. Collinson, on the authority of a correspondent, gives the subsequent account of this animal. 'The Minx,' says he, 'frequents the water, like the otter; and very much resembles it in shape and colour, but is much less. It is capable of continuing longer under water than either the musk-quash, the musk-rat, or the little beaver; yet it will leave its watery haunts to rob our hen-roosts. It bites off the heads of poultry, and

and sucks their blood. When vexed, it has a strong, loathsome smell; so may be called the water pole-cat. It's length, from nose to tail, is twenty inches; and the tail is four. The colour is a fine shining dark brown.

MISGURN, OR MISGUM. A fish common about the German shores, esteemed very delicate and nutritive. It is of the anguilliform kind, but broader and flatter than the eel, and nearly of the same size from head to tail. It has five longitudinal black lines; one on the back; two on the middle of the sides; and two others nearer the belly, which are considerably narrower than the rest. The intermediate spaces, and the belly, are somewhat of a blueish white colour, dotted with black spots; and the fins are also spotted in a similar manner. The mouth is small and round, like that of the lamprey; and surrounded with beards, six on the upper jaw, and four on the under; besides two very slender ones near the nostrils. The eyes are small; the gills are four on a side; and, exclusive of the dorsal fin, there are four others, two near the gills, and two lower on the body.

This fish lays it's spawn about March, and is in prime season in January and February. It is chiefly caught in muddy waters; and, when removed from it's native element, is said to make a sort of hissing noise.

MISSEL BIRD. The common English appellation of the larger thrush, called also the shrike, and by authors the *turdus viscivorus major*. It is considerably larger than any of the thrush kind: it's legs and feet are yellow; it's head is of a brownish lead-colour; and it's back, tail, and rump, are of the same hue, with an admixture of yellow; but in the summer months it becomes greyish. The throat, belly, and breast, are variegated with black spots; the middle of the belly is whitish; and the upper part of the breast, and part of the sides, are yellowish. The bill is shorter and thicker than that of other thrushes, and of a dusky colour, except the base of the lower mandible, which is yellow.

This bird is usually seen perched on the tops of trees. It is a delightful songster, and the largest English bird that has melody in it's note. It begins it's song, sitting on the summit of a high tree, very early in the spring, often about the commencement of the year, and during the most inclement weather; whence it has obtained the name of the storm-cock in Hampshire. It remains in this island the whole year; and associates only with it's mate, avoiding and driving away all the lesser species of thrushes. It's flesh is much esteemed.

MITE. A well known minute insect, found in old cheese, and many other substances, as well fresh as putrid.

When viewed with the naked eye, Mites in cheese appear like moving particles of dust; but, when microscopically examined, they are discovered to be perfect animals, having regular figures, and performing all the functions of life with the same harmony as the larger tribes of beings.

The Mite is a crustaceous animal, and usually transparent. It's principal parts are the head, the neck, and the body: the head, which is small in proportion to the body, has a sharp snout, and a mouth opening like that of the mole. It has two small eyes, which possess the most distinct vision, as may be perceived from pricking the animal with a pin, after which it will cautiously avoid a second assault.

These minute insects are of different species. Some have six legs, and others eight: each leg has six joints, furnished with two small claws at the extremity, and surrounded with hairs. The hinder part of the body is large and plump, terminating in an oval form, from which issue a few long hairs; and the other parts of the body and the head are also beset with thin long hairs.

The two sexes are easily distinguished in these little animals. The females are oviparous, like the louse and the spider; and from their eggs the young are hatched in their proper form, without undergoing any future change: however, when first produced, they are extremely minute; and, before they attain their full size, renew their skins several times. These little creatures may be kept alive several months between two concave glasses, and applied to the microscope at pleasure: thus they are often seen in the act of copulation, conjoined tail to tail; and this is performed by an incredibly swift motion.

The eggs, during warm weather, are hatched in twelve or fourteen days; but, in winter, they require a longer time: these are so very small, that, on a regular computation, ninety millions of them are not so large as the egg of a common pigeon.

Mites are extremely voracious insects: they not only prey on cheese, but all sorts of dried flesh, fish, fruits and seeds, and almost every thing which possesses some degree of moisture, without ever being wet; and they are frequently observed to devour each other. They seize their food by alternately thrusting one jaw forward, and the other backward, in this manner grinding it; and, after being satisfied, they seem to ruminate.

Several subordinate distinctions are observable in Mites, according to the different substances among which they are found. Those in malt-dust and oat-meal are much nimbler than cheese Mites, and have more, as well as longer hair. Such Mites as take up their residence among figs, resemble beetles; and have two feelers at their snouts, and two very long horns over them: they have only six legs; and are beset, at regular intervals, with some very long hairs.

Mites are extremely tenacious of life; and will subsist many months without food. Lewenhoeck informs us, that he kept one for the space of eleven weeks, fixed on the point of a pin, where he had placed it for the sake of microscopical observations.

MITU. A Brazilian bird of the pheasant kind, if we may credit Margrave; but supposed by Ray to approach nearer to the nature of the peacock or turkey-cock. It is larger than the common English cock; the body is chiefly of a fine deep black colour; but the belly is of a partridge brown. The head is adorned with a series of fine glossy black feathers, which are occasionally raised into a sort of crest; the beak, which has a very elegant appearance, is broad at the base, narrow at the point, and of a fine bright red colour. The tail is very long: and this bird, like the turkey, possesses the faculty of expanding it at pleasure.

The Mitu is easily tamed; and it's flesh is very delicious.

MOCK-BIRD. An American bird, called by Ray *Turdus Americanus Minor Canorus*. It is about the size of the thrush; of a white and grey colour; with a long tail, and a reddish bill; and somewhat approaches to the *cæruleus* or *blauvogel*. It not only possesses it's own natural notes,

which are musical and solemn, but it can assume the tone of every other creature, from the wolf to the raven; and hence it receives its name. It seems to derive a peculiar pleasure from leading animals astray: at one time, it will allure the lesser birds with the call of their males; and, when they approach, terrify them with the screams of the eagle. It can imitate every bird of the forest with amazing exactitude; and there are none which it hath not at times deceived by its voice. However, the Mock-Bird is always most agreeable when most itself. At such times it usually frequents the houses of the American planters; and, sitting all night on some chimney-top, pours forth the sweetest and most various notes of any bird whatever. Indeed, if we may credit the best accounts, it would seem that the deficiency of most other song-birds in that country is compensated by this alone. It builds its nest in fruit-trees contiguous to houses, feeds on berries and other fruits, and is easily tamed.

MOHAIR-SHELL. See MOIRE.

MOIRE. An appellation given to the mohair-shell, a species of the voluta; so called by the French virtuosi. This shell seems to be of a closely and finely reticulated texture; and, on the surface, resembles a piece of mohair, or a very close web of the silk-worm.

MOLE. In the Linnæan system of zoology, a distinct genus of animals, of the order of feræ, and class of mammalia; the characters of which are, that they have six upper fore-teeth, and eight lower. Linnæus mentions only two species; the European, which has a tail, and five toes on each foot; and the Siberian or Asiatic Mole, which is destitute of a tail, and has only three toes on the fore-feet. However, other naturalists increase the catalogue; and as their discriminations appear to be founded in reason, we shall partly adopt them.

MOLE, COMMON; the *Talpa Europæus* of Linnæus. This animal is formed to live wholly under the earth, as if nature intended that no place should be left entirely untenanted. From our own sensations, we should naturally imagine that the life of a quadruped doomed to hunt under ground for its prey, and whenever it removed from one place to another, obliged to force its way through a resisting body, must be the most frightful and solitary in nature; but, notwithstanding all these seeming inconveniencies, we discover no signs of distress or wretchedness in this animal. No quadruped appears fatter, nor has a more sleek and glossy skin. Though unquestionably denied many advantages that most other animals enjoy, it is more abundantly possessed of others, which they hold in an inferior degree.

The Mole is of a size between the rat and the mouse, but does not resemble either, being an animal of a very singular kind, and very different from any other quadruped. It is clothed with fine short glossy black hair; its nose is long, and pointed like that of the hog, but much longer in proportion; and, instead of external ears, it has only holes. Its neck is so short, that the head seems as it were stuck on the shoulders; the body is thick and round, terminating in a very short tail; and the legs are so extremely short, that the animal seems to rest on its belly. Thus the Mole appears, at first view, like a mass of flesh covered by a fine shining black skin; with a little head, small eyes, and almost imperceptible legs.

The ancients, and some of the moderns, were of

opinion, that this animal was utterly blind; but Derham, by the assistance of a microscope, plainly discovered all the parts of the eye that are known in other creatures, such as the pupil, the vitreous and the chrystalline humours.

The fore-legs of the Mole, though very short, are strong, and each furnished with five claws, which are turned outwards and backwards, like the hands of a man when in the act of swimming. The hind-legs are longer and more feeble than the fore, being only destined to assist the animal's progressive motions; whereas the others are continually employed in digging. The teeth resemble those of a shrew-mouse; and the tongue is sufficiently large to fill the whole cavity of the mouth.

Such is the singular figure and formation of the Mole; in which, if compared with its manner of living, we shall discover a manifest attention of nature to adapt the one to the other. As it is allotted a subterraneous abode, the seeming defects of its formation vanish, or rather, are turned to its advantage. The breadth, strength, and shortness, of the fore-feet, which are inclined outwards, answer the purposes of digging, throwing back the earth with greater facility, and pursuing the worms and insects on which it subsists: had they been longer, the sinking in of the earth would have prevented the quick repetition of its strokes in working; or have obliged it to form a larger hole, in order to make room for their exertions. Nor is the shape of the body of this creature less happily adapted to the purpose of its destination: the fore-part, which is thick and very muscular, affords much strength to the action of the fore-feet; enables it to dig its way with amazing force and rapidity; and either to pursue its prey, or elude the search of its most vigilant enemies. By its faculty of perforating the earth, it quickly descends below the surface; and, when turned loose in the midst of a field, the attempts of the most active labourer to prevent it from inhuming itself, often prove abortive.

The minuteness of the Mole's eyes, which induced the ancients to deem that animal blind, is in fact a peculiar advantage to it. A small degree of vision is sufficient for a creature destined to live always in darkness; a more extensive sight would only have served to discover to it the horrors of its prison, while nature had denied it the means of escape. Had this organ been larger, it would have been perpetually obnoxious to injuries; but nature, in order to prevent any external hurt, has not only made the eyes small, but also covered them very closely with hair. Besides these advantages, anatomists mention another, that essentially contributes to their security; namely, a certain muscle, by which the animal can draw back the eye whenever it finds it convenient or necessary.

As the eyes of the Mole are thus perfectly fitted to its situation, so also are its senses of hearing and smelling: the first gives the animal intimation of the most distant approaches of danger; and the other directs it, in the midst of darkness, to its proper food. The wants of a subterraneous animal can be but few, and those senses are sufficient to supply them: to procure immediate subsistence, and to propagate its kind, are the whole employments of such a life; and for both these purposes it is amply provided.

Thus is the Mole admirably adapted for a life of darkness and solitude; with only such appetites as are easily indulged, and harrassed by no enemies but

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but such as it can with facility conquer or evade. As soon as it has once buried itself in the earth, it seldom stirs out, unless forced by violent rains in summer; or when, in pursuit of it's prey, it happens to approach the surface too nearly, and thus gets into the open air, an element which may be considered as unnatural to it. In general, it chuses the looser, softer mould, beneath which it can travel with greater ease: in such also it generally finds the greatest number of worms and insects, on which it chiefly preys. It is observed to be most active, as well as to cast up most earth, immediately before rain; and, during winter, before a thaw: at such seasons worms and insects begin to be in motion; and approach the surface, whither this industrious spoiler pursues them. On the contrary, in very dry weather, the Mole seldom forms any hillocks; for then it is compelled to penetrate deeper for it's prey, which retire far below the surface of the ground in quest of moisture.

As Moles seldom make their appearance above ground, they are in a great measure exempted from the tyranny of other animals: however, inundations destroy them in prodigious numbers, from the effects of which they are frequently seen attempting to save themselves by every possible exertion. Were it not for these, they would, from their great fecundity, soon become extremely troublesome; and, destructive as such accidents prove to them, they are nevertheless in some places regarded by farmers as very great nuisances. They couple towards the approach of spring; and their young are produced about the beginning of May. They generally bring forth four or five at a time; and it is easy to distinguish, among other Mole-hills, those in which the females have brought forth, because they are formed with greater art than others, as well as unusually large.

The female, in forming her retreat, begins by erecting the earth into a pretty spacious apartment, supported within by partitions, at proper distances, which prevent the roof from falling in. Round this she labours to make the earth very firm, so as to render it capable of keeping out the rain, though ever so violent. As the hillock in which this apartment is formed is raised above ground, the apartment itself is consequently above the level of the plain, and therefore less subject to accidental inundations. The place being thus fitted up, she procures grass and dry leaves as a bed for her young, where they lie secure from the wet: and she continues to render their retreat equally so from danger; for, all around this artificial elevation, there are holes which run into the earth, diverging from the central apartment, and extending about fifteen feet in each direction. These holes resemble so many walks, into which the animal makes her subterraneous excursions, and supplies her young with such roots or insects as she can conveniently provide: but they contribute still more to safety; for the Mole being very quick of hearing, the instant she perceives her little habitation attacked, she takes to her burrow; and unless the earth is opened by several persons at once, she and her young always make good their retreat.

As the skins of Moles are extremely soft and beautiful, it appears strange that they have not more frequently been turned to some advantageous purposes. Agricola informs us, that he has seen hats made from them, the finest and most beautiful imaginable.

Various methods have been adopted to destroy

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these animals, which are often so detrimental to gardeners and farmers.

Some take a board, about three inches and a half broad, and five inches long: on each side thereof they raise two small round hoops or arches, one at each end, like the two hoops or bails of a stage waggon, capacious enough for a Mole to creep through with facility. In the middle of the board they make a hole about the size of a goose-quill, and have in readiness to put into it a stick about two inches and a half long, fitted at one end to the hole, and a little forked at the other. They also cut a hazel-stick, about a yard, or a yard and a half long, which will rise with pretty strong elasticity when stuck into the ground; and to the end of this stick fasten a very strong noose of horse-hair, so formed as to slip with ease. They likewise have in readiness four small hooked sticks; then proceed to the furrow or passage of the Mole, and having opened it, fit in the little board with the bended hoop downwards, so that when the creature passes that way, it may go directly through the two semicircular hoops. But before the board is fixed in this manner, they put the hair-string through the hole in the middle of it; place the noose in a circular form, so that it may correspond with the two hoops; slip the small stick before-mentioned gently into the hole in the centre of the board, so as to stop the knot of the hair-string, without suffering it to be absolutely tightened; then fasten the board down with four hooked sticks, and cover it with earth. When the Mole, proceeding in it's furrow, comes into this trap, it will displace the small stick that hangs perpendicularly downward, the knot will then be drawn through the hole, and the noose being instantly straightened by the elevation of the end of the hazel-stick to which it is fastened, will entangle the Mole round the neck.

Others watch the motions of these animals in the mornings and evenings, which are the usual times of their stirring; and then dig them out in a moment with paddles. About March, the time of their breeding, numbers of the young may be destroyed by turning up their nests. Some approve of the pot-trap, which is a deep earthen vessel deposited in the ground, having the brim on a level with the bottom of the Mole-tracks. This is most advantageously used about the beginning of March, when the Moles couple, or perhaps somewhat earlier.

An ingenious author says, that Moles may be driven from gardens, meadows, and other places where persons would not wish to dig, by fuming their holes with brimstone, garlick, or other strong smelling substances; and that the depositing a dead Mole in the common haunt will make the rest absolutely forsake it.

MOLE, SIBERIAN; the *Talpa Asiatica* of Linnæus. This species, which Brown calls the Variable Mole, has a very short nose, no ears, and three toes on the fore-feet, with a very large claw on the exterior two. It has four toes on the hinder-feet; it's body is of an equal thickness; and it's rump is perfectly round. It is of a beautiful green and gold colour, varying with the light in which it is viewed; it is destitute of a tail; and the length of it's body is four inches.

This animal is a native of the Cape of Good Hope; though, from a mistake of Seba, it has received the appellation of the Siberian Mole.

MOLE, RADIATED; the *Sorex Cristatus* of Linnæus.

næus. The fore-legs of this species are small, and there are five long white claws on each; the nose is long; and the edges are beset with radiated tendrils. The hair on the body is very short and fine, and of a dusky colour; the hinder-legs are scaly; and there are five toes on each foot. The length of this animal, from the nose to the tail, is about three inches and three-quarters; and the tail, which is slender and taper, is about an inch and a quarter long. It is a native of North America, where it forms subterraneous passages in uncultivated fields; and feeds on roots.

MOLE, LONG-TAILED. This species is a native of several parts of America. The fore-feet are broadish; and there are scales on the hind-feet, with a few hairs interspersed among them. The claws on the fore-feet resemble those of the common Mole; and those on the hind-feet are long and slender. The body, which is covered with long, soft, rusty brown fur, is four inches and a half in length; and the tail, which is two inches long, is covered with short hair.

MOLE, BROWN; the *Sorex Aquaticus* of Linnæus. This animal, which inhabits North America, has a slender nose; and the upper jaw is longer than the under, with two cutting-teeth in the former, and four in the latter, the two middlemost being very small. The fore-feet are broad, and furnished with long nails; and the hind-feet, which are small, have five claws on each. The hair is soft, glossy, and brown at the ends, though grey at the bottom; and the tail and feet are white. The length of this species, from the nose to the tail, is about five inches and a half; and the tail, which is very slender, about three-quarters of an inch long.

MOLE, RED; the *Talpa Rubra Americana* of Seba. This variety, which is of a pale reddish colour, has three toes on the fore-feet, and one on the hind; and resembles the European kind in the form of the body and tail.

MOLE, CRICKET. See **CRICKET MOLE.**

MOLLE. A small species of whiting, common in the Mediterranean; and sold in the markets of Rome, Venice, and other cities of Italy; called by ichthyologists the *afellus omnium minimus*, and *merlangus*. It is the smallest variety of the *afellus* kind, seldom exceeding four inches in length: it has a beard like the cod, depending from the angle of the lower jaw; and on each side nine spots on its nose and gills. The back is of a pale brown colour; the belly is white; and the scales are extremely small and soft.

MOLLET. See **MULLET.**

MOLLUSCA. The appellation of the second genus of vermes or worms in the Linnæan system. These are simple, naked animals, destitute of shells, but furnished with limbs. They comprehend eighteen subordinate genera, and one hundred and ten species.

MOMOT. A bird described by Nieremberg, and said to be a native of the warmer climates. It is about the size of a pigeon; the beak is black and crooked, about two inches broad, and serrated at the edge; the head is blue; the feet are brown; and the rest of the body is of a pleasant green colour. However, the most singular character of this bird is, that it has one very long feather in the centre of its tail, naked for a great way, and feathered only at the end. This last circumstance is judged by Ray to be wholly false; as no other bird has a single feather of greater

length than the rest, but always a pair, if the difference is at all considerable.

MONACANTHUS. An appellation sometimes given to the *alpheftis*, or *cinedus*: a fish approaching to the *turdus* kind; but differing in the circumstance of having the back fin prickly its whole length, whereas the fore part is only so in the *turdus*.

MONEDULA. See **JACKDAW.**

MONGOOSE, OR MONGOOZ. A species of Lemur in the Linnæan system; the Woolly Maccawo of Pennant; and by some called the Maccassar Fox. This animal has orange-coloured irides; the ears are short and round; the end of the nose is black; the rest of the nose and the sides of the cheeks are white; and the eyes are lodged within a black circle. The whole upper part of the body is covered with long fur, thick, soft, curled or waved, and of a deep brownish ash-colour; the tail is long, and covered with the same sort of hair; the breast and belly are white; and the hands and feet are naked, and dusky.

The Mongoose is about the size of a cat; varies sometimes with white or yellow paws; and has a face wholly brown. It is a native of Madagascar and the adjacent isles. It sleeps on trees; shelters itself from rain by twining its tail over its head; lives on fruits; and is very mild and diverting in its manner.

MONK FISH. An English appellation for the *squalus*, according to the Artedian system; the *rhina* and *squatina* of the ancients. Artedi distinguishes it from other *squali* by the name of the *squalus* without a pinna ani, and with the mouth on the top of the head. It is of a middle shape between the long and flat cartilaginous fishes, being considerably broader than the *galei*, and rounder than the *raii*. It grows to a very large size, sometimes to four, five, or even six feet in length; and is entirely covered with a mucous substance, under which there is a harsh rough skin, adapted for the politure of wood and ivory. The back and sides are of a brownish grey colour; the belly is white; the head is flattened and roundish; the mouth, which is large, contains three rows of teeth, eighteen in a row; the eyes are large, and placed near the mouth; the upper pair of fins very much resemble wings, whence it has received the name of the angel-fish; at the extremity of these there are a number of sharp hooked thorns; and a row of short prickles extends along the back.

This fish is common in the English seas, particularly on the Cornish coasts.

MONKEY. A discriminating appellation given to such apes as are furnished with long tails; which in the ape and baboon tribes are either very short, or entirely wanting.

Monkeys are also small in stature; which, added to the length of their tails, easily distinguishes them from the congenerous kinds; while the varieties in the form and colour of dogs or squirrels are far less numerous than are perceptible among the class now under consideration. Bosman and Smith enumerate above fifty sorts on the Gold Coast alone; and Condamine asserts, that a volume would hardly suffice to describe the differences of such as are found along the river of the Amazons, and which are distinct from those on the African coast. There is scarcely one country in the tropical climates that does not swarm with them, and hardly a forest that is not inhabited by a race of Monkeys separate from all others. Every different wood

wood along the coasts of Africa may be considered as a distinct colony of Monkeys, differing from those of the next district in colour, size, and malicious tricks. It is indeed remarkable, that the Monkeys of two cantons are never found to mix with each other, but rigorously to keep their distance: each forest produces only its own; and these guard their limits from the intrusions of all strangers of a different race from themselves. In this circumstance, however, they somewhat resemble the human inhabitants of those savage countries in which they are found; where the petty kingdoms are numerous, and the manners dissimilar: there, in the extent of a few miles, the traveller is presented with a race of men speaking different languages, professing distinct religions, governed by different laws, and resembling each other only in a mutuality of opposition and animosity.

The Monkey being the smallest of the ape tribe, is endued with fewer powers of doing mischief than the ape proper, and the baboon. Indeed, the ferocity of the natures of these animals seems to diminish with their size; and, when taken wild in the woods, they are tamed with more facility, as well as sooner taught to imitate human actions, than the larger kinds. More gentle than the baboon, and less grave and sullen than the ape, they soon begin to exert all their sportive mimickries, and are easily restrained by correction: but it must be acknowledged, that they can only be stimulated to exertion or imitation by severity; for if their fears be entirely removed, they are naturally the most insolent and headstrong creatures existing.

In their native solitudes, Monkeys are no less the pests of men than of other animals: they are in the full possession of all the forests in which they reside, and may be considered as absolute sovereigns of them. Neither the tiger, nor the lion himself, will venture to dispute the dominion; since these Monkeys, from the tops of trees, continually carry on an offensive war; and, by their agility, escape all possibility of pursuit. Nor are the very birds exempted from their cruel depredations; for as these harmless inhabitants of the wood usually build their nests on trees, the Monkeys are vigilant in discovering and robbing them; and such is their petulant delight in mischief, that they will dash their eggs against the ground when their satiated appetites can no longer devour them.

Indeed, serpents are the only animals of the forest which are able to cope with these Monkeys. The larger snakes are often observed winding up those trees where the Monkeys reside; and when they happen to surprize them asleep, instantly swallow the little defenceless animals.

After this manner the two most mischievous kinds of creatures in all nature divide the sovereignty of the forest between them; both equally formidable to each other, and ever engaged in mutual hostilities. The Monkeys in general inhabit the tops of the trees, while the serpents cling to the branches near their bottoms; and thus they are perpetually in the neighbourhood of each other, like enemies in the same field of battle. Some travellers indeed have supposed that this vicinity rather argued their mutual friendship, and that they united in this manner for the purpose of forming an offensive league against all animated nature. 'I have seen these Monkeys,' says L'abbé, 'playing their gambols on those very branches

on which the snakes were reposing, and jumping over them without receiving any injury, though the serpents of that country are naturally vindictive, and always ready to bite whatever disturbs them.' These gambols, however, are probably nothing more than the insults of an enemy conscious of its own safety; and the Monkeys might have provoked the snakes in the same manner that we sometimes observe sparrows twitter at cats.

The enmity of these animals to mankind is partly ridiculous, and partly formidable. They seem, says Le Comte, to have a peculiar instinct in discovering their foes; and are perfectly skilled, when attacked, in mutually defending and assisting each other. Whenever a traveller enters the woods, they consider him as an invader of their dominions; and all of them unite to repel the intruder. At first they survey him with a kind of insolent curiosity; they jump from branch to branch; pursue him as he goes along; and make a loud chattering, to call the rest of their companions together: they then commence hostilities, by grinning, threatening, and throwing withered branches at him, which they break from the trees; and even receive their excrements in their hands, and sling them at his head. Thus they attend his progress, jumping from tree to tree with such amazing swiftness, that the eye with difficulty follows their motions. Though they take the most desperate leaps, they seldom fall to the ground; for they easily fasten on some of the branches, clinging either by their hands, feet, or tails, on whatever they happen to touch. If one of them chances to be wounded, the rest assemble round, and put their fingers into the wound, as if desirous of probing its depth: if the blood flows in any quantity, some of them keep it shut up, while others collect leaves, which they chew, and thrust into the orifice. However extraordinary this may appear, it is nevertheless asserted to be strictly true, and even to have been frequently observed. In this manner these animals wage a petulant, unequal war; and are often killed in numbers before they think proper to make a retreat: this they effect with the same precipitation with which they at first assembled; and on such occasions the young are seen clinging to the backs of the females, with whom they spring away, seemingly unimpeded by their burdens.

European curiosity has induced the natives of those countries where Monkeys reside to take them alive by every possible art. The usual way is to shoot the female when carrying her young, and then both parties of course tumble to the ground. But even this is not easily effected; for if the animal be not instantaneously killed, it will adhere to some branch of the tree, and retain, even when dead, its former grasp, till it drops off through putrefaction. In this case it is totally lost to the pursuer; for should he attempt climbing the tree, in order to bring down either the dam or her young, he would probably meet destruction from the number of serpents hid among the branches: for this reason the sportsman always takes care to aim at the head; which if he hits, the Monkey falls directly to the ground; and the young ones following their parent, are easily secured.

Those Europeans who have settled on the coast of Guinea frequently go into the woods purposely to shoot Monkeys; and nothing can amuse the negroes more than to see those creatures drop against

which they entertain the greatest animosity: they consider them, not without reason, as the most mischievous and tormenting animals in the world; and rejoice to see their numbers thinned, as well because they dread their devastations, as on account of their partiality to their flesh. The Monkey, which is always skinned before it is eaten, when served up at a negro feast, appears so like a young child, that Europeans are generally shocked at the sight: the natives, however, whose feelings are less delicate, devour it as one of the richest luxuries, and assiduously attend the sportsman in order to profit by the spoil. But, what chiefly astonishes the negroes, is to see our travellers carefully taking the young ones alive, while they leave them the old, that are certainly the most proper for food. They cannot comprehend what advantage can arise to us from training up a little animal which by experience they know to be equally fraught with tricks and mischief. Indeed, some of them have been led to suppose that, through a kind of perverse affection, we love only creatures of the most mischievous kinds; and having often observed us buying young and tame Monkeys, they have taken equal care to bring rats to our factors, offering them for sale, and expressing great surprise and disappointment on finding them rejected.

When Monkeys assemble in companies, they do incredible damage to the Indian corn or rice, as well as to the sugar-cane plantations: they carry off as much as they are able, but generally destroy ten times more than they carry away. Their manner of plundering is pretty much like that of baboons: one of them stands as centinel on a tree while the rest are pillaging, carefully and cautiously turning on every side, but particularly to that from which they suspect the approach of danger. In the mean time, the rest of the spoilers pursue their work with great silence and assiduity: they are not contented with the first blade of corn, or the first cane they happen to seize; but after pulling up that which appears most alluring to the eye, they turn it round, examine it, compare it with others, and if they find it agreeable to their mind, stick it under one of their shoulders. When they have in this manner procured their load, they begin to think of retiring; but should the owners of the field appear in order to interrupt their depredations, their faithful centinel instantly gives notice, by a loud call expressing something like Houp! houp! houp! which all the confederates perfectly understand, and at once throwing down what provision they have collected in their left-hands, scamper off on three legs, carrying the remainder in their right. If still closely pursued, they then throw down their whole burdens, and take refuge among the trees of the woods, on the tops of which they remain in perfect security.

Were we implicitly to credit the narratives of some travellers respecting the government, politics, and subordination, of these animals, we might perhaps be taxed with credulity; but we have no reason to doubt that they are under a species of discipline, which they exercise among each other. They are generally observed to associate together in companies; to march in exact order; and to obey the voice of some particular chieftain, remarkable either for his size, age, or experience. One species, to which Buffon gives the name of the Ouarine, and which are remarkable for the loudness and distinctness of their voice, are still

more so for the use to which they apply it. 'I have frequently been a witness,' says Marcgrave, 'of their assemblies and deliberations. Every day, both morning and evening, the Ouarines assemble in the woods, to receive instructions. When they are all gathered together, one among the number takes the highest place on a tree, and makes a signal with his hand to the rest to form themselves into a circle, in order to hearken. As soon as he observes them properly arranged, he begins his discourse, with so loud a voice, and yet in a manner so precipitate, that, to hear him at a distance, one would imagine the whole company were crying out at the same time: however, during that period, only one is speaking; and all the rest observe the most profound silence. When the orator has finished, he makes a signal with his hand for the rest to reply; and at that instant they raise their voices together, till by another signal of the hand they are enjoined silence: this they as readily obey; till at last the whole assembly breaks up, after hearing a repetition of the same harangue.'

The Monkey tribes subsist principally on fruits, the buds of trees, or succulent roots and plants. Like the human species, they are all fond of sweets; and shew a particular predilection for the pleasant juice of the palm-tree and the sugar-cane. With these the fertile regions in which they are bred generally supply them; but when it happens that these fail, or that more nourishing food becomes more agreeable, they eat insects and worms; and sometimes such as inhabit the maritime parts descend to the sea-shores, where they feast on oysters, crabs, and shell-fish. Their manner of managing oysters appears very extraordinary; and yet it is too well authenticated to be disputed. As the oysters of the tropical climates are generally larger than ours, the Monkeys, when they reach the sea-side, pick up stones, and thrust them between the opening shells: this prevents them from closing, and the crafty animals then eat the fish at their ease. They also often draw crabs out of the water, by putting their tails to the holes in which they have taken refuge; when the crabs fastening on the lure, the Monkeys withdraw them suddenly, and thus drag their prey ashore. This habit of laying traps for other animals renders them very cautious of being entrapped themselves; and hence, we are assured by many persons of credit, that no snares, how nicely soever baited, will catch the Monkeys of the West India islands.

The females generally bring forth one at a time, and sometimes two. They seldom breed in the European climates; but such as do, exhibit a very striking picture of parental affection. Both the male and the female seem indefatigable in the nurture of their young one, in fondling and caressing it: nor do they instruct it with less assiduity, teaching it the various arts they themselves possess, and chastising it if either stubborn or inattentive. When wild in the woods, the female, if she happens to have two young, carries one on her back, and the other in her arms: that on her back clings very closely, clasping it's hands round her neck, and it's feet round her middle; and, when she would suckle it, she alters her position, that which has been fed giving place to the other, which she then takes in her arms; and, thus loaded, she is frequently incapable of bounding from tree to tree. On such occasions, the dexterity of these creatures is truly admirable: the whole family form

form a kind of chain, locking tail in tail, or hand in hand; and one of them holding the branch above, the rest swing down, balancing backwards and forwards like a pendulum, till the undermost is able to lay hold of the lower branches of some neighbouring tree. When the hold is fixed below, the Monkey drops that which was above, and thus comes undermost in it's turn; but, creeping up along the chain, attains the next branches, like the rest: and thus they all take possession of that tree, without ever reaching the ground.

These animals, when domesticated, are extremely entertaining; and but few are unacquainted with their various mimickries and capricious feats of activity. But it is generally in company with other animals of a more simple nature that their tricks and superior instincts are displayed: these they seem to delight in tormenting; and nothing pleases them better than to impose on the gravity of cats. Erasmus informs us that a large Monkey, the property of Sir Thomas More, diverting itself one day in his garden, where some tame rabbits were kept, played several of it's usual pranks among them, while the timid animals seemed much at a loss how to behave towards their new acquaintance. In the mean time, a weasel, which came there for a very different purpose from that of entertainment, was seen reconnoitring the place in which the rabbits were kept, and endeavouring to come at them by removing a board that closed their apartment. While the Monkey perceived no danger, it remained a calm spectator of the enemy's efforts; but when the weasel, by long perseverance, had removed the board, the Monkey then stepped forwards, and with the utmost dexterity fastened it again in it's place; and the disappointed weasel was too much fatigued to renew it's operations.

To the foregoing account may be added an abstract from the History of Angola by Father Carli. In that savage country, to which he was sent for the purpose of converting the barbarous natives to Christianity, and met with nothing but distress and disappointment; while his health was totally impaired by the raging heats of the climate, his patience exhausted by the obstinacy of the stupid inhabitants, and his provisions daily plundered without redress; in such exigencies he experienced more faithful services from the Monkeys of the country than from it's inhabitants of the human species. These animals he had taught to attend him; to guard him while asleep against rats and thieves; to comb his head, and to fetch his water; and he asserts, that they were even more tractable than the natives themselves. It is indeed observable, that in those countries where the men are most barbarous and stupid, the brutes are most active and sagacious: accordingly, the savages both of Africa and America suppose Monkeys to be men; idle, slothful, reasonable beings; capable of the use of speech, but obstinately dumb, lest they should be compelled to labour.

The human savages of Africa are, of all others, the most brutal; and, of all countries, the Monkeys of the same continent are the most expert and entertaining. The Monkeys of America are in general neither so sagacious nor so tractable; nor does their form so nearly approach that of the human race. Indeed, the Monkeys of the old continent may be easily distinguished from those of the new by three marks. Those of the ancient continent are universally found to have a naked cal-

lous substance behind, on which they sit; which those of America entirely want. Those also of the ancient continent have the nostrils differently formed, more resembling those of men, the holes opening downward; whereas the American Monkeys have them opening on each side. Those of the ancient world have pouches on each side of their jaws, in which they deposit their provisions; while those of America are destitute of them. And, lastly, none of the Monkeys of the ancient continent hang by their tails, which many of the American species are known to do. By these invariable marks the Monkeys of either continent may be distinguished from each other, and estimated accordingly. The African Monkey, we are well assured, requires a longer education, as well as more correction, than the American; but it is at last found capable of more various powers of imitation, and shews a greater degree of cunning and activity.

Beginning with the Monkeys of the old continent, the most remarkable species follow.

MONKEY, HARE-LIPPED; the *Simia Cynomolgus* of Linnæus. The nostrils of this Monkey are divided like those of the hare; the nose is thick, flat, and wrinkled; the head is large; the eyes are small; the teeth are very white; and the body is thick and clumsy. The colour is sometimes brown, at others yellowish, and sometimes olive; and the tail, which is rather shorter than the body, is always carried archways.

This species, which inhabits Guinea and Angola, is full of frolic and ridiculous grimaces. A few years since, an animal of this kind, about the size of a greyhound, was exhibited in London.

MONKEY, SPOTTED; the *Simia Diana* of Linnæus. This creature has a long white beard; the upper parts of the body are of a reddish colour, marked with white specks; the belly and chin are whitish; and the tail, which is very long, is of the same colour with the body. This species is of a middle size; and a native of Congo and Guinea.

MONKEY, YELLOWISH. This species, which is about the size of a fox, has a black face, great canine teeth, and large black naked ears. On the sides of the cheeks there are long hairs of a pale yellowish colour, falling backwards towards the head; the throat and breast are of a yellowish white hue; the crown, the upper part of the body, the arms, and the thighs, are cinereous mixed with yellow; on the lower part of the arms and legs, and also on the tail, the cinereous predominates: the hair is very coarse; and the tail is the length of the body. This creature is a native of Guinea. A well-preserved specimen may be seen in the Leveian Museum.

MONKEY, GREEN; the *Simia Sabæa* of Linnæus. This animal, the *Callitriche* of Buffon, and called by Edwards the *St. Jago Monkey*, has a black nose; and a red flattish face, it's sides being bounded by long yellow hair, falling backwards like a mustachio, and almost covering the ears, which are black, and resemble those of the human species. The head, the limbs, and the whole upper part of the body and tail, are covered with soft hairs of a yellowish green colour at their extremities, and cinereous at their roots. The under-side of the body and tail, as also the inner sides of the limbs, are of a silvery colour; and the tail is very long and slender.

This species of Monkeys, which are about the size

size of cats, inhabit different parts of Africa; and, on account of their colour, are scarcely distinguishable among the leaves, except by their breaking the boughs with their gambols, in which they are very agile, and at the same time very silent. Even when shot at, they emit no cry; but assemble together, knit their brows, and gnash their teeth, as if they meditated hostilities. They are very numerous in the Cape de Verd Islands; and are also found in the East Indies.

MONKEY, DOG-FACED; the *Simia Ethiops* of Linnæus. Buffon calls this animal the *Mangabey*; and it may be distinguished from all other species by its eye-lids, which are naked, and of a bright white colour. It has a long, black, naked, dog-like face; its ears are black, and like those of the human race; and it has no canine teeth. The colour of the body is tawny and black; the thumbs and fore-fingers have flat nails; the other fingers have blunt claws; and the tail, hands, and feet, are black. This creature is a native of Madagascar; and is extremely good-natured and tractable.

MONKEY, MUSTACHE; the *Simia Cephus* of Linnæus. This species, which inhabits Guinea, has a short nose of a dirty bluish colour; the edges of both lips, as well as the space around the eyes, are black; and on the cheeks there are two large tufts of yellow hair, like mustaches. The ears are round, and tufted with whitish hair; the colour of the hair on the head is yellow mixed with black; that on the body and limbs is a mixture of red and ash-colour; that part of the tail next to the body is of the same hue; and the rest is yellowish. The under part of the body is somewhat more pale than the upper; the feet are black; and the nails are flat. The length of this creature's body is one foot; and that of the tail eighteen inches.

MONKEY, WHITE NOSE; the *Simia Nictitans* of Linnæus. This species inhabits Guinea and Angola. When taken young, and tamed, it is very sportive and diverting; but, in a wild state, it flies from the presence of mankind, and is very crafty and disagreeable. It has a black flat face; the end of its nose is of a snowy whiteness; and its irides are yellow. The hair on its head and body is smooth, mottled with black and yellow; its belly is white; its hands are black; and its tail is very long, the upper side being black, and the lower white.

MONKEY, TALAPOIN. This creature, so called by Buffon, inhabits India; and may be distinguished by its beautiful variety of green, white, and yellow hairs. It has a sharp nose, a round head, and large black naked ears; the length of its body is about a foot; and its tail is slender, and about seventeen inches long.

MONKEY, NEGRO; the *Middle-Sized Black Monkey* of Edwards. This species has a round head, and a sharpish nose; the face is of a tawny flesh-colour, with a few black hairs on it; the breast and belly are of a swarthy flesh-colour, and almost naked; and the hair on the body, limbs, and tail, is long and black. It is about the size of a large cat; lively, entertaining, and good-natured in its disposition; and is one of those numerous species of the Monkey kind which inhabit Guinea.

MONKEY, EGRET; the *Simia Egret* of Linnæus. This singular species inhabits Java. They fawn on man, and on their own species, embracing each other with the most cordial affection. When they meet with a Monkey of a different kind, they

greet him with a thousand grimaces; and when a number of them go to sleep, they lay their heads together, and make a continual noise during the night. They have long faces, and upright sharp-pointed tufts of hair on the tops of their heads; the hair on their foreheads is black; the colour of the upper part of their bodies is olivaceous, and of the lower cinereous. Their eye-brows are large; and their beards are very small. The size of these creatures is inferior to that of common cats.

MONKEY, RED; the *Patasa Bandeau Noir* of Buffon. This species has a long nose; the eyes are sunk in the head; the ears are furnished with pretty long hairs; and the chin is bearded. The body is slender; over each eye, from ear to ear, extends a black line; the upper part of the body is of a very beautiful bright bay colour, almost red, and so vivid as to appear as if painted; and the lower parts are cinereous, tinged with yellow. The body is about eighteen inches long; and the tail is somewhat shorter.

These creatures inhabit Senegal. They are less active than Monkeys in general; but seem very inquisitive, approaching the banks of rivers, as vessels pass along, in prodigious crowds, considering them with vast attention, and throwing pieces of sticks at the crew. When shot at, they raise the most hideous cries; while some of them throw stones, and others their excrements, at their assailants.

MONKEY, CHINESE; the *Bonnet Chinois* of Buffon. This Monkey, which is a native of Ceylon, has a long, smooth nose, of a whitish colour; the hair on the crown of the head is long and flat, and parted like that of a man; and the colour of the body is a pale brown. Troops of these animals assemble in order to rob orchards and corn-fields. When driven from one end of an orchard or field, they enter directly at the other, and carry off with them as much fruit as their mouths and arms will contain.

MONKEY, BONNETED. This species is about the size of a small cat. The face is dusky; and on the crown of the head there is a kind of circular bonnet, consisting of upright black hairs. The hair on the sides of the cheeks is long; that on the body is brown; and the legs and arms are black.

MONKEY, VARIED; the *Mone* of Buffon. This animal inhabits Barbary, Ethiopia, and other parts of Africa. The nose is short, black, and thick; the orbits and mouth are of a dirty flesh-colour; the hair on the sides of the face, and under the throat, is long, and of a whitish colour, tinged with yellow; the forehead is grey; and above the eyes there passes a black line from ear to ear. The upper part of the body is dusky and tawny; the breast, belly, and insides of the limbs, are white; the outsides of the thighs and arms are black; the hands and feet are black and naked; and the tail is of a cinereous brown hue. The body is a foot and a half long; and the tail is upwards of two feet.

MONKEY, COCHIN-CHINESE; the *Douc* of Buffon. This animal, which is a native of Cochin-China, seems to unite all the characters of the Monkey kind. It is as large as the baboon; has a tail like the Monkey; and a flat face like the ape: it also resembles the American Monkeys in having no callosity on its posteriors. It is a very large species; the body being about four feet long, but

but the tail scarcely more than three. It inhabits Madagascar as well as Cochin-China; and often walks on it's hind-legs. It's face, which is short and flat, is bounded on each side by long yellowish hairs; there is a collar of purplish brown round it's neck; the lower parts of it's arms and tail are white; the upper parts of it's arms and thighs are black; and it's legs and knees are of a chestnut colour. It's back, belly, and sides, are grey, tinged with yellow; above the root of it's tail there is a white spot, which extends beneath as far as the lower part of it's belly and part of it's thighs; it's feet are black; and it's rump is covered with hair.

MONKEY, TAWNY. The face of this species is a little protuberant; and that and the ears are flesh-coloured: it has a flattish nose, and long canine teeth in the lower jaw; the hair on the upper part of the body is pale and tawny, but ash-coloured at the roots; the hinder part of the back is orange-coloured; and the belly is white. It is about the size of a cat; and it's tail is shorter than it's body. It is a native of India; and is very savage in it's disposition.

MONKEY, GOAT. This animal has a long beard, resembling that of a goat; the face is naked, of a deep blue colour, and obliquely ribbed; the body and limbs are a deep brown; and the tail is long. There is a beautiful drawing of this animal in the British Museum.

MONKEY, FULL-BOTTOM. This species inhabits the forests of Sierra Leona, where it is called Bey, or King Monkey. The negroes hold it's skin in the highest estimation, and apply it to various beneficial purposes. It has a short black naked face, and a small head; it's shoulders are bespread with long coarse flowing hair resembling a full-bottomed periwig, and of a dirty yellow colour mixed with black; it's body, arms, and legs, are of a fine glossy blackness, covered with short hairs; it's hands are naked, and furnished with no more than four fingers; and on each foot there are five very long slender toes. The tail is very long, and of a snowy whiteness, with very long hair at the end, forming a tuft; the body and limbs are slender; and the length of the former is about three feet.

MONKEY, ANNULATED; the *Simia Apella* of Linnæus. This animal has a flat face, and long hair on the forehead and cheeks; the upper part of the body and limbs is of a tawny brown colour; the belly is cinereous; the tail, which is shorter than the body, is annulated with a darker and lighter brown; and the hands are black and naked.

MONKEY, PHILIPPINE; the *Simia Syrichta* of Linnæus. This obscure species is mentioned only by Petiver, who says that it is a native of the Philippine islands, and that it's mouth and eyes are beset with long hairs.

Having described the Monkeys of the old world, we shall attend to those of the new, which have neither pouches in their jaws nor naked posteriors.

MONKEY, PREACHER; the *Simia Beelzebub* of Linnæus; and the *Ouarine* of Buffon. This species is about the size of a fox, with long black hair; and a long tail, always twisted at the end. It has black shining eyes, short round ears, and a round beard under the chin and throat. It inhabits the woods of Brazil and Guiana, and is the largest of the Monkey kind found in America. It's voice is remarkably loud, and it makes a most

dreadful howling. It is common for one of these creatures to ascend a lofty tree, and the rest to place themselves on the branches below. That Monkey who is elevated above the rest sets up a loud and shrill howl, which may be heard at a great distance. After having harangued his companions for some time, he makes a signal with his hand, when the whole assembly immediately join in chorus; and, on a second signal, they become silent, and the orator finishes his speech. Their clamour, on such occasions, is more disagreeable and tremendous than can easily be conceived. These Monkeys are very fierce, mischievous, and untameable.

MONKEY, FOUR-FINGERED; the *Simia Panificus* of Linnæus. This Monkey may be distinguished from the rest, by having no thumb, and consequently but four fingers on each of the two fore paws: but the tail supplies the defects of the hand; and with this the animal flings itself from tree to tree with surprising activity. It has five toes on the hind-feet; a slender body; and a long tail: the body, which is about eighteen inches long, is covered with long black rough hair.

These Monkeys inhabit the vicinities of Carthagen, Brazil, and Peru. Being extremely agile, they greatly enliven the forests in which they reside. In order to pass from the top of one lofty tree to another, whose branches are too distant for a leap, they form a kind of chain, by hanging down linked to each other by their tails; and swinging in that manner till the lowermost catches hold of a bough of the next tree, and draws up the rest: and Ulloa informs us, that they pass rivers after the same manner. They are sometimes imported into England, but are too delicate to live long in this climate.

MONKEY, TIMID; the *Simia Trepida* of Linnæus. This species has a yellowish flesh-coloured face; it's hands and feet are covered with a black skin; and it's tail, which is longer than it's head and body, is frequently carried over it's shoulders. It is a native of Guiana, and a very lively species; but, when domesticated, is extremely capricious, shewing a great affection for some persons, and a great aversion for others.

MONKEY, CAPUCHIN; the *Simia Capucina* of Linnæus; and the *Sai* of Buffon. This species, which inhabits South America, has a round head; a flat flesh-coloured face, encircled with upright whitish hairs; and a breast covered with long shaggy pale yellow hair. The head is black; the body and tail are of a deep dusky brown colour; the tail is extremely long; and the toes are furnished with crooked claws.

MONKEY, WEEPER; the *Simia Apella* of Linnæus. This animal is called the Weeper from it's peculiar manner of lamenting when either threatened or beat. It is very deformed; has a round flattish face; and is of a reddish brown colour. The hair on the head and the upper part of the body is black, tinged with brown; and beneath, and on the limbs, tinged with red. The tail, which is black, is much longer than the head and body; and the hair is very long, and thinly dispersed.

These Monkeys, which inhabit Surinam and Brazil, are of very melancholy dispositions, and appear as if always in tears; but, nevertheless, are extremely fond of imitating the human species. They associate in large companies; and make a loud chattering, especially in stormy weather.

MONKEY, ORANGE; the *Simia Sciurea* of Linnæus. This is one of those Monkeys which hold by their tails, and is the smallest and most beautiful of any of them. The hair of the body is short and fine, and of a yellow brown hue; but, in its native country, of a brilliant gold colour. The feet are of a fine orange-colour; the nails of the hands are flat; and those of the feet resemble claws. The tail is very long; and the body scarcely exceeds the size of that of a squirrel. It is a very tender and delicate animal, and held in high estimation. It is a native of Brazil and Guiana, and is seldom imported into this country alive.

MONKEY, HORNED; the *Simia Fatuellus* of Linnæus. This animal is distinguished by two tufts of hair, resembling horns, on the top of its head. It has bright eyes; ears resembling those of the human species; and is of a dusky colour. The body is about fourteen inches long, and the tail fifteen. It is an inhabitant of America, and one of the Sapajon kind.

MONKEY, ANTIGUA. This Monkey has a black face, and a short nose; the back and sides are orange-coloured and black; the belly is white; the length of the body is eighteen inches, and that of the tail twenty. It was brought from Antigua, and was lately in the possession of Robert Morris, Esq. of the Navy Office. It is good-natured, sprightly, and frolicksome.

MONKEY, FOX-TAILED; the *Simia Pithecia* of Linnæus. Buffon calls this animal the Saki; and he distinguishes it from those of the sapajon kind, or those Monkeys which hold by their tails, by the name of Sagoins, which have feeble tails. It is remarkable for the length of the hair on its tail, and is therefore called the Fox-tailed Monkey; the body is about eighteen inches long, and the tail considerably longer, the former being covered with long dusky brown hair, white or yellowish at the tip; the hands and feet are black; and it has claws instead of nails. This creature inhabits Guiana.

MONKEY, GREAT-EARED; the *Simia Midas* of Linnæus. This species is chiefly remarkable for its ears, which are very large, erect, and almost square. The hair on the body and upper part of the limbs is sleek; the hands and feet are covered with light orange-coloured hair, which is very fine and smooth; the nails are long and crooked; the tail, which is twice the length of the body, is black; and the teeth are very white.

This animal, which is about the size of a squirrel, inhabits the warmer climates of South America; and the Isle of Gorgona, south of Panama, in the South Sea. 'At low water,' says Dampier, 'they come to the sea-side, to feed on muscles and periwinkles, which they dig out of the shells with their claws.'

MONKEY, STRIATED; the *Simia Jacchus* of Linnæus. This species is remarkable for two long thick tufts of white hair projecting on each side of its face, under the ears; and for its tail, which is very full of hair, and annulated with ash-colour and black. The body is about seven inches long, and the tail eleven; the hands and feet are covered with short hair; and the fingers, which resemble those of a squirrel, are furnished with sharp claws.

This creature, which is a native of Brazil, feeds on vegetables and fish; makes a weak kind of noise; and is extremely restless.

MONKEY, SILKY; the *Simia Rosalia* of Linnæus. This Monkey is remarkable for having a mane round the neck, and a bunch of hair at the end of the tail like a lion: the mane is generally of a bright bay colour, though sometimes yellow; and the hair on the body is long, fine, silky, glossy, and of a bright pale yellow hue. The face is flat, and of a dull purple colour; the ears are round and naked; the hands and feet are also naked, and of a dull purple colour; and there are claws, instead of nails, on the fingers. The length of the head and body is about ten inches; and the tail is upwards of thirteen. This species inhabits Guiana; and is very gentle and lively.

MONKEY, LITTLE LION; the *Simia Œdipus* of Linnæus. This animal has a beautiful black face, with white hair descending on each side of it like that of a man; the back and shoulders are covered with long loose brown hair; the rump and half the tail are of a deep orange-colour inclining to red, but the remaining part of the tail is black; the throat is also black; the breast, belly, and legs, are white; and the claws are sharp and crooked. The body is eight inches long, and the tail is sixteen.

This species, which inhabits Guiana, Brazil, and the banks of the River of the Amazons, possesses great agility and vivacity, and has a soft whistling note.

MONKEY, FAIR; the *Mico* of Buffon. This animal inhabits the banks of the Amazons, and is a most beautiful and elegant species. The head is small and round; and the face and ears are of a most lively vermilion colour. Condamine, to whom one of these animals was presented by the governor of Para, says, that the hair on its body was of a beautiful silver colour, brighter than that of the most venerable human hair; while the tail was of a deep brown, inclining to blackness. This description, he says, was framed while the creature was alive. He also says, that he kept it a whole year before it died, and afterwards preserved it in spirits of wine, in order to prove that his account was not exaggerated. Its body was eight inches long, and its tail twelve.

MONOCEROS PISCIS. An American fish about a foot and a half long, high backed, low bellied, and very flat bodied; with a head bearing some resemblance to that of a baboon. From the top of the head proceeds a smooth, round, tapered, straight horn, about three inches long, apparently a prolongation of the cuticle, being entirely destitute of any ossification. The body is covered with a tough thick skin, feeling somewhat rough; and the dorsal fin extends from the head to the tail.

MONOCEROS PISCIS is also a name applied to another fish common in the American seas, called *Pira Aca* by Marcgrave, and *Pixe Porco* by the Portuguese. It is very small, being only about two inches long, and one inch and a half broad. It is of a flattened, compressed shape; the mouth is very small; and a little behind the eyes, on the ridge of the back, there is an upright horn, bending a little backwards, of a rounded figure, and about the thickness of a large thread. The skin, which is very rough to the touch, is of an obscure yellowish colour; but the fins and the ridge of the back are of a deeper shade than the rest.

MONOCULUS. A genus of insects of the podaria kind, and of the order of aptera in the Linnæan system. Naturalists enumerate a great many species of this genus; among which are reckoned

reckoned several microscopic animals: however, Linnæus makes only nine, and of these the differences are not very material.

The body of the Monoculus is short, of a roundish figure, and covered with a firm crustaceous skin; the fore-legs, which are ramose, serve for leaping or swimming; and the eyes, which, on account of the smallness of the head, appear as if united, are situated in the trunk, which is not only small and sharp, but also transparent. The structure of the eye is by the help of the microscope discerned to be reticulated, or formed like a net; and the trunk, by which the insect feeds, is extremely well adapted by its sharpness for that purpose.

These insects, which are of a blood-red colour, are sometimes seen in such multitudes on the surface of standing water, as to change it to a deep red; whence many superstitious people, ignorant of the true cause, have supposed the liquid element to be converted into blood.

No part of this animal is more worthy of a naturalist's attention than its branching arms, by which its motions in the water are performed: by means of these it can move in a straight line; waving its arms as a bird does its wings in the air, sometimes upwards, at others downwards, sometimes to the right, and at others to the left, yet still continuing to proceed in a right line. By beating the water with its arms, it can ascend with great velocity; and by striking in a contrary direction, it can dive with equal ease. As these motions are very rapid, the little animal seems to jump in the water; its head always tending to the surface, and its tail stretching downwards.

The Monoculus is produced from an egg, which, when excluded, is carried on the back of the female; and is soon observed floating around her in the water. Its appearance at first is that of a very small whitish insect, endowed with a very nimble motion; and, except in colour, it suffers no future change, only continuing to grow larger and redder as it advances in age.

These insects sometimes remain for several days successively on the surface of the water, and at other times are seen at the bottom only. They change their skins, like most others of the insect kind; and the exuviae so exactly resemble the living animals, that, at first sight, it is a difficult matter to discriminate between them.

MONODON. In the Linnæan distribution of nature, the name of the monoceros, or sea-unicorn, a fish of the whale kind, making a distinct genus; the characters of which are, that it has a pipe in the forehead, and no dorsal fin, but two very long spiral teeth in the upper jaw.

Artedi makes the Monodon a peculiar genus among the plagiuri, or cetaceous fishes. The narwal is the only species as yet discovered of this genus.

MONOPS. An appellation given by Ælian to the bonafus. Aristotle tells us, that the natives of the country where this animal was most frequent, called it the Monapus. Some of the Greek writers have also stiled it the Monepos; and others, the Bolinthos.

MONTIFRINGILLA. A classical appellation for a bird known in English by the name of the bramble, brambling, or mountain-finch; and called by the ancients Oropiza.

MOON-FISH. An appellation given by some ichthyologists to the orbis. See **ORBIS.**

MOOR-BUZZARD. See **BUZZARD.**

MOOR-COCK. An English name for the red-game, the lagopus of authors, called also the gor-cock. It is a very delicate fowl, larger than a partridge, and common on the Derbyshire and Yorkshire hills. See **GOR-COCK.**

MOOR-HEN; the Fulica Chloropus of Linnæus; and the Gallinula Chloropus of authors in general. This is a well-known bird, shaped somewhat like a coot, but smaller, and very much flattened in the body. The crown of the head, the hind part of the neck, the back, and the coverts of the wings, are of a fine deep olive green colour; the feet are greenish; the breast is a lead-coloured blue; and the belly is greyish. The colours of the plumage in the female are much less brilliant than in the male; and the bird itself is inferior in size.

Moor Hens are often seen about our rivers: they breed twice or thrice in the summer; strike with their bills like the common hen; and in the spring have a shrill call. Their flesh is extremely well-flavoured.

MOOSE-DEER. This animal appears to be the same with the elk; for, on comparing the horns of both together, the distinctive characters of the one exactly correspond with those of the other. However, the account given by Joffelyn of the size of the American Moose has every appearance of being greatly exaggerated; for he asserts, that some are found twelve feet high: but Charlevoix, Dierville, and Lefcarbot, with more probability, make it of the size of the horse: and, if we may depend on modern writers, the common height is from fifteen to seventeen hands. Those who speak of the gigantic Moose-Deer, say, that their horns are six feet high, and that the extent from tip to tip is two fathoms: but it seems evident that these journalists have been too credulous, and taken their descriptions either from hunters or Indians who were fond of the marvellous. The only thing certain is, that the elk is common to both continents; and that the American, having larger forests to range in, and more luxuriant food, grows to a larger size than the European.

In America, the Moose-Deer are found in the peninsula of Nova Scotia, and Canada; in Europe, they inhabit Lapland, Norway, Sweden, and Russia; and, in Asia, the north-east parts of Tartary and Siberia: but in each of those continents they only possess such particular districts where the cold is intensely severe during a great part of the year.

These creatures have a very singular gait; their pace is a high shambling trot; nevertheless, they move with great velocity. Anciently, these animals were employed in Sweden in drawing sledges; but, as they were frequently accessory to the escape of criminals, their use was prohibited under great penalties. In passing through thick woods they carry their heads horizontally, to prevent their horns being entangled in the branches of trees. In their common walk, they raise their fore-feet very high; which circumstance probably induced the ancient Romans to conjecture that their legs were destitute of joints. They are very inoffensive creatures, except when wounded, or in the rutting-season, when they become extremely furious, striking with their horns and hoofs. In Canada, they are hunted during the winter season; when they sink so deep in the snow, as to become an easy prey.

The flesh of Moose-Deer is highly prized for being

being light and nutritive; but their noses are esteemed the greatest delicacy in all Canada: their tongues also are excellent, and frequently imported from Russia. Their skins make excellent buff-leather; and Linnæus asserts that it will resist a musket-ball. Their hoofs were formerly supposed to possess great efficacy in curing epilepsies; and it was pretended that the elk, being subject to that disease, cured itself by scratching its ear with its hoof. See **ELK**.

MORDELLA. An appellation given by some writers to the ear-wig.

MORDELLA is also the name of a genus of four-winged flies, of the coleoptera order of insects: the distinguishing characters of which are: that the antennæ are filiform and ferrated; that the head is deflected under the neck; that the palpi are compressed, elevated, and obliquely truncated; that the elytra are bent down towards the apex; and that the fore-thighs are broad at the base of the abdomen. Linnæus enumerates six species.

MORDELLA, OBLONG, BLACK. This species is about half an inch long, and a quarter of an inch broad: it has a slender pointed tail, and a small head; the cases of the wings are of one uniform colour; the breast is smooth, and very convex; and the feelers are slender, truncated, and jointed. The body grows gradually smaller towards the tail, where it terminates in a sharp thorn or prickle, which is black like the body, and extends beyond the extremity of the wings. The legs are long and slender, by which means it leaps very nimbly.

MORDELLA, ROUNDISH, OPAKE BLACK. The head of this species is small; and the breast raised, being of a dusky deep black colour, but not glossy: the cases of the wings are of the same hue, and somewhat shorter than the body; but the legs are slender and long. This insect is common in gardens.

MORDELLA, SHINING BLUE, OVAL-BODIED. This species is not much larger than a flea: the body is short, and nearly of an oval form; the breast and back are both very convex and smooth, and of a deep beautiful glossy blue colour; the legs are long; the thighs are thick, robust, and whitish; and the lower part of the legs is of an iron-grey colour.

MORDELLA, ROUNDISH BLACK, with a brassy tincture. This species is less than a flea; and entirely of a very deep glossy black colour, with a fine metalline yellowish cast: the belly and legs are of the same fine black hue, but without the yellow tinge; and the cases of the wings, which are striated, consist of five small yellow spots. This animal frequents gardens early in the spring.

MORDILAPIS. An appellation given by some writers to the loach, a small fish often found under stones in shallow waters.

MORGRAY. A fish of the galeus kind, called also the rough hound-fish; the *Catulus Minor* of Salvian; and the *Mustelus Stellaris Tertius* of Bellonius. This fish is of a pale, and somewhat reddish grey colour, spotted with brown and white; the belly is of a silvery white hue; the body is long and round; the skin is very rough; and the flesh is extremely firm, and finely flavoured.

The Morgray is the smallest of this genus of fishes, seldom weighing above one pound and a half: it is common in the Mediterranean; and is frequently exposed to sale in the Italian markets.

MORHUA. An appellation given by some ichthyologists to the common cod-fish.

MORILLON. A species of duck, apparently

the same with the *rosso capo*, a small red-headed wild fowl.

MORINELLUS. The classical appellation for the dotterel.

MORMYLUS. A species of fish of the sparus kind, with the upper jaw longest, and twelve parallel transverse black lines on each side.

MORMYRUS. A genus of abdominal fish, with a smooth head, several emarginated teeth, a linear aperture in the gills with a cover, and a squamose body. There are two species, both inhabitants of the Nile.

MORRIS; the *Leptocephalus* of Gronovius. A fish so called by Pennant in honour of his friend Mr. Morris, who first discovered it. This curious species, which was caught near Holy-Head, was four inches long; the head was very small; the body was compressed sideways, extremely thin, and almost transparent, about the tenth of an inch thick, and in the deepest part about the third of an inch. Towards the tail it grew more slender, and terminated in a point; and towards the head it sloped down. The eyes were large; and the teeth in both jaws very small. The lateral line was straight; and the sides were marked with oblique strokes. The apertures to the gills were large; it wanted the pectoral, ventral, and caudal fins; the dorsal fin was extremely low and thin, extending the whole length of the back; and the anal fin extended to the same distance from the anus.

MORSE; the *Trichecus Rosmarus* of Linnæus. This animal, which is somewhat of the seal kind, has a round head; a small mouth; and very thick lips, covered both above and below with pellucid bristles as thick as straws. It has two small fiery eyes; and two large orifices instead of ears. The neck is short; and the body is thick in the middle, but tapering towards the tail. The skin is thick and wrinkled, and has short brownish hairs thinly dispersed over it; the legs, which are short, have five toes on each, all connected by webs, with small nails on them; the hind feet are very broad; and the hind legs are usually extended on a line with the body. The length of this creature, from the nose to the tail, is from twelve to eighteen feet; it generally measures ten or twelve feet round in the thickest part of the body; and the tail is extremely short. The teeth are generally from two to three feet long; and the ivory is held in greater estimation than that of the elephant, being both whiter and harder. On the coast of the Icy Sea, where it is seldom molested, and consequently has time to attain its full growth, the teeth have been sometimes found of the weight of twenty pounds each.

These animals inhabit the coast of Spitzbergen, Nova Zembla, Hudson's Bay, the Gulph of St. Lawrence, and the Icy Sea. In some places they appear in herds of hundreds at a time. Being very timid creatures, they always avoid those places which are much frequented by mankind. They are extremely fierce when enraged; and, wounded in the water, endeavour to sink the boat of their adversaries, either by rising under it, or by striking their large teeth into its sides. They roar very loud; and follow their assailants as long as they can keep their boat in view. They are often seen sleeping in large companies, on an island of ice; and, if disturbed, plunge into the sea with vast impetuosity: at such times it is dangerous to approach the ice, lest they should tumble into the boat, and overset it.

Morfes never venture on land till the coast is clear of ice, and then they sometimes go ashore in amazing numbers. As soon as the first arrives on dry ground, it will not move till another comes and forces it forward, by beating it with it's large teeth: this receives the same treatment from the next; and so on in succession till they are all landed. The hunters watch the landing of those animals on the Magdalene Islands, in the Gulph of St. Lawrence; and, as soon as they find a sufficient number, for what they call a Cut, they go on shore, each armed with a spear, edged on one side like a knife, and with it cut their throats. However, particular care must be taken not to stand in the way of those that attempt to return to the sea, which they do with great agility, by tumbling headlong. They are sometimes dispatched for the sake of their oil, one animal sometimes producing half a tun: and Buffon informs us, that he has seen braces for coaches made of their skins, which are both elastic and durable.

The Morfe produces one or two young at a time. It feeds on sea-herbs and fish; and also eats shells, which it digs out of the sand with it's teeth. It is said to ascend rocks, or pieces of ice, by the assistance of it's teeth, fastening them to the cracks, and by that means drawing up it's body. Excepting the human race, this animal seems to have no other enemy but the white bear, with which it often combats, and is generally victorious by means of it's enormous tusks.

MORSE, INDIAN; the Dugon of Buffon. This animal has two short canine teeth, placed in the upper jaw, pretty close to each other; it has four grinders on each side of the upper jaw, placed at a distance from the tusks; and three on each side in the lower jaw. It inhabits the Cape of Good Hope, and the Philippine Islands; and is said to go ashore in search of green moss.

MOSCHELAPHUS. An appellation given by some naturalists to a creature of a mixed nature, said to be generated between a stag and a cow.

Wagner tells us, that these animals are sometimes seen in the mountainous parts of Switzerland; as are also the hippotauri, produced by the copulation of a bull and a mare: but neither of these ever propagate their species.

MOSCHIFERUM ANIMAL; the Moschus Moschiferous of Linnæus. An appellation frequently given to the creature from which we derive the perfume called musk. See MUSK.

MOSCHUS. A genus of pecora in the Linnæan system; the distinguishing characters of which are, that it has two long tusks in the upper jaw, and no horns. Linnæus enumerates three species, one of which is the Moschiferum Animal.

MOTACILLA. See WATER-WAG-TAIL.

MOTH. A numerous and beautiful class of winged insects of the butterfly kind, from which they are properly distinguished by their feelers terminating in a sharp point, and by flying chiefly in the night; whereas butterflies, properly so called, have clavated feelers, and seek their food and mates during the day. Hence they have also been discriminated by the names of diurnal and nocturnal butterflies.

The ingenious Mr. Harris, who furnished drawings and descriptions of Butterflies, has also favoured us with the following synoptical system of these insects.

VOL. II.

The Phalænæ is that generation of the Lepidoptera called Moths, whose antennæ diminish to a point at the extremity. When at rest, their wings are deflexed over each other, the superior wings covering the inferior. The abdomen lieth between the edges of the inferior wings, not in a kind of bed or groove, as in most of the Papillio; and the legs have two thorn-like sharp points at the middle joints of each.

The Sphinx is also a term for a tribe or class of the Phalænæ, which Mr. Wilks, in his Natural History, says are between the Moth and the butterfly; and Linnæus has also placed it between them in his Systema Naturæ, as a distinct tribe or class. There is, however, no reason why they should be separated from the Phalænæ, as there is not a property or character belonging to those termed Sphinxes, but may be seen in many of the Phalænæ. The antennæ being thick in the middle, and gradually lessening toward each end, is the character by which they are alone to be distinguished; but this is not sufficiently conspicuous, even when closely examined by a magnifying glass; and it is observable that they have all the generical characters of the Moth given as descriptive above, though many species of the Phalænæ, or Moths themselves, have not.

PLATE THE FIRST.

Fig. 1. The LARGE TIGER. The caterpillar of this Moth is about two inches and a half long when at it's full growth, black, but covered with long brown hairs. Their food is almost any thing which is vegetable; they are very often found in gardens, but particularly among nettles on banks, any time in April or May; for those of this species are in the caterpillar state during the winter. The caterpillar, when full fed, spins itself up in a white web, wherein it changes to a black chrysalis: in this it lieth for one month, at the expiration of which time it makes it's appearance in the Moth state, which is very rich and brilliant. The superior wings are of a cream colour, spotted with large clouds of a dark chocolate hue; and the inferior ones are of a beautiful scarlet, ornamented with large spots of black, which appear glossy, like a piece of indigo when broken. The thorax is of a dark brown colour, as the spots on the superior wings; and the abdomen is a bright scarlet, having several marks across the upper part. The eggs of the female are of a fine green colour, and laid in regular and exact order; in number more or less: Mr. Harris once counted upwards of eight hundred and forty. One remarkable circumstance is, that the caterpillars, when produced from the eggs, instead of looking out for other food, devour the shells from which they emerged the moment before. The female is larger by much than the male.

Fig. 2. The SMALL TIGER. The caterpillars of the Small Tiger are produced by little round shining eggs, of a light green colour, which the parent Moth fixes to the food, about the latter end of June, in beautiful and regular order. When they appear from the eggs, they separate, and wander in search of food, or rather that part of the food they like best, as they are supposed to be on it. Their chief aliment is chickweed and nettles, on which they feed till winter, when the inclemency of the weather obliges

obliges them to conceal themselves in such convenient holes as they can find, wherein they lie till the ensuing spring awakes them from their dormant state. When full fed, they spin themselves into whitish webs, wherein they change to black chrysalides, which are covered with a fine bloom like that on the plum. In this state they remain three weeks, or until the beginning of June, when the beautifully dappled creatures make their appearance. The different sexes are easily distinguished; the abdomen of the female being of a bright scarlet colour, and that of the male of an orange clay.

They always fly in meads near woods, or perhaps in such woods as afford pleasant glades, where they are not much troubled with the brush or small wood; and on this account they have often been called Wood-Tigers. Their time of flight is generally about three or four o'clock in the afternoon: they fly very swiftly, and commonly settle on the ground in the grass. If any person be present when one of them settles, and intends to take it, he is carefully to observe the place, then run as fast as he can, and cover it with his net; for these insects are very timorous, and soon apprised of danger; and should the person approach slowly, they would have time to disengage themselves from the grass, in which a sudden alarm caused by a swift motion but the more confuses and entangles them.

Fig. 3. PINK UNDERWING. The caterpillar feeds on ragwort, and may be found about the latter end of July, nearly full fed. It is of a golden yellow colour, having a number of black belts or rings from the head to the tail. When fit to change, it creeps down the plant, and conceals itself in any little hole, or under a piece of dirt, where it changes to a chrysalis, that is very small considering the length and size of the caterpillar, which is near two inches in length; but the chrysalis never exceeds half an inch. In this state it lies till the end of May, when it bursts its shell, and makes its appearance. Its first act is to climb the nearest thing it approaches, to which it hangs by its legs, in order to expand and dry its wings; after which it takes flight. The superior wings are of a footy black colour, having a long streak on the sector edge of the wing, which reaches from the shoulder to the apex or tip; and on the fan edge of the wing there are also two spots of the same red colour. The inferior wings are of a fine deep scarlet red hue, though are falsely named Pink Underwings.

This species always flies in the day-time.

Fig. 4. LARGE MAGPIE. With the caterpillar of this beautifully spotted Moth those who have gardens are but already too well acquainted. It feeds on the currant-trees, which are its chief, if not only food. It is of a delicately pleasing white colour, with large black spots down the back from the head to the tail. The sides have each a line of spots of the same black colour intermixed with red. It is of the looper kind, of which there is a great variety; and in its progress contracts its hinder parts up to its fore, at which time it appears in the form of a loop or staple; then it stretches itself, or extends its fore-part as far as it can; and then draws up

its hinder parts again: and this is the manner in which it moves from place to place. The Germans call these insects Measurers or Surveyors. They live in their caterpillar state during the winter; and may easily be found by those who look for them on currant-bushes. About April they begin to feed again, and arrive at maturity about the beginning of June, when they spin very weak webs under rails, or in any little sheltered places, where they change into black chrysalides, having several rings or bands of yellow round their tails.

These pretty Moths appear in twenty-one days; and they always fly in the evening after sun-set.

Fig. 5. BROWN TAIL. This Moth is of a white colour, shining like silk; but the hinder or lower part of the tail is loaded with a bunch of flue or hair of a dark brown colour. With this flue the female covers her eggs as soon as she has laid them, namely, in the month of July.

The caterpillars are produced from these eggs about eight or nine days afterwards; when, as with one consent, they begin to contract and draw the leaves together with great strength: as they grow larger, they make them stronger and more compact; and, by the time the inclement winter approaches, they are so well spun over, web upon web, as even to defy the bill of a sparrow: and they are also very artfully contrived; for the passages into them are serpentine, like those of shells.

In fine weather, they come abroad, feeding and walking about, or lying in clusters close together; but should the wind blow too hard, or a shower of rain come on, they instantly return to their webs in great haste.

About the month of June, they begin to separate, being in their last skins; and, when full fed, each spins a web, wherein it changes to a chrysalis, which is about the latter end of June; and the Moth appears about the latter end of July.

These are the insects whose caterpillars occasioned so great an alarm, not only in the environs of the city of London, but all over England, in the years 1781 and 1782. In 1781, great notice was taken of their being so numerous; the hedges and bushes being covered, as usual, with their webs, for they are always very plentiful. The gentlemen of the Society for the Encouragement of Arts, Manufactures, and Commerce, then published an advertisement in the newspapers, soliciting the favour of any person to inform them respecting the best and readiest way to destroy them. A letter was accordingly received by the society from a professor of natural history, importing, that as every method had been in vain used, by fumigations, powders, poisonous waters, &c. to destroy them, the only resource left, and indeed the best, was to employ people in cutting off their nests in winter, at which time they were so plainly to be seen on the bushes, and either to burn or bury them. In consequence of these instructions, letters appeared every day for some time in most of the newspapers, disturbing the minds of the vulgar with the dreadful consequences which would naturally ensue from the existence of those infectious creatures; and people were accordingly employed in gathering them, at the rate of sixpence per bushel. It was likewise mentioned in one of these letters, that

the caterpillars falling from the bushes, or washed off by rain on the grass, would or might be eaten by cows or other cattle, by which means they would be infected; the consequence of which must be a pestilence throughout all London, if not all England.

As to the history of these insects, so far as relates to the charges laid against them with respect to their being poisonous, infectious, or devouring fruit-trees: in the first place, they are eaten by such birds as, according to various travellers, will eat of no fruits that are poisonous or hurtful: and further, travellers in foreign countries will not, nay dare not, eat of any fruits unknown to them, except they perceive that the birds have first pecked them. Neither do they feed on fruit-trees, their food being only white-thorn or oak, the latter of which they are extremely fond of. Those caterpillars which destroy fruit-trees, according to the most celebrated naturalists, are the Distaff Urmine; the Little Ermine; and the Apple-Moth.

Fig. 6. PRIVET. The caterpillar of this grand Moth feeds on the privet, and sometimes on the lilach. When full fed, it is about four inches in length, and of a fine green colour: the head is bordered down each side with black; on each side of the body there are seven oblique stripes of purple and white; and at the tail is fixed a sharp-pointed horn-like appendage, which is black and glossy.

It goes into the ground about the middle of August, where it changes into a large brown chrysalis; and about the sixth or seventh of June, a fine grand and beautiful large Moth makes it's appearance, which measures, from tip to tip, above five inches.

This is one of the Sphinx kind. It flies in the evening after dark, but is seldom taken in the Moth state. The caterpillars are easily found in privet-hedges, by searching underneath for them: they are black, and about the size of a pea, but in form like a piece cut from a small rope.

Fig. 7. FORESTER. The caterpillar of this little green Moth feeds on that sorrel which grows in meadows. When at full size, it is about an inch in length, thick in the middle, and small at both ends; and in colour something like wainscot. When full fed, it spins a web, within which it makes another, wherein it changes into a chrysalis, about the third of May: in this state it lies about twenty-four days, or until the twenty-seventh of May.

This is also classed with the Sphinxes, though there is no comparison between them, scarcely even in their antennæ.

The Moths may be often found in meadows, on the grass: and they fly in the day-time.

Fig. 8. BURNET. This Moth is very beautiful in it's appearance. The caterpillar usually feeds on a plant called burnet, but will also feed on grass. It is rather above an inch in length; and shaped like the Forester, thick in the middle, and small at both ends. It is of a yellow colour, spotted all over with black: those spots down the back appear in the shape of crescents or half moons. When full fed, which is generally about the middle of May, it spins a web

something like a bag hanging to a blade of grass, wherein it changes to a black chrysalis: in this state it remains till the beginning of June, when the Moth makes it's appearance.

This Moth is of a beautiful green colour on the body and upper wings: the inferior wings are a fine scarlet; and there are six spots of the same scarlet colour on the superior; but the male has no more than five.

This is one of those Moths which has the sense and cunning to feign itself dead, or lie still with it's legs contracted when it finds itself in danger, and will remain so for a long time; but at length it takes a sudden spring, and flies off. They fly about meadows, in the day-time, in abundance.

Fig. 9. The LASCAR. This beautiful Moth was brought from Aracan, about three hundred miles to the south-east of the mouth of the Ganges, in the Bay of Bengal. They fly in the day-time, among the shrubs and rice in particular, in great numbers. The thorax is of a tawny colour, having ten small round black spots; it hath also two on the shoulder ligaments of each superior wing; the wings in general are of a cream colour beautifully tipped with dark brown; besides a large spot of the same colour in the middle of each of the superior wings. The abdomen is of a beautiful red hue, with a row of round black spots on each side, not to be perceived in the drawing, because near the under-side.

Fig. 10. GREEN SILVER LINES. The antennæ of this Moth are red, and like fine threads; the thorax is of a light green colour; the abdomen is nearly white; the superior wings are of a pea-green hue, having three white lines of a pearly gloss, which cross the wing obliquely; the inferior wings are a greenish white; the under side is of the same colour; and the legs are red.

The caterpillar feeds on oak, and adheres very strongly to the branches. When full fed, which is in September, it spins a strong case, in form not unlike the bottom of a boat, wherein it changes to a flesh-coloured chrysalis, shaded on the back part with purple. The Moth appears about the latter end of May.

Fig. 11. ARGENT AND SABLE. This beautifully chequered Moth is found in those lanes where there is plenty of white-thorn. The antennæ are somewhat like threads; the head, thorax, and abdomen, are white dappled with black; and the wings are of a clear white colour, chequered with zigzag or angulated spots of fine black.

These Moths, which are extremely scarce, are taken, about the sixth of June, in lanes which lead through woods hedged with white-thorn.

PLATE THE SECOND.

Fig. 1. CREAM SPOTTED TIGER. This Moth is totally of a cream colour, except the abdomen, which seems to glow with a fine orange, decorated with six oblong black spots down the upper part. The superior and inferior wings are besprinkled with spots of the same colour, and nearly of the same size; of which some are disposed in a lineal direction from the middle of the

the lower edge of the superior wing to the tip or apex: in the number of these spots they are very different, some having more, and others less. The male is darker than the female, or more inclining to the orange colour. The antennæ of the female are like threads, but those of the male are pectinated like feathers.

The caterpillar of this Moth is produced from a round green egg, about the month of June; some sooner, others much later. It will feed on almost any thing that is green; and is very common in all gardens about London. Its length is about one inch and a half; it is very hairy; and of a light brown colour. About the middle of August, or indeed any time in autumn, it spins a web, within which it changes to a black chrysalis; and in that state it lies during the winter, and makes its appearance as a Moth the ensuing May.

These Moths are commonly found sitting against walls and pailings, or adhering to the ceilings of rooms.

Fig. 2. SPECKLED YELLOW. The antennæ of this Moth are like small hairs; the head is remarkably small in proportion to the body; the superior wings are of a fine yellow hue beautifully clouded with small brownish spots; the inferior wings are of a fine deep yellow inclining to orange, and clouded with spots about the same size, but of a deep black colour; and the thorax and abdomen are yellow.

It is worthy of remark in this Moth, that on the upper side the superior wings are of a light yellow hue, and the spots of a dirty brown; and the inferior, as aforesaid, are of a deep yellow spotted with black: so that the upper or superior are pale, and the inferior dark and strong. But, on the under-side of the Moth, it is exactly the reverse; the superior wings being of a beautiful strong yellow colour, while the inferior are a pale yellow clouded with spots of a dirty brown.

This species are generally found flying in woods about May, especially those places where furze and broom grow, of which they seem very fond: they are often seen sporting about those shrubs, and have sometimes been mistaken for their yellow blossoms blown about by the winds.

The caterpillar feeds on broom. It is of the luper kind; changes into a chrysalis about August, and continues in that state during the winter.

Fig. 3. RED UNDERWING. The antennæ of this grand and beautiful Moth resemble threads; the thorax is crested, and of a brownish grey colour; as is the abdomen and superior wings; the latter having double lines and zigzag bars crossing them in several places; and a remarkable spot on the bar tendon, which is in the middle of the wings something like a man's ear. The under or inferior wings are of a fine scarlet colour, having two broad bands or bars of black; the tongue is spiral; and all the wings are dentated.

These caterpillars feed on the willow; are about two inches and a half in length; and in colour so like the bark, as not to be easily seen when sought for. They are full fed about the latter end of June or beginning of July, when they change into chrysalides under the bark within a spinning. The chrysalis is red, covered with

a fine bloom: and the Moth appears in August; flies in the day; and is very fond of settling against barns, or the sides of such houses as are boarded.

Fig. 4. SCARLET TIGER. The antennæ resemble threads; and the thorax is of a fine deep green hue, having two orange-coloured spots on the upper part. The superior wings are also of a fine deep green colour, appear glossy like fine fatten, and are ornamented with about nine spots of a cream colour, one or more of which near the shoulder being of a gold or orange tint. The inferior wings are of a fine scarlet red hue, having several large irregular black cloud-like spots. The abdomen of the male is scarlet, having a black belt or band round it close to the thorax, from which a list or bar takes its rise, and goes down the upper part quite to the lowermost, where another band or ring is placed near the anus. The abdomen of the female is the same as in the male, except the ring or band last mentioned.

The caterpillar feeds on houndstongue, nettles, and hoarhound; and may be found full fed about the latter end of April. It is black, beautifully speckled with white and yellow, placed in a double row down the back from the head to the tail; and uniformly along the sides. About the beginning of May it forms a web on the ground, wherein it changes to a chrysalis; and the Moth appears in June.

They fly in the day-time; and are fond of settling against brick walls.

Fig. 5. LARGE YELLOW UNDERWING. The antennæ have the appearance of threads; and the thorax is crested, and of a dark agreeable brown colour. The superior wings are also of a dark brown colour, beautifully clouded and marked, particularly a spot in the middle of the wing, which resembles the human ear; and the inferior wings are of a golden yellow hue, with a broad black band or border near the outer edge.

The caterpillars, which are large, naked, and of a brown colour, live chiefly under ground: our ingenious naturalist, however, has frequently dug them up, where he found them feeding on the roots of grafts. But perhaps this is their retreat only during the winter; for they do not change to chrysalides until July; and the Moths make their appearance in August.

Fig. 6. CREAM-SPOTTED TIGER. The antennæ of the male are finely pectinated; those of the female being thread-like. The head, thorax, and superior wings, are of a fine deep black colour, like velvet; on the thorax there are two cream-coloured spots, one on each shoulder; a number of spots of the same colour, and of various forms, cover each of the superior wings; the male having about six, and the female about ten; for neither sex has always the same number of spots; neither is it perhaps possible to find two alike of any of the Tiger kind. The inferior wings are of a fine yellow orange colour, having a number of small black spots about the middle part, and a large irregular one at the outward corner; in each of which there are two spots of the same yellow orange colour of the wing. The abdomen is also of the

the same colour; but, toward the anus, is of a scarlet hue.

The caterpillars feed on nettles, chickweed, &c. Their heads and eyes are red; and their whole bodies are covered with brown hair. When full fed, they spin themselves in webs, wherein, at the latter end of April, they change to the chrysalis state; and the Moths appear in about a month's time. They fly in the day-time.

Fig. 7. MOTHER SHIPTON. This small brown Moth derives the name of Mother Shipton from some marks in the superior wing, which appear like a face in profile; the nose and chin bordering on the monstrous, was supposed to be like a character of that name; the small spot of black in the middle of the wing, surrounded with a ring of yellow, is supposed to be the eye; the superior wings are of a dusky brown hue with light-coloured undulated marks; and the inferior are black, with yellow orange-coloured marks or spots arranged in irregular lines across the wings.

The caterpillar feeds on grass; and is generally found flying in meadows, near woods, at the end of May or beginning of June.

Fig. 8. TRIANGLE. This little neat Moth is in general of a yellowish milk or cream colour. The male is of a stronger colour than the female, as well in its markings as in its ground colour. The superior wing has two strong marks or spots; one on the shoulder part, close to the thorax, which is nearly brown, and composed of a number of other markings parallel to each other: the other is in the middle of the wing, joining to the sector or upper edge, and of a triangular form; and the inferior has a neat border, not unlike lace.

The caterpillar feeds on white-thorn, and changes into a chrysalis in April. The Moth appears about the beginning of May; and may be found in lanes, flying around hedges about sun-set.

Fig. 9. SPOTTED ELEPHANT. The antennæ of this Moth are of a pale or faint red colour: the thorax is of a dark olive; as is the abdomen; the latter having four square black spots, two on each side. The superior wings are of a pink colour towards the lower or slip edge; but the other part is of a yellow olive colour, having two dark olive clouds or spots, one close to the thorax on the shoulder, and the other near the middle on the sector edge; and the inferior wings are of a fine deep crimson hue, each having a black bar near the lower edge, or bordering thereon.

The above described was sent from France in the chrysalis state; and, at the beginning of June following, it produced this beautiful Moth. The caterpillar has been taken in England, and therefore is undoubtedly a native of this country as well as of France. It is of a dun colour, about three inches in length, having a row of large round yellow spots on each side; and the hinder part hath a kind of tail like a horn, and sharp-pointed.

Fig. 10. THORN MOTH. The antennæ are thread-like in the female, but pectinated in the male. The superior wings, which are hooked at the apex, are of a light orange or buff-colour.

lour, having a broad bar crossing the middle of each, rather of a darker colour, with a small ring-like spot near the middle. The inferior wings have a narrow line crossing each, above which there is a small spot.

The caterpillar feeds on white-thorn; is of the luper kind; of a brown colour on the upper or back part; but the belly or under part is green. The whole insect is almost covered with protuberant pustules, which give it a strange appearance. It changes into a chrysalis in April; and the Moth makes its appearance in the May following.

Fig. 11. AFRICAN BLACK-VEINED. The antennæ of this Moth are pectinated; which, with the thorax and abdomen, are of a dark dirty brown colour; and the wings are semi-transparent, having very little farina on them, and being of a pale ash-colour.

These insects fly in great numbers about the seashores, in the evenings of May; and at high water they are seen lying with their wings spread on the surface. Their history is uncertain.

PLATE THE THIRD.

Fig. 1. CHIMNEY SWEEPER. The antennæ of this little Moth resemble two black hairs; the head is small, and black; as is the whole complexion of the insect, except the apices or tips of the superior wings, which are white.

The caterpillar, which is green, feeds on the bramble, or what is called the blackberry-bush; changes into a chrysalis about the end of May; and the Moth appears the latter end of June.

They are generally found near woods.

Fig. 2. SINGLE BARRED CARPET. The antennæ of this Moth are like threads; and the thorax and abdomen are of a light grey colour. The superior wings are of a milky or yellowish-white hue in the female, and in the male of a light yellow brown: these wings are ornamented with an irregular band or bar, which crosses the middle part: this band begins from about the middle of the sector edge to the lower edge; and is of a dark brown colour, having several black lines or markings within it. Near the shoulder, close to the thorax, there is a darkish cloud of the same colour and composition as the aforesaid bar. The inferior wings are paler than the superior, and have no markings but a small speck, which lies a little above the centre of the wing.

The caterpillar feeds on white-thorn; is of a green colour; of the luper kind; and generally full fed about the latter end of May; when spinning a few fine threads, with which it fastens itself to a small twig or branch, it goes into a chrysalis; and the Moth appears about the end of June.

This species may be seen flying in the evenings after sun-set, in great plenty, about white-thorn bushes, in lanes near woods.

Fig. 3. EMPEROR MOTH. The antennæ of this insect are thin, but pectinated; the thorax is covered with brown hair; the abdomen is also invested with brown hair; but the edge of every ring or division is distinguished by hair of a light colour. The superior wing is ornamented with an eye-like ring of a golden colour, which

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is black within-side, and surrounded with a black ring: between this and the thorax there is a double bar of brown, between which runs a bar or line of a crimson colour; on the outside, between it and the fan edges, there are two neat double undulated bars, which joining to a broad band of dark brown, reach from the tip or apex to the lower edge, all the way parallel to the fan or outer edge. A fine light stone and a grey brown are the principal colours which decorate this grand insect. The inferior wings are exactly similar to the superior in their markings; but, in colouring, they differ, as the inferior wings have a pretty strongish tint of pale crimson all over them.

The male is somewhat less than the female, but more strong and beautiful in its colour. The markings are alike; but the inferior wings are of a fine orange colour; and the antennæ are broad and pectinated.

The caterpillars are green; and each of their joints is separated by a ring or circle of black embossed with yellow studs. They feed on the willow, buckthorn, or cinquefoil; and are full fed about the middle of July, when they weave themselves strong cases, about the size of a small walnut, and in shape and colour like a bladder. At the neck or small end, which is that through which the Moth proceeds when it obtains its liberty, it very artfully and cunningly contrives and fabricates a kind of chevaux de frise, composed of a number of spikes, which it places round the hole, and leaning toward each other, meet in a point right over it, like the entering holes of a wire mouse-trap; only with this difference, that the one is placed without side, and the other within. No insect can get at this Moth, either to destroy or hurt it: but how it can get out in that weak and helpless state which it is in when it first breaks from the chrysalis, without tearing its wings to pieces, is a most astonishing circumstance.

It changes into a chrysalis in July, as before observed; and the Moth comes forth about the middle of April.

Fig. 4. CLEAR-WINGED HUMMING-BIRD. The antennæ of this insect are clubbed, and terminate in a sharp hooked point at the end; the head, thorax, and part of the abdomen, are of an olive colour; and the remainder of the abdomen is of a crimson red, having a broad yellow bar, which consists of two rings or joints, crossing through it. The superior and inferior wings are transparent, being composed of a fine thin filament, through which the tendons appear very strong; and the fan or external edges of both are bordered with a very deep brown.

The caterpillars are known to feed on willow-wood, but very difficult to obtain: they change to the chrysalis state in August, within the wood of the tree; and the Moths appear in May, and are often seen flying in gardens among flowers.

Fig. 5. WAINSCOT. The antennæ of the male are finely pectinated, and appear of an equal thickness from the root to the extremity. The palpi are separate, and resemble two points; the head, thorax, abdomen, and superior wings, are of a wainscot colour, and lineated with

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brown, much in imitation of that wood, from whence it hath its name; and the inferior wings are of a darker colour than the superior, but have no marks on them.

The female is much larger than the male, and her antennæ are finer and much longer.

The caterpillar feeds, and is always found on the stems of flags, or the great-sword grass, in ditches and other marshy places. It is green, and hath a pale darkish line along the back; is full fed about May or June; and appears in the Moth state in August.

Fig. 6. ELEPHANT. The antennæ of this Moth are of a very pale brownish pink colour; the head is of a yellow olive hue, bordered with pink on each side; and the thorax and abdomen are also of a yellow olive colour, lineated with lines of rose-colour. The superior wings are rather of a darker olive; the sector edge is of a crimson colour; there is a broad border of the same on the fan edge; and two lines of the same colour run from the tip to the lower slip edge, at a small distance from each other. The inferior wings have a white neat border or edge, which indeed is nothing but the fringe; one half the wing above which is a fine crimson red; the other half is black.

The caterpillar feeds on the ladies bedstraw; and is remarkable for having three large eye-like spots of black and blue on each side, near the head. The sexes are distinguishable in this state; the females are green, and the males olive brown. It is full fed about the beginning of August; it changes into a chrysalis in a web; and the Moth appears about the latter end of May.

Fig. 7. SCOLLOP-SHELL. The antennæ of this insect are like threads; the whole of the head, the thorax, the abdomen, and the wings, are of a pleasant light brown colour, beautifully marked with dark brown; and the wings in particular are full of undulated lines, which run close to each other in a zigzag manner like waves, or the little wrinkles on a cockle or scollop shell.

The caterpillar feed on the oak, and changes into a chrysalis in May; and the fly or Moth appears towards the middle of June.

They fly in the day-time, and may be taken near woods.

Fig. 8. SWALLOW-TAIL. The antennæ of this Moth are of a pale yellow orange-colour, and thread-like; the frontlet is a pale brown; the eyes are black; and the proboscis, which is long, lies curled up, like a watch-spring, beneath the head. It is in shape like a butterfly; and the under-wings have two prominent tails, one on the lower border of each wing, from which it takes its name. The whole Moth is of a brimstone colour. On the superior wings there are two lines of yellow brown; and the inferior wings have but one bar on each.

The caterpillar, which is a long red-brown luper, hath no marks; it is encircled with a small ring about the middle part, which is a little more prominent than any other lying between it and the tail; the head appears flat; and at the tail there are two sharp short spikes. When this caterpillar is in a resting position, it settles on its hinder legs; each of the rest stands out like a twig from the stalk, with apparent

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parent stiffness; and so like a bit of a stalk, as to deceive the most curious eye. It feeds on white-thorn; changes to a chrysalis in May; and the Moth appears in June.

Fig. 9. OAK BEAUTY. The antennæ of this insect are thread-like, and speckled with black. The thorax has a large brown cloud, which almost covers the upper part; the remainder being white; as is the whole Moth. The abdomen is variegated with small black spots; all the wings are likewise speckled, but with larger or coarser spots; the superior wings have two broad bars or stripes, of very irregular forms, across them, their colour brown dappled with black; and the inferior wings have one crossing the middle of each, more regular, but paler than the others.

The caterpillar, which feeds on lime, oak, and elm, is of the luper kind. Its colour is a greenish brown; and the head is invested with a number of protuberant pustules of a reddish brown. It is found in the caterpillar state in May and June, about which time it changes into a chrysalis; and the Moth appears the beginning of March.

Fig. 10. LARGE CHINA MARK. The antennæ of this beautiful Moth are like threads; the head, thorax, and abdomen, are of a dark greyish colour; the wings are a dark greyish brown, almost black, and decorated with large white spots; and near the border of each wing there is a neat dotted line of white specks.

The caterpillar, which feeds on elder, lilach, and other plants found in gardens, flies in the day-time, and is fond of settling on the under-sides of leaves.

Fig. 11. DUCHESS OF PORTLAND. This elegant Moth, together with many more, were taken in Portland Island, in the year 1750, by Mr. Yeates, professor of natural history; some of which were presented to her Grace.

This Moth is an entire non-descript, and very scarce. The antennæ resemble threads; the thorax and superior wings are wholly of a pale moss-green colour, covered with crooked comma-like strokes, each of which is edged with white on one side; the inferior wings are of a dark dirty brown hue, having a faint black and white bar across each; and the borders are white, with black spots along the edges.

Moths of this species may be found in the above island in the months of June and July.

PLATE THE FOURTH.

Fig. 1. VAPOURER. The antennæ of this Moth are broad and pectinated, or comb-like; and the head, thorax, and abdomen, are of a very dark brown or chocolate hue. The superior wings are of a fine brown colour, having a small dark line or bar crossing them within about two lines of the thorax; and the outer or external half of the one wing is much darker than the other, having a small white spot near the lower corner. The inferior wings are rather lighter than the superior, and of a fine orange brown colour.

The female hath no wings. The antennæ are small, like bits of thread; the head is also

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very small; and the thorax and abdomen are six or eight times larger than those of the male. When she comes out of the web where her chrysalis lies, she hangs by it, waiting for a male, which will be sure to attend her if there be one within half a mile. After copulation, she deposits her eggs on the web, on which she hangs for a time, then drops down on the ground, and expires.

The caterpillar is prettily marked with red, white, black, and yellow; hath several tufts of hair on the back; one on the tail; and two others near the head, which appear like two ears. It changes into a chrysalis about the beginning of August, and appears in the Moth state at the end of the same month.

The hen never lies in the chrysalis above seven or eight days. The male, in its flight, flutters very quickly, making a variety of motions and irregular starts; on which account it hath acquired the name of Vapourer.

Fig. 2. CARPET. The antennæ of this insect are like small threads; and the thorax and abdomen are of a cream colour beautifully dappled with black, or very dark brown. The superior wings are white, having a broad irregular bar crossing the middle; several of a fainter colour fill the space between that and the thorax; and the outer part of the wings is bordered with another broadish pale band, down the middle of which there is a white scolloped line. The inferior wings have but a faint resemblance of the superior.

The caterpillar feeds on oak and white-thorn growing near woods; and changes to a chrysalis in May, or the beginning of June. The Moth appears in July, and flies in the evening.

Fig. 3. BUFF-TIPPED. The antennæ of this Moth are thread-like; the head and upper part of the thorax are of a strong buff-colour, bordered with double dark red lines; and the abdomen is also of a buff-colour. The superior wings are of a grave silver hue, dappled with a darkish brown; within a quarter of an inch of the thorax there is a double brown line, which crosses the wings; within half an inch of the fan, or outer edge, there is another double line of the same colour, the upper part of which forms the inner edge or border of a large round spot of buff-colour, with two or three arch-like brownish spots; and the inferior wings are of a pale buff-colour.

The caterpillar is of a green, or rather olive colour, having four pretty broad yellow lines, two on each side, which run from the head to the tail: these are intercepted by a line of the same colour on each joint or division, like rings; so that the animal seems to be chequered like a Scotch plaid.

It feeds on oak, osiers, &c. goes into the chrysalis state about the middle of September; and the Moth comes forth the latter end of May. It is seldom seen flying.

Fig. 4. FRECKLED. The antennæ of this insect resemble small quill-feathers; the head is very small in proportion to the antennæ; the thorax, abdomen, and wings, are of a bright golden yellow colour, freckled all over with dark brown specks; and the fringe which borders the external

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nal or fan edges of the wings is chequered with brown and yellow alternately.

The above description respects the male only.

The female is much larger, and her antennæ have more the appearance of threads.

The caterpillar feeds on broom, and other plants or shrubs; and changes into a chrysalis in May.

The Moth appears in June.

Fig. 5. DAGGER LIKENESS. The antennæ of this Moth are like small bristles; the head, thorax, abdomen, and superior wings, are of a fine light grey colour; the latter being beautifully marked throughout with dark strokes, some in the shape of daggers, and others like little arches, forming a bar across the wing. The inferior wings are white, and glossy like satin; but the tendons are dark, or blackish.

The caterpillar, which feeds on oak, changes into a chrysalis about the end of May; and the Moth appears about the end of June.

These Moths fly in the evening, and are very fond of settling on the bark of trees.

Fig. 6. STRANGER. The antennæ of this insect, which are of a pale brown colour, are a little hooked at the end; the head is large, and of a pale olive-brown hue, bordered on each side with a white line above the eyes; and the thorax is also a pale olive brown, with four dark brown marks. The abdomen is of a still paler olive-brown colour, having a broad white line down the middle, in which is a small touch or line on every annulus, besides two more on each side out of the white line. The superior wings are of a yellow olive brown hue, having a pretty bold line of a cream colour, which takes its rise from the lower edge near the thorax, and crossing the wing diagonally, ends at the apex or point of the wing; and the fan edge hath a broad border from the tip to the lower corner. The inferior wings are of a fine pink colour, having a black cloud-like spot close to the flip, or lower edge of the superior; and the lower or fan edge is bordered with two stripes, that next the edge being paler than the other.

This strange and scarce Moth hath the appearance and characters of a foreigner; and is the only one yet known in this country. It was taken in Bunhill Fields burying-ground; and is now in the possession of Mr. Francilion. Its natural history is entirely unknown.

Fig. 7. SNOURED UMBER. The antennæ of this Moth are like fine threads; the palpi projects from the head above the length of the thorax, appearing like a snout; and the thorax, the abdomen, and all the wings, are of a fine umber colour. The superior wings have three bars, which lie across the wing, the middlemost of which is the strongest. The inferior are rather paler than the superior, and appear as if a little freckled.

The caterpillar, which is green, feeds on nettles; and changes into a chrysalis, after wrapping itself up in a leaf, in the month of May. The Moth makes its appearance in June.

These insects are frequently seen flying under hedges, or among nettles, both during the day and evening; and are very fond of settling on the under-sides of leaves.

Fig. 8. HEBREW CHARACTER. The antennæ of

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this insect are like fine threads; the thorax is brown and crested; and the abdomen is of the same colour, with a few tufts down the middle. The superior wings are of a lightish brown hue, having a black spot near the centre resembling the lower part of the letter L when half of the upright stroke is cut off; and between this spot and the fan or outer edge there are two dark brown bars, the outermost of which borders on the edge or fringe. The inferior wings are of a paler brown colour without any markings.

The caterpillar feeds on elm, and changes into a chrysalis about the end of September. The Moth comes forth about the middle of March. These Moths generally settle on the body or bark of the elm.

Fig. 9. LARGE EGGER. The antennæ of this Moth are long, and broadly pectinated; the head, thorax, abdomen, and half of each wing, are of a fine deep red brown colour next the body; and the other half is of a lovely orange brown, or deep gold colour, which, towards the outer edge, softens again into a deep red brown. The fringes of the superior wings are of the same red brown hue as the wings; but the fringes of the inferior are of an orange colour; and in the centre of the superior wing there is a white spot.

The female is much larger than the male, and wholly of a buff-colour.

The caterpillar, which is large and beautiful, is covered with hair of a fine brown colour, and glossy like fine silk threads or shag velvet; each joint is separated from another by a kind of black belt, equal to the finest black velvet; and along each side there are many strokes of white.

It feeds on white-thorn; and changes into a chrysalis, inclosed in a strong case, in the month of June. The Moth appears the latter end of July.

These insects fly in the day-time, in lanes contiguous to woods.

Fig. 10. DAGGER. The antennæ of this insect resemble threads; the head, thorax, abdomen, and indeed the whole Moth, are of a light grey colour, ornamented with a variety of marks, some of which are shaped like daggers. The first and most remarkable black line begins at the nose or palpi; includes the eye, which is black; then comes over the shoulder, along the side of the thorax, and strikes into the superior wing near a quarter of an inch: a small circular neat ring appears in the middle of the wing, with two or three small strokes on the outer side of it; toward the lower corner, near the lower edge, there is a spot exactly in the form of a dagger; and another, a little higher and smaller, is of the same shape. The inferior wing hath no marks, except a faint bar, which crosses the wing.

The caterpillar is very beautiful, having a broad black band along the side, on which there are above twenty spots of scarlet red; and on the back, or upper part, there is a broad list of a beautiful yellow colour. It hath two prominent protuberances on the back, one near the head, and the other on the rump or tail. It feeds on the willow, and most sorts of fruit-trees; and changes into a chrysalis the latter end of August, in a strong web. The Moth comes forth in the May following.

Fig.

Fig. 11. HOUSEWIFE. The antennæ of this Moth are finely pectinated: the eyes are black; and the prevailing colour is a light green. The superior wing hath a darkish green irregular bar crossing it's middle, and another bar of white between that and the outer edge; and the markings of the inferior wing have a faint resemblance to those of the superior.

There are several species of this name; viz. the Cross-barred Housewife; the Large green House-wife; the Small green Housewife; and the above-described. Although they are of different species, they all feed on white-thorn.

Their caterpillars, which are of the luper kind, appear in the Moth state about the latter end of June.

MOTH, FIELD. An appellation given by Reaumur to a species of insect, which resembles the House-Moth in every respect, except in it's food: for, as the latter feeds on woollen, and makes it's nest or covering of that substance; this eats the leaves of trees, and in the same manner forms a covering from their fibres and integuments.

The Field-Moth undergoes the same transformations as the common kind; and differs from it only in it's food, which is more moist. Reaumur first observed it on the leaves of the ash.

For a considerable part of it's life, this insect stands in need of no covering; but, like the ascarides, making it's way through the upper integuments of the leaf, it feeds on the parenchyma and juices; and at length, when it has eat away all the substance of the leaf, it bites out a piece from each integument, and unites the edges all round with threads of it's own spinning; thus making a complete case or covering, by which it is defended from the injuries of the weather. This being accomplished, it marches from it's former station in quest of food, and fixing on another leaf, remains there till the substance is consumed: after which it again changes it's place, and at the same time it's covering, which costs it but very little trouble to renew.

There are several varieties of this species; some larger, and others smaller. The largest kinds make their coverings of various materials, and of different structures: these are usually very rough, and apparently composed of whatever substances happen to be the nearest at hand.

All these insects might have been described as dependants on the beetle and fly kinds; but as they possess this remarkable quality of feeding, and making themselves cases of different materials, like the tinea or Cloth-Moth, while in the worm state; and in this condition are more obvious to the eye than the flies and beetles produced from them, many of which are so small as to escape observation; the accurate Reaumur thought proper to describe them together, and in this their imperfect state. He likewise annexes an account of another set of animals somewhat allied to them, to which he gives the name of pseudo tinea, or false Moth.

MOUCHEROLLE. A name by which some naturalists express a small bird about the size of the sparrow, and of the same colour, but longer bodied: the wings are of a more dusky colour than the rest of the body; the head is variegated with very minute black spots; the throat and belly are white, with a faint reddish tinge at their edges;

and the beak is black, straight, and ridged, so as to appear triangular.

This bird feeds on flies and other insects; and is common in the gardens and orchards of many parts of England. The vulgar confound it with the white-throat; but it differs from that bird in having it's tail of one uniform colour, whereas that of the white-throat is variegated. It also somewhat resembles the beccifago, or petty-chaps; but varies from it in having it's bill ridged and triangular, and in being destitute of any green on it's plumage.

MOUFFLON; the Capra Ammon of Linnæus. An animal of the sheep kind, found in the most uncultivated parts of Greece, Sardinia, and Corfica; and in the desarts of Tartary. It is by nature extremely wild, though it retains all the marks of the primitive race, and has actually been known to breed with the domestic animal.

The Moufflon, or Musmon, as it is sometimes called, though covered with hair, bears a stronger resemblance to the ram than to any other animal. Like that creature, it's eyes are placed near it's horns; and it's ears are shorter than those of the goat. In it's horns, it also resembles the ram, as well as in all the particular contours of it's form: but particularly there is a striking similitude in it's horns, which have three sides, as in the ram; are of a yellow colour, and bend backwards behind it's ears. The muzzle, and the inside of the ears, are of a whitish hue, tinged with yellow; but the other parts of the face are of a brownish grey. The general colour of the hair of the body is brown, approaching to that of the red deer; and the insides of the thighs and belly are whitish, tinged with yellow.

The whole form of this animal seems better calculated for agility and strength than that of the common sheep. The Moufflon can very well exist in a savage state, and maintain it's rights, either by force or swiftness, amidst all the animals that live by rapine. On account of it's speed, many have been inclined to rank it rather among the deer than the sheep kind; but in this they are certainly mistaken, as the Moufflon has a mark by which it is entirely distinguished from that species, namely, that of having undeciduous horns.

There is a strong resemblance between the male and the female of this species; but the female is less than the male, and her horns never grow to the same magnitude as in the ram. In some, these are seen to measure, in their convolutions, above two ells in length: with these they often maintain very furious battles among their own kind; and sometimes they are broken in the conflict.

When the Moufflon stands on plain ground, it's fore-legs are always straight, while it's hinder ones seem bent under it; but, in cases of more active necessity, this seeming deformity is removed, and it moves with great swiftness and agility.

Such is the sheep in it's savage state; a noble, bold, and beautiful animal. But the most fightly animals are not always the most useful to man. Human industry, in order to improve it's utility, has certainly destroyed it's gracefulness.

MOUSE. A genus of animals of the order of glires, in the Linnæan system; the distinguishing character of which is, that the lower fore-teeth are subulated.

MOUSE, COMMON; the Mus Musculus of Linnæus. This timid, cautious, active little animal, is entirely domestic, being never found in fields;

fields; or, as Buffon observes, in any country uninhabited by mankind. Fearful by nature, but familiar from necessity, it attends on the human race. Indeed, all its motions appear to be regulated by fear and necessity: to seek its food is its only inducement to leave its hole; from which it seldom ventures farther than a few paces. Nor does it, like the rat, travel from one house to another, except compelled thereto; and, as it requires less nourishment, so it does less mischief than that creature.

As bold and intrepid animals are more easily tamed than those which are cowardly and timid, the fearful being ever suspicious; so the Mouse is the most feeble, and consequently the most timid, of all quadrupeds, except the Guinea-pig; it cannot therefore be rendered perfectly familiar. When fed in a cage, it retains its natural apprehensions; and though it may be tamed to a certain degree, it never discovers the smallest attachment to its benefactors.

No animal has more enemies than the Mouse, and few are so incapable of resistance: the cat, the snake, the hawk, the owl, the weasel, and the rat, destroy this race by millions; and, but for their amazing fecundity, they must long since have been extirpated.

The Mouse breeds at all seasons, and several times in the year; and usually produces six or seven at a time, which, in less than a fortnight, are able to run about, and to shift for themselves. Aristotle gives us an idea of the astonishing prolific quality of this animal, by assuring us, that having put a pregnant Mouse into a vessel of corn, he shortly after found an hundred and twenty Mice, all sprung from one original. The early perfection of this creature implies the short duration of its life, which seldom exceeds two or three years.

These little animals are by no means ugly, but have a vivacious and elegant air; and that species of horror which some people feel at the sight of them, arises rather from affectation than any surprise or inconvenience they ever occasion. They inhabit all parts of the world, except the arctic regions; and in every country are persecuted both by animals and human inventions. Numberless methods have been contrived for their destruction; and they are infallibly poisoned by the root of white hellebore and staves-acre, powdered and mixed with meal.

MOUSE, LONG-TAILED FIELD; the *Mus Sylvaticus* of Linnæus. The length of this animal, from the nose to the tail, is about four inches and a half, and that of the tail four inches; the eyes are black, large, and prominent; the head, back, and sides, are of a yellowish brown hue, mixed with some dusky hairs; the breast is of an ochre colour; the belly is white; and the tail is slightly covered with short hair.

These animals are found only in fields and gardens, where they feed on ants, acorns, and corn; and in some parts of England they are called Bean-Mice, from the havock they make among beans when first sown. They form large magazines in their burrows, for their winter provisions. But it generally happens that they provide for the necessities of other animals: the hogs in particular come in for a share; and the damage sustained by the farmer in the fields, by their rooting up the ground, is principally occasioned by their search after the hoards of the Field-Mice.

The nests which they provide for their young are generally very near the surface of the earth, and frequently in thick tufts of grass. They usually produce from seven to ten at a time.

These animals are very generally diffused over Europe. Wolves, foxes, weasels, birds of prey, and even their own species, are their constant and destructive enemies.

MOUSE, FIELD, SHORT-TAILED; the *Mus Terrestris* of Linnæus. The tail of this species is only about an inch and a half long, terminating in a small tuft; and the length of the body is about six inches. The colour inclines to that of the domestic Mouse; the upper part being blackish, and the belly of a deep ash-colour.

This creature forms its nest in moist meadows; produces from six to eight at a time; and evinces a remarkable affection for its young. It resides under ground; lives on acorns and corn; and forms a magazine of provisions against the winter season.

MOUSE, HARVEST. This animal has more prominent eyes than the common species; the upper part of the body is of an iron colour, the lower being white; a straight line runs along the sides, dividing the colours; and the tail is somewhat hairy. The length of the body, from the nose to the tail, is two inches and a half; and that of the tail is about two inches.

These animals are found in amazing numbers, during the harvest season, in Hampshire; but they never enter houses. Many of them are carried into the ricks of corn along with the sheaves; and, on breaking up the stacks, some hundreds are frequently discovered. In winter, they shelter themselves under ground, where they burrow very deep, and form comfortable beds of dead grass. The nests for their young are made above ground, between the reeds of standing corn. They bring forth about eight at a time.

MOUSE, ORIENTAL; the *Mus Cauda Mediocri Subnuda* of Linnæus. This animal is chiefly of a grey colour; but its back and sides are elegantly marked with twelve rows of small pearl-coloured spots, extending from the head to the rump. The size of this species is about half that of the common Mouse, and the tail about the length of the body. It inhabits India; in which country, and in Guinea, there is another variety which smells like musk, called Cheroso by the Portuguese colonists.

MOUSE, BARBARY; the *Mus Barbarus* of Linnæus. This species is less than the common Mouse; its general colour is brown, but the back is marked with ten slender streaks; on the forefeet there are three toes furnished with claws, and the rudiments of a thumb; and the tail is nearly of the same length with the body.

MOUSE, VIRGINIAN; the *Mus Agrestis Americanus Albus* of Seba. This animal has long whiskers; the ears and nose are pointed; the limbs are very slender and weak; the tail is thick at the base, growing gradually so from the rump, so that the junction cannot be distinguished; but it decreases in the same manner, and becoming very long and slender, terminates in a point. The colour of this species is universally white.

MOUSE, RUSTIC; the *Mus Agrarius* of Pallas. This species has a sharp nose, an oblong head, and small ears lined with fur; the colour of the body and head are ferruginous, with a dusky line along the back; the belly and limbs are whitish; and above each hind-foot there is a dusky circle.

The

The body is somewhat less than that of the Field-Mouse; and the tail is only half the length of the body.

These creatures inhabit the temperate tracts of Russia and Siberia. In Russia they are often migratory, and frequently very injurious to grain. At times they wander in prodigious troops, destroying every prospect of the agriculturist's gain. In particular, about the year 1764, they made great ravages in the rich country about Cavan; arriving in such numbers, that they almost filled the houses; and became so very bold, as to carry off the bread from the tables in sight of the inhabitants. They make their retreats a little below the surface of the earth, which in such places appear elevated. Each retreat has a long gallery, with a chamber at the end, in which the animals deposit their winter food, consisting of various sorts of feeds.

MOUSE, ŒCONOMIC; the *Mus Œconomus* of Pallas. This animal has small eyes; naked ears, usually hid in the fur; strong limbs; and blackish teeth. The colour is variegated with black and yellow, dusky on the back, and from the throat to the tail hoary. The body is about four inches and a quarter long; and the tail is upwards of one inch. It is a native of every part of Siberia and Kamtschatka; and is even found within the arctic circle.

Pallas gives these animals the appellation of *Mures Œconomi*, or *Œconomic Mice*, from their curious way of living. They frequent damp soils, and shun the sandy; forming burrows beneath the upper crust of the turfy ground, in which there are many chambers with several entrances. In the first they form magazines for winter food, consisting of various sorts of plants, which they collect in summer with infinite pains; and on sunny days expose their stores to the open air in order to render them more effectually dry. They never touch their hoards during the summer, but live on berries, and other vegetable productions.

They make periodical migrations out of Kamtschatka, where they collect in the spring, and go off in incredible multitudes. Like the lemming, they proceed in a direct course, suffering neither rivers nor mountains to impede their progress. In their passage, they often become a prey to various land and sea animals: but, with respect to the human species, they are perfectly safe, the Kamtschadales paying them a kind of superstitious veneration; and, when they find them lying either weak or half dead through fatigue, on the banks, after crossing some river, they neglect not to render them every possible assistance in their power.

These animals pursue a westward course at their first setting out; then decline to the southward; and, after traversing an amazing extent of country, return again, with their numbers much diminished, about October. The Kamtschadales are greatly alarmed at their migrations, as they preface rainy seasons and an unsuccessful chase; but, on their return, expresses are sent to all parts with the pleasing intelligence.

Animals possessing such singular habits, seldom fail to become the objects of fabulous narrative and weak credulity, particularly among unpolished nations; consequently, many incredible stories are related concerning them: among others, that they cover their provisions with poisonous herbs, previous to their migrations, in order to

destroy other animals of the same genus which would attempt to plunder their magazines; and that if they should happen to be pillaged, they strangle themselves from vexation, by squeezing their necks through the forks of shrubs.

MOUSE-RED; the *Mus Rutilus* of Pallas. This species has naked ears, and a very hairy tail; the colour, from the middle of the forehead along the back to the rump, is an uniform pleasant tawny red; the sides are light grey and yellow; the under-side of the body is whitish; and the tail is dusky above, and light below. The body is about four inches long, and the tail about one.

These creatures inhabit Siberia, and various parts within the arctic circle. Sometimes they make their way into houses and granaries; but commonly live under logs of wood, or trunks of trees, eating every thing that comes in their way.

MOUSE, HARE-TAILED; the *Mus Lagurus* of Linnæus. This animal is between three and four inches long; and has a long head, short ears, and short slender limbs. The fur is very soft and full, cinereous on the upper part, mixed with dusky; and along the back there runs a dark line.

These Mice inhabit several parts of Russia and Siberia, frequenting dry firm soils, in which they make burrows with two entrances; one oblique, leading to the nest; and the other perpendicular. The male has usually a distinct habitation; but sometimes the sexes live together. When several males meet, they fight with amazing resolution, the conqueror devouring the vanquished; and the mate of the deceased instantly submits to the embraces of the former, even though pregnant. They are extremely falacious; and, when heated, emit a musky smell. They bring forth six at a time; and sleep a considerable part of their lives, rolled up like the marmot. They shew a strong predilection for the dwarf iris, but feed on all sorts of feeds. They have also very carnivorous appetites; for they will devour each other, and even others of different species, of the same size as themselves. They migrate in great troops; and are therefore called by the Tartars, *Dshilkis Zizchan*, or the *Rambling Mice*.

MOUSE, GREGARIOUS; the *Mus Gregarius* of Linnæus. This animal has a blunt nose; a small mouth; and naked ears, appearing above the fur. The hair on the upper part of the body is black; the throat, belly, and feet, are whitish; and the tail, which is about a third part of the length of the body, is thinly covered with white hair, the end being black and ash-coloured.

This species, which is somewhat larger than the common Mouse, is found in Germany and Sweden. It eats sitting erect, like the squirrel; and burrows like the rabbit.

MOUSE, SHREW. The Shrew-Mouse seems to form a link in the chain of small animals, and to fill up the interval between the rat and the mole; which, though they resemble each other in size, differ greatly in figure, and are very distant species. The distinguishing characteristics of the Shrew are; that it has two cutting-teeth in each jaw, pointing forwards; a long slender nose; small ears; and five toes on each foot.

MOUSE, SHREW, COMMON; the *Sorex Araneus* of Linnæus. This species is about the size of the domestic Mouse; but differs greatly from it

in the form of it's nose, which is very long and slender. The teeth are twenty-eight in number, and of so singular a shape, as to attract the notice of every naturalist. Gefner seems to think that nature has formed the teeth of this animal of a mixed shape between those of mice and serpents. The two upper fore-teeth are extremely sharp, with a kind of beard on each side of them, resembling that of an arrow, scarcely visible on a slight inspection; while the other teeth are very small, and placed so close together as hardly to appear separated. The length of the whole Mouse, from the nose to the tail, is about two inches and a half; and that of the tail about one and a half: the ears are short and rounded; the eyes are extremely small, and, like those of the mole, almost concealed in the hair; the colour of the head and back is a brownish dusky red, that of the belly being a dirty white; the tail is covered with short dusky hairs; the legs are very short; and the feet are divided into five distinct toes.

This little creature has a strong and peculiar smell, very disagreeable to those cats which pursue and kill, but never eat it; and it is probably this ungrateful odour, together with the reluctance of the cats, which have given rise to the vulgar prejudice, that the bite of the Shrew-Mouse is venomous, and particularly injurious to horses. But the Shrew is in fact not poisonous; nor is it capable of biting; for the aperture of it's mouth is not large enough to admit a duplicature of the skin of another animal, which is absolutely necessary to the action of biting. The disease of horses, vulgarly ascribed to the bite of the Shrew-Mouse, is a swelling or blotch; and proceeds from an internal cause, which has not the smallest relation to a bite.

This animal, especially in winter, visits hay-lofts, stables, barns, and dunghills, feeding on grain, insects, and putrid flesh; and, in the country, it frequents woods, and lives on grain. It conceals itself under moss, leaves, and trunks of trees; and sometimes in the holes abandoned by moles, or in small cavities, which it digs with it's muzzle and claws.

The Shrew produces an equal number of young, though less frequently, than the Mouse: it's cry is much sharper, but it is not nearly so agile; and it is easily caught, because both it's sight and it's celerity are unfavourable in assisting it's escape. It is a native of Europe; very harmless; and may be considered rather as friendly than inimical to mankind.

MOUSE, SHREW, WATER. This creature has a long slender nose; minute ears; and very small eyes, almost lost in the fur. The colour of the head and the upper part of the body is black; the throat, breast, and belly, are of a light ash-colour; and beneath the tail there is a triangular dusky spot.

The Water Shrew is much larger than the common Shrew, the body being three inches and three quarters long, and the tail two inches. It burrows in banks near the water-side; and inhabits Europe, and Siberia as far as the river Jenefei. It was formerly well known in England, but lost for a considerable time, till accidentally discovered in the fens near Revesby-Abbey, in Lincolnshire, in 1768. It is called the Fen-Mouse by the farmers; and is at present rarely to be met with.

MOUSE, SHREW, MINUTE; the *Sorex minutus* of Linnæus; who asserts that it is the smallest of all quadrupeds. It has minute eyes; a very slender nose; broad, short, naked ears; and whiskers reaching to the eyes: it's hair, which is very fine and glossy, is grey above, and white beneath; it's head is almost as large as it's body; and it has no tail.

This species, which inhabits Siberia, lives in moist places beneath the roots of trees, and feeds principally on seeds. It burrows, runs with great swiftness, and has a voice resembling that of the bat.

MOUSE, SHREW, MUSKY; the *Castor Muschatus* of Linnæus. This creature has a long slender nose, very small eyes, a tail compressed sideways, and no external ears. The head and back are of a dusky colour; the belly is of a whitish ash-colour; and the length of the body, from the nose to the tail, is seven inches, and the tail eight.

The Musky Shrew Mouse which frequents the banks of lakes and rivers from Novogrod to Saratof, never wanders far from the place of it's usual residence; is slow in it's motions; forms holes in the cliffs, with the entrance far beneath the lowest fall of the water; works upwards, but never to the surface; and feeds on fish. It is devoured by the pikes and filuri; and communicates to those fish such a strong flavour of musk, as to render them unfit for the table. A sort of musk, very much resembling the genuine kind, is found under the tail of this animal; and it's skin is put amongst cloaths to drive away moths, and to preserve their wearers from pestilence and fevers.

MOUSE, SHREW, MEXICAN. This animal has a sharp nose; small round ears; two long fore-teeth above and below; and seems to be entirely blind. It's body, which is about nine inches long, is thick, fat, and fleshy; it's legs are so short, that it's belly almost touches the ground; and it has long crooked claws, tawny hair, and a short tail.

It is a native of Mexico, where it burrows, and makes such a number of holes, that travellers, in some places, cannot tread with safety. If it quits it's hole, it is incapable of finding it's way back again, and immediately digs another. It grows very fat, feeds on roots and seeds, and is deemed proper for food.

MOUSE, SHREW, MURINE; the *Sorex Murinus* of Linnæus. This species, which inhabits Java, has a long nose, round naked ears, and long hairs about the whiskers. It is nearly of the size of the common Mouse; and it's body is cinereous.

MOUSE, SHREW, BRAZILIAN; the *Mus Araneus Figura Muris* of Marcgrave. This animal has a sharp nose and teeth; the body is of a dusky colour, marked along the back with three broad black strokes, and about five inches long; and the tail is two inches in length.

It is a bold creature, neither fearing nor avoiding cats, which never hunt after it, as is usual with the kind.

MOUSE, SHREW, PERFUMING; the *Mus Prionides* of Pallas. This animal inhabits Java, and other East Indian islands. It's length, from the nose to the tail, is nearly eight inches; and the tail itself is three inches and a half: the hair, which is short and close, is a fine pale cerulean on the head and body, but lighter on the belly.

It lives on rice, and other sorts of grain; and has so strong a scent of musk, that it perfumes every thing over which it happens to run. Pennant (who had it from the most unquestionable authority) informs us, that it will render the wine in a well-corked bottle totally unfit for use, by only passing over it.

MOUSE, DOR. See DORMOUSE.

MOUSE, SABLE. See LEMMING.

MOUSE, SEA. See APHRODITA.

MUCOSA. An appellation given by the Italians to a species of ray-fish; called by ancient naturalists, *Bos Marinus*; and by later authors, *Raia Oxyrynchus*, and *Læviraia*. Artedi distinguishes it by the name of the variegated Ray with ten prickly tubercles on the middle of the back. See *RATA*.

MUCU. A Brazilian fish of the lamprey kind; long and slender, with a pointed head, small black eyes, and a very small mouth. The body is wholly brown, but more dusky on the back than on the belly; and on the sides there are a number of oblique transverse lines of a blackish colour. This fish abounds in the Brazilian lakes; and its flesh, according to Marcgrave, is proper for the table.

MUD-FISH. The Swedish name of a fish called by Schonefeldt, and others, *Aphud*, or *Aphya*. It is a species of the cyprinus, according to Artedi; and is distinguished by that author under the name of the red-eyed two-inch Cyprinus, with nine bones in the pinna ani.

MUD-FISH, is also a name given to a fresh-water fish found in the West Indian rivers and lakes, and allied to the trout kind. The length of the body is about seven inches; the under jaw is longer than the upper; and they are both armed with several rows of small sharp teeth. The body is entirely covered with minute scales, partly white, and partly black, except on the belly, where they are wholly white.

MUGGENT. A provincial appellation for a species of fresh-water wild-duck, the *Muscaria* of authors; so called from its peculiar quality of catching such flies as play on the surface of the waters. It is about the size of the common tame duck: the beak is short, broad, and saffron-coloured; the body is mottled with black, white, brown, and grey, very curiously mixed; the crown of the head is black; and the feet are yellow.

MUGIL. The classical name for the mullet. See *MULLET*.

MULBERRY-SHELL. A species of *doilium*.

MULE. A mongrel kind of quadruped, usually generated between an ass and a mare; sometimes also between a horse and a she-ass. Those of the first kind are reckoned preferable.

The common Mule is a very healthy animal, and generally lives upwards of thirty years. It is very serviceable in carrying burdens, particularly in mountainous and stony countries, where horses are not so sure-footed. The size and strength of the Mules of this country are at present greatly improved by the importation of Spanish jackasses; and it is not improbable that we may in time equal the breed of Spain, where it is not uncommon to give fifty or sixty guineas for a Mule; and indeed, in some places, the inhabitants would find their situation very uncomfortable without them.

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The Mule appears to be marked with certain sterility: and although some accounts insinuate that this animal has propagated its kind, we are by no means inclined to believe them; since Nature, which acts by unerring rules, has wisely placed a barrier between the mixture of different animals, and the confusion of species, by denying the power of copulation to monstrous productions.

Mules, as already observed, are extremely beneficial in hilly countries; and the account of their manner of descending the precipices of the Alps and Andes is both extraordinary and entertaining. In these passages, on one side, there are steep eminences; and, on the other, frightful abysses: and as they generally follow the direction of the mountain, the road, instead of lying level, forms, at every little distance, steep declivities, of several hundred yards, downward. These can only be descended by Mules; and the animals themselves seem to be sensible of the danger, as well as the caution necessary to be used in such descents. When therefore they arrive at the edge of one of these declivities, they stop without being checked by their riders; and if they inadvertently attempt to spur them on, the Mules continue immovable. All this while they appear as if ruminating on the danger that lies before them, and preparing themselves for the encounter; they not only attentively view the road, but tremble and snort at the danger. Having prepared for the descent, they place their fore-feet in a posture as if they were stopping themselves; then they also put their hinder feet together, but a little forward, as if meditating to lie down. In this attitude, having as it were taken a survey of the road, they instantly slide down with inconceivable swiftness. Mean while, it is absolutely necessary that the rider keep himself steady on the saddle, without checking the rein; for the least motion would destroy the equilibrium of the Mule, and render the destruction of both inevitable.

But the address of these animals, in this rapid descent, is truly wonderful; for, even in their swiftest motion, when they seem to have lost all government of themselves, they follow exactly the different windings of the road, as if they had previously settled the route they were to follow, and taken every precaution for their safety. In these journies, the natives, who are placed along the sides of the mountains, and hold by the roots of the trees, animate the Mules with shouts, and encourage them to perseverance; and some of these creatures, after being long habituated to such travelling, acquire a kind of reputation for their safety and skill; and their value rises in proportion to their celebrity.

MULGRANOCK; the *Blennius Pholis* of Linnæus. An English appellation for a small sea-fish caught on the Cornish and other shores, and called by Pennant the Smooth Blenny.

This very active and vivacious fish is capable of living near a whole day separate from the water. It feeds on shells and small crabs; bites extremely hard; and will hang suspended from the end of a man's finger for a considerable time. The length is about five inches: the head is large, and sloping downwards to the mouth; the irides are red; and the teeth, which are slender, very sharp, and close set, amount to twenty-four in the upper, and nineteen in the lower jaw. The pectoral fins are broad and rounded; the ventral

fins consist of only two thick rays; the dorsal fin is composed of thirty-two soft rays; the anal fin, which extends almost to the tail, consists of nineteen rays, tipped with white; and the tail is rounded at the end, and composed of twelve branched rays. The colour of the body varies, some being quite black, and others spotted with white; but the general colour is a deep olive, beautifully marked with a still deeper.

MULLER. An appellation given by some authors to the fish called in Latin the *cataphractus*, and in English the marled fish or pogge.

MULLET. A name given in England indiscriminately to several kinds of fish of different genera: but the proper sense of the word is restrained to the mugil, or cephalus, of the generality of authors; the cephalus of Aristotle and the Greeks; and the cestreus of Oppian and others.

The distinguishing characters of the Mullet, according to the Artedean system, are these: the branchiostege membrane on each side contains six crooked bones, the upper one being the broadest, and hid under the covering of the gills, so that only five are perceptible; the scales are large, and cover the head and the opercula of the gills, as well as the rest of the body; the head is of a depressed figure in its anterior part; and the body is oblong and compressed. According to these distinctions, there is only one known species of Mugil; but Linnæus, who makes it a genus of abdominales, reckons two species, the cephalus and albula.

The Mullet is an excellent fish for the table, though at present an unfashionable one. The head is almost square, and flat on the top; the nose is blunt; and the lips are thick. It has no teeth, but only a small roughness in the upper lip; and between the eyes and the mouth there is a hard callus. The pupil of the eye is black, encircled with a small silvery line; the upper part of the irides is hazel-coloured, and the lower silvery. The form of the body is pretty thick; and the scales are large and deciduous. The first dorsal fin, which is placed near the middle of the back, consists of four strong spines; and the second of nine soft branching rays: the pectoral fin is composed of sixteen rays, the ventral of six; and the tail is strongly bifid. The back is dusky, varied with blue and green; the sides are silvery, marked with broad dusky parallel lines, reaching from the head to the tail; and the belly is silvery.

Mulletts are justly ranked by Aristotle among the pisces littorales, or those fish which prefer the shores to the ocean. They are found in abundance on several of the sandy coasts of this island; and they particularly haunt those small bays which have influxes of fresh water. They arrive in large shoals; and are fond of rooting in the sand or mud, after the manner of hogs, leaving their traces in the shape of large circular holes. They are extremely cunning and active: when surrounded by a net, the whole shoal frequently escapes by leaping over it; for when one sets the example, the rest are sure to follow it. This peculiarity is noticed by Oppian; together with several other curious particulars, which seem to be less authentic.

In the south of France, abundance of Mulletts are taken in wiers made of reeds, and placed in the shallows. Of the milts of the males, which are there called Alletants, and of the roes of the females, termed Botar, is made Botargo. The

materials are taken out entire; covered with salt for four or five hours; then slightly pressed between two boards or stones; afterwards washed; and, lastly, dried in the sun for thirteen or fourteen days.

This fish was sometimes made the instrument of a horrible punishment for unfortunate gallants; and was in use both at Athens and Rome. Legibus Atheniensium adulteri *Energæ* deprehensi pœna fuit *Raphanodops*. Raphani loco utebantur nonnunquam mugile pisce, interdum scorpione.

MULLET is also a provincial appellation for the bird known by the name of the *Anas Arctica Clusii*.

MULLET, BLACK. A name given by some naturalists to a fish of the mullet kind, entirely black; more frequently known by that of the *portius piscis*.

MULLET, WINGED. An appellation given by some authors to the *hirundo piscis*, or swallow-fish; which, excepting in its wing-fins, strongly resembles the Mullet. See **FLYING-FISH**.

MULLUS. The name of a fish properly of the cuculus kind: of which there are two species; the one called *Mullus imberbis*, the other *Mullus asper*.

Linnæus makes the *Mullus* a distinct genus of the thoracic order of fishes: the characters of which are; that the head is compressed, declining, and covered with scales; that the branchiostege membrane contains three bones; and that the body is covered with large deciduous scales. He enumerates three species; the *Mullus asper*, the *Mullus barbatus*, and the *Mullus imberbis*.

MULLUS ASPER. This is a small fish, about the length and thickness of a man's finger, and of a beautiful red or somewhat purplish colour. It is covered with scales serrated at their extremities, and obliquely placed.

MULLUS BARBATUS. This fish, which is caught in the Mediterranean, is reckoned extremely delicious. Its usual length is about six or seven inches: the head is flattened; the body is pretty thick; the back is also flat; and from the head to the tail the fish gradually diminishes in thickness, so as to resemble an obelisk in shape. The scales are serrated at their edges, of a brownish olive-colour, and easily rubbed off; the eyes stand high in the head; under the chin there are two very long beards; but the jaws are destitute of teeth.

MULLUS IMBERBIS. This fish, which is usually about four or five inches long, is covered with very large scales of a reddish hue; the belly is somewhat prominent; the eyes are large; the mouth is very wide; the jaws are rough like a file; and the tail is forked. Having no beards, from that circumstance the fish receives its name.

MULTIVALVES. A general class of shell-fish, distinguished from the univalves which consist only of one shell; and the bivalves which consist of two, by their being composed of three or more shells.

There are fewer species of Multivalves than either of bivalves or univalves. A late accurate French conchyologist has ranked all the species under the six following genera: the *echini*, or sea-eggs; the *vermiculi*, or sea-worms; the *balani*, or centre-shells; the *pollicipides*, or thumb-shells; the *conchæ anatiferae*, or goose-shells; and the *pholades*.

Da Costa likewise makes six genera of Multivalves; which he distinguishes by the names of *pholades*,

pholades, anatiferae, balani, piddocks, varnacles, and acorns.

MUNGATHIA. An appellation given by some authors to a species of Indian ferret, of a reddish grey colour; called also Mungo.

MURÆNA. In the Linnæan system, the Muræna constitutes a genus of the order of apodes, distinguished by a smooth body, tubulous nostrils, ten bones in the branchiostege membrane, eyes covered with a skin, a roundish body, and spiracles near the head or pectoral fins. This genus comprehends seven species.

Artedi thus characterizes fishes of this genus: they are of the malacopterygious, or soft-finned kind; the branchiostege membrane on each side contains ten slender and curved bones; the foramina of the nostrils are two, placed in the very summit of the snout, one on each side; the body is long and cylindrical; and in some species there are three fins, in others two, and in some only one.

The species of Muræna enumerated by Artedi are six. See EEL.

Lexicographers in general give us the word Lamprey as the English of Muræna; but the Muræna and Lamprey, in Latin Lampetra, are two very different fishes. The word Muræna is derived from the Greek verb Murein, To flow; and applied to this fish because of its slippery nature, which renders it difficult to be seized.

MURÆNA is also used by Albertus to express the common small lampron, the lampetra parva fluviatilis of authors. This is one of the Petro-myza of Artedi; and is distinguished by that ingenious ichthyologist by its having only one row of very small teeth in the verge of the mouth, besides the larger lower ones.

MUREX. A genus of shell-fish of the testacea order of worms, in the Linnæan system; the characters of which are: the shell is univalve and spiral, beset with sharp spines and tubercles, with a rough clavicle exerted near the summit in most species, but in some depressed; the mouth is always expanded, and sometimes furnished with teeth; the lip is sometimes digitated, at others elated, folded, or jagged; and the columella is sometimes rough, and at others smooth. The inclosed animal is a limax.

Notwithstanding these are the general characters of the Murex, and that all the species have an oblong mouth, and the body covered with tubercles; there are, under this extensive character, four specific variations of figure: the first is seen in the alated Murex, which has no spines; the second is in the spider-shell, which has a very remarkable series of fingers or hooks; the third is in the helmet-shell, which, according to some, constitutes a true species of Murex; and the fourth is in the furrowed Murex, which has no wings, protuberances, nor spines, but only a flat head, and an oblong dentated mouth.

Da Costa, in his Elements of Conchology, divided the family of Murices into four genera: the Murex, rocks, or those shells which have a long and equally narrow mouth; and are externally very rugged; the rhombi, whose subordinate character is, that their general shape or contour is rhombic; the alatae, or winged shells, whose lips extend into a large flap or wing; and the aporrhaidæ, or winged shells, whose flaps or wings are marginated with large spikes or processes like fingers, as the spiders and others.

Other conchyologists divide the Murices into such as have remarkably prominent tubercles or spines; those which are nearly smooth, but have a rough clavicle and a crooked beak; such as have digitated lips; and those which have alated and lacinated lips: Linnæus enumerates no less than sixty-one species of the Murex.

The ancients were furnished with their finest purple dye from a fish of the Murex kind; and therefore they expressed the purple colour by the word Murex.

MUREX MUTIANI. An appellation given by some authors to the genus of shells known by the moderns under the name of porcelains and corichævenereæ. See PORCELAIN SHELL.

MURRE. A provincial name for the razor-bill.

MUS. In the Linnæan system of zoology, a distinct genus of animals of the order of glires, including the whole of the mouse and rat kinds. The generical character is, that the lower fore-teeth are awl-shaped. Linnæus enumerates twenty-one species.

MUS ALPINUS. An appellation given by many naturalists to the mountain-rat, more commonly known by the name of the marmotto.

MUS ARANEUS. See SHREW.

MUS MARINUS. See APHRODITA.

MUS NORWEGICUS. An appellation sometimes given to the Norway rat, called also the lemming.

MUS PHARAONIS. An Egyptian name for the ichneumon, a creature of the weasel kind; which in that country is treated with uncommon respect, because of its destroying serpents and other noxious animals. When domesticated, it serves instead of a cat. See ICHNEUMON.

MUSCA. The classical name for the fly. See FLY.

MUSCA CRABRONIFORMIS and **RAPAX.** Names sometimes used to express the hornet-fly. See ASILUS.

MUSCA VESPIFORMIS. See WASP-FLY.

MUSCICAPA. An appellation given by Aldrovandus, and some others, to the stone-chatter; making that bird, which is properly an œnanthe, one of the species of that genus of the fly-catchers.

MUSCICAPA is also a name given to the fly-catcher. See FLY-CATCHER.

MUSCLE. An English appellation for the Mytilus or Mytilus; a genus of shell-fish belonging to the testacea class of worms, in the Linnæan system: the characters of which, according to some conchyologists, are; that the shell is bivalve, of an oblong form, terminating in a point, and having its two extremities equal. It is sometimes smooth, at others rough; in some species flat; in others elate; and in some the beak is elate. Linnæus, however, gives the subsequent characters of the Mytilus: that the animal is an ascidia; the shell bivalve, and often affixed to some substance by a beard; and that its hinge is without a tooth, marked by a longitudinal hollow line. This great naturalist enumerates twenty species, many of which are found on the British shores.

MUSCLE, COMMON; the Mytilus Edilis of Linnæus. This species is distinguished by a strong shell, slightly incurved on one side, and angulated on the other; the end near the hinge being pointed, and the other rounded. When the epidermis is taken off, it is of a deep blue colour.

These shells, which are found in immense beds, both

both in deep water and above low-water mark, prove a luscious, but noxious food, to many constitutions. Persons who eat Muscles have sometimes been affected with erysipelatous inflammations, cutaneous eruptions, and intolerable itchings all over their bodies, accompanied by great restlessness and agitation; and though these complaints have seldom proved mortal, and are easily removed by oil, milk, and emetics; yet they have an alarming aspect, and subject the parties to grievous pains. Some authors have pretended, that these noxious effects never take place but between the vernal and autumnal equinox: and M. Beunie, a physician at Antwerp, in a memoir on this subject, seems inclined to adopt the above opinion; for he recommends abstinence from Muscles during the months of May, June, July, and August. These noxious qualities in the Muscle, according to this author, are entirely accidental. They are occasioned, says he, by a kind of *stella marina*, a little sea-insect, pretty common about the mouths of some rivers, which sometimes lodges itself in the Muscle when in quest of food; and whose spawn is so caustic and inflammatory, that, when externally applied to the skin, it produces itchings and tumefactions, both painful and disagreeable to a high degree. The itching occasioned by touching the spawn of the *stella marina* is removed by vinegar; and this known fact induced M. Beunie to prescribe the external use of vinegar after phlebotomy, evacuations, and emetics. This method of practice, however, seems rather to confirm the opinion of those who ascribe the disorder in question to an unperceived commencement of putrefaction in the Muscle; vinegar being universally known to be a most powerful antiseptic, and no species of putrefaction being more noxious and offensive than that of fish.

The common Sea-Muscle, from the circumstance of it's having always been found attached to rocks, has been supposed by many to be wholly incapable of progressive motion. But this opinion is erroneous; for when Muscles have been thrown into a pit full of water, they have always been found, in a short time, collected into one heap: a plain proof that they are possessed of locomotive powers. Indeed, their progressive motion is wholly performed by means of that member which, from it's shape, is usually called the tongue of the Muscle; but, from it's use in this case, appears rather to merit the appellation of a leg or arm, as, by laying hold of any distant object, and then forcibly contracting itself again, it draws along the whole body of the fish: the same part, when it has moved the animal to a proper place, serves also to fix it there, being the organ by which it spins the thread commonly termed it's beard, and by which it affixes itself to rocks or other objects. Muscles have long been known to possess the faculty of attaching themselves very firmly either to stones, or to the shells of each other; but the means whereby this is performed were not properly understood till the observations of the accurate Reaumur served to explain them.

It is evident to every person who opens a common Muscle, that in the middle of the fish there is placed a little blackish or brownish body resembling a tongue: this, in large Muscles, is nearly half an inch long, and about the sixth of an inch broad, being narrower at the origin than at the extremity. From the root of this tongue a

great number of threads are produced, which, when fixed to any solid substance, hold the Muscle firmly in it's place: these threads are usually from one to two inches in length; and, in thickness, from that of a hair to a hog's bristle. They issue out of the shell in that part where it naturally opens, and fix themselves to any thing that lies in their way; to stones; fragments of shells; or, which is most common, to the shells of other Muscles.

These threads being expanded on each side, sometimes to the number of one hundred and fifty from one shell, serve the purpose of so many cables; and each pulling in it's proper direction, they keep the Muscle fixed against any force that can be offered. The filaments now under consideration, are generally known by the name of beards; and Reaumur discovered, that if they are torn away by any accident, while the animal is living in the sea, it has a power of substituting others in their room. He also found, that if a quantity of Muscles were detached from each other, put into a vessel of any sort, and plunged into the sea, they would in a short time affix themselves both to the sides of their prison and to each other's shells; the extremity of these threads serving, after the manner of a hand, to seize on any thing that the animal is desirous of reaching; and the other part, which is more slender and small, to perform the office of an arm in conducting it.

In order to investigate the manner by which the Muscle performed this operation, our ingenious naturalist put some of these animals into a vessel; and having covered them with sea-water, he observed that they soon began to open their shells, and each to protrude that little body resembling a tongue, at the root of which these threads grow: this part they extended and shortened several times, and thrust it out in every direction, trying with it before and behind, and on every side, what were the most proper places on which to fix their threads. At the end of these experiments, they suffered it to remain fixed for some time on the spot which they chose for that purpose; and then drawing it back into the shell with great agility, it was easy to perceive that they were fastened by one of those threads to that spot which it had before touched, and remained fixed for some minutes. In repeating this procedure, the threads were increased in number; and being fixed in different places, they sustained the fish at rest against any common force.

These several threads were found to be very different from each other; the new-formed ones being more glossy, white, and transparent, than the rest: and it appeared, on a close examination, that it was not, as might have been most naturally supposed, the office of the tongue to convey the old threads, one by one, to the places where they were to be attached; but that these in reality were become absolutely useless; and that every thread was new-formed for the occasion. However, in order to be ascertained of this, Reaumur cut off all the old threads or beards of a Muscle, as closely as possible, without injuring the part; and a proof of the opinion respecting their spinning new ones at pleasure was brought to this easy trial, Whether these Muscles, so deprived of their old ones, could fix themselves as soon as others which had suffered

no injury, and could throw out their threads to as great distances? The experiment proved the truth of the conjecture; for those whose beards, or old threads, were amputated, fixed themselves as soon as those in which they were left, and spread their threads to as great distances in every direction.

The mechanism of this manufacture being so far understood, it now became natural to enquire into the properties of the member by which it was performed; and it was discovered, that though, from its appearance, it might be considered as the tongue or arm of the fish, it was more properly denominated the organ by which the threads are spun.

Though this organ is flattened like a tongue for a considerable part of its length, it is nevertheless rounded, or cylindric, at the base or insertion; and is much smaller there than in any other part. Several muscular ligaments are fastened to it about the base, which hold it firmly against the middle of the back of the shell; and of these ligaments four are particularly perceptible, which serve to move the body in any direction. Along this body there runs a slit or crack, which pierces very deeply into its substance, and divides it into two longitudinal sections: this is properly a canal, along which is thrown the liquor which serves to form the threads; and it is in this passage or slit that these threads are moulded into their proper form. This canal is regularly carried on from the tip of the organ to its base, where it becomes cylindric; which cylinder, in this part, is no other than a close tube or pipe, in which the open canal terminates. The cylindric tube contains a round oblong body, of the nature of the threads, except that it is much larger; and from the extremity of it all the threads are produced; this serving as a large cable to which all the other little cords, dispersed towards different parts, are affixed. The tube or pipe in which this large thread is lodged, seems to be the reservoir of the liquor from whence the other threads are formed; its whole internal surface being furnished with glands for its secretion.

The Muscle, like many other marine fishes, abounds with this liquor; and if at any time a person touches the base of the spinning organ with his finger, it draws away with it a viscous liquor in form of the caterpillar's threads. These threads fix themselves with equal ease to the most smooth and glossy as to rougher bodies; for if Muscles are kept in glass jars of sea-water, they adhere to the glass as firmly as to any other body.

It is not as yet ascertained whether the Muscle possesses a power of disengaging its threads from the body to which they are fixed, and of removing from the place where it originally took up its residence: however, it appears probable, that it remains where it once fastened itself, though its destruction should be the consequence. Reaumur tried this experiment in his jars: when the Muscles had closely adhered to their sides, he poured off part of the salt-water, so that it then appeared necessary for the fish to quit their hold, and descend lower; but of effecting this they seemed not to possess any faculty.

The Muscle affords the curious observer a very pleasing object of microscopical examination. The transparent membrane, which immediately appears on opening the shell, exhibits the

circulation of the blood, for a long time together, through an amazing number of vessels. In several dissected by Leewenhoeck, that naturalist discovered numbers of eggs and embryos in the ovarium, all lying with their sharp ends fastened to the strings of vessels by which they received nourishment. The minute eggs, or embryos, are placed by the parent in very close arrangement on the outside of the shell, to which they adhere very firmly, continually increasing in size, till becoming perfect Muscles, they drop off, and provide for themselves by means of the instincts peculiar to the race.

MUSCLE, GREAT. This species has a strong shell, blunt at the upper end; one side angulated near the middle, and from hence dilating towards the end, which is rounded. It is the largest of all British Muscles, often measuring seven inches in length: it lies at great depths in the sea; and generally seizes the bait of the ground-lines, whereby it is often drawn up.

MUSCLE, DUCK. The shell of this species is less convex and more oblong than that of the common kind, very brittle, and semi-transparent. Its length is about five inches, and its breadth about two and a quarter. It is found in fresh waters; and frequently affords a repast to the crow; which, when the shell proves too hard for its bill, flies aloft, and drops it on some rock, whereby it is fractured; and the meat is then picked out with facility.

MUSCLE, SWAN. This species has a thin brittle shell, very broad and convex, and marked with concentric striæ. It is attenuated towards one end, and dilated towards the other. The colour is a dull green; the length is six inches; and the breadth three and a half. It inhabits fresh waters; and sometimes contains pearls.

MUSCLE, PELLUCID. The shell of this fish is delicately transparent, and longitudinally rayed in a very elegant manner with purple and blue. It seldom exceeds two inches in length; and is sometimes found in oyster-beds.

MUSCLE, HORSE. A common English appellation for the fresh-water Muscle, a large species of shell-fish very common in our fish-ponds. A member of the Academy of Paris, who has made a number of curious observations on this animal, remarks, that they are all hermaphrodites; and that, by a strange method of generation, each individual is capable of propagating its kind, and annually does so without the intercourse of any other.

The shell of the fresh-water Muscle is composed of several laminæ or beds of matter, and internally lined with an extremely delicate and thin membrane, not easily perceptible while the shell is recent; but when it becomes dry, usually separates, and peels wholly off. The fish opens and shuts its shell by a very strong hinge, assisted by two strong muscles; the contraction of these shuts the shells firmly together, and a powerful spring or native force in the animal opens them again at pleasure. The part which performs this office is distinctly seen on the back of the fish; and is an inch and a half long, and about the sixth of an inch wide.

MUSCULUS MYSTICATUS. A name given by Gefner, and some other authors, to the common whale. Artedi distinguishes this from all other cetaceous fishes, by the name of the Whale with the fistule in the middle of the head, and with the back sharp towards the tail.

MUSEBYTER. An appellation given by some ichthyologists to the *dobula*, a German fish, found in several of the rivers of that country, and nearly resembling the common dace.

MUSIC-SHELL. An appellation given to a species of shell-fish of the *murex* kind; remarkable for its variegations, consisting of several series of spots, placed in rows of lines, like the notes of music.

MUSIMON. An animal generally esteemed a species of sheep; and described by the ancients as common in Corsica, Sardinia, Barbary, and the north-east parts of Asia.

Belon calls this creature a species of goat, having large horns bending backwards, close at their bases, and distant at their points, with circular rugæ; and distinguishes it by the name of *Tragelaphus*, from the apparent mixture of the goat and deer in its conformation.

Buffon supposes it to be the sheep in a wild state; and, as such, it is described by Pennant. It lives in mountainous countries, and runs with amazing fleetness among the rocks. Those of Kamtschatka are so very strong, that ten men are scarcely able to hold one of them: their horns are so large, as sometimes to weigh thirty pounds; and so capacious, that young foxes often shelter themselves in the hollows of such as accidentally drop in the defarts.

MUSK; the *Moschus Moschiferus* of Linnaeus. This animal was long the disgrace of the naturalist: for though the drug which goes by its name was imported for ages, and still improved in its reputation as a perfume and a medicine, it remained a doubt whether it was produced by a hog, an ox, a goat, or a deer. However, we have now obtained a pretty accurate knowledge of the Musk, though we are still doubtful whether it ruminates or not.

This animal is destitute of horns, as well as of the fore-teeth in the upper jaw; but it has on each side a slender tusk, near two inches long, very short on the inner edge, and hanging out quite exposed to view. It is three feet six inches long from the head to the tail; the tail is only about an inch long; and the head about half a foot. In the fore-part of the head it resembles a grey-hound; the ears, which are erect, and about two inches long, are internally of a pale yellow colour, and externally of a deep brown; the hoofs are long, and much divided, somewhat resembling those of the goat kind; the hair on the whole body, which is remarkable for its softness and fine texture, is erect, and very long, each hair being marked with short waves from top to bottom; the colour near the lower part is cinereous, black near the end, and tipped with ferruginous; on each side of the lower jaw, under the corners of the mouth, there is a tuft of thick hair; the belly is whitish; and the tail is of the same colour. The female is inferior in size to the male; its nose is sharper; it wants the two tusks; and has two small teats.

Musks inhabit the kingdom of Thibet, the province of Mohang Meng in China, Tonquin, and Bontan. They are found from latitude 60 to 45; but never wander so far south, except when heavy falls of snow force them thither, through hunger, to feed on the corn and new-grown rice. They naturally inhabit such mountains as are covered with pines; they delight in solitudes, shunning mankind; and, if pursued, ascend the

highest cliffs, alike inaccessible to men and dogs. They are exceedingly timid; and possess such a quick sense of hearing, that they can discover their enemies at a very great distance.

The celebrated drug that bears the name of this animal, and which is produced from the male, is found in a bag or tumour on the belly of that sex only, about the size of a hen's egg: it is furnished with two small orifices; the largest is oblong, and the other round; the one is naked, and the other covered with long hairs. In this bag the musk is contained; for we are informed by Gimelin that, on squeezing it, the perfume was forced through the apertures, and consisted of a fat brown matter. The hunters cut off the bag, and preserve it for sale; but they frequently adulterate its contents, by adding a number of insignificant articles, merely to increase the weight.

These animals must certainly be extremely numerous; for Tavernier informs us, that he purchased seven thousand six hundred and seventy-three musk bags in one journey. The Thibet musk is much superior, and consequently dearer, than that of any other place. That of Muscovy is reckoned the worst. When in large quantities, it emits a very strong smell; but when mixed and diffused, it sends forth a most grateful perfume. Indeed, no substance that we know of has a stronger or more permanent smell: a single grain of musk will perfume a whole room; and its odour will remain for several days without any sensible diminution. But, when in a larger proportion, it will continue for years together; and appear but little wasted in its weight, though it has filled the atmosphere with its particles to a considerable distance.

Musk was formerly in the highest repute as a perfume, and but little regarded as a medicine: at present, its character is reversed; and having been found of great utility in physic, it is but little regarded for the purposes of elegance. It is particularly serviceable in nervous and hysteric disorders; and, in such cases, is perhaps the most powerful remedy now in use.

The flesh of the Musk animal, though much infected with this drug, is nevertheless eaten by the Russians and Tartars.

MUSK, BRAZILIAN; the *Cuguacu-ete* of Marcgrave. This species is about the size of the roebuck: in the ears, which are about four inches long, the veins are very apparent; the eyes are large and black; and the space about the mouth is of the same colour. The hind-legs are longer than the fore-ones; and the tail is about six inches long. The hair on the whole body is short and smooth; the head and neck are tawny, mixed with cinereous; the back, sides, chest, and thighs, are of a bright rust-colour; and the lower part of the belly and insides of the thighs are white.

This animal, which inhabits Guiana and Brazil, is remarkably timid, swift, and active. Like the goat, it will stand on the point of a rock with its four legs placed together. It is frequently observed to swim across rivers, and at such times is very easily taken. The Indians hunt it with extreme avidity, for the sake of its flesh as well as its perfume. The French of Guiana call it *Biche*, because, notwithstanding its resemblance to the deer kind, both sexes are destitute of horns.

MUSK, INDIAN. The Indian Musk is of an olive-colour, and about seventeen inches in length.

It's

It's throat, breast, and belly, are white; it's sides and haunches are spotted, and barred tranversely with white; it's ears are large and open; and it's tail is very short. This creature inhabits Ceylon and Java.

MUSK, GUINEA. This animal is about ten inches long: the head, legs, and all the upper part of the body, are tawny; and the belly is white: in the lower jaw there are two very broad cutting-teeth, and three very slender ones on each side of them; in the upper jaw there are two very small tusks; the ears are large; and the tail is only about one inch in length.

Linnæus confounds this animal with the royal antelope. Great numbers of them inhabit the East Indies, Java, and Prince's Island. The natives catch them in little snares, carry them in cages to market, and sell them for a sum less than three-pence English money.

MUSK-RAT; the *Castor Zibethicus* of Linnæus. This animal has a thick blunt nose, short ears, and large eyes; the toes on each foot are separated; the tail is compressed sideways, very thin at the edges, and covered with small scales, intermixed with a few hairs; the body and head are of a reddish brown colour; the breast and belly are cinereous, tinged with red; and the fur is very fine. The length of the body, from the nose to the tail, is one foot; the tail is nine inches; and the whole figure exactly resembles that of the beaver.

But this animal differs from all others, in being so formed that it can enlarge or contract it's body at pleasure. It has a muscle like that of horses, by which they move their hides, lying immediately under the skin, and that furnished with such a power of contraction, together with such an elasticity in the false ribs, that this animal can creep into a hole where others, seemingly much less, cannot possibly follow it. The female is also remarkable for two distinct apertures, the one for urine, and the other for propagation. The male is equally peculiar in it's conformation. The marks of the sex seem to appear and disappear periodically, in proportion as the musky smell is stronger or weaker, which happens at particular seasons.

This animal in some measure resembles the beaver in it's nature and disposition: both live in societies during winter; and both form houses, about two feet and a half wide, in which several families reside together: in these they do not assemble, like marmots, in order to sleep; but purely to shelter themselves from the rigours of the season. However, they differ from beavers in having no hoards of provisions; for they only form a kind of covert-way to and round their dwellings, from whence they issue to procure water and roots, their usual subsistence.

During the winter season their retreats are covered under a prodigious depth of snow; for these animals only inhabit the coldest parts of North America, and consequently they must lead a life of gloom and necessity. In summer, they separate, two by two, and feed on the variety of roots and vegetables which the earth spontaneously produces. At this season they become extremely fat; and are much sought after, as well for their flesh as their skins, which are very valuable. They then also acquire a strong scent of musk, very grateful to an European, but which the Canadian savages cannot endure. What we admire

as a perfume, they consider as the most abominable stench; and call one of their rivers, on the banks of which the Musk-Rats burrow in great numbers, by the name of the tinkling River. This strange diversity of tastes among mankind may perhaps in some measure be ascribed to the different kinds of food on which they subsist: such as feed principally on rancid oils and raw or putrid flesh, often mistake the nature of scents; and having been long accustomed to nauseous smells, will by habit be taught to regard them as perfumes. But though these hyperborean savages consider the Musk-Rat as intolerably foetid, they nevertheless esteem it's flesh delicious.

MUSSAHIR. The name of a bird mentioned by Arabian authors; who inform us that, after having spent the day in searching for it's food, it employs the whole night in singing: and they farther add, that it's notes are so melodious, as to banish all thoughts of sleep from those who hear them. In this account, though short, fiction has no doubt a considerable share; and it is difficult to determine how far truth may be connected with it.

MUSTELA; the Weasel. In the Linnæan system of zoology, this constitutes a distinct genus of quadrupeds of the order of feræ in the class of mammalia, comprehending eleven species. The characters of this genus are; that there are six cutting-teeth in each jaw, the upper being erect, acute, and separate; that the lower are more obtuse; and that the tongue is smooth. See **WEASEL**.

MUSTELA AFRICANA. An appellation given by Clusius to an animal properly of the squirrel kind, and usually known among naturalists by the name of the Barbary squirrel.

MUSTELA is also the name of a genus of fishes, of which there are several species; the most common of which is the sea-loche, or whistle-fish. This resembles the common eel in figure, colour, and smoothness; but it is not half so long, in proportion to the thickness; is somewhat flatter; and has a turgid belly. It is covered with extremely minute scales. The mouth is large, and furnished with several series of sharp minute teeth; at the angle of the lower jaw there is one beard; and at the upper part of the nostrils in the upper jaw there are two. There are two pair of fins under the belly, and one on the back; besides the common fin reaching half the length, and extending almost to the tail.

There are several species of this fish.

MUSTELA FLUVIATILIS. An appellation given by some authors to the common lampetra, or lamprey.

MUSTELA LUMPEN. A name given by Artedi and Ray to that species of blennus called Galea by Gesner. It is distinguished by Artedi under the name of the blennus with four bifid cirri or beards under the throat.

MUSTELA MARINA. An appellation given by Bellonius and other ichthyologists to that fish called in English the sheat; the *Glanus* of Pliny, and the ancient naturalists. Artedi distinguishes it by the name of the *filurus*, with four beards near the mouth. By this character it is distinctly marked from the fish called the lake, which, though a genuine species of the *filurus*, has only one beard.

MUSTELINUM GENUS. A class of animals so called from their general resemblance to the

the weasel in shape. They are all carnivorous; and distinguished from the other quadrupeds of that sort by the smallness of their size, the length of their bodies, and the narrowness of their heads. The feet are small; and the legs are short. The teeth are less numerous than in many quadrupeds, being only thirty-two in number; whereas, in the dog kind, there are forty. Their intestines are short and simple; and they have neither colon nor cæcum, nor any distinction of great and small guts.

MUSTELUS. An appellation given by Gaza, and some other naturalists, to the fish called *galeus asterias*, and *stellatus*, by the moderns. This fish is only a variety of the *galeus lævis*, or smooth dog-fish. Both are accounted one species by Artedi, and expressed by the name of the *squalus* with obtuse or glandulous teeth.

MUSTELUS LÆVIS. A name by which Aldrovandus, and some other ichthyologists, have called the *galeus lævis*, or smooth hound-fish of the moderns.

MUSTUS FLUVIATILIS. An appellation sometimes used to express that species of cyprinus known in English by the name of the barbel.

MUTILLA. A genus of insects of the order of hymenoptera in the Linnæan system: the characters of which are; that in general they are destitute of wings; that the body is covered with short hair or down; that the hinder part of the thorax is obtuse; and that the sting is hidden and pointed. There are ten species of this genus.

MUTILUS. A classical name for the common muscle.

MUTU. A Brazilian bird of the gallinaceous kind, more usually called the mitu.

MYA. A genus of the testacea class of worms. Its characters are; that the shell is bivalve, gaping at one end; and that the hinge, for the most part, is furnished with a thick, strong, broad tooth, not inserted in the upper valve. Linnæus enumerates seven species.

MYA, PEARL. The shell of this species is thick, coarse, and opaque; of an oblong figure, bending inwards on one side; and externally black. Its usual breadth is from five to six inches; and its length about two and a quarter.

It is found in large rivers, especially those which water the mountainous parts of Great Britain; and is famous for producing pearls. There have been regular fisheries for this shell in several of our rivers; and sixteen have sometimes been found within one shell. They are said to be the disease of the fish, analogous to the stone in the human body. On being squeezed, they eject the pearls; and often cast them spontaneously in the sand of the stream.

The River Conway was noted for them in the days of Camden. The Irt, in Cumberland, also produced them; and that celebrated navigator Sir John Hawkins obtained a patent to fish for them in that river: he had observed that pearls were very plentiful in the Straights of Magellan, and flattered himself with being enriched by procuring them within his own island. In the last century, several of a large size were found in the rivers of the county of Tyrone and Donegal, in Ireland. Scotland also produces pearls in abundance; and some of considerable value.

Suetonius reports, that Cæsar was induced to undertake his expedition into Britain for the sake

of the pearls which he expected to find there; being brought to believe them so large, that it was necessary to use the hand in trying the weight of a single one. Cæsar was unquestionably disappointed in his hopes; nevertheless, we are told that he brought home a buckler made of British pearls, which he suspended in the temple of Venus Genetrix, as a present to that goddess.

MYA, ABRUPT. This species has a broad, upright, blunt tooth, in one valve of the shell; the closed end rounded; the open end truncated, and gaping wide. The external colour of the shell is yellow, marked with concentric wrinkles. It is found near low-water mark, under starchy ground.

MYA, SLOPING. This shell is brittle, semi-transparent, furnished with a hinge slightly prominent, less gaping than the abrupt, and sloping downwards near the open end. It is found on different shores of the Hebrides; where the inclosed fish is eaten by people of condition.

MYA, SAND. This shell is upwards of three inches broad, and two inches long in the centre: the mouth is large, and rough at the base; and the whole shell is of an ovated figure, being narrowest at the gaping end.

MYA, PAINTING. This shell is frequently used by painters for the purpose of holding water-colours in; whence it receives its name. It is about two inches broad, and one long; has a single longitudinal tooth, resembling a lamina, in one shell; and two in the other. This species is found in rivers.

MYCTERIA. A genus of the grallæ; of which there is only one known species, the *Jabirugua* of Marcgrave.

MYOPS; the Ox-fly. An insect frequently confounded with the breeze-fly, but in reality differing from it very essentially. It is common in woods, and about pathways; and has a long and somewhat depressed body, of a blackish grey colour. It naturally fixes on oxen, which it torments with unceasing virulence.

MYRMECIPHAGA. An appellation sometimes given to the ant-eater. See **ANT-EATER.**

MYRMELION. A genus of the neuroptera class of insects: the distinguishing characters of which are; that the mouth is formed with jaws, and furnished with two teeth; that the palpi are four, and elongated; that there are no stemmata; that the tail of the male is a forceps, consisting of two straight filaments; that the antennæ are elevated, and of the length of the thorax; and that the wings are deflected. Linnæus enumerates five species.

MYRUS. A species of sea-serpent of the anguiform kind; supposed, but falsely, to be the male *muræna*. The snout is very long and sharp-pointed; the body is black, slender, and round, without scales or spots; the cavity for the gills is only one on each side; near the neck a few yellow spots are perceptible while the creature is alive; but, after it is dead, they are scarcely distinguishable. The flesh is esteemed tender and delicate.

MYS. An appellation given by Ælian, and other ichthyologists of antiquity, to the capricus of later writers. See **GOAT-FISH.**

MYSTOCEROS. An appellation given by Gesner to that species of the *filurus* usually known among the moderns under the name of the sheat-fish. It is the *Glanus* of Pliny and other ancient naturalists;

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naturalists; and distinguished by Artedi by the name of the filurus with four beards under the chin. This character sufficiently discriminates between it and the fish called the lake, which, though a genuine species of the filurus, has only one beard.

MYSTUS FLUVIATILIS. A name by which Bellonius and some others have expressed the common barbel.

MYSTUS MARINUS; the Sea-barbel. A fish commonly caught in the Adriatic, and exposed to sale in the Venetian markets. It is of an oblong figure; and of a silvery white colour, variegated on each side with ten obliquely transverse black lines. The belly is pure white; the head is long; and the tail is forked. Part of the rays of the dorsal fin are prickly, and part soft; the irides are yellow; the lips are prominent, thick, and soft, and only serrated in the place of teeth; but, in the hinder part of the mouth, there are several rows of molares, or grinders. The scales are large, and closely adhere to the flesh, which is exceedingly agreeable to the taste.

MYSTUS NILOTICUS. An appellation given by Bellonius to a fish of the barbel kind, caught in the River Nile. The body is thick and short; the belly is very broad; and the weight is sometimes twenty pounds. Some have conjectured that this is only the common barbel,

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grown to a larger size than usual, and hence varying a little from the usual figure.

MYTILUS. A classical appellation for the muscle-shell. See **MUSCLE.**

MYXINE. A genus of the intestina class of worms in the Linnæan system. The characters are: the body is round, and carinated in the lower part; the mouth is cirrous; the jaws are pinnated, and furnished with many sharp teeth; and there are no eyes. Linnæus mentions only one species, to which he gives the name of the glutinous Myxine.

These creatures, which are about eight inches long, inhabit the ocean; enter the mouths of fishes when on the hooks of lines that remain a tide under water; and frequently devour the whole flesh, leaving nothing but the skin and bones. The fishermen of Scarborough frequently draw them up in the robbed fish.

Linnæus ascribes to these worms the quality of converting water into glue.

MYXON. The name of a fish of the mullet kind, called also Bacchus. It bears a strong resemblance to the common mullet; but its head is less pointed; and its body, exclusive of the scales, is covered with a mucous matter.

This fish has a remarkable irregularity in its manner of swimming, which is with a kind of undulating motion.

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NACRE. A genus of bivalve shells; the characters of which are, that the shell is fragile, furnished with a beard, gapes at one extremity, and has a hinge without a tooth. See **PINNA.**

NAGEMULUS. An appellation given by some ichthyologists to the *Lucioperca* of Willughby and others; in English, the pike-perch. It is a genuine species of perch, and principally distinguished from the common kind by having two long teeth on each side of the mouth.

NAIA. A species of coluber or snake; the scuta of whose abdomen amount to one hundred and ninety, and the squamæ of the tail to sixty.

NAKED DOG. A species of the canine tribe. See **DOG.**

NANTES. The name of an order of animals under the class of amphibia, in the Linnæan system; the characters of which are, that they are pinnated, and respire by lateral branchiæ or gills.

This order comprehends fourteen genera, and seventy-six species. The petromyzon, raja, squalus, and others, belong to this order.

NAPUS. An appellation given to a species of *voluta*, approaching to the nature of the beautiful and valuable admiral-shell; and more commonly known by the name of the false or bastard admiral.

NARCOS. A name used by some authors to express the torpedo, or cramp-fish; a species of *raia*, distinguished by Artedi under the appellation of the *Raia tota lævis*, the Ray entirely smooth.

NARINARI. A Brazilian fish of the aquila marina kind. It is very large and flat; the figure of the body is nearly triangular; the head, which is very large, has a furrow down its middle; the mouth is somewhat triangular, but rounded at the angles; it has no teeth, but, in their stead, a bone in the under part of the mouth, shaped like a tongue, about three inches long, and one inch broad; and in the upper part a smaller bone of similar conformation, with which it crushes its food. The body is commonly about eighteen inches in length, and the tail nearly four feet. The flesh has an excellent flavour.

Naturalists are agreed that the bones found in the mouth of this, and in those of other fishes of the same kind, are the fossil siliquæstra.

NARWAL. An appellation given to a fish of the whale kind, more frequently called the sea-unicorn.

This fish is inferior to the whale in size, seldom exceeding sixty feet in length; and the body is more slender and less adipose. But the most distinguishing mark of this creature is its teeth, (or tooth) which project directly forward from the upper jaw, and are from nine to fourteen feet in length. In all the variety of weapons with which nature has armed her different tribes, there is none so large or formidable as this, which is generally found single: but there is the skull of a Narwal at the Stadthouse of Amsterdam having two teeth; which plainly proves that, in some of these animals at least, this instrument is double. Indeed,

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it is questionable whether it may not be so in all; and that the deficiency in some arises from the dangerous encounters in which they are almost continually engaged. Yet it must be owned, that of those which are taken with only one tooth, no socket or remains of another on the opposite jaw are perceptible. Be this as it may, the tooth, or, as some chuse to call it, the horn of the Narwal, is the most terrible of all natural instruments of destruction: it is perfectly straight, about three or four inches in diameter, writhed in the most curious manner, and tapering to a sharp point. It is whiter, heavier, and harder, than ivory; it generally springs from the left side of the head, directly forward in a straight line with the body; and its root enters into the socket about one foot and a half.

The extreme length of these instruments has induced some to consider them rather as horns than teeth; but, in every respect, they resemble the tusks of the boar and the elephant: they spring, as in those animals, from sockets in the upper jaw; they possess the solidity of the hardest bone; and far surpass ivory in all its qualities. The same error has led others to conjecture, that as among quadrupeds the female was often found without horns, so these instruments of defence were only to be seen in the male: but this opinion has been several times refuted by actual experience; both sexes having been found armed in a similar manner; though the horn is sometimes wreathed, and at others smooth; sometimes a little incurvated, and at others straight; but always strong, sharp-pointed, and deeply infixed.

Such powerful weapons of annoyance or defence, it might naturally be supposed, were demonstrative of the Narwal's ferocity; nevertheless, it is one of the most innocent and inoffensive inhabitants of the deep. It constantly and harmlessly sports among the other great monsters of the ocean, by no means attempting to injure them, but seemingly expressing a degree of pleasure in their society: however, when offended, it is terrible; and appears sensible of the instruments of defence with which nature has endowed it.

The Greenlanders call the Narwal the forerunner of the whale; for wherever it is seen, the whale is sure to appear shortly after. This may happen as well from the natural desire of society observable in these animals, as from both living on the same kind of food.

The habits and appetites of the Narwal and the great whale are entirely similar: being both destitute of teeth for masticating their food, they are obliged to live on insects; and being both peaceable and harmless, they always rather fly than shun the combat. The Narwal, however, has a much narrower swallow than the great whale; and therefore does not stand in need of barbs, to confine its food when once sucked into its mouth. It is also much swifter; and would scarcely ever be caught by fishermen, but for those very tusks, which, at first appearance, seem to be its principal defence.

As these animals are fond of associating together, so they are always seen in herds; and, whenever attacked, they crowd together in such a manner, as to be mutually embarrassed by their tusks; by which means they are often locked together, and thus prevented from plunging to the bottom: it therefore seldom happens that the fishermen do not secure one or two of their number, which amply compensates for their danger and address.

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From the extraordinary circumstance of the teeth of this fish, it demands a distinct history; and such has been the curiosity of mankind, and their desire to procure them, that about a century ago, they were considered as the greatest rarity in the world. At that period the art of catching whales was unknown; and few of them were ever seen, except such as were accidentally stranded on different coasts. The tooth of the Narwal, therefore, was ascribed to a very different animal from that which really produced it: it was sometimes dug up among other fossil substances; and this creature being utterly unknown, and naturalists being inclined to discover a terrestrial owner, it was accordingly attributed to the unicorn, an animal described by Pliny as resembling the horse, with one straight horn darting forward from the centre of its forehead. Hence these teeth were considered as a strong testimony in favour of that historian's veracity, and were exhibited among the most precious relics of antiquity. Even for some considerable time after the Narwal was well known, the deceit was continued, as those who were possessed of a single tooth sold it to great advantage. At present, however, the imposture is fully detected; and the tooth of the Narwal is only estimated according to its weight and size.

NASUS. A fresh-water fish common in the Rhine, the Danube, and other large rivers of Germany; though unknown in England; and called by different authors the *simus*, *savetta*, and *platy-rynchos*. In shape and colour, it strongly resembles the chubb; it commonly measures about nine inches in length; and is a loose, insipid-tasted fish. It spawns in May; at which time the males are rougher than at any other season; and their heads are speckled with white, like the common rudd. At this season also they swim together in immense shoals, so that two or three thousand have been sometimes caught in the space of one night.

NATIX. An appellation given by ancient writers to the Nerita.

NATOLIAN GOAT. See **GOAT**.

NATRIX. The common, or water-snake; called also the *torquata*, from the ring which encircles its neck. It is thicker and longer than the viper; and though capable of swimming with facility, and therefore often in the water, it is properly a land animal. It lays a number of eggs, generally in dung-hills, where they are hatched either by the warmth of the place, or the heat of the sun.

This animal is commonly found in bushy places, and near waters. In winter it lodges in the banks of ditches, or about the roots of trees, where it continues in a state of torpidity till the heat of the sun recalls it to life and motion. It is entirely divested of any poisonous qualities; nor will it even bite when gently handled. It subsists on mice, frogs, and insects; and sometimes on vegetable productions.

The back of this snake is of a dusky earth-colour; the belly is variegated with black and a blueish white; but near the head it is almost wholly white, having only a few small spots of black at the sides, the colour growing darker towards the end of the tail. The whole belly is overspread with long parallel scales, placed transversely; the back and sides are covered with small scales, and variegated with several streaks and spots of black; upwards of eighty transverse lines run from the back to the sides; and, exclusive of these, there are two other rows of smaller ones,

in the form of spots, near the middle of the back. The head is covered with large scales, of a more dusky hue than those of the rest of the body; and the upper jaw is white on each side, with four or five slight black lines crossing it. The chain is yellow, composed of two large spots of that colour, one placed on each side of the neck, between which appears a triangular spot of a deep black, with it's top directed towards the tail. It is destitute of the long canine teeth of the viper, and other poisonous reptiles, by means of which the poison is conveyed into the wound; but has two rows of small serrated teeth, destined by nature for the sole purpose of mastication.

The above minute description of this reptile seemed necessary, in order to discriminate between it and the viper, with which it is sometimes confounded.

NATTER-JACK; the *Rana Rubeta* of Linnæus. This creature, which frequents dry and sandy places, is found on Putney Common; and also near Revesby Abbey, in Lincolnshire, where it obtains this appellation. It never leaps; nor does it crawl with the slow pace of the toad; but it's motions rather resemble running.

Several of these animals are commonly found together; and, like the rest of the genus, they generally appear in the evenings. The length of the body is two inches and a quarter, the breadth being one and a quarter; the length of the fore-legs is upwards of one inch, and that of the hind-legs nearly two. The upper part of the body is of a dirty yellow hue, clouded with brown, and covered with porous pimples of unequal sizes; and on the back there is a yellow line. The under part of the body is somewhat paler, and marked with black spots, feeling somewhat rough; the fore-feet are furnished with four divided toes; and the hind with five, a little webbed.

NAVICULA. An appellation given by the French conchyologists to a class of shells, more generally known by the name of *Nautilus*.

NAUPLIUS. A name sometimes used to express the *nautilus*.

NAUTILUS. A genus of shell-fish; the characters of which are, that the general figure of the shell somewhat resembles a boat or vessel, adapted for swimming; but, in the different species, it is of very various conformation, roundish or oblong, thin or thick, furrowed or smooth, sometimes auriculated, and sometimes not.

Different conchyologists among the ancients and moderns have denominated this shell *Nautilus*, from *Pilus*, *Nauplius*, *Nauticus*, *Ovum Polypi*, and *Polypus Testaceus*; and it is supposed that men first discovered the method of sailing in vessels from observing the practice and habits of this creature.

The *Nautilus* is of two kinds: the one has a thin shell, and generally keeps near the sea-shore, on which it is often thrown by the waves, where it frequently quits it's shell, and perishes; and the other either continues in it's shell like a snail, or seldom ventures out of it; but sometimes thrusts out a kind of arms.

When the former genus is about to sail, it extends two of it's arms aloft, and between these supports a membrane, which it expands on purpose, and supplies the place of a sail; the two other arms it hangs out of the shell, to serve occasionally either as oars or a steerage; but this

last office is generally performed by the tail. When the sea is calm, numbers of these creatures are frequently seen amusing themselves with sailing; but, as soon as a storm arises, or any other accident disturbs them, they draw in their legs, and swallowing as much water as will enable them to sink, they plunge to the bottom: afterwards, when desirous of rising again, they void this abundant water by a number of apertures, of which their legs are full.

The shell of the other genus is thick, and divided into forty or more partitions, which grow smaller and smaller as they approach the extremity or centre of the shell; and between each of these cells and the adjoining one there is a communication by means of a hole in the centre of each partition, through which runs a pipe, the whole length of the fish.

It is generally supposed that this animal occasionally changes the place of it's residence by moving from one of those cells to another, through the small tube; but this is by no means probable, as it is impossible to conceive how the body of the fish could be so much diminished or extended, as to pass through the only visible aperture in the shell. It seems therefore more consonant to reason, to suppose that the fish always occupies the largest chamber in it's shell; that is, it lives in the cavity between the mouth and the first partition; and that it never removes out of this; but that all the apparatus of cells and a pipe of communication, which we so much admire, serve only to admit occasionally air or water into the shell, in such proportions as may answer the creature's demands when inclined either to sink or swim.

It must be observed, that the *polypus* is by no means to be confounded with the thin or paper-shelled *Nautilus*, notwithstanding the great similarity in their arms and bodies; nor is the *cornu ammonis*, so frequently found fossil, to be confounded with the thick-shelled *Nautilus*, though the concamerations and general structure of the shell are both alike; for there are great and essential differences between all those kinds.

The following are some of the most curious species of the *Nautilus* class.

NAUTILUS, PEARL-SHELLED. This species obtains it's name from the beautiful colour of the internal surface of it's shell, which may vie with the finest pearls. It is found in the Archipelago, and other seas; and is frequently discovered fossil in the clay-pits and quarries of different parts of England.

NAUTILUS, THICK, LITTLE. This shell is of a roundish figure, seldom exceeding one inch and a half in diameter. The surface of the whole shell is smooth; the opening of the mouth is large, and nearly circular, though partly filled up behind by the spiral part of the shell being reverted; the colour of the outside is a pale tawny brown, with lines or streaks of a darker hue; the inside is bright and perlaceous; and at the bottom there is an aperture, running through a multitude of cells into which the inner cavity is divided.

The Little Thick *Nautilus* is found in the Persian Gulph, and the Oriental seas.

NAUTILUS, THIN-EARED. This species is extremely beautiful, about ten inches long, and furnished with a very thin shell. The aperture of the mouth is very large, and of an ovated shape,

shape, but truncated at the hinder part, where the spiral turn enters it; the edge of the mouth is undulated; and at the hinder extremity there are two appendages, called ears, one on each side the twisted part of the shell. The external and internal surfaces are of the most beautiful white colour, marked on the outer side with undulated ridges, and a great number of tubercles; the back is hollowed through it's whole extent; and from the centre arises a denticulated ridge.

This animal is common in the East Indian, some parts of the American seas.

NAUTILUS, PAPER. This species receives it's name from the thinness of the shell, which is about the consistence of strong paper or parchment; and is often twelve inches long, compressed on both sides. The opening of the mouth is very long and narrow, and there are no ears; but the angles of the hinder part of the mouth, between which the spiral turn of the shell enters the cavity, are high and sharp. The whole external surface is beautifully variegated with undulated lines, and hollow spaces between them; and a furrow runs all along the back, on each side of which the ridges are sharp and serrated.

NAUTILUS, THIN, EARLESS. This species is but five inches long, and three or four deep; the aperture of the mouth is very long and narrow; the shell is very thin and delicate; and the colour is a yellowish white.

A celebrated French conchyologist gives the subsequent short characters of all the known species of the Nautilus. The great smooth and thick Nautilus; the little Nautilus with a smooth and thick shell; the smooth and thick umbilicated Nautilus; the common concamerated Nautilus; the furrowed and empty Nautilus, with no diaphragms or separations within; the thin and flatted papyraceous Nautilus; the auriculated Nautilus, with a wider shell; the undulated and furrowed Nautilus, with dents on each side of the edge; and the Nautilus with a ridged and serrated back: which last species is commonly seen in cabinets, being much valued on account of it's beautiful pearlaceous colours.

NAZARETH, BIRD OF. An appellation sometimes given to the dodo.

NEBRUS. A name used by some of the ancients to express the Hinnuleus, or deer of one year old: the second year it is called Pattalia; the third, Dicrota; and the fourth, Cladii. The term Cerastæ was applied to this animal when above four years old.

NECYDALIS. A genus of the coleoptera order of insects in the Linnæan system: the distinguishing characters of which are; that the antennæ are setaceous; that the exterior wings are smaller, shorter, and narrower, than the interior; and that the tail is simple.

Linnæus enumerates eleven species.

NEEDLE FISH. The English appellation for the syngnathus, with the middle of the body hexangular, and the tail pinnated.

NEEDLE, SEA, West Indian. The fish so called has a square body, above a foot long, and of a blueish colour, somewhat inclining to green on the back, and to silvery on the belly: the head is almost triangular, with a snout near ten inches long, hard, slender, and sharp as a needle; the mouth is armed with small hooked teeth; and the lower jaw is longer than the upper. A single fin runs from the head to the tail, of a green colour, and

shining like glass; the tail is bifid like that of the mackarel; and the fish is white and well-flavoured.

NEEDLE SHELL. An English term for the centronia and echinoderma, called otherwise the sea-urchin.

NEEDLE SHELL is a name also used by some naturalists to express a species of the turbo, which is slender, and has ventricose spires and a small mouth.

NEGRO. A large bird, strongly resembling the crane kind; more usually known among authors by it's Brazilian name, jabiru.

NEPA. A genus of the hemiptera class of insects in the Linnæan system: the characters of which are; that the animal has an inflated back; four wings complicated in the form of a cross, and in the fore part coriaceous; the anterior feet cheliform; and the other four ambulatory. There are seven known species.

NEPA is also a term sometimes used by naturalists to express a crab, and at others a scorpion.

NEREIS. A genus of insects, the body of which is of a cylindric figure; and the tentacula are four in number, two of them being usually very short. Hill refers these insects to the gymnarthria class; but other naturalists have described them under the appellation of the scolopendra marina.

NEREIS is also a Linnæan name for a genus of the mollusca order of worms; the body of which is formed for creeping, oblong, and linear; the lateral tentacula are pencilled; the mouth is unguiculate; and above it are plumose tentacula.

There are eleven species, several of which are found in the British seas.

NEREIS, BRIGHT. This species illuminates the sea after the manner of glow-worms, but with a much brighter lustre. Sometimes, by their means, the whole liquid element seems to be in a glow during the night; and, in rowing, it is not uncommon to see every oar spangled with them, while the water flames with more than usual brightness. These creatures, however, are too minute to admit of a particular examination; for it is the assemblage of myriads of them that affords the nocturnal blaze.

NEREIS, BOG. This species, which inhabits moist situations, has a linear, jointed body, with a filiform foot issuing from each joint. The whole animal is scarcely larger than the short bristle of a hog; and it's peculiar conformation can only be seen by the assistance of the microscope.

NEREIS, BLUE. This creature, which is found in the deep, is smooth, depressed, and composed of a vast number of segments of a blueish green colour; and a longitudinal sulcus runs along the belly for the space of four inches.

NEREIS, SHELL. This species, which inhabits the Sabella, has a flat body, attenuated towards the tail, and pellucid; on each side there are thirteen feet; and about the mouth there is a series of very fine filaments.

NEREIS, RED. This species has a slender depressed body; two black spots on the front; is attenuated at the extremity, when the forceps is withdrawn; and has a deep and longitudinal line along the middle of the back. The length is about four inches; and the segments are extremely numerous. Penant informs us, that this species is found off Anglesea.

NERFLING. A fresh-water fish of the leather-mouthed kind, common in some of the German lakes, and there also known by the name of the orfforforve. There are two kinds of this fish: the flesh of the one is white when dressed; and that of the other is yellowish, or reddish. They appear to be varieties of the common English rudd.

NERITE. A genus of shell-fish of the univalve kind; the distinguishing characters of which are, that the shell is gibbous, flattish at the bottom, and furnished with a semiorbicular aperture. The inclosed animal is a slug.

NERITE, LIVID. This species is umbilicated with five spires; generally marked with short brown stripes, but varying in colour.

NERITE, STRAND. This species, which is about the size of a horse-bean, has a thick shell with four spires; and is generally of a fine yellow colour; but, like the rest of the genus, sometimes varies. It is commonly found near sea-rocks.

NERITE, RIVER. This animal, which has a brittle, dusky shell, marked with white spots, and two spires, inhabits gentle rivers and standing waters. It is about the size of the head of a large pin.

NEROPHIDION. An appellation given by some ichthyologists to the acus or syngnathus of Artdi, distinguished by that author under the name of the hexagonal-bodied syngnathus, with the tail pinnated; and by others under the name of the acus Aristotelis, and acus secunda species. Some also call it the blennus.

NETTLE, SEA. A genus of marine zoophytes, of which there are two kinds; one comprehending such as remain always fixed in one place, like sea-plants; and the other, such as change their situations, and possess a progressive motion. This is the division of Aristotle: but, in contradiction to it, Reaumur asserts, that all these Nettles are endowed with locomotive powers; and this seems to be confirmed by the observations of other modern naturalists. Indeed, Reaumur apprehends that they are real animals; because they have organized bodies, and indicate sensation whenever touched: besides which, they lay hold of those fish and shell-fish which they eat, and have also a progressive motion.

These Nettles assume so many various shapes, that it is not possible to describe them under any determinate figure: in general, however, their external formation approaches nearest to a truncated cone, having the base affixed to a stone. Some are of a greenish colour; some are whitish; and others are rosaceous. In some these colours appear uniformly over the whole surface; and in others, they are mixed with spots and streaks: sometimes also these spots are irregularly distributed; at other times regularly; but always in a pleasing and agreeable manner.

The wandering Sea-Nettles possess nothing in common with the preceding, except the name; and they receive different appellations according to their situation and size. Reaumur thinks that they may with more propriety be called Sea-jellies; for in reality their flesh, if it may be so called, always possesses the colour and consistence of a jelly. When thrown on the sea-coast, they appear perfectly motionless; which circumstance may arise from various causes sufficient to deprive them of life.

The first kind of Sea-Nettle produces a similar

effect with the common stinging-nettle, and hence they received their name: however, all the varieties which are generally considered as fixed to some particular spot, have not this stinging quality; and, in some seas, it is said that none of them possess it.

Of the wandering sort, some exhibit the appearance of a spongy, hollow, round mass, pierced in the middle; furnished with a kind of tentacula; and, when handled, melting away like ice, at the same time that they occasion a painful itching. See MEDUSA, ACTINIA, URTICA-MARINA, and ANIMAL-FLOWER.

NEUROPTERA. A class of four-winged insects in the Linnæan system; so called from their having membranaceous wings with nerves, disposed in a reticulated form. Linnæus comprehends seven genera under this class.

NEWT. An appellation frequently given to the common eft; the lacerta palustris of Linnæus, and the warty lizard of the British zoologist.

NHARNDIA. The name of an American fresh-water fish of the anguilliform kind, with a long adipose body, gradually becoming more slender towards the tail. The belly is soft; the head is flat; and the mouth, which exhibits a parabolic figure, is armed with small teeth. The usual length of this fish is from eight to ten inches; the tail is bifid; the head is covered with a strong shelly coat, of a dusky brown colour; the back and sides are of a blueish grey hue; the larger dorsal fin is of the same colour, the rest being wholly black; and on each side there is a red line, which extends from the gills to the tail.

NHANDUAPOA. A Brazilian bird; called also jabiruguacu; but more frequently known by its Dutch appellation, scur vogel.

NHANDUGUACU. A Brazilian bird of the cassowary kind; a species of the struthia or ostrich in the Linnæan system, but smaller than the common or African ostrich. Its body is pretty large; its neck is long; its legs are very long and thick; its wings are so short, that they are unfit for flying; and its feathers are grey, and pretty long on the back. It commonly carries its neck bent like a swan; its head is shaped like that of a goose; and the back feathers fall down over the rump, and form a sort of tail. This bird runs with the fleetness of a greyhound; and feeds on flesh and fruits.

NHAQUUNDA. A small American fresh-water fish, with an oblong body, in every part almost of the same thickness. The head and mouth resemble those of a pike; the usual length of the body is about four inches; it possesses the faculty of extending its upper lip, and rounding the aperture of its mouth; but it has no regular teeth. The tail is covered with a hard shelly crust, and the body with pretty large scales; the back and sides are of a silvery grey colour; and the belly is white. On each side it has a single row of round black spots, each about the size of a pea; and among these a number of small blue ones.

NIGHTINGALE. The Motacilla Luscinia of Linnæus.

The Nightingale not only charms the ear with its melody, but its very name serves to embellish poetic description, and to convey a kind of pleasure to the mind which cannot be depicted. Al-

most every modern writer mentions it with enthusiasm; and every ancient, who engaged in the delineation of beautiful nature, has exerted himself to raise its reputation.

'The Nightingale,' says Pliny, 'that for fifteen days and nights, hid in the thickest shades, continues her note without intermission, deserves our attention and wonder. How surprising that so loud a voice can reside in so small a body! Such perseverance in so minute an animal! With what a musical propriety are the sounds it produces modulated! The note at one time drawn out into a long breath, now stealing off into a different cadence, now interrupted by a break, then changing into a new note by an unexpected transition, now seeming to renew the same strain, and then frustrating expectation! She sometimes seems to murmur within herself; full, deep, sharp, swift, drawling, trembling; now at the top, the middle, and the bottom of the scale! In fine, in that little bill seems to reside all the melody which man has vainly laboured to produce from a variety of strings and instruments. Some even seem to be possessed of a different song from the rest, and mutually contend with great ardour. The vanquished bird is then seen only to discontinue its song with its life.'

Such is the description of Pliny; and from hence it might be imagined, that the Nightingale was possessed of a persevering strain: this, indeed, is the fact with respect to the Italian Nightingale; but, in the hedges of this country, the little songstress is less liberal of her music. Her note, however, is soft, various, and interrupted: she so frequently pauses, that the pausing-song would be the proper epithet for this bird's music with us; which is more pleasing than the warbling of any other bird, because it is heard at a time when all the rest are silent.

The Nightingale derives its name from Night, and the Saxon word Galan, to Sing; expressive of the time when its harmony is heard. It is about the size of the red-start, but more slender, longer-bodied, and more elegantly formed. The head and back are of a pale tawny colour, dashed with olive; the throat, breast, and upper part of the belly, are of a light glossy ash-colour; and the lower belly is almost white. The exterior webs of the quill-feathers are of a dull reddish brown hue; the tail is of a deep tawny red; the legs and feet are of a deep ash-colour; the irides are hazel; and the eyes are remarkably large and animated.

This bird, the most celebrated of the feathered tribe for the variety, length, and sweetness of its notes, visits England about the beginning of April, and leaves it in August. It is found only in some of the southern parts of this country; and is said to be unknown in Scotland, Ireland, and North Wales. It generally frequents thick hedges and low coppices; and as it usually stations itself in the middle of some bush, it is therefore but seldom seen. It begins its song in the evening, which it continues by intervals during the whole night; and, if not disturbed, will sit for some weeks together on the same tree.

The Nightingale builds its nest about the beginning of May: it is composed of straw, moss, and the leaves of trees; is usually situated near the bottom of some hedge, where it is thickest and best sheltered; and so artfully secreted, as generally to elude the penetrating eye of the schoolboy.

The Nightingale lays four or five eggs, of a brown nutmeg colour; but, in this climate, the whole number is seldom hatched.

The sweetness of this bird's melody has induced many to abridge it of its liberty, in order to secure its song: its notes, however, when in captivity, are less alluring; though Gesner allows it to be the most agreeable songster in a cage; and assures us, that it is possessed of a most admirable faculty for talking. He even relates a long dialogue which passed between two Nightingales at an inn in Ratisbon, in which not only the human voice was admirably imitated, but infinite sagacity and strength of argumentation were displayed on both sides. Thus, when we are possessed of high reputation for any one quality, the world is then ready enough to give us allowance for others to which we have but small pretensions. Gesner indeed seems to credit the relation of his correspondent; but we only repeat it, as a proof how the most enlightened minds may be biased on a favourite subject; and how difficult it is to discriminate between truth and error, when our passions or prejudices prompt our belief.

'Whilst I was at Ratisbon,' says this naturalist, 'I put up at an inn, the sign of the Golden Crown, where my host had three Nightingales. What I am going to repeat is wonderful, almost incredible, and yet true. The Nightingales were placed separately, so that each was shut up by itself in a dark cage. It happened at that time, being the spring of the year, when those birds are wont to sing indefatigably, that I was so afflicted with the stone, that I could sleep but very little all night. It was usual then about midnight, when there was no noise in the house, but all still, to hear the two Nightingales jangling, talking with each other, and plainly imitating men's discourses. For my part, I was almost lost in wonder; for at this time, when all else was quiet, they held conferences together, and repeated whatever they had heard among the guests by day. Those two of them that were most notable, and masters of this art, were scarcely ten feet distant from each other. The third hung more remote, so that I could not well hear it as I lay a-bed. But it is wonderful to tell how those two provoked each other; and, by answering, invited and drew each other to speak. Yet did they not confound their words, or talk both together, but rather utter them alternately and of course. Besides the daily discourse of the guests, they chanted out two stories, which generally held them from midnight till morning; and that with such modulations and inflexions, that no man could have supposed would have come from such little creatures. When I asked the host if they had been taught, or whether he observed their talking in the night, he answered, No. The same said the whole family. But I, who could not sleep for nights together, was perfectly sensible of their discourse. One of their stories was concerning the tapster and his wife, who refused to follow him to the wars, as he desired her; for the husband endeavoured to persuade his wife, as far as I understood by the birds, that he would leave his service in that inn, and go to the wars, in hopes of plunder. But she refused to follow him, resolving either to stay at Ratisbon, or go to Nieremberg. There was a long and earnest contention between them; and all this dialogue the birds repeated. They even rehearsed the unseemly words that were
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cast out between them, and which ought rather to have been suppressed and kept a secret. But the birds not knowing the difference between modest, immodest, filthy and honest words, did out with them. The other story was concerning the war, which the Emperor was then threatening against the Protestants; which the birds probably heard from some of the generals that had held conferences in the house. These things did they repeat in the night after twelve o'clock, when there was a deep silence. But in the day-time, for the most part, they were still; and seemed to do nothing but meditate and revolve with themselves upon what the guests conferred together as they sat at table, or in their walks.

'I verily had never believed our Pliny writing so many wonderful things concerning these little creatures, had I not myself seen with my eyes, and heard them with my ears, uttering such things as I have related. Neither yet can I of a sudden write all, or call to remembrance every particular I have heard.'

The Nightingale seldom sings when near its nest, lest it should by that means be discovered; frequents cool and shady places, among small groves and bushes; and delights to sit on no lofty tree, except the oak.

Young Nightingales, intended for the cage, should not be taken from the nest till they are almost as well fledged as the old ones: for though, when pretty old, they are apt to be fullen, and to refuse their food, yet their mouths are easily opened; and, after being forcibly fed for a few days, they begin to be reconciled to their situation, and voluntarily to eat.

NIGHTINGALE, AMERICAN. This bird, which is a native of the West Indies, was first described by Edwards. The upper mandible is of a dusky or blackish colour, the under one being flesh-coloured; the top of the head, the upper side of the neck, the back, and the upper sides of the wings and tail, are of a dark greenish brown colour; the under side, from the bill to the tail, is of a dirty orange-colour; and the inner coverts of the wings, as well as the inner webs of the quill and tail-feathers, are likewise orange. From above the angles of the mouth, a dusky line passes through each eye; from beneath the angles of the mouth, another dusky line passes under each eye; some orange-coloured lines extend from the nostrils above the eyes; and the feet, legs, and claws, are of a dirty brown or blackish colour.

NIGHTINGALE, MOCK. An appellation sometimes given to the black-cap. See **BLACK-CAP**.

NIGHTINGALE, VIRGINIAN. The common, but improper appellation, of a bird of the grosbeaked kind, the coccothraustes Indica cristata of authors. This bird is somewhat less than the blackbird; the beak is very large and thick; a black line surrounds the eyes and nostrils; the head is ornamented with a very high and beautiful crest; and the whole plumage is of a very fine lively red colour, somewhat paler on the head and tail.

This elegant bird, which is a native of Virginia, is frequently imported into England, where it is much valued both for its beauty and song.

NINTI POLONG. A Ceylonese name for a species of serpent, called also *serpens hypnoticus*. Its bite is highly deleterious, bringing on a deep sleep, which generally terminates in death. It is of a deep blackish brown colour, variegated with small white specks.

NIQUI. An American appellation for a fish of the cucullus kind, approaching to the figure of that species commonly called draco, and *areneus marinus*; in English, the weever. It is commonly caught on the American shores; and, except the liver and gall, which are esteemed poisonous, the flesh is both wholesome and agreeable.

NISUS. A name by which some ornithologists express the accipiter fringillarius, or sparrow-hawk.

Nisus is also used by some ancient naturalists to signify the *haliaetus*, or *aquila marina*; in English, the sea-eagle, or osprey.

NITEDULA. A classical appellation for the field-mouse.

NOAH'S ARK SHELL. A species of sea-shell of the cordiform kind. The cabinets of the curious afford three varieties of this shell: the common kind; the yellow and white kind, with broad irregular lines; and a variegated kind. To these varieties may be referred the oblong bucardium, or ox-heart shell; called also the bastard Noah's Ark.

NOCTIBO. An appellation given by the Portuguese to a small Brazilian bird, a species of the goat-sucker or churn-owl; more commonly known among naturalists by its Brazilian name, *ibijau*.

NOCTUA AURITA. A term by which some naturalists express the horn-owl, more usually distinguished by the name of *otus*.

NOCTUA CANORA. A name given by Nie-remberg to a bird common in the Spanish West Indies; called by the natives *chicuatli*, and sometimes kept in a cage for the sake of its melody.

NOCTUA MINOR. An appellation given by Ray to the keutzlin; or, as some call it, the schaffilt; a very beautiful little bird of the owl kind, about the size of the common thrush.

NODDY. A bird of the gull kind, which builds its nest among such cliffs as overhang the sea. It is reckoned an extremely simple animal, and hence receives its trivial name. It is about eleven inches long from the tip of the bill to the extremity of the tail; and the expansion of the wings is about twenty-six inches. The bill is one inch and a half long, straight, black, and roundish; it has two large apertures instead of nostrils; the top of the head is white; but the rest of the body is of a dirty brown or reddish colour. The legs and feet are about two inches long; and the toes are connected with membranes of a dark brown colour.

These birds take long flights from the shore; and, when a ship happens to be near them, they immediately alight on some part of her, and are easily taken.

NOPE. A provincial appellation for the bullfinch. See **BULL-FINCH**.

NORWAY RAT. See **MOUSE, SABLE; and RAT**.

NOSE-FISH, OR BROAD SNOUT. A fish of the coriaceous or leather-mouthed kind, about one foot long, and of the shape and colour of a dace. The belly and sides are silvery; but the fins on the lower part of the body, and the part below near the tail, are sometimes a little reddish. There is a small blackish spot on the hinder part of the head; the lateral lines are nearer to the belly than the back; and the snout, which is flat and blunt, is a little more prominent than the mouth, by which it is distinguished from all other fish of this kind, and hence obtains the name of *Nose-Fish*.

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Nose-Fish. The mouth is small, and destitute of teeth; the belly is broad and flat, with ample scales; the skull is transparent; and the dorsal fins, with respect to their situation and rays, resemble those of the bream.

NOTONECTA. A species of aquatic insect, approaching to the nature of the cimex. It always swims on its back; nevertheless, it is very swift in its motions. The belly, which is always uppermost in the water, is of a yellowish white colour; the legs are long; and, when taken out of the water, it has a hopping motion.

This very beautiful and active creature is common in several ponds about London. It has four wings, six legs, but no antennæ; and, when in the act of swimming, its body resembles a boat: hence it is also called the boat-fly.

The Notonecta lives principally in the water, where it preys on small insects, extracting their juices with its proboscis, after the manner of the water-scorpion, and many other aquatic insects.

Linnæus enumerates three species: the Notonecta with a white forehead; the oblong Notonecta, with a tail; and the least Notonecta, with a tail.

NOTOPEDA. An appellation frequently given by naturalists to the elater.

NOVACULA PISCIS. The name by which several naturalists distinguish the razor-fish, so much esteemed as a delicacy by the opulent. This fish seldom exceeds four inches in length; is of a depressed shape, somewhat resembling the faber; and is generally found near stony shores, particularly those of Majorca, Minorca, and Malta, where it feeds on other small fish.

NUCIFRAGA. An appellation given by many writers to the coccothraustes, or gros-beak; so called from its breaking nuts, and the stones of fruit.

NUMB-FISH. See **CRAMP-FISH** and **TORPEDO**.

NUMIDIAN BIRD. An appellation sometimes given to the Guinea-hen. See **GUINEA-HEN**.

NUN, WHITE. A web-footed fowl, about the size of the whistling duck, and weighing twenty-four ounces. The whole head and neck are white, except a spot under the crest, which is black; and another on each side, which extends from the angles of the mouth to the eyes. The crest or tuft with which the head is adorned hangs backwards; the lower part of the body is entirely white, but the back is black; the wings are mottled with black and white; the tail is of a blackish grey colour; the bill and feet are cinereous; and the toes are connected by a brown membrane.

NUT-CRACKER, the *Corvus Caryocatactes* of Linnæus. This bird, which receives its name from its feeding on nuts, is about the size of a jack-daw; and its wings, when closed, measure near seven inches. The bill is about two inches long, rounded at the top, and of a blackish colour; the nostrils are covered with whitish feathers, which point forwards from the head, and continue in a white line from the base of the bill to the eyes on each side; the plumage of the head, neck, and body, is of a dark brown hue, a little inclining to red; and the feathers on the lower side of the head and neck, as well as on the breast and beginning of the back, have each a triangular white spot at their tips, the acute angle pointing upwards. The wings are black, with triangular white spots on the lesser coverts; the covert-fea-

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thers on the inside of the wings are so deeply tipped with white, that their dusky bottoms are almost concealed; and three or four of the central quills of the wings have each a longish white spot, about the middle of their inner webs. The tail is composed of twelve black feathers, all tipped with white; the exterior feathers are somewhat shorter than the central ones; the coverts beneath the tail are white; and the legs, feet, and claws, are black.

This bird is found in most parts of Europe, but seldom in Britain. A specimen, however, was shot near Mostyn, in Flintshire, in 1753.

NUT-HATCH; the *Sitta Europæa* of Linnæus. A bird of the pye kind, about six inches long, and the expansion of its wings nine inches. The bill is strong, straight, and three parts of an inch long; the upper mandible is black, the lower white; the irides are hazel-coloured; the crown of the head, the back, and the coverts of the wings, are of a fine blueish grey hue; a black line crosses the eyes from the mouth; the cheeks and chin are white; and the breast and belly are of a dull orange-colour. The quill-feathers are dusky; the wings underneath are marked with two spots, one white, and the other black; the tail consists of twelve feathers, the two central grey, the two exterior tipped with grey, then a transverse white spot, and beneath that the remainder is black. The legs are of a pale yellow colour; the back toe is very strong; and the claws are large.

Dr. Plot, in his Natural History of Oxfordshire, informs us, that this bird, by inserting its bill into a crack in the bough of a tree, can make such a violent sound, as if the branch was rending asunder; and that it may be heard at the distance of one hundred and twenty yards at least.

This creature possesses the faculty of running up and down the bodies of trees, like the woodpecker tribe; and feeds not only on insects, but nuts, of which it lays up a considerable collection in the cavities of trees. 'It is an amazing sight,' says Willughby, 'to see it fetching a nut out of its hoard, placing it fast in a chink, and then standing over it with its head downwards, striking with all its force till it break the shell.' It breeds in the hollow of some ancient tree; and if the entrance to its nest be too large, it stops up part of it with clay, leaving only room enough for its admission. In autumn, it begins to make a kind of chattering noise; but it is silent during the greatest part of the year.

NUT-JOBBER, OR COBBER. An appellation sometimes given to the nut-hatch.

NYCTIOCRAX. See **NIGHT-RAVEN**.

NYL-GHAW. This animal, which is a native of India, has but lately been known in Europe. It seems to be of a middle nature between the cow and the deer, and carries in its form the outlines of both. With respect to size, it is as much smaller than the one as it is larger than the other; its body, horns, and tail, are not unlike those of the bull; and its head, neck, and legs, are very similar to those of the deer. The general colour is ash or grey, from a commixture of black and white hairs; and along the ridge or edge of the neck the hair is blacker, stronger, and more erect, forming a short, thin, upright mane. The horns are seven inches long, six inches in circumference at the base, and grow smaller by degrees till they terminate in an obtuse point: the bluntness of these, together with the form of its head and neck, might incline us to suppose that

that it was of the deer kind; but as it's horns are undeciduous, it has a greater affinity to the cow.

If we may be allowed to judge from the disposition of one of these animals imported into this country, and accurately and minutely described by Dr. Hunter, it's manners are gentle and harmless. Though in it's native wildness it is said to be fierce and mischievous, this creature seemed pleased with every token of familiarity, always licking the hand that stroked or gave it bread, and never once attempting to use it's horns offensively. It seemed to place a strong dependence on it's olfactory organs, snuffing keenly, and with noise, whenever any person approached; as also when any food or drink was brought to it; and was either so cautious of, or so easily offended with smells, that it would not taste the bread presented by a hand stained with any odorous substance.

The manner in which this creature fights is very singular. It was observed at Lord Clive's, where two males were put into a small inclosure, that while at a considerable distance from each other, they prepared for the attack by falling down on their fore-knees, then shuffling in this posture towards each other; and, when they came within a few yards, they made a spring, and darted against each other. The intrepidity and force with which they rush against any object, appeared by the strength with which one of them attempted to overturn a poor labourer, who was indolently reclining on the outside of the pales of the inclosure: the Nyl-Ghaw, with the rapidity of lightning, darted against the wood-work with such violence, that he shivered it to pieces; and broke one of his own horns close by the root, which occasioned his death.

At all the English settlements in India, these animals are considered as curiosities, being brought from the distant interior parts of the country. However, the Great Mogul sometimes kills them in such numbers, as to distribute quantities of them to all his omrahs; a proof that they are plentiful enough near Delhi, and esteemed delicious food. Those which have been imported into Europe, have principally come from Surat and Bombay: and they seem to be less uncommon in that part of India than in Bengal; which gives rise to a conjecture, that they may perhaps be indigenous in the province of Guzarat, one of the most western and extensive of the Hindostan empire.

The female Nyl-Ghaw differs so essentially from the male, that from her appearance we should conclude them to be of different species. She is much inferior both in height and thickness; she has no horns; her colour is yellowish; and her general form resembles that of a doe. She has four nipples; goes nine months with young; and generally brings forth only one at a time. Dr. Hunter seems to consider the Nyl-Ghaw as a new species.

NYMPH. A term frequently used by most naturalists to express insects, while they have yet only the form of worms or maggots. Swammerdam applies it to signify those insects which are produced in their perfect form from the egg, and are subject to no future changes. Others again sometimes use it for the little skin in which insects are inclosed; both while they are in the egg, and also after they have undergone the first apparent transformation.

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OAK-LEAF GALLS, OR INSECTS. The insects which breed on the leaves of the oak are numerous, and the shape of the Galls they form is almost as various as their species: however, sometimes several dissimilar species of flies are seen issuing from one kind of Galls; and this may be accounted for from the ravages the stronger make among the weaker insects, which, after they have formed their habitations, are obliged to relinquish them to others.

It might indeed be reasonably supposed, that when the parent fly had formed a Gall for the habitation of her worm offspring, she had placed it in an impregnable fortress: but this is not the case; for it frequently happens that a fly, as small perhaps as that which gave origin to the Gall, produces a worm of the carnivorous kind; whereas the other may feed on vegetable juices. The former feeds on the proper inhabitant; and, after undergoing it's necessary transformations, appears in the form of it's parent fly, making it's way out of the Gall.

On opening these Leaf-Galls, which are properly the habitation of one animal only, it is

common to find two, the stronger preying on the body of the other, and sucking it's juices as it does those of the leaf; but it is impossible to ascertain which is the genuine inhabitant of the Gall, and to distinguish between the invader and the invaded. See GALL-INSECT.

OAK PUCERON. An appellation given by naturalists to a very remarkable species of animal, properly of the Puceron kind. Indeed, such animals in general live on the surfaces of the branches and leaves of trees and plants; but these bury themselves in the clefts of the oak, and some other trees, where they live unmolested by their common enemies.

These creatures are the largest of the Puceron tribe. The winged ones are nearly about the size of the common house-fly; and the naked ones, or such as are destitute of wings, though inferior to the former, are nevertheless larger than any other species of Pucerons. The winged and naked kinds in these, as well as in the other species of Pucerons, are all mothers; and great numbers of young may be pressed out of the bodies of either kind, when gently squeezed.

The winged ones are black, and the others of a deep brown or coffee-colour. Their trunks are very remarkable; they are more than twice the length of their bodies; and have not their origin at the extremity of the head, as in other insects, but are fixed into the breast, near the origin of the first pair of legs. When the creature walks, it carries this trunk straight along the belly, and trailing a considerable length behind it, but with the point reverted, that it may be out of the way of danger, and ready for action. When the insect is inclined to suck a part of the tree which lies just before it, it draws up and contracts its trunk till it brings it to a proper length and direction: but when it sucks in the common way, it adheres to the inner surface of the bark; and the reverted end of the trunk, which resembles a tail, fixes itself against the wood behind or contiguous to the bark, and extracts the juices therein contained. The extremity of this trunk takes such fast hold of the wood, that, when pulled away, it frequently carries a small portion of that substance along with it.

OAK SNAKE. An appellation sometimes given to the dryinus.

OBLADA. A name used by some ichthyologists to express the melanurus of authors; a fish of the sparus kind, distinguished by Artedi under the appellation of the sparus variegated with longitudinal lines, and with a large black spot on each side near the tail.

OCELOT. This animal, to which Pennant gives the name of the Mexican ounce, and other naturalists that of the Mexican cat and the cat-a-mountain, is of the feline kind, less than the ounce, but its skin more beautifully variegated. The fur is of a reddish colour, beautified with black spots and streaks of different figures; the ears are transversely striped with black, but in other respects resemble those of the cat; and the tail is marked with small spots at the base, and black ones at the extremity. These colours, however, are not invariable, though minutely described by some naturalists; for some of these animals have been found entirely brown.

The Ocelot, which inhabits Mexico, the vicinity of Carthage, and Brazil, lives in the mountains; is extremely voracious; but fearful of facing any of the human species. It preys on various sorts of game. Sometimes it lurks among the leaves of trees, and extends itself along the boughs as if dead, till the monkeys, tempted by their natural curiosity, approach in order to examine it, when they immediately become its prey.

OCHRA, OR GALLINULA OCHRA. A name sometimes given to a species of moor-hen. The body is entirely of a dusky and obscure yellowish green colour, somewhat browner on the breast and belly than on the back, but with the same yellowish green predominant; the head, neck, breast, and wings, contain several white spots; the beak is partly black, and partly red; and the legs are yellowish.

OCHROPUS, OR GALLINULA OCHROPUS. An appellation given to the yellow-legged moor-hen. It is about the size of the common moor-hen: its beak and legs are yellowish; its back is of a reddish brown hue; the tips of its wings are of a beautiful red colour; and the head is marked with fine white variegations, which likewise appear in the middle of its wings and belly. The largest

wing-feathers are black; and there are also black spots on the back.

This bird builds its nest in thickets; and also among rushes and high grass, in watery situations.

OCTACTIS. A Linnæan name for a species of star-fish of the astrophyte class; the rays of which are eight in number, where they first issue from the body, but soon diverge into many more.

OCULATA. An appellation given by many ichthyologists to the fish more usually called melanurus. It receives the name Oculata from the remarkable largeness and fine golden colour of its irides.

OCULIPETA. A species of foreign serpent, of which naturalists have furnished us with no discriminating marks.

OCULUS MARINUS. An appellation given by some authors to the Umbilicus Marinus, so called from its resemblance to an eye.

OCULUS VENERIS. A name sometimes given to the umbilicus marinus.

ŒDICNEMUS. An appellation given by Gefner and Aldrovandus to the charadrius; in English, the stone curlew. It is a pretty large bird, weighing about eighteen ounces: the beak is about one inch and a half long, straight, pointed at the extremity, and partly black and partly yellow; under the eyes there is a naked yellowish green membrane; the breast and thighs are white; the throat, back, and neck, are a mixture of reddish brown and black; and the under part of the tail is reddish. The legs are long and yellow; the thighs are naked half way up, as in other aquatic fowls; and there are only three toes.

This bird breeds very late in the season, its young being often found callow about the end of October. It lives principally in watery places; and flies in the night-time, making a remarkable shrill noise.

ŒNANTHE. A genus of small birds, of which there are four species: the common Œnanthe, called also the fallow-finch, or wheat-ear; the Œnanthe, called anthus and flerus, in English, the whin-chat; the Œnanthe, named rubetra, in English, the stone-chatter, or moor-titling; and the Œnanthe Americana, called likewise guirarhu nheengeta. See WHEAT-EAR, WHIN-CHAT, &c.

ŒNAS. An appellation used by some ornithologists to express the stock-dove, or wood-pigeon. It is somewhat larger than the domestic-pigeon, but generally of the same shape and colour. Its neck is of a fine varying blue, according as it is opposed to different lights; its breast, shoulders, and wings, are of a fine purplish or wine-red colour, whence it is also called vinago; and its legs are red, and feathered a little below the joints.

ŒSTRUS. A species of fly; called also the gad-fly, and breeze-fly.

In the Linnæan system, the Œstrus is a genus of two-winged flies, the mouth of which has neither teeth nor proboscis. There are five species.

OISEAU. A peculiar species of oyster, so called by the French conchyologists from its representing a bird with the wings expanded. It has a small protuberance at the hinge, resembling a head; and a long process at the opposite end, which bears a strong resemblance to a tail. It is externally of a dusky reddish colour, and internally

nally of a fine pearly blue: when the external folds of this shell are removed, it appears of a fine reddish yellow colour, and is then the aurora shell of collectors.

OISTER. See OYSTER.

OLD WIFE. An appellation frequently given to the wraffe, a species of labrus.

OLD WIFE FISH. A name by which a species of balistes is sometimes expressed on the American continent.

OLEARIA. A genus of round-mouthed sea-snail, or cochlea lunaris. It is sufficiently large to contain two quarts; and was anciently used in families to hold their oil, whence it received its name.

OLIGACTIS. An appellation given by Linnæus to a genus of star-fish, consisting of those which have fewer than five rays.

OLOC. A Philippine appellation for the quail found in those climates; which in every respect resembles the European quail, except that it is smaller.

OLOCENTROS. An ancient Grecian name for a small animal of the spider kind, whose bite was accounted mortal. It seems to be synonymous with the solipuga, so called from its stinging or biting most violently in those climates and seasons where the heat of the sun is most intense.

ONAGER. An appellation by which many naturalists express the wild ass; an animal common in Syria, and some other places, and differing very little from the common ass in any essential quality. The skin of this creature is amazingly tough and strong; and of it the common shagreen leather is fabricated.

ONCA. A species of felis in the Linnæan system. See OUNCE.

ONDATRA. A name given by Buffon to a variety of the musk-rat. See MUSK-RAT.

ONION-SHELL. A peculiar species of oyster, of a roundish figure, very thin and transparent, exactly representing part of an onion-peel.

ONISCUS. An appellation given by Athæneus, and other Greek writers, to the accipenser, or sturgeon.

ONISCUS is also sometimes used to express the whiting.

ONISCUS is likewise applied to signify the common millepedes; in English, the wood-louse. It is a genus of the aptera insects in the Linnæan system: the distinguishing characters of which are; that it has fourteen feet; setaceous bent antennæ; a mouth furnished with two palpi; the head intimately united to the thorax; and an oval body. There are fifteen different species.

ONOCENTAURUS. A fabulous animal mentioned by Ælian, supposed to be generated between a man and an ass, as the centaur was between a man and a horse.

ONOS. An appellation given by some ichthyologists to the æglefinus, or common had-dock.

ONOS is also used by Athæneus, and other Greek writers, to express the hake, the aseilus minor of authors; called merlucius by Bello-nius, Gesner, and others.

ONYX. A species of the voluta shell, frequently seen in the cabinets of the curious, but seldom or never on the sea-shore.

ONYX is also an appellation given by Pliny, and many of the ancient naturalists, to the solen.

OPAH, OR KING-FISH. This fish is com-

mon on the coast of Guinea, and has sometimes been caught on the British coasts. It is smooth-skinned; without scales or teeth; has one erect fin on the back, which rises below the neck, and reaches almost to the tail; there is also a fin on each side below the gills; a pair of fins appear a little before the vent under the belly; another fin extends from behind the vent nearly to the tail; and the tail-fin is large and forked. The eyes are large; and the irides are of a scarlet hue, encompassed with a gold-coloured circle verged with scarlet. The upper part of the body is of a dark blue or violet-colour; this, and the sides, which are of a bright green, are speckled with oblong white spots; the chaps are of a pale red colour; the nose, gills, and belly, are silvery; and all the fins are of a bright scarlet. The mouth is small; and the tongue is thick, and full of prickles, which seem to supply the place of teeth.

The fish from which this description was taken, measured three feet seven inches in length, and was three feet ten inches round in the thickest part; its weight was upwards of eighty pounds; the flesh of the fore part was firm, and appeared like beef; and the hinder part resembled fine veal.

Mr. Harrison, of Newcastle, thus describes an Opah which was thrown on the sands at Blyth, in September 1769. It weighed between seventy and eighty pounds; was shaped like the sea-bream; the length was three feet and a half; the breadth, from the back to the belly, was almost two feet; but the thickness, from side to side, did not exceed six inches. The mouth was small for the size of the fish, forming a square opening, and without any teeth in the jaws; the tongue was thick, resembling that of a man, but rough, and thick set with beards or prickles pointing backwards, so that any thing might easily pass down, but could not easily return back; therefore these might serve instead of teeth to retain its prey. The eyes were remarkably large, covered with a membrane, and shining with a glare of gold; the cover of the gills resembled that of the salmon; the body diminished very much towards the tail, which was forked, and expanded twelve inches; the gill-fins were broad, about eight inches long, and placed horizontally; a little behind their insertion the back-fin took its origin, where it was about seven inches high, but sloped away very suddenly, running down very near the tail, and at its termination became a little broader; the belly-fins were very strong, and placed near the middle of the body; and a narrow fin extended from the anus to the tail. All the fins, and also the tail, were of a fine scarlet hue; but the colours and beauty of the rest of the body, which was smooth, and covered with almost imperceptible scales, begged all description; the upper part being a kind of bright green, variegated with whitish spots, and enriched with a shining golden hue, like the splendour of a peacock's feather: this by degrees vanished into a bright silvery; and near the belly the gold again predominated in a lighter ground than on the back.

OPHIDION. A fish of the anguilliform kind, resembling the common eel and conger in shape, but that it is shorter in proportion to its thickness, more depressed, and of a paler colour. It seldom exceeds eight inches in length; the back

back is grey; the sides are of a silvery colour; and it is clothed with small scales of a long narrow figure irregularly scattered here and there. The mouth is large; the jaws are furnished with very small teeth; and besides these there are three small eminences set with similar teeth, the one on the roof of the palate, the others lower on each side. The eyes are large; and near the gills there is a pair of fins. This fish is caught in great plenty in the Mediterranean; and its flesh is esteemed very delicious.

In the Artedean system, the Ophidion is made a genus of fishes; the characters of which are: they are of the malacopterygious, or soft-finned kind; and the body is oblong, of a cylindrical figure, and furnished with three fins.

There are properly two species of this genus, distinguished by their cirri or beards: the first is the Ophidion with four cirri, projecting from the lower jaw; and the second, the Ophidion without cirri. The first is the Ophidion of ichthyologists in general; the second is found in the Baltic.

OPHIORORUS. An appellation given by the ancients to a species of carnivorous fly, which feeds on the bodies of beetles, or other flies, and sometimes on dead serpents. Its wings resemble polished brass; whence it was also called by the Greeks *chalcomyia*, or the brass-fly.

OPHIOPHAGI. A name by which some naturalists express the eagle, vulture, and other predaceous birds, which are sometimes known to feed on serpents. Pliny gives the name Ophiophagi to a certain people of Æthiopia, whom he describes as very barbarous and savage, going always naked, and feeding on serpents; whence the appellation.

OPILIO. An appellation given to a peculiar genus of spiders; the characters of which are: that they have but two eyes; that their legs are usually very long, and their skins hard and firm; that they do not spin webs like the common spiders, for catching their prey; that their heads seem to grow to the middle of their shoulders; and that their forceps is terminated by two claws, like those of the leg of a crab. There are four principal species of this genus.

OPOSSUM. A genus of animals with two canine teeth in each jaw; an unequal number of cutting teeth; five toes on each foot; and a very long, slender tail. It is called by different authors *maritacaca*, *carigoi*, *ropoza*, *carigeya*, *jupatum*, *farigoi*, and *femivulpa*.

OPOSSUM, VIRGINIAN; the *Didelphis Marsupialis* of Linnæus. This animal is about the size of the cat; its head resembles that of the fox; it has fifty teeth in all, but two very large ones in the middle like those of the rat; the eyes are small, round, clear, lively, and placed upright; the ears are long, broad, and transparent like those of the rat kind; the tail also increases the similitude, being round, long, a little hairy at the beginning, but quite naked towards the extremity; and the fore-legs are only about three inches long, while those behind are upwards of four. The feet are formed like hands, each having five toes or fingers, with white crooked nails, somewhat longer behind than before: but it must be observed, that the thumb on the hinder legs wants a nail; whereas the fingers are furnished with clawed nails, as is usual.

But the most curious particular respecting this animal, and what distinguishes it from all others,

is the extraordinary conformation of its belly, it being found to have a false womb, into which the young creep, after being produced in the usual manner, and continue for some days, in order to suckle and lodge in security. This bag, if it may be so called, being one of the most singular things in natural history, requires a minute description. Under the belly of the female there is a kind of slit or opening, about three inches long. It is composed of a skin forming a pouch internally covered with hair, wherein are the teats of the female; and which is opened or shut at the pleasure of the animal: this is performed by means of several muscles, and two bones fitted for this purpose, and entirely peculiar to the creature. These two bones are placed before the os pubis, to which they are united at the base; they are about four inches in length, growing smaller and smaller towards their extremities; and by them the muscles are supported that serve to open and fix the bag. To these muscles there are antagonists, which serve, in the same manner, to shut the pouch; and this they so exactly perform, that in the living animal the opening can scarcely be discerned, except when the sides are forcibly drawn asunder. The inside of this bag is furnished with glands, which exude a musky substance, that communicates to the flesh of the animal, and renders it unfit for food. It must not, however, be supposed, that this is the place where the young are conceived, as some have been led to imagine; for the Opossum has another womb, like that of the generality of animals, in which generation is performed after the ordinary course of nature. The bag now in question may rather be considered as a supplemental womb. In the real womb, the little animal is partly brought to perfection; in the ordinary one, it receives a kind of additional incubation; and at last acquires a sufficient degree of strength to follow the dam wherever she goes.

Several reasons induce us to suppose that the young of this animal are all brought forth prematurely, or before they have acquired that degree of perfection which is common to other quadrupeds. The young, when first produced, are in a manner but half completed; and some travellers assert, that they are at this time not much larger than flies. We are assured also, that immediately on quitting the real womb, they creep into the false one, where they continue fixed to the teat, till they are strong enough to venture into the more open air, and share the fatigues of the parent. Ulloa asserts, that he has found five of these little creatures hid in the belly of the dam, three days after she was dead, still alive, and clinging to the teat with great avidity. It is probable, therefore, that on their first entering the false womb, they seldom stir out from thence; but, when more advanced, they venture forth several times in a day; and at last only fly to their retreat in cases of danger or necessity.

Travellers are not agreed in their accounts of the time which the young continue in this false womb: some assure us that they remain there for several weeks; and others limit the time precisely to a month. During this period of uncommon gestation, there is no difficulty in opening the bag where they are concealed: they may be numbered, examined, and handled, without much inconvenience; for they then cling to the teat as firmly as if they composed part of the body which supports them. When grown stronger, they drop from

from the nipple into the recipient bag; and at last find their way out, in search of more copious subsistence. Still, however, the false belly serves them for a retreat, either when they are desirous of sleeping or suckling, or when they are pursued by an enemy: on these occasions, the dam opens her bag, and the young entering, are protected from danger.

When on the ground, the Opossum is a slow, helpless animal. The formation of it's hands is alone sufficient to prove it's incapacity of running with any degree of swiftness; but, to counterbalance this inconvenience, it climbs trees with great facility and expedition. It destroys poultry and birds, sucking their blood, without devouring their flesh: it also feeds on roots and wild fruits, and eagerly hunts after the nests of birds. It walks extremely slow; and, when pursued and overtaken, will feign itself dead. The female forms a nest for it's young in a bush or thicket, at the foot of some tree; and brings forth four, five, or six young at a time.

This creature possesses the faculty of suspending itself by it's tail, which is long and muscular; and in this situation, for hours together, with it's head hanging downwards, it continues to watch for it's prey: and if any animal, which it possesses strength sufficient to overcome, passes underneath, it drops upon it with unerring aim, and quickly devours it. By the assistance of it's tail, the Opossum also flings itself from one tree to another, hunts insects, escapes it's pursuers, and provides for it's safety. It seems equally partial to vegetable and animal food. It is easily domesticated; but proves a disagreeable inmate, as well from it's stupidity and figure, as from it's scent, which, however fragrant in small quantities, is uniformly ungrateful when copiously supplied.

The flesh of the old Opossum is of a texture like that of a sucking-pig. The Indian women dye the hair of this animal, and weave it into garters and girdles.

OPOSSUM, MOLUCCA; the *Mus Marsupialis* of Klein. This species has long, oval, naked ears; and a very wide mouth. Over each eye there is an oblong white spot; the lower side of the upper jaw, the throat, and the belly, are of a whitish ash-colour; the rest of the hair is a cinereous brown, tipped with tawny; the tail, which is as long as the body, is covered with hair near the root, the rest being naked; and the claws are hooked. The length of the body, from the nose to the tail, is about ten inches; the tail is somewhat longer; and, when pulverized, and taken in a glass of water, is reckoned in New Spain a sovereign remedy against the gravel, the colic, and several other disorders.

Buffon contends, that the Opossum genus is confined to the New World; but there are incontrovertible evidences to refute this assertion: it is found both in Java and the Molucca isles; and also in New Holland.

This species is very plentiful in some parts of the Indies; and is there called Pelander Aroe, or the Aroe Rabbit. It's flesh, which is reckoned very delicate food, is commonly served up at the tables of the opulent, who rear the young in the same places where they keep their rabbits. It also inhabits Surinam, and the hot parts of America. The female has a pouch or bag under her belly, for the reception of her young.

OPOSSUM, JAVAN; the *Filander* of Le Bruyn.

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This species was first discovered by that naturalist, who observed in Java several in an inclosure along with rabbits, burrowing after the same manner, but preserving their young in their pouches. The head is narrow and fox-like; the ears are upright and pointed; a brown stripe passes through the eyes; the fore-legs are very short, and furnished with five toes; the hind have only three, two of which are very strong, the outermost slender and weak. The tail is thick, and shorter than the body; the hair on the body is rude; and the face resembles that of the hare. In the upper jaw there are six cutting-teeth; in the lower two; but there are no canine teeth; and the belly is furnished with a complete pouch, like the Virginian kind.

OPOSSUM, MURINE; the *Didelphis Murina* of Linnæus. This species approaches pretty nearly to the Virginian. They both belong to the same climate, and the same continent. They likewise resemble each other in the form of their bodies; in the structure of their feet; in their prehensile tails, which are covered with scales, except at their origin, where they are hairy; and in the arrangement of their teeth, which are more numerous than in other quadrupeds. But the Murine Opossum is much smaller; and it's muzzle is sharper. The female has no pouch under her belly; but only two longitudinal folds near the thighs, between which her young attach themselves to her teats.

When the young of this species are brought forth, they are hardly so large as small beans. The litter is very numerous; for Buffon tells us, that he has seen ten young, each of them affixed to a separate teat, and yet the dam had four left unoccupied. It is probable that the females of this genus bring forth a few days after conception; and that the young, at the time of exclusion, are only fetuses, as they exceed not one fourth part of the growth which fetuses generally acquire at that period. The delivery of the mother is therefore but an early abortion; and the fetuses preserve their lives solely by clinging to the teats, and never quitting their hold till they attain that degree of growth and strength which they would have naturally acquired in the uterus, had they not been prematurely excluded.

This animal burrows in the ground, fixes itself to the branches of trees by the extremity of it's tail, and darts on birds and small animals. It likewise feeds on fruits, grain, and roots; but seems to prefer fish and crabs, which it is said to catch with it's tail.

OPOSSUM, MEXICAN. This creature has large, angular, naked, and transparent ears; it's whiskers are very large and full; and a slight border of black surrounds it's eyes. The face is of a dirty white colour, with a dark line down the centre; the hair on the head, and the upper part of the body, is ash-coloured at the root, and of a deep tawny brown at the tip; the legs are dusky; the claws are white; the belly is of a dull cinereous hue; the tail, which is long, and pretty thick, is varied with brown and yellow, the hair thick near an inch from it's origin, and the rest naked. The whole length, from the nose to the tail, is about nine inches; and the tail is nearly the same.

This species inhabits the mountains of Mexico, where it takes up it's residence in trees. It has a prehensile tail, which serves instead of a

hand; and, when it's young are alarmed, they embrace their parent closely.

This creature was first described by Fernandez, who calls it the Cayopollin.

OPOSSUM, CAYENNE; the Crabier of Buffon. This species has a long, slender face; short, pointed ears; a woolly coat, mixed with very coarse hairs, three inches long, of a dirty white colour from the roots to the middle, and from thence to the ends of a deep brown; the sides and belly are of a pale yellow hue; the legs are of a dusky brown; and the tail is very long, taper, naked, and scaly.

This animal, which inhabits Cayenne, is extremely active in climbing trees; and, in marshy places, feeds on crabs, which it sometimes hooks by means of it's long tail: if a crab pinches it's tail, the animal sets up a loud cry, which may be heard at some distance. It brings forth four or five young, which it secures in some hollow tree. The natives eat it's flesh; the flavour of which, they say, resembles that of the hare.

OPOSSUM, MERIAN; the Didelphis Dorfigera of Linnæus. This species, which inhabits Surinam, burrows under ground. It brings forth five or six young at a time, which follow their dam; and, on any apprehension of danger, jump on her back, twist their tails round her's, and are by that means immediately carried into her hole. The ears of this creature are long, naked, and sharp-pointed; the head, and the upper part of the body, are of a yellowish brown colour; the belly is white, tinged with yellow; the fore-feet are divided into five fingers, and the hind into four, besides a thumb, each furnished with flat nails; and the tail, which is very long and slender, is entirely naked, except at the base. The length of the body is about ten inches; and that of the tail is nearly twelve.

ORANG-OUTANG, OR OURANG-OUTANG; the Homo Troglodytes or Nocturnus of Linnæus. This animal, called also the man of the wood, is a species of ape without a tail; with a flat face, being a deformed resemblance of the human; ears exactly like those of a man; a short neck; the hair on the head longer than on the body; the body and limbs covered with reddish shaggy hair; the face and paws swarthy; and the buttocks hairy.

This creature, which inhabits the interior parts of Africa, the isles of Sumatra, Borneo, and Java, is of a very solitary nature, living in the most sequestered situations, where it feeds on fruits and nuts. It grows to the height of six feet; and, were it possessed of reason adequate to it's strength, it would overpower one of the most athletic of the human species. It sometimes attacks such negroes as wander near it's retreats in the woods; drives away elephants, beating them with it's fists, or with clubs; and frequently throws stones at those who offend it. It usually sleeps in trees; and shelters itself from the inclemency of the weather by erecting a kind of shed. It's deportment is grave, and it's disposition melancholy: it is extremely swift; walks erect; and can only be tamed when taken young.

Buffon relates, that he has seen one of these animals offer it's hand to those who came to view it, and walk with them as if it had been one of the company: that he has also seen it sit at table, unfold a napkin, wipe it's lips, make use of a knife and fork, pour liquor into a glass, lay hold of a cup and saucer, put in sugar, pour out

the tea, and stir it in order to cool it; and that the animal has done this not only at the command of it's master, but of it's own accord: that it did no kind of mischief, but submitted to the caresses of strangers; and that it preferred dried ripe fruits to every other species of food.

A certain traveller also relates, that he has seen a female of this species at Java, which every morning regularly made it's own bed; at night lay down with it's head on the bolster, and covered itself with the quilt; and, when it's head ached, wrapped a handkerchief round it. See APE, GREAT.

Some have supposed this animal to be the prototype of all the Fauns, Satyrs, Pans, and Sileni, described by the ancients; and whose forms have descended to us, in the works of the painters and sculptors of antiquity, varied and embellished according to the fancy of the authors. Pennant, however, apprehends that the satyrs of the ancients were a species of monkeys, and dissimilar to this animal, since they are represented by Ælian and Ptolemy as being furnished with tails.

It is certain that the Orang-Outangs, or great apes, were formerly more numerous than at present, if we may credit the account of the large troop to which Alexander, when in India, prepared to give battle; and the attack made on another large body, in an island on the coast of Africa, where three females were taken, whose skins were deposited in the Temple of Juno, and found there by the Romans at the taking of Carthage.

ORBIS. A genus of fish of which there are several species; the Orbis lagocephalus, the Orbis scutatus, the Orbis muricatus, the Orbis ranæ rictu, the Orbis spinosus Clusii, the Orbis muricatus alter Clusii, and the Orbis oblongus testudinis capite.

The species, however, generally expressed by the word Orbis, or orb-fish, is called by Rondeletius the Orbis Primus; and by Salvian the Orbis Egyptiacus, because frequently caught in the ostia of the Nile. Excepting the tail, this fish is entirely of a circular figure. It has no scales; but is covered with a firm hard skin, full of small prickles, which render it very rough. It's mouth is small, and contains four broad teeth; it has only one aperture on each side for it's gills, and a fin under each; and the tail consists of one broad and flat fin. It's flesh is unfit for food.

ORCHIS. An appellation given by Gesner to the fish commonly called orbis; and called by Artedi the spherical ostracion, with four teeth, and the body covered with small spines.

ORCYNUS. A name by which some authors express the fish called by the generality of ichthyologists the thynnus, or tunny.

ORIOLE; the Oriolus Galbula of Linnæus. A very beautiful bird of the thrush kind, common in several parts of Europe; where it inhabits the woods, and suspends it's nest very artfully between the slender branches on the summits of ancient oaks. It has a loud note, expressing something like it's name.

This bird is about the size of the thrush; the head and whole body of the male is of a rich yellow colour; the bill is red; and from that to the eye runs a black line. The wings are black, marked with a yellow bar; the tips of the feathers are of the same colour; the two middle feathers of the tail are black, the rest being black with yellow tips; and the legs are dusky. The body of the female

female is of a dull green hue; the wings are dusky; the tail is a dirty green; and the tips of the exterior feathers are whitish.

ORIOLE, YELLOW-SHOULDERED. This bird, which is a native of Holland, and some other places on the continent, has a dusky bill; the feathers of the back part of the head are turned upwards, and curled; and the neck, back, breast, and belly, are black. The first row of coverts of the wings are of a bright yellow hue; the rest, with the scapulars and secondaries, are black, edged with pale brown; and the primaries are dusky. The tail is very long and black; and the legs are dusky.

ORNITHOLOGY. That particular branch of natural history which teaches the knowledge of the natures, kinds, and forms, of birds; their œconomy and uses.

Linnæus, whose system has most obtained, arranges the whole class of birds under six orders, according to the different figures of their beaks: namely, the accipitres, or birds with hooked beaks, comprehending four genera, and seventy-eight species; the picæ, or birds with convex and compressed beaks, containing twenty-two genera, and two hundred and forty-three species; the anseres, comprehending such birds as have depressed and dentated, or serrated beaks, including twelve genera, and an hundred and six species; the grallæ, or those furnished with subcylindric and obtuse beaks, including eighteen genera, and an hundred and twenty-seven species; the gallinæ, or birds which have the beak of a convex form, but crooked, and the upper chap imbricated, comprehending seven genera, and thirty-nine species; and the passeres, or birds with conic and sharp-pointed beaks, including fifteen genera, and three hundred and thirty-seven species.

OROSPIZA. An appellation given by the ancient naturalists to the brambling, or mountain-finch.

ORPHEUS. A fish caught in the Archipelago, of a broad and flat figure, and of a fine purple colour. The eyes are large and prominent; and the teeth are serrated. It has only one dorsal fin, the anterior rays of which are prickly, the others soft; and the anus is extremely small.

Under this description the Orpheus of the ancient Greeks is intended; but the moderns call a very different fish by the same name. This is a species of the sparus, of a flat figure, but very thick, with a small mouth. The body is covered with minute rough scales, which adhere very firmly to the flesh; the tail is even; the back and sides are black; the belly is white; the head is reddish; and a large black spot appears at the root of the tail. The fins are elegantly diversified with various colours; and the anterior rays of the dorsal fin are prickly, the others being smooth. This fish sometimes weighs twenty pounds; and its flesh is much admired.

ORTHOCERATITES. An appellation given by some naturalists to a species of sea-shell, frequently found fossil, but very seldom in a recent state. It is called by others polythalamium, and tubulus marinus concameratus. It is usually straight, but sometimes its extremity is twisted like the cornu ammonis.

ORTHRAGORISCUS. A name given by some ichthyologists to the fish more commonly known by that of the mola; in English, the sun-fish.

ORTOLAN. This bird, which the Venetians call tordino, is about the size of the yellow-hammer, and very much resembles it. Its length, from the tip of the bill to the extremity of the tail, is seven inches; and the expansion of the wings is ten inches and a half. The bill of the male is short and reddish; the throat and breast are cinereous; the lower parts of the body, as far as the tail, are reddish; and the rump is of a deep red colour.

The Ortolan differs from the reed-sparrow in having different haunts, in being of a redder colour, and in wanting the ring about the neck; besides, there is a yellow spot under the throat, which is not to be found in the reed-sparrow. The flesh is exceedingly rich and delicate; for which reason it brings a high price in some countries.

These birds are extremely numerous in Languedoc and Provence, where they are usually caught from the middle of April to the latter end of August. They are also plentiful at Smyrna, and in several parts of Italy.

Aldrovandus enumerates six varieties of this kind; one of which has the extremities of the prime-feathers of the wings white; another entirely white; a third has a yellowish ash-coloured head; a fourth a green neck, with a red bill; a fifth is of a pale colour over the whole body, except the breast and the extremities of the wings, which are white; and a sixth variety resembles the white-throat.

ORTYGOMETRIA. A name sometimes given to the daker-hen. See **DAKER-HEN.**

OS AUREUM. An appellation given to a species of cochleæ of the lunar kind; or of that genus having a round mouth, which in the Os Aureum is of a fine yellow colour.

OS ARGENTEUM. A species of shell-fish of the round-mouthed snail, or lunaris cochlea-kind. The round aperture or mouth of this shell is of a very elegant silver-colour.

OSMERUS. A genus of fish of the malacopterygious, or soft-finned kind: the characters of which are; that the branchiostege membrane contains seven or eight bones on each side; the back and belly fins are placed at the same distance from the top of the snout, by which mark it is distinguished from the coregoni; and the teeth are large, and arranged on the tongue, in the palate, and in the jaws. Artedi enumerates two species.

OSPREY; the *Falco Halæetus* of Linnæus. Some naturalists have considered this bird as a species of falcon, and others as a species of eagle. It seems, however, properly to belong to the aquiline kind. It frequents rivers, lakes, and the sea-shores; builds its nest on the ground, among reeds; lays three or four white eggs, rather less than those of a hen; and chiefly subsists on fish, precipitating itself on them from the sky. The Italians compare the violent descent of this bird on its prey to the fall of lead into the water; and hence call it the leaden eagle.

The Osprey is about two feet long; and the expansion of its wings is upwards of five feet. The wing, when closed, reaches beyond the end of the tail, which consists of twelve feathers, the two middlemost of which are dusky, and the others barred alternately on their inner webs with brown and white. The quill-feathers of the wings are black; and the secondary feathers with the coverts are dusky, the former having their interior webs varied with brown and white. The head is small
and

and flat; and the crown is white, marked with oblong dusky spots. The cheeks, chin, belly, and breast, are white, the last being spotted with a dull yellow; and from the corner of each eye there is a brown bar, which extends along the sides of the neck towards the wings. The legs are short, thick, strong, and of a pale blue colour: the outer toe easily turns backwards; and its claw is larger than that of the inner toe, in which peculiarity it differs from all other predaceous birds.

OSTRACION. A large genus of fishes of the class of amphibia nantes in the Linnæan distribution of nature: the characters of which are; that there are no belly-fins; and that the skin is always hard, and often prickly. Linnæus enumerates nine species.

According to Artedi, the characters of the Ostracion are these: there is no branchiostege membrane; the figure of the body is globose or spherical, oval, oblong, square, or conic; the skin is usually hard, and beset with rigid and hard spines, though in some species it is wholly smooth; there are no ventral fins; the others are five in number; the mouth is small; the teeth are large; the eyes are covered with the common skin of the head; and the lips are retractile, though in their natural state they cover the greater part of the teeth.

OSTRACODERMATA. An Aristotelian appellation for that class of shells called testaceous, in opposition to the crustaceous animals, or malacostraca. Aristotle thus defines these creatures: they are soft within, but hard without; their shells may be bruised, or broken; but their parts cannot be torn asunder, as in the crustaceous kinds.

OSTREA. See OYSTER.

OSTRICH. A genus of birds in the Linnæan system, of the order of grallæ; the characters of which are: the beak is of a conical shape; the nostrils are ovated; the wings are unfit for flight; and the feet are formed for running. This naturalist enumerates three species; the common, or camel Ostrich; the cassowary; and the nhanduguacu.

OSTRICH, COMMON. This curious bird appears in some measure to unite the class of quadrupeds and birds. While it has the general outline and properties of a bird, it nevertheless retains many traits of a quadruped. In its general appearance, it resembles the camel, and is almost as tall; it is covered with a plumage more nearly resembling hair than feathers; and its internal parts bear as great a similitude to those of the quadruped as of the bird creation. It may therefore be considered as an animal intended to fill up the chasm in nature which separates one class of beings from another.

The Ostrich is certainly the largest of all birds, being in its native climates nearly as tall as a man on horseback; and even some of those which have been imported into England, have measured upwards of seven feet in height. The head and bill somewhat resemble those of a duck; the neck may be likened to that of a swan, except that it is much longer; and the legs and thighs are formed like those of a hen. It is usually upwards of seven feet high from the top of its head to the ground; but, from the back, it is only four; consequently the head and neck are above three feet long. From the top of the head to the rump, when the neck is extended in a right line, it is six feet long; and the tail is about one foot more; while one of the naked wings is about a foot and a half; but, when

the feathers are stretched out, it is about three feet.

The plumage of this bird is generally a mixture of black and white, though some varieties are observed to be grey. The largest feathers, which are situated at the extremity of the tail and wings, are commonly white; the next row is black and white; and, of the small feathers on the back and belly, some are black, and others white. There are no feathers either on the sides, the thighs, or under the wings; the lower part of the neck, about half way up, is covered with still smaller feathers than on the belly and back; and those, like the former, are also of different colours. All these feathers are of the same nature, and peculiar to the Ostrich; for other birds are clothed with different sorts of plumage, partly soft, and partly hard.

The feathers of the Ostrich being almost all as soft as down, are absolutely unfit to help the animal in flight, and still less adapted for defence against external injury. The feathers of other birds have their webs broader on one side than on the other, but those of the Ostrich have their shafts exactly in the centre. The upper part of the head and the neck are covered with a very fine clear white hair, shiny like the bristles of a hog; and in some places there are tufts of this kind, consisting of about twelve hairs, which all issue from a single shaft about the thickness of a pin. At the extremity of each wing there is a kind of spur, resembling the quill of a porcupine, about an inch long; and, about a foot lower, there is another of the same kind. The neck, being destitute of feathers, appears very slender in proportion to the magnitude of the bird; and the skin in this part is of a livid flesh-colour, which some improperly denominate blue. The bill is short and pointed; the external form of the eye is like that of a man, the upper eye-lid being adorned with eye-lashes, which are longer than those on the lid below; the tongue is very small, short, and composed of cartilages, ligaments, and membranes, intermixed with fleshy fibres: in some, it is about an inch long, and very thick at the bottom; in others, it is but half an inch, and a little forked at the extremity. The thighs, which are very large and fleshy, are covered with a white skin, having a reddish tinge, and wrinkled in the form of a net. Some individual birds have very small feathers dispersed over the thighs; and others have neither feathers nor wrinkles. What are called the legs of birds, in the Ostrich are covered before with large scales. The end of the foot is cloven; and has two very large toes, which, like the leg, are covered with scales: these toes are of unequal sizes; the largest, which is on the inside, is seven inches long, including the claw; and the other toe, which is about four inches long, is destitute of a claw.

Having surveyed the external figure of the Ostrich, we next advert to the internal, which is formed with no less surprising peculiarity. At the top of the breast, under the skin, the fat is two inches thick; and on the fore-part of the belly it is as hard as suet, and in some places about two inches and a half thick. It has two distinct stomachs: the first, which is lowermost, in its natural situation somewhat resembles the crop in other birds; but it is considerably larger than the other stomach, and furnished with strong muscular fibres, as well circular as longitudinal: and the second stomach or gizzard, which is externally shaped

shaped like that of a man, on being dissected, always contains a variety of discordant substances, as hay, grass, barley, beans, bones, and stones, some of which last are larger than the egg of a pullet. The kidneys, which are eight inches long, and two broad, differ from those of other birds in not being lobulated; the heart and lungs are separated by a midriff, as in quadrupeds; and the parts of generation also bear a strong resemblance and analogy.

Hence it is evident that the Ostrich forms the shade which unites the quadrupedal with the feathered tribes; and from this structure its habits may also be conceived to be entirely peculiar. It inhabits the torrid regions of Africa only; and has long been celebrated by such authors as have had occasion to describe the animals of those climates. The Scriptures proscribe its flesh, as unfit for food; and few of the ancients have omitted to mention some particulars respecting it. Like the race of the elephant and the lion, it is transmitted down with contamination; and has never been known to breed out of that country where it was first produced. It seems perfectly adapted to the sandy and burning deserts of the torrid zone; and as it owes its birth in some measure to their genial influence, so it seldom migrates into tracts more fertile or more gentle. It chiefly inhabits the most solitary and horrid deserts, where there are few vegetables to clothe the surface of the earth, and where the rain seldom descends to refresh it. The Arabians assert, that the Ostrich never drinks; and the place of its habitation seems to authenticate that assertion.

In these inhospitable regions Ostriches are seen in large flocks, which to the distant spectator appear like a regiment of cavalry, and have often struck a panic into a whole caravan. There is no desert, how barren soever, but is capable of supplying these animals with provisions, for they feed almost indiscriminately on every thing: and thus these barren tracts are doubly beneficial, since they afford them both food and security.

Of all known birds, the Ostrich is the most voracious, as well as the least dainty in its choice; for it will devour leather, grass, hair, iron, stones, or any thing that first presents itself. Nor are its powers of digestion less extraordinary than its appetites, with respect to such substances as are capable of digestion: but those on which its stomach can make no impression, such as glass, stones, or iron, are excluded in the same form in which they were devoured. All metals indeed, which are swallowed by any animal, lose a part of their weight, and often a share of their figure, from the action of the juices of the stomach on their surfaces. A quarter pistole, which was swallowed by a duck, lost seven grains of its weight before it was voided; and it is probable that a still greater diminution of weight would take place in the stomach of the Ostrich: considered therefore in this light, this bird may be said to digest iron; though such substances seldom remain long enough in the stomach of any animal to undergo so tedious a dissolution. But however this may be, certain it is, that in the Ostrich dissected by Ranby, there appeared such a mass of heterogeneous matter, that it was astonishing how any creature could digest such an overcharge of nourishment. Valignieri also found the first stomach loaded with a quantity of incongruous substances, as grass, nuts, cords, stones, glass, brass, copper, iron, tin, lead,

and wood; and one piece of stone weighed upwards of a pound. It would therefore seem that the Ostrich is obliged to fill up the great capacity of its stomach in order to be at ease; but that nutritious substances not being within the sphere of its situation, it is forced to have recourse to whatever offers, in order to supply the deficiency.

In their native deserts, Ostriches lead a social and inoffensive life; and Thevenot assures us, that the male and female live together with conjugal fidelity. They are said to be extremely salacious; and the structure of the parts in both sexes seems to confirm this assertion. It is probable also that they copulate, like other birds, by compression; and they lay very large eggs, some of them about five inches in diameter, and weighing about fifteen pounds: these eggs have very hard shells, somewhat resembling the crocodile's, except that those of the latter are smaller and rounder.

The climate in which Ostriches are bred seems to have a considerable influence on the season for laying. In the northern parts of Africa, this season commences about the beginning of July; and, in the southern, about the latter end of December. These birds are extremely prolific, generally laying from forty to fifty eggs at one incubation; and it has been generally believed that the female deposits them in the sand, where covering them up, she leaves them to be hatched by the heat of the climate, and permits her young to shift for themselves. This account, however, is true only in a very limited degree; for no bird whatever has a stronger affection for her brood than the Ostrich, or watches her eggs with more assiduity. It happens, indeed, in those hot climates, that there is less necessity for the continual incubation of the female; and she more frequently leaves her eggs, which are in no danger of being chilled by the weather: but though she sometimes forsakes them by day, she always carefully broods over them by night; and Kolben, who has seen great numbers of them at the Cape of Good Hope, affirms that they sit on their eggs like other birds, the male and female taking that office by turns, as he had frequent opportunities of observing. The learned and ingenious Dr. Sparrmann also, who to every advantage of seeing the animals of this part of Africa unites the greatest abilities for making zoological observations, confirms the above account; and refutes the vulgar opinion by irrefragable arguments.

Nor is it more worthy of belief that these creatures forsake their young ones immediately after they are excluded from the shells; on the contrary, they are not even able to walk for several days after they are hatched. During this interval, the old ones are extremely assiduous in supplying them with grass; and very careful in defending them from danger, even at the risk of their own safety. The young are of an ash-colour during the first year, and entirely covered with feathers; but in time this plumage drops, and the parts assume one more beautiful and becoming.

The extreme elegance and beauty of the long feathers that compose the tail and wings of the Ostrich, is the chief reason why man has been so active in pursuing this harmless fowl to unfrequented deserts, and hunting it with no small degree of expence and labour. The ancients used those plumes in their helmets; the oriental ladies combined them with the ornaments of their dress;

among us, gay ladies wear them in their hats; and with them undertakers frequently decorate their hearfes. Those feathers which are plucked from the Ostrich while alive, are much more valued than such as are taken from it when dead; the latter being lighter, drier, and more subject to decay.

Exclusive of the value of the plumage of Ostriches, several savage nations of Africa hunt these birds also for their flesh, which they consider as a peculiar dainty. They sometimes also breed them tame for the sake of their young ones, of which the females are esteemed the most excellent. Some nations indeed have obtained the appellation of Struthophagi, or Ostrich-eaters, from their peculiar fondness for this food; and even the Romans themselves seemed to entertain some predilection for it. Apicius has handed down a receipt for making sauce for the Ostrich; and Heliogabalus is famed for having dressed the brains of six hundred Ostriches in one dish, it having been customary with him to eat but of one dish daily, which he always took care should be as expensive and rare as possible. Even among Europeans in modern times, the eggs of the Ostrich are said to be well tasted, and highly nutritive; but they are too scarce to be deemed an aliment, though one of them would sufficiently entertain eight men.

The spoils of the Ostrich being thus valuable, it is not strange that man has become it's most assiduous pursuer. For this purpose the Arabians train up their best and fleetest steeds, and hunt this bird in view: and perhaps, of all other varieties of the chase, this, though the most laborious, is nevertheless the most amusing. As soon as the hunter comes within sight of the Ostrich, he puts on his horse with a gentle gallop, so as to keep the bird still in sight, yet not so as to terrify it to seek shelter in the mountains. The Ostrich, which is capable of running with prodigious swiftness, immediately on observing itself pursued, begins to run at first but gently, as being either insensible of it's danger, or secure of an escape. In this situation, this bird somewhat resembles a man at full speed; it's wings, like two arms, keep working with a motion correspondent to that of it's legs; and it's speed would very soon carry it beyond the view of it's pursuers, did not the silly creature, instead of proceeding in a direct line, take it's course in circles; while the hunters, making a small course within, relieve each other, meet it at unexpected turns, and thus keep it still engaged, perhaps for two or three days successively. At last, spent with fatigue and hunger, and finding an escape impossible, the Ostrich endeavours to hide itself from those enemies it cannot avoid, and either covers it's head in the sand, or thrusts it into the nearest thicket. Sometimes, however, it attempts to face it's pursuers; and, though naturally one of the most gentle animals, when driven to desperation, defends itself with it's beak, it's wings, and it's feet; and such is the force of it's motions, that a man would find himself utterly unable to withstand it in the shock.

The Struthophagi have another method of catching this bird: they strip off the skin of an Ostrich, and covering themselves very artfully with it, counterfeit all the motions of this animal. By this artifice they approach the Ostrich, which immediately becomes an easy prey. It is also sometimes caught by means of dogs and nets; and the ancients were wont to secure this desired prey

by planting spears round it's nest, on which the bird usually transfixes itself.

When the Arabians have taken an Ostrich, they cut it's throat, and placing a ligature below the wound, shake the bird, as one would rinse a barrel: then removing the band, there runs out from the opening in the throat a considerable quantity of blood, mixed with the fat of the animal; and this is regarded by them as the highest dainty. They next flay the bird; and from the skin, which is strong and thick, they manufacture a kind of vest, which answers the purposes of a cuirass and a buckler.

Others, instigated either by compassion or prudence, preserve their captive alive; but endeavour to tame it, for the purpose of supplying them with those feathers which human vanity has rendered in such request. The inhabitants of Dara and Lybia breed up whole flocks of them, and tame them with very little trouble. But it is not for the sake of their feathers alone that they are prized in this domestic state; they are often rid on, and otherwise used as horses. Moore assures us, that at Joar he saw a man travelling on an Ostrich: and Adanson asserts, that at the factory of Podore he had two Ostriches, which were then young, the strongest of which was more than a match for the best English racer, though it carried two negroes on it's back; and that as soon as the animal perceived itself thus loaded, it began to run with all it's might, making several circuits round the village; till at length it was thought proper to stop it, by barring up it's way.

As a confirmation of the strength, swiftness, and docility, of these creatures, M. Vaillant, who is supposed to have penetrated farther into Africa than most Europeans, informs us, that in the interior parts of that continent he met with a colony, where the natives trained Ostriches to bear burdens, and in every respect to perform the offices peculiar to horses. This intelligence corroborates the relation of Buffon, who asserts, that the kings of Egypt were formerly drawn in state by those gigantic birds.

Many parts of the Ostrich, we are told, are convertible to medicinal purposes. The fat is said to be emollient and relaxing; that while it relaxes the tendons, it fortifies the nervous system; and being applied to the region of the loins, it abates the pains of the stone in the kidneys. The shell of the egg pulverized, and administered in proper quantities, is supposed to be beneficial in promoting urine, and dissolving the stone in the bladder. The substance of the egg itself is esteemed peculiarly nourishing: Galen, however, in mentioning this circumstance, asserts, that the eggs of hens and pheasants are good for food; but that those of geese and Ostriches are not so.

OSTRICH, BLACK. This seems to be only a variety of the common Ostrich. It is a native of the Cape of Good Hope, whose inhabitants affirm that male Ostriches, when full grown, are always blackish. The head and neck are brown; the back, the lower part of the neck, the breast, and the rump, are black; and the wings and tail are of a snowy whiteness.

OTOMO. An appellation given to a bird of the lagopus kind; called also colmestre; and by the Germans steinhurn, that is, the stone-hen. It is about the size of a tame pigeon; the belly and wings are white, with only a few brownish feathers; the head, neck, and breast, are variegated with

with brown feathers; and the upper part of the neck with black and white. The beak is short and black; and there is a fine red granulated membrane over the eyes. The tail is principally black, but variegated with brown and white; and the legs and feet are feathered to the extremity of the toes.

Ray is of opinion that this bird is of the same species with the common white lagopus, differing in no other respect except in colour; and it is said that, in the summer months, this change of colour actually takes place in those birds. It is a native of the mountains of Germany; and its flesh is reckoned very delicate.

OTTER. A species of the mustela in the Linnæan system: the characters of which are; that there are six cutting and two canine teeth in each jaw; and five toes on each foot, each connected by a strong web.

OTTER, COMMON; the *Mustela Lutra* of Linnæus. This animal is of an amphibious nature, resembling those of the terrestrial kind in its shape, hair, and internal conformation; and approaching to the aquatic tribes in its manner of living, and in having membranes or webs between the toes, to assist it in swimming. From this peculiar structure of its feet, it swims faster than it runs; and can overtake fish in their own element. It has a black nose, and long whiskers; the eyes are very small, and placed nearer the nose than in other animals; the upper jaw is longer and broader than the lower; the ears are small, erect, and conic; and the hair is long and thick. The colour is brown, sometimes varying to silvery. The legs are very short, but remarkably strong, broad, and muscular; and the toes are covered with hair. The joints are so loosely articulated, that the animal can turn them quite back, and bring them on a line with the body, so as to perform the office of fins. The usual length of the Otter, from the nose to the tail, is usually about twenty-three inches; and its tail, which is flat, sharp-pointed, and fullest of hair in the middle, is about thirteen inches.

This animal is found only by the sides of lakes and rivers; and particularly the former, being most desirous of fishing in stagnant waters; for the current having more power on it than the fishes it pursues, when it hunts against the stream, it swims too slow; and when with the stream, it overshoots its prey. However, when in rivers, it is always observed to swim against the current, and to meet the fish on which it preys rather than pursue them. In lakes, it destroys much more than it consumes; and has often been known to depopulate a pond in a few nights. But the damage it does by destroying the fish is less considerable than in tearing to pieces the nets of the fishermen, which it infallibly does as often as it is entangled; for the instant it finds itself caught, it goes to work with its teeth, and in a few minutes will destroy a net of considerable value.

The Otter conducts its fishing by two different methods; the one by catching its prey from the bottom upwards, and the other by pursuing it into some little creek, and there seizing it. In the former case, as this animal has a greater extent of lungs than most other quadrupeds, on taking in a quantity of air, it can remain for some minutes at the bottom of the water; and whatever fish pass over during that time, are sure to be taken: for the eyes of fish not being adapted for looking downward, the Otter attacks them una-

wares from below; and seizing them at once by the belly, drags them on shore, where it often leaves them untouched, in order to continue the pursuit, for hours together. The other method is chiefly practised in lakes and ponds, where there is no current; and the fish there taken are of the smaller kind, for the larger never quit the deep water.

After this manner the Otter usually lives during the summer season, being furnished with a supply much greater than its consumption; killing the fish for its amusement, and infecting the edges of the lakes with great quantities of dead ones. But, in winter, when the lakes are frozen, and the rivers devolve a rapid torrent, the Otter is often greatly distressed through want of provisions, and compelled to subsist on grass, weeds, and even the bark of trees. It then comes on land; and, grown courageous from necessity, feeds on terrestrial animals, as rats, insects, and even sheep. Nature, however, has furnished it with the power of continuing a considerable time without food; and though, during that season, it is not rendered quite torpid, like the marmotte or the dormouse, yet it generally keeps within its retreat, usually the hollow of a bank excavated by the water: there it often forms a kind of gallery, running for several yards along the edge of the water; so that, when attacked at one end, it flies to the other, and often evades the hunter by plunging into the stream at a considerable distance from the place where it was expected.

Buffon informs us, that in France this animal couples in winter, and brings forth in the beginning of spring. But it is certainly different in this kingdom, where its young are never found till the latter end of summer: we are therefore more inclined to credit the account of Mr. Lots, of the Academy of Stockholm, who assures us, that it couples about the middle of summer, and, at the expiration of nine weeks, usually brings forth three or four young.

In the rivers and lakes frequented by the Otter, the bottom is generally stony and uneven, with many trunks of trees and long roots stretching underneath the water; the shore also is hollow, and scooped inwards by the waves. These are the situations in which the animal delights to fix its abode; and there are but few stones that do not bear some vestiges of its proximity, as on them its excrements are always voided. By these marks its lurking-places are chiefly known, as well as by the numbers of dead fish dispersed along the banks of the water.

It is no easy task to catch the old Otters alive, as they are extremely strong; and but few dogs will dare to encounter them, as they bite with great fierceness, and never quit their hold. The best way is to dispatch them by fire-arms, as they never can be thoroughly tamed; and, if kept for the purposes of fishing, they embrace every opportunity of escaping. But the young ones may be more easily caught, and trained up to very beneficial purposes.

Otters generally bring forth their young under hollow banks, on a bed of rushes, flags, or such weeds as the place affords in greatest quantities. They are always found at the edge of the water; and, when under the protection of the dam, she teaches them instantly to plunge into the deep, and escape from their pursuers among the rushes or weeds that fringe the stream. At such times therefore

therefore they are caught with difficulty; for, though ever so young, they swim with great rapidity, and in such a manner that no part of them is seen above water except the tip of the nose. It is only in the absence of the parent Otter that they can be easily taken; and, in some places, dogs are trained purposely for discovering their retreats. Whenever the dog comes to the place, he soon discovers by his barking that Otters are there; and, if the old one be in company, she instantly plunges into the water, and is followed by all her offspring: but, if the dam be absent, the young ones continue as it were panic-struck, and unable to venture forth without her guidance and protection. In this case they are easily secured by the hunters, who carry them home alive, and carefully feed them with small fish and water. In proportion, however, as they gather strength, milk is mixed with their food; the quantity of fish is retrenched, and that of vegetables increased; till at length they are wholly fed on bread, which perfectly agrees with their constitution. The mode of training them up to hunt for fish requires not only assiduity, but patience: however, their activity and use, when perfectly instructed, amply compensate for the trouble of teaching them; and perhaps no other animal is more serviceable to its master. The usual way is, first to learn them to fetch and carry, after the manner of dogs; but, as they are not naturally possessed of the same docility, so more art and experience are requisite to teach them. They are generally accustomed to take a leathern truss stuffed with wool, of the shape of a fish, in their mouths; to drop it at the word of command; to run after it when thrown forwards; and then to bring it to their masters. From this they proceed to real fish, which are thrown dead into the water, and the Otters are taught to fetch them from thence. From dead they proceed to live fish; till at last the animals are perfectly instructed in the whole art of fishing. An Otter, thus qualified, is reckoned very valuable; as it will catch fish not only sufficient to sustain itself, but a whole family.

This creature inhabits all parts of Europe; the north and north-east of Asia; and abounds in North America, particularly in Canada.

OTTER, LESSER; the *Mustela Lutreola* of Linnæus. This animal is about three times as small as the common Otter, though resembling it in shape. It has roundish ears; a white chin; and a hoary head, though the hair of some is tawny. The body is tawny and dusky, the short hair being yellowish, and the long hair black; the tail is also dusky, and terminates in a point; and the feet are broad, webbed, and covered with hair.

This species, which is a native of Poland, and the north of Europe, lives on fish, frogs, and water-insects; and its fur is highly esteemed, being next in beauty to that of the sable.

According to Lawson, this creature, which is the same as the American minx, is a great enemy to tortoises, scraping their eggs out of the sands, and devouring them. It also eats fresh-water muscles, the shells of which are found in great abundance at the mouth of its hole, high up in the rivers, on the margins of which it lives. When domesticated, it is a great destroyer of rats and mice; but its smell is very disagreeable.

OTTER, BRAZILIAN; the *Lutra Braziliensis* of Ray. This animal has a round head, like that of a cat; feline teeth; small, round, black eyes;

large whiskers; and round ears. The feet are formed like those of a monkey with five toes; the claws are sharp; and the tail, which is flat and naked, reaches no lower than the feet. The hair is soft, short, and entirely black, except on the head, where it is dusky; and on the throat, where it is yellow. It grows to the size of a common dog; and weighs about forty or fifty pounds. It is a native of Brazil, Guiana, and the borders of the Oroonoko. Marcgrave says, that it is an amphibious animal; that it lives on fish and crustaceous animals; and is very dextrous in plundering the nets and weels of what are inclosed in them. Its flesh is esteemed delicate food; being absolutely free from any fishy taste, notwithstanding its food.

OTTER, CAYENNE; the *Petite Loutre D'Eau Douce de Cayenne* of Buffon. This species is only seven inches long from the tip of the nose to the extremity of the body. The tail, like that of the water-rat, is destitute of hair; its length is about six inches; the tip is white; and the rest is brown, covered throughout with a rough granulated skin like shagreen. The whiskers, and the long hairs under the eyes, are about an inch long. All the under-part of the belly and the head are marked with large brownish black spots; and the intervals are of a yellowish grey colour: the black spots correspond on each side of the body; and there is a white spot above each eye. The ears are large; the feet are short; the fore ones have five unconnected toes; and the hind ones the same number connected with membranes.

OTTER, SEA; the *Mustela Lutris* of Linnæus. The upper jaw of this animal is longer and broader than the lower; it has a black nose, and long white whiskers; the ears are small, erect, and conic; in each jaw there are four cutting-teeth; and the grinders are broad, and adapted for breaking crustaceous animals and shell-fish. The hair is thick, long, black, and glossy; beneath which there is a soft down. The legs are thick and short; and the toes are covered with hair, and united by a web. The hind feet resemble those of a seal, and have a membrane skirting the outside of the exterior toe, like that of a goose. The body is about four feet two inches long from the nose to the insertion of the tail; and the tail, which is flat and sharp-pointed, is about two inches. One of these animals sometimes weighs from seventy to eighty pounds.

Sea-Otters are very numerous on the coasts of Kamtschatka; and in those islands and parts of America opposite to it, which were originally discovered by the Russians: they are also found in the Brazilian rivers, and in that of Oroonoko. They are extremely inoffensive; and so remarkably affectionate to their young, that they will frequently pine to death for the loss of them on the very spot where they have been deprived of them. Before their young are capable of swimming, the old Otters carry them in their paws, lying in the water on their backs. They are very sportive; and chiefly inhabit those shallows where plenty of sea-weeds are to be found. They feed on lobsters and other fish; breed once a year; and bring forth one at a time, which they deposit on the shore.

The skins of these animals are exceedingly valuable; and, according to the late Captain King, a trade of this kind would be one of the most lucrative that could possibly be undertaken. In the

Alentian and Fox islands, and several others discovered by Captain Cook, Sea-Otters are amazingly numerous; and their furs may be purchased of the natives for the most trifling considerations. The flesh of the young Otter is reckoned very delicate food; and equal, if not superior, to that of lamb.

OTTER PIKE. An appellation given by some ichthyologists to a large species of the draco marinus, or sea-dragon; called in English the weever. It is somewhat larger than the common weever; beautifully diversified with various colours; and, instead of the yellow side-lines which appear in the common kind, it is furnished with rows of large black spots. See **WEEVER**.

OTUS. The classical name of the common horn-owl, of the smaller kind, differing in many respects from the great horn, or eagle-owl. It is usually found in Italy, but has sometimes been caught in England; and generally inhabits mountainous situations.

OVIPAROUS. A term expressive of such animals as produce their young from eggs, as birds and insects.

Oviparous animals may be defined such as conceive eggs, which they afterwards bring forth, and from which, by the incubation of the parent, or some other principle of warmth and fermentation, living creatures are at length produced; and these, after they have spent the moisture or humour with which they were surrounded, and are arrived at a sufficient bulk, firmness, and strength, break their shells, and come forth.

The Oviparous kinds of animals are opposed to the viviparous, or such as produce their young alive. However, the distinction between Oviparous and viviparous creatures, particularly in the insect world, seems to be less determinate than is generally supposed: it is evident that some flies, which are naturally Oviparous, if restrained from the proper nidus for their eggs, will retain them so long beyond the due time for their exclusion, that they will hatch into worms in the body of the parent, and afterwards be produced alive, after the manner of the young of viviparous animals. And Bartholine, in his Medical Observations, gives an account of a hen, which, instead of eggs, brought forth no less than five live chickens; but this preternatural effort cost her her life.

OVIS. See **SHEEP**.

OUNCE. An animal of the feline kind, frequently confounded with the panther. It is considerably smaller than that creature, seldom exceeding three feet and a half in length; but its hair is longer than that of the panther; and its tail is still more so in proportion.

The Ounce inclines somewhat to a cream-colour, but is rather whiter on the belly than towards the back; and the hair on the belly is also much longer than on the back. Its spots are disposed somewhat like those of the panther, except that it has rather stripes than spots on the haunches. The body is strongly made; and the legs and back are short.

This animal is a native of Barbary, Persia, and China. All authors agree, that it is easily tamed; and that it is trained to hunting in Persia, and several other provinces of Asia. Some Ounces are so very small, that a horseman frequently carries them on the crupper behind him: and, according to Tavernier, they are so gentle, as to suffer themselves to be handled and caressed.

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The panther, to which this animal is allied, seems to be of a more fierce and untractable nature. Mankind may be said rather to subdue than tame him. He never entirely loses his ferocious disposition; and, when destined for the chase, great attention is necessary in training him, and still greater in conducting and exercising him. He is led in a cart, shut up in a cage, the door of which is opened whenever game presents itself: he then springs towards the animal, which he generally seizes and strangles at three or four bounds; but, if he misses his aim, he becomes furious, and sometimes attacks his owner, who commonly appeases his rage by presenting him with pieces of flesh, or even a live animal, as a lamb or a kid.

The species of the Ounce appear to be more numerous and more diffused than that of the panther. It is used for hunting in the warm climates of Asia; because dogs are there very scarce, few being found except such as are transported thither from other countries; and even these lose both their voice and their instinct in a very short time. Besides, the panther, the Ounce, and the leopard, have such an antipathy to dogs, that they attack them in preference to all other animals. In Europe, our hunting-dogs have no enemies but the wolf; but, in countries filled with tigers, lions, panthers, leopards, and Ounces, which are all stronger as well as more fierce than the wolf, it is impossible to preserve dogs. However, the scent of the Ounce is much less acute than that of the dog: he neither follows animals by their feet, nor is he able to overtake them in a continued chase; but hunts them solely by the eye, and makes only a few springs at his prey. He is so very nimble, as easily to clear a ditch, or a wall many feet high; and often climbs trees, in order to watch passing animals, from which he suddenly darts upon them. This mode of seizing prey is common to the panther, the leopard, and the Ounce.

OUNCE is also an appellation given to the lynx, or *lupus cervarius*, a very fierce beast of prey.

OUNCE, BRAZILIAN. See **OCELOT**, and **CAT-TIGER**.

OURISSIA. A name by which Clusius, and some other naturalists, have called the humming-bird, or *guainumbi*.

OUTIN. An appellation given by some ichthyologists to the *oxyrynchus* of authors.

OVUM POLYPI. A name by which some of the ancient naturalists expressed the papyraceous, or thin-shelled nautilus. The similitude between the body and arms of the fish which inhabits this shell, and those of the sea-polypus, gave occasion to the supposition, that this creature was the same animal, not yet excluded from the egg. The shell of this species being very thin, and appearing like that of an egg, gave additional countenance to this error in ages when science was less diffused than at present.

OVUM ROMPHII. An appellation given to a species of oblong porcelain shell. See **PORCELAIN SHELL**.

OUZEL, OR BROOK OUZEL. An English appellation for the *rallus aquaticus*, more usually called the water-rail.

OUZEL, RING; the *Turdus Torquatus* of Linnæus. This bird inhabits mountainous situations, where companies of five or six generally associate together. It is somewhat larger than the blackbird. In some, the bill is wholly black; in others, the upper half is yellow; and there are

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a few bristles on each side of the mouth. The plumage on the head, and the upper part of the body, is dusky, edged with pale brown; the quill-feathers and the tail are black; and the coverts of the wings, the upper part of the breast, and the belly, are dusky, slightly edged with cinereous. The breast is adorned with a white crescent in the middle, with the horns pointing to the hind part of the neck: this crescent, in some, is of a pure white colour; in others, of a dusky hue. Neither the females, nor any of the young birds, are possessed of this mark, which has induced less accurate naturalists to distribute them into two species.

These birds are most common in the northern parts of England, in the Highlands of Scotland, and in Wales. Those that breed in the two last mentioned places never migrate. In other parts of Europe, they are only birds of passage.

OUZEL, WATER; the *Sturnus Cinclus* of Linnæus. This bird, called also the water-crake, frequents small brooks, particularly those which intersect rocky countries. It is of a very retired nature, and never seen but single, or in conjunction with its mate. It forms its nest in the holes of banks; and lays five eggs of a whitish colour, adorned with a fine blush of red. It feeds on small fish and insects; and though its feet are destitute of webs, and the whole form of its body denotes it to be a land-fowl, it nevertheless darts itself quite under the water in search of fish. Its nest is very curiously constructed of hay and the fibres of roots, and lined with oak-leaves.

This species, which is frequently seen in the northern counties of England, and particularly in Wales, is seven inches in length, eleven in breadth, and weighs about two ounces and a half. The bill is narrow; the eye-lids are white; the head, cheeks, and hind part of the head, are dusky; the back, and the coverts of the wings and tail, are also dusky, bordered with blueish ash-colour; the throat and breast are white; the belly is iron-coloured; and the legs are of a pale blue colour before, and black behind. When sitting, it often flirts up its tail, which is short and black.

OUZEL, ROSE COLOURED; the *Turdus Roseus* of Linnæus. This species is about the size of the common blackbird. The bill is black at the point, but of a dirty flesh-colour at the base; the head is adorned with a beautiful crest, hanging backwards; the head, crest, neck, wings, and tail, are black, glossed with a variable blue, purple, and green; the breast, belly, back, and lesser coverts of the wings, are of a rose or carnation colour, mixed with a few spots of black; and the legs are of a dirty orange-colour.

This bird is found in Lapland, Italy, and Syria. About Aleppo it has obtained the appellation of the locust-bird.

OUZEL, BRAZILIAN, of Bellonius. This bird is of a deep red colour all over the body, except the tail, which is black. It is one of the most elegant of the feathered creation, the red colour being extremely vivid. The tail is long; the feet and legs are black; and the bill is short, like that of the sparrow.

OUZEL, INDIAN. This bird resembles the jackdaw in shape and size. The breast is red; and the upper part of the body entirely black, except that the feathers near the rump are edged with white. The bill is like that of the blackbird; and the tail also is of a similar shape.

OUZEL, PARTY-COLOURED, of Aldrovandus.

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This species is adorned with blackish and yellowish red plumage. A variety of this kind has a red line near the bill; but in other respects it resembles the former.

OWL. A distinct genus of birds of the hawk kind, in the Linnæan system: the distinguishing characters of which are; that the head is large and round; the bill is strong and hooked; the nostrils are covered with bristly feathers; the eyes and ears are large; and the tongue is bifid. Linnæus enumerates twelve species.

All birds of the Owl kind may be considered as nocturnal robbers, who, unfitted for seizing their prey by day, take advantage of the hours of darkness, when the tribes of nature are in the least expectation of annoyance. Thus, in the chain of nature, no link appears to be broken; every place, every season, every hour of the day and night, is bustling with life, and exhibiting instances of industry, self-defence, and invasion.

Birds of the Owl kind have one common mark, by which they are distinguished from others, namely, that their eyes are formed for more perfect vision in the dark than in the light. Thus, in the eyes of tigers and cats, which are formed for a life of nocturnal depredation, there is a quality in the retina that admits the rays of light so copiously, as to allow them to see in almost total darkness: so in these birds there is a similar conformation of that organ; and, though they cannot see in an absolute exclusion of light, they are sufficiently quick-sighted when every thing is imperceptible to mortals. In the eyes of all animals nature has made a complete provision, either to shut out too much light, or to admit a sufficiency, by the contraction and dilatation of the pupil. In these birds, the pupil is capable of opening very wide, or shutting very close: by contracting the pupil, the brighter light of the day, which would act too powerfully on the sensibility of the retina, is excluded; by dilating it, the animal takes in the more faint rays of the night, and is thereby enabled to discern its prey, and catch it with more facility in the dark. Besides this, there is an irradiation on the back of the eye; and the very iris itself is so endowed with the faculty of reflecting the rays of light, as to assist the vision of these birds in those gloomy retreats which they are invariably known to frequent.

But though birds of the Owl kind are dazzled by too refulgent a light, they do not, as some have imagined, see best in the darkest nights. Their vision is clearest in the dusk of the evening, or at the dawning of the morning, when they are not incommoded either by too much or too little light. They then quit their solitary abodes, in order to hunt for their prey; and their labours are generally successful. Almost all other birds are then either asleep, or preparing for their repose; and the most unguarded become the prey of these rapacious animals. However, those nights wherein the moon shines are the seasons of their most successful plunder; for, when it is wholly dark, they are less qualified for seeing and pursuing their prey. Except, therefore, by moonshine, they abridge the hours of their chace. If they come abroad about the dusk of the evening, they return before it is totally dark; and then start by twilight the next morning, in order to pursue their game, and to return in like manner before the day-light overpowers them with its splendor.

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But the faculty of seeing in the night, or of being entirely dazzled by day, is not alike in every species of these nocturnal birds: some of them see by night better than others; and some are so little dazzled by the day-light, as to perceive their enemies, and to avoid them. The common white, or Barn-Owl, sees with such exquisite acuteness in the dark, that though the barn has been shut at night, and the light thus totally excluded, it perceives the smallest mouse that peeps from its hole: on the contrary, the brown Horn-Owl is often seen to prowl along the hedges by day, like the sparrow-hawk; and sometimes with much success. In proportion as each of these animals best endures the day-light, it proceeds the earlier in the evening in pursuit of its prey. The great horned Owl is the foremost in quitting its retreat, and penetrates the woods and thickets very early in the evening; the horned Owl and the brown Owl are later in their excursions; but the Barn-Owl seldom leaves its retreat till midnight, seeming to prefer almost total obscurity either to the dusk of the evening or the grey of the morning.

As these birds are incapable of supporting the light of day, or at least of then seeing and readily avoiding danger, they remain concealed in some obscure retreats adapted to their gloomy dispositions. The cavern of a rock, the darkest part of a hollow tree, the battlements of a ruinous and unfrequented castle, or some obscure hole in a farmer's hovel, are the favourite retreats of these unjoyous birds; and, whenever seen in the day-time, they may be considered as either having lost their way, or been thrown by some accident into the hands of their enemies.

At the approach of evening, the Owl falls forth, skimming rapidly up and down the hedges. The Barn-Owl, indeed, as it lives chiefly on mice, is contented to be more stationary, and accordingly places itself either in some shock of corn, or on the ridge of an old house, and watches its prey in the dark with great vigilance and perseverance.

Nor are these birds silent during the nocturnal hours; they all utter a hideous kind of note; which being frequently heard in the silence of midnight, breaks the general pause with a horrid variation. This cry is different in all; but in every species it is both alarming and disagreeable. Father Kircher, who has set the voices of birds to music, has given all the tones of the Owl note, which composes a most tremendous sort of melody. Indeed, the prejudices of mankind unite with their sensations to make the cry of the Owl disgusting; for, among the vulgar, the Screech-Owl's voice has always been considered as a preface of some direful calamity.

While in pursuit of their prey, the note of these birds is seldom heard; that important business is generally performed in silence, as it is by no means their intention to forewarn those little animals they wish to surprise of their danger. When their labours have proved successful, they soon return to their solitudes, or to their young, if it be in that season. When they find but little game, they continue on the watch still longer; and sometimes hearkening to the voice of appetite rather than prudence, they pursue so long, that broad day breaks in upon them, and leaves them dazzled, bewildered, and at a distance from their retreats. Thus situated, they are obliged

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to take shelter in the first tree or hedge that presents itself, where they conceal themselves till the returning darkness once more supplies them with a more distinct view of the country. But it frequently happens that, with all their precaution to conceal themselves when thus surpris'd by day-light, they are discovered by other birds, from whom they are sure to receive no mercy: the blackbird, the thrush, the jay, the bunting, and the red-breast, all surround the hapless wanderer, on whom they employ all their little arts of insult and abuse. The smallest and most contemptible of the Owl's enemies are then the foremost to injure and torment him: they taunt him with their cries, flap him with their wings, and affect to appear courageous, in proportion as they are under little or no apprehensions of danger. The wretched bird of night, neither knowing whom to attack, or where to fly, patiently suffers all the indignities offered to him: astonished and dizzy, he answers their insults by awkward and ridiculous gestures, turning his head about, and rolling his eyes with an air of stupidity.

The appearance of an Owl by day is sufficient to put a whole grove into a kind of uproar; for the aversion which all small birds have to this animal, or the consciousness of their own security, induces them to pursue him unceasingly; while, by their mutual cries, they encourage each other to the encounter. However, it sometimes happens that the little birds continue their insults with the same imprudent zeal with which the Owl himself has pursued his depredations: they hunt him till the evening returns, which restoring his faculties of sight, gives him an opportunity of making his pursuers pay dear for their sport.

Nor are the respectable gentlemen termed bird-catchers unconcerned spectators of these petty contentions. Having learnt the art of counterfeiting the cry of the Owl, and previously limed the branches of a hedge, they conceal themselves, and then give the call; on which all the little birds within hearing flock to the place, expecting to meet with their stupid antagonist; but, instead of finding him, they too late perceive themselves entangled in the hedge. This sport must be put in practice an hour before night-fall, if these gentlemen would wish to be successful; for, if it be deferred later, those birds, which but a few minutes before thronged to insult the Owl, will then fly from him with no small degree of terror.

To see one stupid bird made in some measure a sort of decoy to deceive another, is perhaps not wholly devoid of entertainment. The great horned Owl is sometimes made use of in order to allure the kite, when falconers would catch him for the purpose of training large hawks. On this occasion they affix the tail of a fox to the great Owl, to render his figure extraordinary; in which trim he sails slowly along, after his usual manner. The kite, either curious to observe this odd kind of animal, or perhaps inquisitive to know whether it may not be proper for food, flies after, and approaches it nearer and nearer. In this manner he continues to hover, and sometimes to descend, till the falconer sends a strong-winged hawk after him, who seizes him for the purpose of training his young ones at home.

Though Owls may certainly be deemed disagreeable, and sometimes pernicious birds, the Barn-Owl, by its activity in destroying mice, sufficiently compensates for the faults of the whole tribe.

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tribe. A single Owl is supposed to be more serviceable than half a dozen cats in ridding a barn of domestic vermin; and as he only preys on what is inimical to human industry, he may justly be reckoned one of the coadjutors of mankind.

The Owl, or bird of night, was consecrated to Minerva, as the symbol of Vigilance, because of its wakefulness during the night. It was reckoned a bird of ill omen in times of the remotest antiquity. A solitary Owl, perched on the roof of a palace, affrighted Dido with its dismal screams; and Ovid tells us, that Æsculapius was transformed into an Owl, a bird which was supposed to be the harbinger of misfortune.

OWL, EAGLE; the *Strix Bubo* of Linnæus. This species is almost equal in size to an eagle. The irides are of a bright yellow colour; the head and whole body are finely varied with lines, spots, and specks, of black, brown, cinereous, and ferruginous; the wings are long; and the tail is short, and marked with dusky bars. The legs, which are thick, are covered to the very end of the toes with a close and full down; and the claws are large, much hooked, and dusky.

This bird, which has sometimes been discovered in the north of England, and in Scotland, inhabits inaccessible rocks and deserted situations; and preys on hares and feathered game. The ancients held it in the greatest abhorrence; and imagined it to be, like the Screech-Owl, the messenger of death.

OWL, LONG-EARED OR HORNED; the *Strix Otus* of Linnæus. This bird, at first view, appears as large as the eagle; but, when closely observed, is found to be much smaller. The head, body, wings, and tail, are shorter; and the head is larger and thicker. The horns are composed of six feathers each, which rise about an inch high, variegated with yellow and black, and which it can erect or depress at pleasure; the eyes, which are large and transparent, are encircled with an orange-coloured iris; the ears are large and deep; and the bill is black. The breast and belly are of a dull yellow colour, marked with slender brown strokes pointing downwards; and the thighs are of the same colour, but without spots. The back and coverts of the wings are varied with deep brown and yellow; the quill-feathers are of the same colour, with a broad bar of red near the tips of the exterior ones; the tail is marked with dusky and reddish bars, but appears ash-coloured underneath; and the feet are feathered down to the claws.

This species usually breeds in the cavern of a rock, the hollow of a tree, or the turret of some ruinous castle. Its nest, which is almost three feet in diameter, is composed of sticks bound together by the fibrous roots of trees, and lined with leaves. It commonly lays three eggs, which are as large as those of a hen, and in colour somewhat resemble the bird itself. The young are extremely voracious; and the parent is particularly assiduous in supplying their wants.

This kind of Owl is sometimes found in the north of England, in Cheshire, and in Wales. It seems to vary in its colours in different individuals; and the great Horned Owl of Edwards is certainly of the same species, though the colours do not exactly correspond with the above description.

OWL OF ATHENS. This seems to be rather a variety of the long-eared or horned Owl, than a

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distinct species: however, as it differs considerably in size, and has generally been described apart by ornithologists of this country, we shall, in conformity to custom, retain its usual appellation and description.

The Athenian Owl is considerably less than the Eagle Owl, though it measures seventeen inches in height when perched. The bill is pretty much hooked; and the base is covered with small greenish filiform feathers, projecting forwards. Both the bill and talons are of a dusky, blackish, or horn-colour; the eyes are of a fine golden hue, with black pupils; and the face, which is of a whitish grey, is terminated on every side by black lines and spots. The horns or ears are composed of feathers which the bird can either elevate or depress: these are brown on their upper side, and black beneath; which blackness extends likewise above the eyes; and a dusky line wholly encircles them, as if nature had thereby designed to heighten the brilliance of their lustre. The whole body is covered with brown plumage, variegated with black; but the brown is lighter on the breast and belly than on the back; and, on the lower part of the belly, dies away into a faint ash-colour. Some of the large spots on the back and wings are transverse, and others longitudinal; and, besides these larger spots, a number of minute dusky transverse lines are perceptible. The insides of the quills, and the under-side of the tail, are cinereous, with transverse bars, fainter than the external ones; and the legs and feet are feathered to the extremity of the toes with whitish downy plumage.

Edwards informs us, that the bird from which this description is taken, was imported from Athens; and in 1755 was alive, and the property of the late Dr. Fothergill.

OWL, SHORT-EARED. The horns of this species are small, consisting only of a single feather each, which the bird can raise or depress at pleasure; and, in a dead specimen, they are scarcely perceptible. This Owl, which inhabits mountainous and woody situations, far retired from the abodes of men, seldom makes its appearance in these kingdoms. The head is small, resembling that of a hawk; the bill is dusky; the circle of feathers which immediately surrounds the eyes is black; but the larger circle is white, terminated with tawny. The plumage on the head, back, and coverts of the wings, is brown, edged with a dull yellow; the breast and belly are of the same colour, with a few long narrow streaks of brown pointing downwards; and the thighs, legs, and toes, are covered with yellow feathers. The quill-feathers are dusky, barred with red; the tail is of a deep brown hue, embellished with a yellow circle on each side of the shaft of every feather; and its tips are white.

This Owl never builds a nest on its own account; but is satisfied with the forsaken one of some other bird. It lays four or five eggs. The young, when first produced, are entirely white; but they change their colour in about a fortnight.

There is another variety of the Horn-Owl, not much larger than a thrush, with remarkably short horns. It is a native of the continent of Europe, but has never been discovered in these islands.

OWL, WHITE; the *Strix Flammea* of Linnæus. This bird is almost domestic, inhabiting, during the greatest part of the year, barns, hay-lofts, and other out-houses; and is extremely useful in clearing

ing those places of mice. It quits it's perch about twilight, and takes a regular circuit round the fields, skimming along the ground in quest of field-mice; after which it returns to it's usual haunts. At the season of incubation, it takes up it's residence in the woods.

The elegance of this bird's plumage sufficiently compensates for the uncouthness of it's form: a circle of soft white feathers surrounds the eyes; and the upper part of the body, the coverts, and the secondary feathers of the wings, are of a fine pale yellow colour, with two grey, and as many white spots on each side of the shafts. The exterior sides of the quill-feathers are yellow; the interior being white, with four black spots on each side. The lower side of the body is entirely white; the interior sides of the feathers of the tail are also white, the exterior being marked with some obscure dusky bars; the legs are feathered as far as the feet; and the feet are covered with short hairs. The usual length of this bird is about fourteen inches; and the expansion of the wings is three feet.

This species of Owl seldom hoots, but snores and hisses in a most violent manner; and, while it flies along, often screams most tremendously. It's only subsistence is mice; and as the young birds continue in the nest for a great length of time, and are fed by the parent long after they can fly, many hundreds of these vermin will scarcely supply one nest with food.

All Owls are extremely shy of man, very indocile, and difficult to be tamed. The White Owl in particular, as Buffon asserts, cannot be reconciled to captivity; but he probably means, when it is old. He adds, that they will live ten or twelve days in the aviary where they are shut up; but that they refuse all kinds of nourishment, and at last die through hunger. By day they remain motionless on the floor; but in the evening they mount on the highest perch, where they incessantly make a noise like a man snoring with his mouth open. 'This seems,' says Buffon, 'designed as a call for their old companions without: and, in fact, I have observed several others attend at the call, and perch on the roof of the aviary, where they made the same kind of hissing, and frequently permitted themselves to be enclosed in a net.'

OWL, BROWN; the *Strix Ulula* of Linnæus. The head, wings, and back, of this bird, are of a deep brown colour, elegantly spotted with black; the coverts of the wings and the scapulars are adorned with white spots; the exterior edges of the four first quill-feathers are serrated; the breast is of a very pale ash-colour, mixed with dusky, and marked with oblong jagged spots; and the circle round the face is ash-coloured, spotted with brown.

This species inhabits the woods, where it remains the whole day; but at night it approaches the abodes of men, and becomes extremely clamorous. It frequently enters pigeon-houses, where it makes great havock. It breeds in hollow trees, or ruinous buildings; and lays four white eggs, of an elliptic form.

OWL, TAWNY, OR IVY OWL; the *Strix Stridula* of Linnæus. This is the species commonly called the Screech-Owl, to which superstition has ascribed a power of presaging death by it's cries. The ancients likewise believed that it sucked the blood of young children: a fact by no means incredible; for Hasselquist describes a kind of Syrian Owl, which frequently entered houses in the evening, and destroyed infants while asleep.

This species may be distinguished from the rest of the genus by the following characters: it's beak is of a pale horn-colour, and short, but the opening of the mouth is very wide; it's eyes are remarkably large and protuberant, and situated very near it's ears; and the apertures of it's ears are very large, and covered with a membrane. The colour of the back, head, coverts of the wings, and scapulars, is a fine tawny red, elegantly spotted and powdered with dusky spots of various sizes; on the coverts of the wings and the scapulars there are several large white spots; the coverts of the tail are tawny, without any marks; and the tail itself is barred and spotted with pale red and black. The breast and belly are yellowish, mixed with white, and marked with narrow black strokes pointing downwards; and the legs are covered with feathers down to the toes.

OWL, LITTLE; the *Strix Passerina* of Linnæus. This elegant species scarcely exceeds the thrush in size, though the fulness of it's plumage gives it a larger appearance. It has a light yellow ring round the eye; and the bill is of a green colour. The plumage which encircles the face is white tipped with black; the head is brown, spotted with white; the back and coverts of the wings are of a deep olive brown hue, the latter being spotted with white; and on the breast there is a mixture of brown and white. The belly is white spotted with brown; and the tail is of the same colour with the back, each feather being barred with white.

This bird is seldom seen in England. The Italians use it to decoy small birds to their limed twigs.

OWL, GREAT WHITE, OF HUDSON'S BAY; the *Strix Nyctalea* of Linnæus. This species, which was first described by Edwards, both in magnitude and beauty, may be considered as one of the first of the genus. The bill, which is black, is hooked like that of the hawk, and almost covered with stiff feathers planted round it's base, and reflected forwards; the eyes are encompassed with bright yellow irides; the head is smaller in proportion than is common to this kind, and of a pure white colour; as is likewise the body, together with the wings and tail. The top of the head is marked with small dirty brown spots; the upper part of the back is painted with transverse lines of dusky brown; the quills on the exterior webs are marked with dusky spots; the covert-feathers within-side the wings are wholly white; the lower part of the back is destitute of spots; the legs and feet are covered with white feathers; and the claws are long, strong, and black.

This Owl continues in Hudson's Bay during the whole year; is said to be a diurnal bird; and feeds on white partridges.

OWL, LITTLE HAWK. This is somewhat larger than the sparrow-hawk: the bill is without angles, and of a bright reddish yellow colour; the spaces round the eyes are white, a little shaded with brown, and dashed with small longish dusky spots; and the outsides of these spaces towards the ears are encircled with black, beyond which again there is a small portion of white. The top of the head is of a very dark brown hue, finely spotted with white; the neck, and from thence to the middle of the back, is a dark brown; and the wings are of a brown colour, the quills and covert-feathers being spotted on their exterior webs with white. The feathers between the back and wings are painted with broad transverse bars of

brown and white; the rump and covert-feathers of the tail are dark brown, transversely barred and mixed with a lighter brown; the tail, on the upper side, is dark brown, and ash-coloured beneath, transversely barred with light brown; and the breast, belly, thighs, and coverts under the tail, are white, barred across with narrow brown lines in a regular manner. The feet and legs are entirely covered with fine soft feathers of the colour of the belly, but the variegating lines are smaller; and the claws are sharp, pointed, and of a dark brown colour.

This species is a native of Hudson's Bay. It preys on white partridges, which are very numerous in those climates; and is said to be so intrepid, that it will attend a fowler with his gun, and sometimes carry off the prey he has shot. It was first mentioned and figured by Edwards.

OWL, BRAZILIAN; the Cabure of Marcgrave. This Owl is about the size of a small thrush: the bill and irides are yellow; the whole upper part of the head, back, and wings, are of a faint umber colour spotted with white, the spots on the head and neck being small, but large on the wings; and the breast and belly are white, variegated with faint brown spots. The legs are short, and covered with feathers; the claws are black; and the tail is broad, and of the colour of pale umber waved with white.

OWL, CEYLONESE. This curious species is near two feet long; and weighs upwards of two pounds and a half. The irides are yellow; the circles round the face are of a pale reddish brown colour streaked with black; the ears are short, erect, and pointed; the back, and the coverts of the wings, are a pale reddish brown, streaked with black; the breast and belly are white tinged with yellow, and streaked in a similar manner with the back; the primaries and tail are barred with black, white, and pale red; and the legs are naked to the knees.

This bird is a native of Ceylon, where it is called Raja Allia.

OWL, CHURN; the *Caprimulgus Europæus* of Linnæus. This Owl is moderately large: the head is smaller in proportion to the body than that of other birds of this kind; the beak is black, and very short; the mouth is extremely wide; and the irides are hazel-coloured. The plumage has a beautiful mixture of black, white, ash-colour, and ferruginous, disposed in lines, bars, and spots. The male is distinguished from the female by a large oval white spot near the end of the three first quill-feathers, and another on the exterior feathers of the tail; the plumage is also more ferruginous. The legs are short, scaly, and feathered below the knees; the middle is connected with those on each side by a small membrane as far as the first joint; and the claw of the middle toe is thin, broad, and ferrated.

This bird is migratory in Britain. It appears about the latter end of May; and disappears in the northern counties about the end of August, but does not quit the southern for a month after. It has obtained the appellation of the goat-sucker from a vulgar opinion that it sucks the teats of goats; an error handed down from the days of Aristotle. Its notes are very singular: the loudest resembles the noise of a large spinning-wheel; and the common is a sharp squeak, which it often repeats, and seems to be a note of love.

OWL FISH OR SEA-OWL. An appellation by which some express the lumpus, or lump-fish; called in Scotland the cock-paddle.

OWL PIGEON. A particular species of pigeon called by Moore *Columba Bubo Nominata*. Its body is small and short; it has a short round head; and a series of feathers that separate and open on the breast: but its most remarkable character is its beak, the upper chop of which is bent, and hooked over like that of an owl; and this gives rise to its name. It is of various colours, as white, blue, or black; but is never pied.

OX. In the common acceptance of this term, it denotes black cattle in general, without regard to sex: in a more limited sense, it signifies a castrated bull. The generic characters of the ox are; that the horns bend out laterally; that there are eight cutting-teeth in the lower jaw, and none in the upper; and that the skin along the lower side of the neck is pendulous. The specific marks of the common bull and cow are, rounded horns, with a large space between their basis.

Formerly the Ox constituted the whole riches of mankind; and he is still the basis of the riches of nations which subsist and flourish in proportion to the cultivation of their lands and the number of their cattle: for in these all real wealth consists; every other kind, even gold and silver, being only fictitious representations, and having no value but what is conferred on them by the productions of the earth.

The Ox, though less generally used than formerly for agricultural purposes, is nevertheless still a very serviceable animal: he draws with amazing steadiness and perseverance; but is incapable of supporting an accelerated pace; and therefore his labours are in a great measure superseded by those of the horse. See Cow.

OX-FLY. A species of two-winged fly bred from a worm hatched under the skin of the ox, from the egg of the parent fly deposited there. The female of this fly makes a number of small incisions in the backs of horned cattle; and in each of these deposits an egg, which is afterwards hatched by the warmth of the creature's body. As soon as hatched, the nascent worm makes itself a very convenient lodging, in every respect adapted to supply all its exigencies.

The places where these insects lurk are easily discovered by a surrounding tumour, within which, and under the skin of the animal, the worm is lodged; and as the gad-fly is the most vexatious to the cow kind, it has been generally supposed that this worm is produced from the egg of that fly. But this is an erroneous opinion: Vallisneri, who seems to have been the first that understood the true state of the case, has given a very full and satisfactory account of it.

These worms, according to the above author, may be properly enough denominated the inhabitants of animal galls, since the tumours which contain them are truly analogous to the galls of the oak, and other similar vegetable excrescences: in these tumours there is an aperture, which is not only beneficial to the animal as a breathing-place, but is also necessary to discharge the redundant matter formed in the tumour, which, if confined there, would occasion a large abscess, and soon suffocate and destroy the animal.

If these worms possessed the same qualities with the common flesh-fly, and were furnished with hooks to lacerate and pull the flesh in pieces, the creature that had a number of these gnawing devourers preying on its back at once, would feel itself in a most wretched state: but this is by no means the case; the insects having no organs for tearing

tearing the flesh, are satisfied with living on the matter contained in the abscess, and give the animal no great degree of pain.

A moderate pressure is always sufficient to dislodge the worms from these tumours: they easily make their appearance by the hole of the excrescence, which, though small, is sufficient for this purpose. As soon as the worm is emancipated, either by accident or in the course of nature, from its habitation, it immediately drops on the ground, where crawling about till it can find a place proper for repose, it takes up its residence there, and undergoes its several transformations.

When these animals have found places to rest in for their changes, they lose all motion; and their skins become hard and black, forming a kind of shells, which serve to protect them from those numerous accidents to which such minute creatures are continually exposed.

The time of the Fly's egress being arrived, it appears indeed with two wings, but so extremely like the middling-sized humble bee's, that it is not easily distinguished from them: however, when closely examined, this fly appears to have a mouth, without teeth or lips; short antennæ, rounded at the extremities, and of a glossy hue; and reticular eyes of a deep chestnut-colour. The female, in the under and hinder part of her body, has a cylindrical tube, which she can protrude at pleasure; and with this instrument she pierces the skin of the animal, in order to deposit her egg.

It may also be observed, that stags, and some other animals, are subject to these worms in the same manner as oxen; and the several states they undergo in the tumours of these animals, are exactly similar to what have been already mentioned.

OXYRYNCHUS. A fish of the truttaceous kind, called by some hautin and outin. It is frequently caught in the English and other seas, and often mixed with whittings, and exposed to sale along with them. In shape and figure, it resembles the trout; but is somewhat flatter, and covered with large white scales.

OYSTER. A very large genus of shells, the characters of which are; that the shell is bivalve, of a very coarse external structure, and dirty appearance; each shell being composed of a great number of laminæ irregularly closed down on each other. In some species, it is smooth; in others, striated, tuberos, or prickly; usually flat, but sometimes globose, plicated, and wrinkled into sinuses; the lower shell being always the deepest. The inclosed animal is a tethys.

Linnæus enumerates thirty-one species under this genus; which may be all arranged under the characters of such as are plain and smooth, smooth but foliated on the surface, globose with spines, globose and jagged with high-raised laminæ, and oblong and umbonated.

In many respects, the Oyster differs little from the muscle, except in the thickness of its shell, and its greater imbecillity. The Oyster, like the muscle, is formed with organs of life and respiration; with intestines which are very voluminous, a liver, lungs, and heart. Like the muscle, it is self-impregnated; and the shell, which the animal soon acquires, serves it for its future habitation. Like the muscle, it opens its shell to receive the influx of water; and, like that animal, is strongly attached to its shells both above and below. However, in many particulars it differs from the muscle. In the first place, its shells are

not equal, the one being cupped, the other flat: and on the cupped shell it is always seen to rest; for if it rested on the flat side, it would soon be drained of its inclosed fluid. It differs also in the thickness of its shells, which are so strongly lined and defended, that no animal will attempt to pierce them. But though the Oyster is secured from the attacks of the small reptiles at the bottom, yet it often serves as an object to which they are attached. Pope-worms, and other small animals, affix themselves to the Oyster's sides; and in this manner continue to live in perfect security. Among the number of these adherents, there is a small red worm, often found on the shell; which some have erroneously supposed to be the male by which the spawn was impregnated.

The Oyster likewise differs from the muscle in being utterly unable to change its situation. The muscle is capable of erecting itself on an edge, and proceeding with a slow laborious motion; while the Oyster is wholly passive, and endeavours with all its might to continue fixed to one spot at the bottom. Rocks, stones, pieces of timber, or seaweeds, all seem adapted to give it a fixture, and to secure it against the agitation of the waves. Nothing is more common, in the rivers of the tropical climates, than to see Oysters growing even amid the branches of the forest. Many trees which grow along the margins of the streams, bend their branches into the water; and particularly the mangrove, which chiefly delights in a moist situation. To these the Oysters hang in clusters, like apples on the most fertile tree; and, in proportion as the weight of the fish sinks the plant into the water, where it still continues growing, the number of Oysters increase, and arrange themselves on the branches. Indeed, these shell-fish will attach themselves to any substance, and even to each other: this is effected by means of a glue peculiar to themselves, which, when it cements, the joining is as hard as the shell, and is broken with as much difficulty. The joining substance, however, is not always of glue: but the animal grows to the rocks, somewhat like the muscle, by threads; though these are only seen to take root in the shell, and not, as in the muscle, to spring from the body of the fish itself.

The spawn of Oysters, which is usually cast in May, appears at first like drops of candle-grease, and adheres to any hard substance on which it happens to fall: this is covered with a shell in two or three days; and in three years time the animal is large enough to be brought to market. As it invariably remains in the place where the spawn is first dropped, and grows without any other seeming food than the afflux of sea-water, it is the custom at Colchester, and other parts of the kingdom where the tide settles in marshes on land, to pick up great quantities of small Oysters along the shore, which, when first collected, are no broader than a sixpence: these are deposited in beds within the reach of the tide, and in two or three years grow to a tolerable size. They are said to be improved in their flavour by being thus sheltered from the agitations of the deep; and a mixture of fresh-water entering into these repositories, probably assists their growth, their fatness, and their taste.

Oysters, however, which are prepared in this manner, are by no means so large as those found sticking to rocks at the bottom of the sea, usually called rock-oysters: these are sometimes eight or nine

nine inches in diameter, and are admired by some as excellent food. But, large as these may appear to such as have only seen those which are conveyed to all parts of this island in barrels, their dimensions are trifling, when compared with the Oysters of the East Indies, some of whose shells are two feet over. One of the Oysters found along the coast of Coromandel is capable of furnishing a plentiful repast to eight or ten men; but it seems to be universally agreed, that they are no way comparable to those of Europe for delicacy and flavour.

Oysters were early introduced among the luxurious Romans: those of the Lucrine Lake were most admired; 'for,' says Pliny, 'the British Oysters were not known till this country had been frequently visited.' The ancients ate their Oysters raw, and sometimes roasted: they had also a custom of stewing them with mallows and docks, or with fish, and esteemed them very nutritive.

The Oysters of Britain have ever gained a decided preference over those of every other country. Most of our coasts produce them naturally; in such places they are taken by dredging; and are become a considerable article of commerce, both raw and pickled. Their very shells, when calcined, become an useful absorbent; and, in common with other shells, afford an excellent manure.

As Oysters are so generally admired, it cannot fail of affording both entertainment and instruction to the reader to transcribe an account of the whole treatment of these shell-fish, as preserved in the learned Bishop Sprat's History of the Royal Society.

'In the month of May,' says he, 'the Oysters cast their spawn, which the dredgers call their spat; it is like to a drop of candle, and about the size of an halfpenny.'

'The spat cleaves to stones, old oyster-shells, pieces of wood, and such like things, at the bottom of the sea, which they call cultch.'

'Tis probably conjectured, that the spat, in twenty-four hours, begins to have a shell.

'In the month of May, the dredgers, by the laws of the Admiralty-court, have liberty to catch all manner of Oysters, of what size soever.'

'When they have taken them, with a knife they gently raise the small brood from the cultch, and then they throw the cultch in again, to preserve the ground for the future, unless they be so newly spat, that they cannot be safely severed from the cultch; in that case, they are permitted to take the stone or shell, that the spat is upon, one shell having many times twenty spats.'

'After the month of May, it is felony to carry away the cultch, and punishable to take any other Oysters, unless it be those of size; that is to say, about the bigness of an half-crown piece, or when the two shells being shut, a fair shilling will rattle between them.'

'The places where the Oysters are usually caught, are called the Pont-Burnham, Malden, and Colne waters; the latter taking it's name from the river of Colne, which passeth by Colne Chester, gives name to that town, and runs into a neck of the sea at a place called the Hythe, being the suburbs of the town.'

'This brood, and other Oysters, they carry to creeks of the sea, at Brickel Sea, Mersey, Langno, Fingrego, Wivenho, Tolesbury, and Saltcoafe, and there throw them into the channel, which they call their beds or layers, where they grow and

fatten, and in two or three years time the smallest brood will be Oysters of the size aforesaid.

'Those Oysters which they would have green, they put into pits, about three feet deep in the salt-marshes, which are overflowed only at spring-tides, to which they have sluices, and let out the water till it is about a foot and a half deep.'

'These pits, from some quality in the soil, cooperating with the heat of the sun, will become green, and communicate their colour to the Oysters that are put into them in four or five days, though they commonly permit them to continue six weeks or two months, in which time they will be of a dark green.'

'To prove that the sun operates in the greening, Tolesbury pits will green only in summer; but that the earth hath the greater power, Brickel Sea pits green both winter and summer; and, for a farther proof, a pit within a foot of the greening pit will not green; and those that did green very well, will in time lose their quality.'

'The Oysters, when the tide comes in, lie with their hollow shell downwards; and when it goes out, they turn on the other side; they remove not from their place, unless in cold weather, to cover themselves in the ooze.'

'The reason of the scarcity of the Oysters, and consequently of their dearness, is, because they are of late years bought up by the Dutch.'

'There are great penalties by the Admiralty-court laid on those that fish out of those grounds which the court appoints, or that destroy the cultch, or that take any Oysters that are not of size, or that do not tread under their feet, or throw upon the shore, a fish which they call a five-finger, resembling a spur-rowel, because that fish gets into the Oysters when they gape, and sucks them out.'

'The reason why such a penalty is set on any one that will destroy the cultch, is, because they find that if that be taken away, the ouse will increase, and the muscles and cockles will breed there, and destroy the Oysters, they having not whereon to stick their spat.'

'The Oysters are sick after they have spat; but in June and July they begin to mend, and in August they are perfectly well. The male Oyster is black sick, having a black substance in the fin; the female white sick, as they term it, having a milky substance in the fin. They are salt in the pits, salter in the layers, but saltest at sea.'

To this account we beg leave to add a short, but more modern history of Oysters, extracted from the History of Rochester, published in 1776.

'Great part of the inhabitants of Stroud,' says the historian, 'are supported by the fisheries, of which the Oyster is most considerable. This is conducted by a company of free dredgers, established by prescription, but subject to the authority and government of the mayor and citizens of Rochester. In 1729, an act of parliament was obtained for the better management of this fishery, and for confirming the jurisdiction of the said mayor, and citizens, and free dredgers. The mayor holds a court of admiralty every year, to make such regulations as shall be necessary for the well-conducting this valuable branch of fishery. Seven years apprenticeship entitles a person to the freedom of this company. All persons catching Oysters, not members of the fishery, are liable to a penalty. The company frequently buy brood or spat from other parts, which they lay in this river, where they soon grow to maturity.'

Great

Great quantities of these Oysters are sent to London, to Holland, Westphalia, and the adjacent countries.

The Oyster affords a very pleasing entertainment in microscopic observations. In the clear liquor many little round animalcules have been found, whose bodies being conjoined, form spherical figures, with tails, not changing their place otherwise than by sinking to the bottom, as being heavier than the fluid; these have been seen frequently separating, and then coming together again. In other Oysters, animalcules of the same kind were found not conjoined, but swimming by each other; whence they seemed in a more perfect state, and were judged by Lewenhoeck to be animalcules in the roe or semen of the Oyster.

A female Oyster being opened, incredible multitudes of small embryo Oysters were seen, covered with little shells, perfectly transparent, and swimming along slowly in the liquor; and in another female, the young ones were found of a browner colour, and without any appearance of life or motion. However, Lewenhoeck's observations, with regard to the sexes of Oysters, are not generally received in this age of more accurate enquiry: it is now commonly believed that they are self-impregnated, and that the distinction of sexes is only founded on hypothetical grounds.

OYSTER-WORM. An appellation given by naturalists to a kind of small Worm found in Oysters, which shines in the dark like the glow-worm, but with an universal light, and not in part only.

M. De Lavoye first discovered these Oyster-Worms; who, communicating his observations to M. Auzout, gave occasion to a very distinct account of them from this last-mentioned gentleman. The first thing that presents itself on the opening of the Oysters which contain these Worms, is only a sort of shining clammy moisture, appearing like a star of a blueish colour; and which, being drawn out, will extend itself to near half an inch in length, and shine as much for that whole length as in the contracted state: it will also exhibit it's radiance for some time after it is taken out of the Oyster.

On a more minute investigation, these shining substances are found to be real living Worms, of which there are three distinct species. One sort is whitish, and has twenty-four or twenty-five feet on each side; there is a black speck on one side of the head; and the back exactly resembles that of an eel when the skin is stripped off. The black speck in the head is unquestionably an eye, and it is remarkable that the creature has but one. The second sort of these Worms is red: the body is composed of several rings; the nose is like that of a dog; and, like the former, it has but one eye, and a similar number of feet. The third sort is very different from the other two: it is speckled; and it's head has a tuft of hair on each side.

There are other Worms found in the Oyster; particularly a large greyish one, with two horns, a large head, and seven or eight whitish feet; but these do not shine. This light more frequently occurs in large than in small Oysters.

P.

PACA; the *Mus Paca* of Linnæus. This animal is of the Guinea-pig kind; it has the general characters of the rat tribe; and the voice and hair of the hog. It is about the size of a hare; and in figure somewhat resembles a young pig, to which it also approaches in it's voice and manner of eating. But, of all other animals, it bears the strongest similitude to the agouti: like that animal, it is covered rather with coarse hair than a downy fur; but then it is beautifully marked along the sides with small ash-coloured spots, on an amber ground; whereas the agouti is nearly of one reddish unvarying colour. The Paca is likewise thicker and more corpulent than the agouti; it's nose is shorter; and it's hind-feet have five toes, whereas the latter has but three. In other respects the Paca bears some distant resemblance to the rabbit: the ears are naked, and somewhat sharp; the lower jaw is a little longer than the upper; and the teeth are like those of a rabbit. It has likewise a short tail, but not tufted; and the hinder legs are longer than the fore. It also burrows in the ground like that animal; and, from this similitude, it has sometimes, though improperly, been denominated the American rabbit.

The Paca does not use it's fore-paws, like the squirrel or the agouti, to carry it's food to it's

mouth; but hunts for it on the ground, and roots like a hog. It generally frequents the banks of rivers in the warm and moist climates of South America, where alone it is found. It becomes very fleshy; and, being dressed like a young pig, is considered as a peculiar delicacy.

Like the agouti, the Paca defends itself to the last extremity; and is very seldom taken alive. It is persecuted not only by man, but by every beast and bird of prey, which are all observant of it's motions; and, if it ventures at any distance from it's hole, are sure to seize it.

But though the race of these little animals is thus continually destroyed, they find some refuge in their holes from the general combination; and multiply in such prodigious numbers, that the devastation is scarcely perceptible.

A variety of this animal, of a beautiful white colour, is found on the banks of the River St. Francis.

PACAMO. A long-bodied fish of the mussel-kind, commonly caught among such rocks as line the shores. It is usually about nine inches long, growing narrower and smaller towards the tail: the head is large, broad, and thick; the mouth is shaped like a crescent; and it has very solid, but blunt teeth.

PACOS; the *Camelus Pacos* of Linnæus. A kind of camel, usually, but very improperly, accounted a species of sheep; and known to many under the name of the Indian or Peruvian sheep. The hair of this animal, which resembles wool, very probably gave rise to the idea that it was a sheep; but its head and neck alone contain more hair than the whole body of our largest sheep; its body is also clothed in the same proportion with fine woolly hair of the colour of dried roses, or a dull purple; but its belly is white; and, in a domestic state, the colours vary.

The Pacos nearly resembles that species of camel commonly distinguished by the appellation of Glama; but is much smaller, and much less tractable and useful: it is therefore seldom employed in carrying burdens; but is principally kept for the sake of its wool and flesh; the former of which is extremely valuable, and the latter is accounted delicious food.

These animals live in large herds, are very timid, and excessively swift. The Indians catch them in a very singular manner: they tie cords, with bits of wool or cloth suspended from them, about three or four feet from the ground, across the narrow passes of the mountains; and then drive the animals towards them, which are so terrified by the fluttering of the rags, that they never attempt to pass, but huddling together, give the hunters an opportunity of killing as many as they think proper.

The Pacos yields a bezoar: Wafer says that he has found thirteen in the stomach of a single animal; all of which were rough on the surface, of various figures, and of a green colour at first, but afterwards cinereous.

PACQUING. A Philippine appellation for a small bird of the sparrow kind, adorned with very elegant plumage.

PÆCILIA. A name given by Schonoveldt, and some other authors, to the *mustela fossilis* of naturalists in general. It is properly a species of cobitis; and is distinguished by Artedi under the name of the blueish cobitis, with five longitudinal black lines on the body.

PAGEL. A Spanish appellation for the fish called by the generality of authors erythrinus, or rubellio; and by some, xathus and pagrus. It is properly a species of sparus; and in the Artedian system is distinguished from the rest of that genus by the name of the silver-eyed red-bodied sparus.

PAGRUS; the *Sparus Pagrus* of Linnæus. A marine fish, known in English by the name of the sea-bream, and the red gilt-head. It is a pretty large fish, sometimes weighing ten or twelve pounds: it is very broad in proportion to its length; the head is flattened at the top; the irides are silvery; the skin, at the extremity of the dorsal and anal fin, is corrugated, and hides the last rays; the scales are large; the tail is bifid; and the whole body is of a red colour.

This fish is commonly caught in the Mediterranean; and its flesh is generally accounted very delicate.

PAGRUS is also a term used by Cuba, and other ichthyologists, to express the fish commonly called dentex, the synodon and synogris of the Greeks. It is a species of sparus; and in the Artedian system is accurately defined by the name of the variegated sparus, with a sharp back, and four large teeth.

PAGRUS is likewise applied by Jovius, and some others, to express the fish more commonly called erythrinus and rubellio. It is of the sparus kind, and distinguished by Artedi under the appellation of the silver-eyed red-bodied sparus.

PAGRUS INDICUS. A name given by some ichthyologists to an oriental fish, more usually denominated brama faxatilis.

PALALACA. A Philippine appellation for a bird common in those islands, somewhat resembling the upupa, or hoopoe. From the description which Father Camelli gives of this bird, it seems evidently to be a species of wood-pecker of a very large and beautiful kind.

PALAPARIJA. A species of East Indian serpent, found in the island of Ceylon and some other places. It is very large, and beautifully variegated with the most vivid colours; but we are not informed whether it is poisonous or not.

PALLIUM DUCALE. An appellation given by conchologists to a species of pecten or scallop, of a large size and beautiful though simple colour. There are two species; one is red, and the other yellow.

PALM-TREE WORM. A West Indian insect bred in the heart of the palm-tree after being cut down. This creature is as thick as a man's finger, and about two inches long. When viewed by the naked eye, neither intestines nor vitals are perceptible; but they may be easily discovered by the help of the microscope. The head is black, and attached to the body without any neck.

The French, whose capricious taste inclines them to feed on every thing that has life, roast these insects before the fire, by passing a small wooden spit through them; and, when they begin to be hot, powder them with a crust of rasped bread, mixed with salt, pepper, and nutmeg. This powder keeps in the fat, or at least absorbs it; and, when sufficiently roasted, they are served up at their tables with orange juice. However nauseous such a dish may appear to us, the French consider it as a peculiar dainty.

PALMER-WORM. An appellation given to a numerous class of nascent insects of very different species, the most curious of which only are noticed.

PALMER-WORM, BLACKISH BODIED, WITH WHITE SPOTS ON THE SIDES. The hair on the under part of the body of this species is of a saffron-colour; and on the upper parts grey, except three rows on the neck near the head, which are of the same colour with the belly.

PALMER-WORM, REDDISH BAY. The sides of the belly in this species are of a greyish colour; and the body is variegated with yellow spots, of a deep black colour above, from which proceed filiform rays of a yellowish tinge. This insect is very injurious to grass and corn.

PALMER-WORM, GREY. This species is wholly of a greyish colour, except in the incisures, some of which are black, and others white. The bristles, both above and below, are placed like the teeth of a saw, and are very rough and strong.

PALMER-WORM, BLACK, WITH YELLOWISH HAIRS. This species has a sort of pencil on each side of the forehead; and another on the rump, of a very black colour: there are also cuneiform hairs on the back, with white roots; but the other parts are blackish.

PALMER-WORM, VARIEGATED. This species has black, blue, green, and yellow lines, running longitudinally,

longitudinally, between which there are several golden-coloured spots; and the hair, which is very soft, is of a vivid green colour.

PALMER-WORM, HAZEL. This species, which is entirely of a dusky green colour, except a few black spots, and a rose-coloured horn projecting from the rump, is chiefly found on the leaves of the hazel-tree. There are two varieties; one of which is of a deep, and the other of a light green hue.

PALMER-WORM, BLACK-FACED. On the forehead of this species there are two hairy horns, instead of feelers, serving perhaps for the same purpose; and two similar ones on the rump or tail. The skin is adorned with a variety of the most beautiful colours; and marked with roundish purple spots, appearing like so many studs, running along each side. The hair has a very brilliant appearance, and a very pleasing effect when exposed to the rays of the sun.

PALMER-WORM, PEAR-TREE. The head of this species is as black as ink; the body is furrowed with black, red, and white; and from the shoulders, almost to the extremity of the back, there are livid tubercles speckled with white. The egg from which this proceeds is of a reddish bay-colour, as is also the aurelia. It feeds on the buds of pear-trees, and hence receives its name.

PALMER-WORM, NETTLE. The feet of this insect are of a dull yellow colour; but the rest of the body is wholly black. The hairs are erect, and terminate in a sort of points, which wound the fingers when touched, exciting an itching at first, and afterwards an intolerable pain.

PALMER-WORM, HEDGE. The head of this species is saffron-coloured, except that there is a whitish triangle on the snout; the body is variegated with red, white, yellow, and black stripes or spots, irregularly disposed; and the hair is of a yellowish tinge. This insect lives among hedges, which it commonly strips of their leaves.

PALMER-WORM, CRANE'S BILL. This species is pretty large; and adorned with black belts spotted with white, appearing at first sight of an iron-grey colour. The belly and feet are white; and the spaces between the belts or girdles are of a light green hue. It feeds on a variety of herbs, but more particularly on that called Crane's Bill.

PALMER-WORM, HEDGE-HOG, The body of this species is chequered and variegated with black and yellow; and its spines or horns are yellowish,

PALMER-WORM, HEDGE-HOG, VARIEGATED. The fore-part of the body in this species, as far as the middle of the back, is of a yellowish black colour; but the hinder part is of a whitish yellow; and it has hard thick blueish spines or thorns.

PALMIPEDES. A genus of aquatic fowls, furnished by nature with feet adapted for swimming. The distinguishing characters are: that they have all short legs, excepting the flamingo, the curra, and avosetta; that their thighs are feathered to the joint; that their hinder toes are extremely short; that their rumps are less prominent than in other birds; and that in general they have broad beaks, with an appendage at the extremity of their upper mandible.

PAMPUS. A very curious fish described by Sir Hans Sloane, about six inches long, and four and a half broad in the middle part. It is roundish near the head, and from thence to the tail becomes gradually more slender. The tongue is

round, fleshy, and spotted; and the jaws are armed with small sharp teeth. The eyes, which are large, are surrounded with ample silvery irides. There are four fins; one beginning on the middle of the back, and ending at the tail; the second running from the vent to the tail; and there are two long ones at the gills. The tail is bifid, and about two inches and a half in length; and an arched line extends along the upper part of the side, which is straight in the middle. It is entirely covered with small white scales. The belly is round; and the bones are sharp, and beset with teeth very singularly arranged.

PAMUCHLEN. An appellation given by some ichthyologists to that species of cod-fish more commonly called *afellus striatus*.

PANAMA SHELL. A name used by conchologists to express a species of *dolium*.

PANGOLIN; the *Manis Pentadactyla* of Linnæus. This animal, which some, though improperly, have denominated the scaly lizard, is a native of the torrid climates of the ancient continent, where it feeds on lizards and insects, and is esteemed very delicate food. The back, sides, and legs, are covered with blunt scales beset with bristles; the ears somewhat resemble the human; and the skin, belly, and insides of the legs, are hairy. The body is between three and four feet long; and the tail is nearly of the same length. See **MANIS**.

PANORPA. A classical appellation for the scorpion fly.

PANTHER; the *Felis Pardus* of Linnæus. This animal has short smooth hair of a bright tawny colour; the back, sides, and flanks, are elegantly marked with black spots, disposed in circles, about four or five in each; the face and legs have only single spots; the top of the back is adorned with a row of oblong spots; the chest and belly are white, the former being marked with transverse dusky stripes, and the belly and tail with large irregular black spots. The ears are short and pointed; the extremity of the nose is brown; the limbs are strong and muscular; and the body is about six feet long, from the tip of the nose to the insertion of the tail.

The Panther has frequently been mistaken by naturalists for the tiger; and indeed it approaches next to it in size, in beauty, in cruelty, and in its general enmity to the animal creation. It is, however, spotted, and not streaked like the tiger; in which particular that animal differs also from the leopard, and most of the inferior ranks of the feline family.

This creature inhabits Africa, from Barbary to the remotest parts of Guinea. It seems to hold the same rank in Africa that the tiger does in Asia; with this difference only, that it prefers the flesh of other animals to that of men; but, when pressed by hunger, it indiscriminately attacks every creature endued with life. Like the tiger, it always seizes its prey by surprize; and frequently climbs trees in pursuit of monkeys and smaller animals. It is an untameable species; always retaining its fierce, malevolent aspect; and a continued kind of growl or murmur.

The ancients appear to have been well acquainted with these animals; and it might have been naturally supposed that the Romans would have cleared the African deserts of them, by reason of the prodigious numbers they drew from thence for their public shows. Scarus exhibited

one hundred and fifty Panthers at one time; Pompey the Great, four hundred and ten; and Augustus, four hundred and twenty. But though they thinned the Mauritanian coast of these creatures, they still swarm in the southern parts of Guinea.

PAPAN. An appellation given by the inhabitants of the Philippine islands to a species of duck common in the marshes and lakes. It is a very large and beautiful creature; and therefore called by Father Camelli *anas regia*, or the royal duck.

PAPHIS. A name by which some ichthyologists have expressed the gar-fish.

PAPILIO. The general name of a numerous genus of four-winged insects of the lepidoptera order; comprehending, according to Linnæus, no less than two hundred and seventy-three species; distinguished by clavated antennæ; commonly known under the appellation of butterflies and moths, though Linnæus classes the moth under a distinct genus.

The arrangement of these insects into genera and classes is in a great measure taken from the peculiar conformation of their feelers, wings, and trunks, and the manner in which they use them. The most obvious distinction is that which divides them into the night and day kinds, of which the former are generally reputed the most numerous: we often meet with them even in our houses, flying about the candles; and every hedge swarms with them by night; while by day they lie concealed under the leaves of plants, and often appear in a torpid state. In this condition they remain till the evening; but they hide themselves so artificially, that it is difficult to espy one, even in a situation where there are numbers. The way to discover them consists in beating and disturbing the bushes, or shaking the branches of trees in places where they are suspected to lodge, which will force them out in swarms. In this case, however, they never take long flights, but settle again on the first tree or bush which they approach. Naturalists have appropriated the names of night-butterflies, moths, and phalænæ, to express this class.

The several kinds of butterflies which have those various inclinations, have also external characters by which they may be distinguished: all those which have clavated or clubbed antennæ, are of the diurnal kind, and are never seen voluntarily flying during the night. There are also some other varieties in the formation of the antennæ of day-butterflies; while the nocturnal ones are distinguished by having the plumose, the prismatic, or the conic ones.

Those which are observed to flutter round lighted candles are always of one of these three kinds. It is not, however, to be absolutely affirmed, that no one of these kinds is ever seen flying by day-light, since in woods and thickets they are often seen fluttering about, without having been disturbed; but all that are at this season in motion are males, in quest of females, which are immoveably fixed under the leaves and on the branches of trees.

Those beautiful painted insects which we see fluttering about flowers by day, and enlivening the summer scene, are all of the diurnal kind: a few species indeed of the phalænæ sometimes flutter about thistle-flowers, and seem to extract their juices; but these are seldom seen; and among the

moths, or night kinds, as they are commonly called, there are a great many that never make any use of their wings.

The male of the glow-worm flies around a candle in a similar manner with the moth, imagining it to be the light of his female; and it is also possible that the female moths may, in the night, yield a light capable of affecting the eyes of the males, though imperceptible to us.

The grand divisions of butterflies into day and night kinds being made, it is necessary to have recourse to other sub-distinctions, in order to arrange them in any method; and these can by no means be taken from them in their prior state of caterpillars, many of them being in that stage of their existence exactly similar in their general characters, though of different genera in their flying state.

As the antennæ serve to distinguish butterflies into classes, so do their trunks into genera; but these are only capable of discriminating a few, the flat and the round being their principal distinction. Reaumur has observed, that all diurnal butterflies have these trunks, but that many of the nocturnal ones want them. The wings, however, afford the greatest variety of general characters among these animals: the shape of these, and the manner in which they are carried when in motion and at rest, serve as great and essential distinctions.

The above-mentioned naturalist, of all others, has made the most curious and accurate observations on the differences in the manner that butterflies carry their wings. He observes, that some of the species carry their wings perpendicular to what they rest on; that others carry them plain or level with the horizon; and that others again let them fall below that level, and are called the drooping-wing kind: some others form a sort of canopy with them, for the covering of their bodies; and others place them in such a manner as to embrace their bodies. The colours of the wings make excellent distinctions for the several species; but these are not always proper for general discriminations.

It has been previously observed, that there are three kinds of antennæ peculiar to the day-butterfly; but the distinction under these alone would be too large, the species of the button-horned ones being alone much too numerous to be thrown into one assemblage: it is therefore necessary to admit the positions of the wings according to the preceding differences, and hence the day-butterflies or papilios are thus distinguished into seven classes.

The first class contains those papilios whose antennæ are terminated by buttons; and whose wings, when at rest, are placed in a perpendicular direction to what the insect sits on; the under edges of which embrace the lower part of the body; and whose legs are all employed in sustaining the body, and in walking. The black-spotted white butterfly, produced from the beautiful cabbage-caterpillar, is a papilio of this class.

The second class comprehends those papilios which agree in all respects with the former, except that they use only four of their legs in sustaining their bodies, and in walking: the two anterior legs in the flies of this class are held in a bent posture; and are furnished with a downy part at their extremities, which seem to serve as a kind of arms. These papilios are in general produced from

from the prickly caterpillars. The solitary nettle kind affords us an instance of its papilio.

The third class includes those papilios which agree in every respect with the former, except that their two anterior legs, which they use as arms; and never in walking, are not terminated by downy ends, but are shaped in a similar manner with the other legs at their extremities; only so small, that they can be distinguished by a microscope alone. The common grey and yellow papilio, which is usually found in pasturage about June, July, and August, furnishes an instance of this class.

The fourth class contains those papilios which have buttoned antennæ, like the rest of the tribe; and which carry their wings, when at rest, in a perpendicular direction to the object on which they sit: but as the former have the inferior edge of their wings bent round the under part of their bodies, so in these the inferior edge is bent upwards in both pair of wings, and embraces and covers the upper part of the body. However obvious this distinction may be, there is another still more evident one in this, namely, that the papilios of this class have one of the jaggs of the wings so far extended beyond the rest of the verge, that it forms a kind of tail; and hence these are sometimes denominated tailed-butterflies.

The fifth class is composed of those papilios which have six real legs, all used in walking; and clavated horns, as the rest; but whose wings, when in repose, are not elevated perpendicularly to the object on which they sit, as in the preceding classes, but are held in a horizontal direction, or at the utmost never meet in an angle over the back. The papilio bred from the smooth caterpillar of the marsh-mallow supplies us with a specimen of this class.

The sixth class comprehends those papilios which have club antennæ; that is, such antennæ as gradually increase in thickness from their origin to their extremity. These consist of that class of papilios which are always on the wing, and continually buzz about flowers, without ever settling on them: they dart their trunks into the flowers while they sustain themselves in air, and possess the faculty of poisoning themselves like birds of prey; but while they are engaged in extracting the juices of the flowers, their wings are kept in perpetual motion, and they make a humming noise like the humble bee.

The seventh and last class comprehends those papilios which have their antennæ large at their origin, smaller afterwards, and finally terminated by an oval head; and which differ from the club antennæ in having no pencils of hair at the extremity. This class is by no means numerous; and the most frequent instance we have of it is in a painted papilio frequently seen on the blades of meadow-grass in July.

For a particular description and enumeration of some of the most beautiful and curious species of the papilio tribe, see BUTTERFLY.

PAPILIO-MUSCA. An appellation given by some naturalists to a series of small insects, apparently of a middle nature between the fly and butterfly classes. Its wings are partly covered with those scales, in form of meal, which render the wings of the butterfly kinds opaque; and they are partly transparent and glossy.

PAPILION-BOURDON. A name by which French naturalists express a kind of butter-

flies, which, while they feed on the wing, emit a humming noise like that of the humble-bee.

PAPILION-A-QUEUE. Tailed Butterflies. An appellation by which the French express a sort of butterfly; of which there are several varieties. The sides of the wings are jagged; and one of the jaggs extends so far beyond the rest, that it exhibits the appearance of a natural tail.

PAPIO. A distinctive appellation for that genus of monkeys usually denominated baboons. By this term is commonly understood those animals which have tails, but vastly shorter than in the monkey tribe.

In the Linnæan system, these are all species of the Simia. The Ribbed-nose Baboon, the Simia Maimon of Linnæus, which inhabits Guinea; the Little Baboon, the Simia Apedia of Linnæus, inhabiting India; and the Pig-tail Baboon, the Simia Nemestrina of Linnæus, found in Sumatra and Japan; are the most curious and best known species.

PARADISE, BIRD OF. In the Linnæan system, this constitutes a distinct genus of birds of the order of picæ: the distinguishing characters of which are; that there are two singular, and extremely long feathers, neither inserted in the wings nor rump; and that the beak is covered with a kind of woolly feathers. Of these, the above great naturalist enumerates three species; the Apoda, or Manucodiata Major of others, found in the Molucca islands; the Rogia, or Manucodiata Minor of Brisson, inhabiting Amboyna; and the Tristis, which is discovered in the Philippine islands. However, other naturalists extend the catalogue of species; and in particular Sonnerat, from whose observations and discoveries we have enriched this work, describes some of the most beautiful birds of this kind that have ever fallen under the notice of an ornithologist.

Many fabulous accounts have been propagated concerning this elegant tribe; particularly that they had no legs; that they subsisted solely on dew; that they were incessantly on the wing; and had no other way of resting but by poisoning themselves in the air; that they were never taken alive; and that the male had a cavity in his back, in which the female laid her eggs, and hatched her young. But those descriptions, as well as other similar ones, are undoubtedly erroneous: the extreme beauty of this bird gave rise to fabulous embellishment; and the very shadow of descriptive truth was for some time lost. But Birds of Paradise are now well known; they are found to be of the predaceous kind; and possessed of the various instincts adapted for a life of plunder.

For a description of the most elegant and curious species, see BIRD OF PARADISE.

PARÆA. An appellation sometimes given to that species of serpent called anguis *Æsculapii*. It is perfectly free from any poisonous qualities; and is so little dreaded by the natives of those countries which it inhabits, that it is permitted to range about their houses, and sometimes ascends their beds. The mouth is full of small teeth; and, when extremely provoked, it will bite; but the wound which it inflicts is never attended with any dangerous symptoms.

This serpent grows to a considerable length; its sides are of a yellowish green colour; its back is blackish; it has two small eminences on its neck; and behind them two small sinews. It is

Very common in Spain, Italy, and other warm countries.

PARAGUA. A species of Brazilian parrot, about the size of the common green parrot: the back is entirely black; the breast, and the fore-part of the belly, are of a beautiful red colour; the eyes are black, with red irides; the beak is brown, or dusky grey; and the legs and feet are grey.

PARAMECIUM. An appellation given by Hill to a genus of animalcules of the gymnia kind, and of an irregular oblong figure. There are several species.

PARANCARE. A species of crab, or rather lobster, about three inches long, which lives in a borrowed shell. The two fore-legs have nippers; and besides these there are eight more, the four foremost being three inches long, and the rest considerably shorter. The tail is one inch and a half long; and the eyes are long and prominent. It has two barbs composed of tufts of hair. The body is covered with a dark chestnut-coloured skin; the tail is of the same colour, streaked with black; the lower part of the body is blueish, as are the eyes and barb; and over every part there are ochre-coloured hairs. The shell in which it resides is about four inches long, turbinated, and of a paleish yellow colour.

PARATI. A Brazilian fish of the mullet kind, resembling that species called curema and taintra in every respect but size, and the colour of its eyes, the irides of which are of a fine yellow hue, whereas those of the curema are silvery. The flesh, when dressed, is also drier than that of the curema.

PARDALIS. An appellation given by some ornithologists to the bird more frequently called phivalis, and known in English by the name of the grey and green plover. It is about the size of the lapwing, and is much esteemed for the table.

PARDALIS is also a name used by some naturalists to express the leopard; called also pardus, panthera, and varia. It is distinguished from the lion by its variegation of colours; and from the tiger by the disposition of those colours, which on the back, sides, and flanks of this animal, are always in round spots; and on the ridge of the back there is a row of oblong spots. The leopard is inferior to the tiger in size; but, in cruelty, and general enmity to the animal creation, is nearly its equal. It inhabits Africa, from Barbary to the remotest parts of Guinea.

PARDUS. An appellation whereby some express the leopard; which, by the more accurate writers, is generally called Pardalis.

PARDUS is also a name used by conchologists to express a kind of shells of the genus of voluta. There are three known species: a voluta spotted with black; another spotted with yellow; and a third very elegantly marked with red. They are called Pardi, or leopard-shells, from their distinct spots resembling those of the leopard.

PARGIE. The name of an American fish, which differs from the European sea-bream in little else besides the shape of the fore-part of the body, which is almost circular, and of a greyish colour with streaked yellow lines reaching from the head to the tail.

PARNOPS. A species of wasp, frequently found in vineyards, and among vine-presses, particularly in hot countries. It is distinguished

from all other wasps by the roundness of its body, which is not slender nor flattened in the common way, but round and tumid.

PARROQUET. A distinctive appellation for a class of the parrot kind, which are smaller than the common parrots, and furnished with longer tails. There are a great variety of species.

PARROQUET, RED-BREASTED; the *Psittacus Hæmatodus* of Linnæus. The bill of this bird is of a yellowish white colour, with a very narrow skin over the upper part, in which the nostrils are placed; the upper edge of the mandible is moderately hooked, and the edges on the outside are waved. The feathers all round the bill are blue, and extend a little way over the crown; the sides of the head, and its hinder part, are green; and round the extreme part of the neck there is a yellow ring, below which the neck is green all round. The back, the rump, the upper sides of the wings, and the tail, are all of a fine vivid green hue; the breast is of a beautiful reddish orange-colour; and the belly below it, with the under-sides of the wings, are of a dark green, slightly intermixed with red. The thighs, the lower belly, and the coverts under the tail, are yellow interspersed with green; the under-sides of the tail-feathers are of a dirty yellow hue; the small feathers on the ridge near the joints, on the inside of the wings, are yellow; the covert-feathers that succeed them are red; and the inside of all the quills have their tips and bottoms of a dusky colour, the inner webs of the longer quills being yellow in the intermediate space, and those of the shorter quills next the body reddish. The legs, feet, and claws, are of a dusky or blackish colour; and their make and position resemble those of other birds of the same class. This species is a native of the East Indies.

PARROQUET, LORY; the *Psittacus Ornatus* of Linnæus. This bird is about eight inches in length: the bill is of a bright orange colour; the irides are reddish; and a bare ash-coloured skin surrounds the eyes. The crown of the head is covered with dark feathers of a fine blue gloss; and behind them there is a crescent of scarlet, with its horns pointing towards the eyes. The ears are covered with plats of dark blue feathers, behind which they are yellow. The sides of the head below the eyes, as well as the throat and breast, are covered with scarlet; but the breast-feathers are tipped with a blackish green. The hinder part of the neck, the back, wings, and whole under-side of the body, are green, with a small mixture of yellow; and the feathers on the middle of the back, and the sides of the belly, are also tipped with yellow. Some of the wing-quills are edged with yellow, as well as those of the bastard-wing; but the remainder of the wing is entirely green, as are also the upper side of the tail and its coverts. The feathers are long on the middle, and gradually shorten towards the sides; the tail-feathers, on their under-sides, are green at the bottoms, and of a yellowish green at the tips; and the feet, legs, and claws, are of a dark ash-colour.

This beautiful bird is also a native of the East Indies.

PARROQUET, GREEN, LONG-TAILED; the *Psittacus Rufirostris* of Linnæus. This species is about the size of a large thrush, and has a longer tail than ordinary in proportion to its bulk; the bill is of a flesh-colour; and the irides are externally

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nally reddish, but inclining to ash-colour next the pupil. The eyes are surrounded with a bare flesh-coloured skin; and the whole plumage is green, with a variety of shades inclining to other colours.

This is a West Indian bird.

PARROQUET, RED AND BLUE HEADED; the *Pittacus Canicularis* of Linnæus. This bird has a very long tail; and the bill is angulated on the edges of the upper chap. The eyes have yellow or orange-coloured irides, and are surrounded with a bare orange skin; the forehead, from the bill to the middle of the crown, is red; but the hinder part is of a fine blue colour, which softens into green. The quills of the wings, except a few next the back, are tipped with a pretty deep blue on their outer webs; but the insides of the quills are of a dark ash-colour. The under-side of the tail is of a dusky green hue; and all the other parts are green, except the legs and feet, which are of a whitish ash-colour, inclining to a flesh.

This species is also a native of the West Indies, and is sometimes taught to pronounce a few words with a pretty distinct articulation.

PARROQUET, BROWN-THROATED; the *Pittacus Æruginosus* of Linnæus. This species has an ash-coloured bill; and the nostrils are placed in a skin of the same colour at the base. The irides are of a yellowish hazel hue, surrounded with a bare ash-coloured skin; and a darkish blue bar crosses the middle of the crown of the head, and extends from eye to eye. The feathers on the forehead, the sides of the head beneath the eyes, the throat, and the fore-side of the neck, are entirely of a dusky brown colour; but the hinder part of the head and neck, the back, and the upper sides of the wings and tail, are of a lively green. The tips of the greater quills are blue above, and dusky beneath; the ridges of the wings above the joints, and the inner coverts, are of a yellowish green colour; the breast, belly, thighs, and covert-feathers under the tail, are of a light yellowish green; and the legs and feet are of a pale brownish flesh-colour.

This bird is found in the West India islands.

PARROQUET, RING, ROSE-HEADED; the *Pittacus Alexandri* of Linnæus. This species is ten inches long from the bill to the extremity of the tail, of which the tail measures upwards of one half; the upper mandible of the bill is hooked at the point, angulated on the sides, and of a buff colour; the lower mandible is of a dusky or blackish colour; and a narrow dusky skin falls over the base of the upper part of the bill, in which the nostrils are placed. The fore-part of the head, and round the eyes, is of a reddish rose-colour, which on the back part of the head gradually becomes blue. The feathers below the bill are black for the space of an inch; from which, on each side, a black line extends backwards, and surrounds the neck, dividing the head from the neck, which, with the upper wings, is wholly green, but darker on the upper side. On the upper part of the wing some of the smaller covert-feathers are of a dusky red colour, forming a large spot; the inner coverts of the wings are of a pale yellow green hue; and the insides of the quills are dusky. Some of the exterior webs of the quills are of a lightish yellow green colour; the tail is composed of blue feathers, terminating in points, those in the middle being pretty long; and the legs, feet, and claws, are cinereous.

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This curious and beautiful bird was brought from Bengal in the East Indies.

PARROQUET, YELLOW-FACED; the *Pittacus Pertinax* of Linnæus. The length of this bird is about nine inches and a half, of which the tail occupies six. It is a very lively little creature, and is capable of being taught to speak. The bill is of an ash-colour, remarkably hooked, and angulated or waved on the edges; and the skin in which the nostrils are placed is of the same colour. The irides are orange; and there is a bare space of a whitish skin encompassing the eye. The base of the bill, and the sides of the head about the eyes, are covered with yellow or orange-coloured feathers, redder next the bill, and of a lighter yellow the farther they are removed from it; the middle of the crown of the head, the hinder part of the neck, the back, wings, rump, and tail, are of a full grass green colour, except the greater quills of the wings, and a few of their coverts, which are edged on their outer webs with blue. The fore-part of the neck, the breast, belly, thighs, and covert-feathers beneath the tail, are of a lighter and yellowish green; the lower part of the belly is quite yellow; the inner sides of the quills, with the under-side of the tail, are of a dusky greenish colour; and the legs and feet are ash-coloured.

This species is a native of the West Indies.

PARROQUET, GOLDEN-CROWNED; the *Pittacus Passerinus* of Linnæus. This bird has a black bill; and the upper mandible is hooked at the point, and angulated at the sides. The skin at the base of the upper mandible is of a blueish flesh-colour, and in it the nostrils are placed; round the eye there is a skin of the same colour, without feathers; the irides, and a plat of feathers from the upper part of the bill to the crown of the head, are of a bright orange-colour; and the rest of the head, the neck, back, and upper sides of the wings and tail, are of a full darkish green. The throat is of a yellowish green colour, tinged with a reddish brown; and the breast, the belly, the sides under the wings, and the covert-feathers under the tail, are of a light yellowish green hue. A few of the quills are externally blue; and those on the first row of covert-feathers, which fall on the blue quills, are also of the same colour, forming a blue bar down the wings. The insides of the wings, and the under-side of the tail, are of a pickled olive colour; and the legs and feet are of a reddish flesh-colour.

This species, which is supposed to be a native of Brazil, is somewhat larger than a blackbird; and its tail is about three inches and a half long.

PARROQUET, LEAST, GREEN AND BLUE. This species is only about three inches and a half in length; the bill, and the skin at its base, are of a gold colour; and the upper mandible is hooked, and waved on the edges. The skin round the eyes, the legs, feet, and claws, are of a gold or orange-colour; and the entire conformation of the bill and feet evinces it to be perfectly of the parrot kind. The head, neck, back, and whole under-side, are of a full grass green colour, except the first row of the covert-feathers above the quills, which is of a fine deep blue. The exterior edges of the quills are of a light yellowish green; and the lower part of the back, and covert-feathers of the upper part of the tail, are of a sky-blue colour. The insides of the wings are of a greenish ash-colour, having a few fine blue feathers blended with the lesser coverts, round the hinge

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hinge or joint of the wings; and the tail is green, bright above, and fainter on the under side.

We have received no certain intelligence from whence this bird was brought. It was first described by Edwards, who acknowledges himself at a loss as to this particular.

PARROQUET, LITTLE RED-WINGED; the *Pfittacus* of Linnæus. This species is about eight inches long, including the tail, which measures nearly four. The bill is of a light flesh-colour; the irides are of a very dark hazel-colour, approaching to black; and the eye is placed in a plat of bare skin of a whitish colour. Immediately beneath the bill there is a fine spot of scarlet plumage; but the remainder of the head, and the neck, are of a full grass green hue; as are likewise the back, rump, and tail. The greater quills are dark green; and the covert-feathers of the wings are reddish, except the smaller feathers round the ridges of the wings, which are green. The breast, belly, thighs, and covert-feathers beneath the tail, are of a lighter green, more inclined to yellow than those on the upper side of the body; the legs and feet are of a light flesh-colour; and the toes are disposed as is usual in other parrots.

This elegant bird is a native of the Oriental climates.

PARROQUET, LITTLE RED-HEADED, OR GUINEA SPARROW; the *Pfittacus Pullarius* of Linnæus. This bird is about five inches long; the tail is short, and composed of feathers of an equal length; the bill is orange-coloured, and hooked at the point of the upper mandible; but there are no angles at the edges. The nostrils are situated between the feathers of the forehead and the bill, which is entirely surrounded with bright red or scarlet feathers, that occupy all the fore-head; the eyes are wholly black, surrounded with narrow spaces of bare skin of a light ash colour; the hinder part of the head, the neck, back, and upper sides of the wings, are of a beautiful green hue; and the throat, breast, belly, and covert-feathers under the tail, are of a lighter green, with a yellowish cast. The insides of the quills of the wings are of a dark cinereous colour, as are the exterior tips; the lesser covert-feathers within-side the wings are black; and the ridge of the wing above the joint is blue. The covert-feathers on the upper side of the tail are green; and the rump is covered with fine blue feathers. The two middle feathers of the tail are green; and the remainder are green near the roots or bottoms, which are succeeded by a transverse bar of scarlet; after that, a bar of black crosses the whole; and, last of all, the tips of the feathers are green. The covert-feathers of the tail, above and beneath, are so long, that the colours of the tail are not wholly perceptible unless a little spread; and the legs, feet, and claws, are of a dusky colour.

This beautiful bird is a native of Guinea, and pretty frequently imported into this country.

PARROQUET, RING; the *Pfittacus Alexandri* of Linnæus. The bill of this species is entirely red; the irides are orange-coloured; and a flesh-coloured skin encompasses the eyes. The top and sides of the head are green. A black line proceeds from the lower mandible of the bill a little way downwards; then parting into two lines, which turn backward on the sides of the neck, forms a black collar, almost uniting behind: on the hinder part of the neck, above this black ring, the plumage is

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blue; and under the black line passes a bar of red feathers. The quills, and covert-feathers next above them within-side the wings, are mouse-coloured; the lesser coverts are of a light blueish green hue; and on the lesser coverts without-side the wings there is a beautiful red spot. The body, both above and beneath, is green, though somewhat lighter on the under side; the back and upper sides of the wings being darker, and of a bluer green. The upper side of the tail is of a blueish green colour, the under side being of a dusky yellow or olive: the middle feathers measure thirteen inches; but they gradually shorten towards the sides.

PARROQUET, BLUE-HEADED. This bird is very probably the female of the preceding; its head is of a fine sky-blue colour; in other respects it generally agrees with the Ring Parroquet, being wholly green; but where that has a red spot on the wing, this has a yellow one: the upper side of the tail is also more blue; and the edges of the greater quills incline to blue.

This bird, and the Ring Parroquet, were both imported from the East Indies. The first, according to Willughby, is the *Pfittacus* of the ancients; and the only one known in Europe from the age of Alexander the Great to that of Nero.

PARROQUET, SAPPHIRE-CROWNED; the *Pfittacus Galgulus* of Linnæus. The bill of this bird, and the skin which covers its basis, are black; and the edges of the upper mandible are angulated. A small space of bare skin surrounds the eyes; the head and neck are green; and on the crown of the head there is a round spot of a fine blue or sapphire colour. On the lower part of the neck behind there is an orange-coloured crescent, dividing the neck from the back, which is green; and the wings, breast, belly, thighs, covert-feathers under the tail, and the tail itself, are also green. The quills are dusky at their tips both within and without; the inner webs of the quills are of a sky blue colour; and the covert-feathers of the wings within are of a light green. The throat is of a lively red colour; as are likewise the rump and the covert-feathers of the tail. The legs and feet are of a black or dusky colour; and the tail is composed of twelve feathers of equal lengths, which are almost concealed by the red coverts.

This species is a native of the island of Sumatra; and is one of the least and most elegant birds of the parrot kind in the world.

PARROQUET, GOLDEN-WINGED; the *Pfittacus Chrysoptrius* of Linnæus. This bird has a whitish bill; of which colour likewise is the skin surrounding the eye. The plumage, except some feathers on the wings, is wholly green, lighter on the under-side, and darker on the back, as is observable in all birds of the parrot kind. A few of the middle quills of the wings are of a fine golden or yellow colour, as are part of the first row of coverts immediately above those quills; and a few of the quills on each side of the golden ones have their exterior webs of a fine dark blue colour. The tips of the greater quills are dusky; the insides of the quills are dark blue; and the legs, feet, and claws, are of a light flesh-colour.

This bird is a native of the East Indies; and was first figured and described by Edwards from a living subject.

PARROT. An English appellation expressing the whole *psittacus* kind in general; but in a more limited

limited sense restricted to that class only which is of a middle size between the maccaw and the parroquet.

In the Linnæan distribution of nature, the Parrot makes a distinct genus of birds of the order of picæ; the distinguishing characters of which are: that the beak is hooked; that the upper mandible is furnished with a moveable cere; that the nostrils are situated in the base of the beak; that the tongue is fleshy, obtuse, and entire; and that the feet are formed for climbing. Linnæus enumerates forty-seven species.

The Parrot is the best known in this country of all foreign birds; and is deservedly admired, as it unites the greatest beauty with the greatest docility. Its voice also imitates the human more than any other bird's: that of the raven is too hoarse, and that of the jay and magpie too shrill to resemble the truth; but the Parrot's note is of the true pitch, and capable of a number of modulations that even some of the human race cannot attain.

The facility with which this bird is taught to speak, and the great number of words which it is capable of repeating, are no less surprising. A grave writer assures us, that one of them learned to repeat a whole sonnet from Petrarch; and Goldsmith asserts, that he saw a Parrot, the property of a distiller who had suffered pretty largely in his circumstances from an informer who lived opposite to him, that could pronounce, in a very distinct and audible voice, that part of the Decalogue, 'Thou shalt not bear false witness against thy neighbour.' The bird was generally placed fronting the informer's house, and amused the whole neighbourhood with its persevering exhortations.

Willughby relates a story, which is much less dull than the generality of those which are adduced when this bird's facility of speech happens to be the subject. 'A Parrot belonging to King Henry VII. who then resided at Westminster, in his palace by the River Thames, had learnt to talk many words from the passengers as they happened to take water. One day, sporting on its perch, the poor bird fell into the water, at the same time exclaiming, as loud as possible, 'A boat, twenty pound for a boat!' A waterman, who happened to be near, hearing the cry, made to the place where the Parrot was floating, and taking him up, restored him to the King. As the bird happened to be a favourite, the man insisted that he ought to have a reward rather equal to his services than his trouble; and as the Parrot had mentioned twenty pounds, he said that his majesty was bound in honour to grant it. The King agreed to leave it to the Parrot's own determination; which the bird hearing, cried out, 'Give the knave a groat.'

Parrots, which are so common in this country as foreign birds, are equally so as indigenous ones in those climates where they are produced. The forests swarm with them; and the rook is not better known with us than the Parrot is in almost every part of the East and West Indies. In vain have naturalists attempted to arrange the various species of this bird; new varieties daily present themselves to puzzle the system-maker, or to demonstrate the narrowness of his catalogue. Linnæus, as previously observed, makes the number of its varieties amount to forty-seven; while Brisson extends his catalogue to ninety-five; and per-

haps even this list might be increased, were every accidental change of colour to be considered as constituting a new species. But the fact is, natural history gains little by these discoveries; nor is the extension of its dominions to be considered as an advantage. It is asserted that the natives of Brazil can alter the colour of a Parrot's plumage by art; and as this may probably be the case, what an endless work is cut out for nomenclators!

Those who import Parrots are content to make three or four distinctions, to which they give names. The large kind, which are about the size of a raven, are called maccaws; the next size are simply called Parrots; those which are entirely white are denominated lories; and the lesser-sized ones are called parroquets. The difference between these consists rather in the size than in any other peculiar conformation; they are all formed alike, having two toes before, and two behind, for the purposes of climbing and holding; strong hooked bills, for breaking open nuts, and other hard substances on which they feed; and loud, harsh voices, whereby they fill their native woods with almost incessant clamours.

But there are other peculiarities in the conformation of these birds. First, their toes are contrived in a singular manner, which appears when they walk or climb, and likewise when they are eating: for the first purpose they stretch out two of their toes forward, and two backward; but when they take their meat, and bring it to their mouths with their feet, they dexterously and nimbly turn the greater hind-toe forward, so as to take a firmer grasp of the nut or fruit they are going to devour, standing in the mean while on the other leg. Nor do they even present their food in the usual manner; for other animals turn their meat inwards to the mouth; but these, in a seemingly awkward position, turn their food outwards, and thus hold the hardest nuts, as if in one hand, till they break the shells with their beaks, and extract the kernels.

The bill of the Parrot is fashioned in a still more singular manner; the upper chap, as well as the lower, being moveable. In most other birds, the upper chap is connected, and makes but one piece with the skull; but in these, and a few other species of the feathered tribe, the upper chap is connected to the bone of the head by a strong membrane, placed on each side, that lifts and depresses it at pleasure: by this contrivance they can open their bills the wider; which is extremely beneficial, as the upper chap is so hooked and overhanging, that if the lower chap only had motion, they could scarcely open their mouths wide enough to admit nourishment.

Such are the uses of the beaks and toes of these birds when used separately; but they are often employed together, when the creatures are exercised in climbing. As Parrots cannot readily hop from bough to bough, their legs not being adapted to that purpose, they use both their beaks and feet; first catching hold with their beaks, as with a hook; and drawing up their legs, and fastening them; then advancing their heads and beaks again, and so putting forward their bodies and feet alternately, till they attain the heights at which they aim.

The tongue of the Parrot somewhat resembles the human; for which reason, some pretend that it is so well qualified to imitate the voice of a man:

but the organs by which the sounds are articulated lie farther down in the throat, being performed by the great motion which the os hyoides has in this bird above all others.

Though the Parrot is common in Europe, it will not breed here, the climate being too cold for it's warm constitution; and, though capable of enduring our winter when arrived at maturity, it always appears sensible of it's rigour, and loses both it's spirit and appetite during the colder part of the season: it then becomes torpid and inactive; and seems quite changed from that bustling, loquacious animal, which it appeared in it's native forests, where it is almost perpetually on the wing. Nevertheless, the Parrot lives, even with us, a considerable time, if properly attended to.

The extreme sagacity and docility of this bird may be pleaded as the best excuse for that person who spends whole hours in teaching it to speak; and indeed the Parrot, on such occasions, seems to be the wisest animal of the two. At first, it obstinately resists all instruction; but seems to be won by perseverance; makes a few attempts to imitate the first sounds; and, when it has once acquired the articulation of one word distinctly, the rest of it's lesson is generally learned with facility.

In those families where the master or mistress has the fewest avocations, the Parrot usually receives the greatest instruction, and becomes more expert in proportion to the assiduity of it's teachers. The French ladies spend a great part of their time in instructing their feathered pupils; and it must be acknowledged that the Parrots in France speak much more distinctly than those in England, in consequence of their continual schooling. But even the Parrots of France are much inferior to those of the Brazils, where their education is considered as a very important business. Clusius assures us, that the Parrots of that country are the most sensible and cunning of all animals not endued with reason. There is a large bird of this kind in Brazil, which the natives call the *aicuous*, the head of which is red, violet and yellow; the body green; the tips of the wings red; and the tail long and yellow. This animal is seldom seen in Europe, but it is a prodigy of understanding. 'A Brazilian woman,' says Clusius, 'who lived at a village two miles distant from the island on which we resided, had a Parrot of this kind, which was the wonder of the place: it seemed endued with such understanding, as to discern and comprehend whatever she said to it. As we sometimes used to pass by that woman's door, she frequently called on us to stop, promising, if we would give her a comb, or a looking-glass, that she would make her Parrot sing and dance to entertain us. If we agreed to her request, as soon as she had pronounced some words to the bird, it began not only to leap and skip on the perch on which it stood, but also to talk and to whistle, and imitate the shouts and exclamations of the Brazilians when they prepare for battle. In short, when it came into the woman's head to bid it sing, it sang; and to dance, it danced: but if, contrary to our promise, we refused to give the woman the little present agreed on, the Parrot seemed to sympathize in her resentment, and was silent and immovable; nor could we by any means provoke it to move either foot or tongue.'

This sagacity, which Parrots shew in a domestic state, seems also natural to them in their residence among the woods: they live together in

flocks; and mutually assist each other against their enemies, either by their courage or their notes of warning. They generally breed in hollow trees, where they make round holes, without any lining. The largest Parrots lay two or three eggs; but it is probable that the smaller kind may lay more, it being an invariable rule in nature, that the smallest animals are the most prolific. In general, however, they have but two eggs, like those of the pigeon, and nearly of the same size; marked with little specks, like those of the partridge. Travellers assure us, that the nests of Parrots are always found in the trunks of the tallest, straightest, and largest trees. The natives of those countries are very assiduous in searching out the places where they nestle; and as those birds which are taken young always possess the greatest docility, a nest is considered as worth taking some pains to be possessed of: the usual method therefore is to cut down the tree; and though in it's fall the young Parrots are frequently killed, yet if but one of them should survive, the spoiler considers himself as abundantly rewarded.

But as the natives cannot always supply the demand for young ones, they are contented to take the old; which they shoot in the woods with heavy arrows, headed with cotton, which usually stun the birds, and bring them to the ground without killing them: after receiving this blow, some of them die, while others recover; and those which are restored become talkative by proper tuition, tender usage, and plentiful feeding.

But the savages are not thus industrious to procure these birds merely for the sake of their talking: for, though some of them are ill-tasted, others are very delicate food; particularly those of the small parroquet tribe. Labat assures us, that the parroquet kind of Brazil are the most beautiful as to their plumage, and the most talkative birds in nature. They are extremely tame, and appear delighted with human society: but, unhappily for them, they are possessed of another quality which often puts an end to this association; their flesh is the most delicate that can be imagined; and is highly esteemed by those who wish rather to indulge their appetites than their ears.

There are indeed many motives for destroying or seizing these beautiful birds; notwithstanding which, they are still found in very great plenty, and considered by the negroes on the coast of Guinea as their greatest tormentors: they are pestered with the incessant screamings of flocks of Parrots, which also devour whatever fruits they attempt to raise in their little gardens. In other places, indeed, they are not quite so numerous and destructive; but there is scarce a country of the tropical climates that has not numbers of the common kinds, as well as some which are peculiarly it's own. Upwards of one hundred different kinds have been enumerated by travellers on the continent of Africa only; and there is one country in particular, north of the Cape of Good Hope, which derives it's name from the multitude of Parrots that inhabit it's woods. White Parrots have been discovered in the torrid regions of Ethiopia: in the East Indies, they are of the largest size; in South America, they are docile and talkative; they swarm in great abundance in all the islands of the Pacific Sea and Indian Ocean; and add to the splendor of those woods which are clothed with perpetual verdure.

Though these birds are at present so universally known,

known, and their variety so great, there was scarcely one kind of them known among the ancients. The green parroquet, with a red neck, was the first of this sort imported into Europe, and the only one that was known in antiquity from the time of Alexander the Great to the age of Nero. This was brought over from India; and, when the Romans became curious in finding out new and unheard-of luxuries, they found others in Gaganda, an island of Ethiopia, which they considered as a discovery of the greatest importance.

Though Parrots are usually subject to the same disorders with other birds, and some peculiar to their kind, they are generally long-lived; and, if properly attended, will live from twenty-five to thirty years.

Condamine observes, that the Americans on the banks of the River Oyapoc possess the art of ingrafting feathers of different colours in the Parrot. The following are some of the most elegant and curious species.

PARROT, BLACK; the *Psittacus Niger* of Linnæus. This bird is about the size of a tame pigeon: the bill is short, and thick at the base; the upper mandible is covered with a bare skin at the base, in which the nostrils are placed; both the bill and the cere are white, or light yellow; the irides are dark; and round them there is a space of bare white skin. The head, and the whole body, both upper and under side, are of a black or dull blueish colour; the upper sides of the wings are lighter; and among the quill-feathers of each wing there are three or four white feathers. The tail is pretty long; and the legs, which are short, are covered with a rough scaly skin of a dirty flesh-colour.

This bird was imported from Madagascar, and first described by Edwards.

PARROT, BRAZILIAN GREEN; the *Psittacus Braziliensis* of Linnæus. This species has a flesh-coloured bill, with a dusky cere; and a wave on the edge of the upper mandible on each side, but no direct angle. The fore-part of the head, quite round the bill, is of a fine red or scarlet colour; and the eyes, which are dark, are surrounded with a bare skin of a light ash-colour. The top of the head is of a yellowish green hue; the hinder part of the neck and the back are of a darker green; the under-side of the body is of a light green inclining to yellow; the coverts beneath the tail are yellow; the prime quills of the wings are dusky; the middle quills have blue outer webs; the remainder of the quills next to the rump are green, with yellow borders; the first and second rows of covert-feathers above the quills are also of a dark green, with yellow edges; the lesser coverts of the wings are of a lighter green colour; and the ridge of the wing about the joint is yellow, intermixed with a few red feathers. The green feathers on the hinder part of the neck and back are edged with dull purple; the rump, and covert-feathers on the upper side of the tail, are green; the middle feathers of the tail are also green; next to them succeed red ones; and the outer feather on each side has a blue exterior web. The inside of the tail appears red, the inner webs of all the feathers being red; but the tips of all the tail-feathers, both within and without, are of a fine yellow colour.

PARROT, GREAT GREEN; the *Psittacus Æstivus* of Linnæus. This bird is equal, or rather superior in magnitude to the largest tame pigeon: the bill is whitish; and on each side of the upper man-

dible there is a remarkable angle. The eyes are surrounded with gold-coloured circles, beyond which there is a bare flesh-coloured skin; the fore-part of the head, as far back as the eyes, is of a blue colour; the remainder of the head is of a fine yellow, with an admixture of red; and the neck entirely round, as well as the back, are green. The greater or exterior quills of the wings are dusky at their tips, and greenish at their bottoms; the next succeeding are of a fine blue colour at their tips, and scarlet at their bottoms; the innermost falling over the rump are green, with yellow edges; the covert-feathers next above the quills are wholly green; the lesser coverts are of a golden colour; and in the skin that connects the joint of the wing there are some red feathers, intermixed with the yellow coverts. The breast and belly are of a light blueish green colour, the feathers being fringed with a dusky hue; the thighs, the lower belly, and the coverts under the tail, are yellow; the rump is covered with green feathers tipped with yellow; the coverts of the upper side of the tail are green; the upper side of the tail is also green, the edges of the feathers being a little yellowish; the exterior webs of the outside feathers are blue; the inside of the tail appears partly red; the tips within are of a dusky green colour; the legs and feet are covered with dusky brown scales; and the claws are blackish.

These birds are pretty common in London: they vary something from each other, though apparently of the same species; the yellow colour prevailing more or less in different birds.

PARROT, ASH-COLOURED AND RED; the *Psittacus Erithacus* of Linnæus. This bird is about the size of a tame pigeon: the bill is of a blackish colour, hooked, and angulated; the nostrils are placed pretty near together, in a white skin, covering part of the bill above; and the sides of the head are covered with a bare whitish skin, which joins to the bill forwards. The eyes are small; and the irides are yellow. The plumage of the whole bird, except the tail, is a mixture of ash-colour and red; but the shades are darker on the greater feathers of the wings than in other parts. The tail is entirely red, the feathers being short, and of equal length; and the legs and feet are covered with a rough scaly skin of a dark ash-colour.

The common ash-coloured Parrot exactly resembles this bird, except that the plumage in the former, all over the body, is ash-coloured, lighter on the rump and belly, and darker on the greater feathers of the wings.

This species is found in many parts of Africa; particularly in Guinea, from whence many of them are brought to England.

PARROT, LESSER GREEN; the *Psittacus Autumnalis* of Linnæus. This bird is somewhat less than the domestic pigeon: the bill is whitish; the upper mandible has a wave or angle on each side of its edges; and a whitish cere, in which the nostrils are placed. The circles round the eyes are of a bright gold colour; beyond which there is a bare white skin. The forehead, as far as the eyes, is covered with scarlet feathers; and the hinder part of the crown is invested with blue feathers. From the base of the lower mandible, on each side of the head, there is a roundish orange-coloured spot, extending beneath each eye; the remainder of the head, the throat, and neck, are green; the hinder part of the neck, the back, rump,

rump, and upper side of the tail, are of a dark green colour; the fore-part of the neck, the breast, belly, and thighs, are of a lighter green; the lower belly and covert-feathers under the tail are of a very light green, inclining to yellow; the greater quills of the wings are dusky, with a little blue on the edges of the exterior webs; the succeeding are blue at their tips, and red towards their bottoms; all the covert-feathers of the wings are green, except the bastard wing, which is blue; and the ridge of the wing that falls on the breast is yellow. The legs are short, and covered with a rough scaly skin of a lead or ash-colour; and the claws are dusky or black.

This Parrot is a native of the West Indies; and was first described by Edwards.

PARROT, HAWK-HEADED; the *Psittacus Accipitrinus* of Linnæus. This bird, which is about the size of a small pigeon, is remarkable for having a long tail in proportion to its body: the bill is of a dusky colour, pretty much hooked, and has sharp angles on the side of the upper chap; the irides are hazel, surrounded with a bare skin of a blackish colour; the head is brown, with some light feathers on the middle, and some dark ones on the borders; the neck, breast, and belly, are reddish, inclining to purple, fringed with feathers of a very bright blue; the back, rump, and upper sides of the wings, are of a beautiful green colour; and the tips of the greater quills are of a dark blue. The middle of the upper side of the tail is green; and the side-feathers are also of the same colour, except at their tips, where they are of a dark blue. The thighs, and covert-feathers beneath the tail, are of a pale green hue; and the legs, feet, and claws, are of a leaden colour.

This Parrot is an inhabitant of the East Indies; and, when offended, possesses the faculty of raising the feathers on its neck like a ruff.

PARROT, WHITE-HEADED; the *Psittacus Leucocephalus* of Linnæus. The bill of this bird, and that part of the head next to it, are white; the eyes are of a dark hazel-colour, surrounded with a bare space of very white skin; the feathers are blue on the hind part of the head, intermixed with a little red; the sides of the head, beneath the eyes and throat, are of a fine scarlet colour, finely blended with the green on the neck; the hinder part of the neck, the back, rump, and covert-feathers of the wings, are green; the greater quills of the wings are blue, with dusky tips; the remainder of the quills next the back are green; the upper side of the tail is green; the outer webs of the two exterior feathers are blueish; and the under side of the tail is green on the tips of the feathers, and red towards the roots or bottoms. The breast, belly, thighs, and covert-feathers beneath the tail, are green, except the middle of the belly, where there appear some spots of red; and the legs, toes, and claws, are of a dusky brown colour.

Parrots of this species differ from each other in beauty: in some, the upper part of the ridge of the wing is red; some are very red on the belly; and others have this colour intermixed with the green. They are frequently imported into this country from the West Indies.

PARROT, DUSKY; the *Psittacus Sordidus* of Linnæus. Though the colours of this Parrot are much less beautiful than is usual in the kind, it is nevertheless no less curious than any of the genus. It is about the size of a common pigeon: the up-

per chap is black in the middle, and the skin at the root is of the same colour; the base of the bill is yellow, becoming gradually red at the point; the top of the head is blackish; and the sides, as well as the hind part of the neck, are greenish. The back is dusky; the rump is greenish; and the upper side of the tail is green; but the outer webs of the two extreme feathers are blue. The throat, a little below the bill, is of a bright blue colour; and the breast, belly, and thighs, are of a dusky black. The wings are green, the quills next the back having yellow borders; the legs and feet are covered with a scaly lead-coloured skin; and the claws are pretty strong and black.

This species, which is a native of New Spain, on the continent of America, was first figured and described by Edwards.

PARROT, LITTLE GREEN; the *Psittacus Agilis* of Linnæus. This species is about the size of a small pigeon: the bill is of a light ash-colour, and angulated at the edge of the upper mandible; the circles of the eyes are of a dark hazel; the pupils are black; and round each eye there is a small space of bare skin of a light ash-colour. The whole head, neck, and body, both above and beneath, are green; but lighter, and more inclining to yellow, on the throat, breast, belly, thighs, and coverts beneath the tail. The greater quills of the wings are dusky, their outer webs being blue almost to their tips; the remainder of the quills next the back are green; and the covert-feathers of the wings, both above and beneath, are also green. The middle feathers of the tail are a little longer than those on the sides; the upper side of the tail is green, except the exterior webs of the two extreme feathers, which are blueish; and the inner webs of the tail-feathers are red, till within an inch of their tips, where they become wholly green. The legs and feet are covered with a rough scaly ash-coloured skin; and the claws are strong and dusky.

Edwards supposes this bird to be a native of the West Indies. He kept one a great number of years; and found it brisk, active, and loquacious in an unknown tongue.

PARROT, WHITE-BREADED; the *Psittacus Melanocephalus* of Linnæus. This species is about the size of a pigeon: the bill is angulated on its edges, with a narrow skin at the base of the upper chap; the whole of the bill is of a dusky flesh-colour, but lightest at the base; a flesh-coloured skin surrounds the eyes; and the crown of the head is black. At each corner of the mouth there is a longish green spot; the throat and sides of the head are yellow; but the hind part of the neck gradually becomes orange-coloured. The back, rump, and tail, are green; the outer webs of the greater feathers of the wings are blue, but those in the middle are yellowish; the rest of the quills next the back are entirely green; as are all the covert-feathers above them. The breast is white; the lower part of the belly, and the thighs, are of an orange-colour; the legs are ash-coloured; and the claws are black.

This Parrot is an inhabitant of the West Indies.

PARROT, BLUE-FACED GREEN; the *Ramphastos Dicolorus* of Linnæus. This species is about the size of a pullet: the bill is ash-coloured, with an orange spot on each side of the upper chap, which is moderately hooked, and angulated on each side; the nostrils are situated in a skin which falls a little way over the bill; and the bill itself is surrounded

surrounded with blue feathers. The eyes, which are placed in this blue space, are invested with a narrow bare skin of a flesh-colour; the circles round the pupils of the eyes are orange-coloured; and on the throat, below the blue, there is a plat of red feathers. The hind part of the head and neck, the back and covert-feathers of the wings, and the breast, belly, and thighs, are of a beautiful green colour, but darker on the back, and lighter on the under side. The larger wing-feathers are blue; and those succeeding them are blue at their tips, and red at their bottoms. The tail is yellow above; some of the inner webs of the exterior feathers are red towards the roots; and the legs, feet, and claws, are of a flesh-colour.

PARROT, GREEN AND RED. This species, which is a native of China, is about the size of the common hen. The upper chap of the bill is red at it's base, inclining to yellow at the point, angulated on each side, and pretty much hooked; the lower chap is black; and the nostrils are situated between the feathers of the head and the base of the bill, there being no skin over the base, as is usual in most of the Parrot kind: it is also singular in having the feathers continued close to the eyes. Round the pupils, there are circles of a bright orange-colour; and the head, neck, back, and covert-feathers of the wings, are of a beautiful deep green; as are also the breast, belly, and upper part of the tail. The greater quills of the wings are of a fine blue colour; the first row of the covert-feathers above them are of the same hue; the border of the wing, which falls on the breast, is also blue; the inside of the quills, and the under side of the tail, are blackish; and the tips of the tail-feathers, on the under side, are of a brownish yellow. The thighs, and covert-feathers beneath the tail, are green; and the legs, feet, and claws, are black.

This bird is not mentioned by Linnæus. Edwards first figured and described it.

PARROT, BLUE-HEADED; the *Pfittacus Menstruus* of Linnæus. The bill of this species is dark or dusky; the upper mandible has a red spot on each side, and pretty deep angles on it's edges; the nostrils are placed at the basis of the upper mandible; the eyes are of a dark colour, surrounded with a bare skin of a flesh-colour; the head, neck, and part of the breast, are of a fine ultramarine blue, a little tinged with purple on the breast; and on each side of the head there is a black or dusky spot. The back, belly, thighs, and wings, are of a fine green colour; the covert-feathers of the wings are of a yellowish green, inclining to gold colour; and the coverts beneath the tail are of a fine scarlet. The tail-feathers are of an equal length; the middle ones are green, gradually becoming blue on the sides; and the under side of the tail is of the same colour, but paler. The legs and feet are of a light ash-colour, covered with a scaly skin; and the claws are dusky.

PARROT, LITTLE DUSKY; the *Pfittacus Spectrum* of Linnæus. The bill of this Parrot is dusky, and angulated, with orange-coloured spots on the sides of the upper mandible; and the nostrils are surrounded with small red feathers. The top and sides of the head below the eyes are black, with a little gloss of blue on the crown; and the eyes are of a dark colour, surrounded with a narrow bare skin of a fine light blue. Immediately beneath the head, a brownish coloured

line, marked with dusky, small, oblong spots, passes from the throat, quite round to the hinder part of the head. The neck behind, the back, rump, and covert-feathers of the wings, are of a dark brownish black hue; the greater quills of the wings are of a fine ultramarine blue; the quills next the body, with the coverts over them, are dusky; the insides of the wings are of a lighter blue than the upper; and the tips of the quills are black. The upper side of the tail, when closed, is wholly of a dark blue colour; but the inner webs are red; and the coverts beneath are also red. The breast, belly, and thighs, appear of a purple colour, the dusky feathers being fringed with purple; and the legs and feet are covered with a dusky scaly flesh-coloured skin.

This curious bird is said to be a native of Surinam; and is very seldom seen in Europe.

PARROT, BLUE-BREASTED. This species is about eleven inches long: the bill is remarkably black; the head, neck, and back, are of a fine scarlet colour; and the breast and shoulders are of a deep rich blue. The wings are scarlet; the primaries are blue; the thighs are scarlet, with a few blue feathers intermixed; and the tail, which is very long, is of a bright scarlet colour, tipped with orange.

PARROT, BLUE-BELLIED. This species, which is a native of New Holland, is about fifteen inches long: the bill is of a reddish colour; the head is of a fine dark blue, beautifully intermixed with light blue feathers; and the orbits of the eyes are black. The neck, towards the throat, is of a yellowish green hue; the hind part is green; the breast is red, mixed with yellow; the back and wings are green; and the primaries are dusky, barred with yellow. The tail is cuneiform; the middle feathers are green; and the rest are also green, with exterior webs of a bright yellow colour.

PARROT, WHITE, CRESTED. The body of this species is entirely white; and it is adorned with a red crest on the head. It is about the size of the domestic pigeon: the feet are yellowish, by which it may be distinguished from all the other Parrots; the tongue is brown; and the eyes are of a dirty yellow hue.

PARROT, RED AND BLUE, OF ALDROVANDUS. This bird has a small blackish bill; the head, neck, and breast, are blue, except that the top of the head is yellow; the parts above the eyes are whitish; the belly is green; the tail is yellow; and the feathers that cover the wings are of a faint rose-colour. The length of this Parrot, from the tip of the bill to the extremity of the tail, is about nine inches.

PARROT, SCARLET ORIENTAL. This species is somewhat larger than a blackbird; and the body is wholly of a scarlet colour. The wings are green, except the prime feathers, which are black above, and crimson below, with yellow edges; the upper part of the tail is of a yellowish green colour; the middle is yellow; and a ring of green feathers encircles the space above the knees. The bill and irides are yellow; and the legs are short and black.

This Parrot is found only in the East Indian climates.

PARROT OF THE ISLE OF LUÇON. This curious bird, which was first described by Sonnerat, is very large for a Parrot. The feathers round the bill are of a bright green colour; the top of

the head is blue; the upper part of the body, the primaries, and the upper side of the tail, are of a grass green colour; the under side of the body is of a yellowish green; and the coverts of the wings are black, edged with yellowish brown: the last of these feathers are of a beautiful black colour; but the black is encircled with blue, and the blue with an olive brown. This mixture forms a very elegant and large spot on the wings. The bill is very thick, and of a flesh-colour; the eyes are small, with white irides; and the feet are blackish.

PARROT FISH. This Fish obtains its name from the peculiar conformation of its mouth, which is hooked like the bill of a Parrot. It is about a foot long; the colour is greenish, variegated near the head with yellow; the fins, as well as the eyes, are blue; and the irides are yellow. The scales are very large; and there are two rows of strong teeth in the mouth, with which it penetrates into muscles and oysters. Its flesh is very firm, and well-tasted.

PARTRIDGE; the Tetrao Perdix of Linnaeus. A well-known bird, of which there are several species.

PARTRIDGE, COMMON. This bird may be said to live and breed only for the sportsman's pleasure. The British laws have taken it under their protection; and, like a peacock or a hen, it may be considered as private property. The only difference is, that the Partridge is fed in our farms, and the others in our yards: the former has it in its power to change its master, by changing its habitation; and the latter are contented captives.

In England, the Partridge is esteemed a favourite delicacy at the tables of the opulent; and the desire of keeping it to themselves has induced them to enact such laws for its preservation as do not seem to harmonize with the general spirit of legislation. By an act passed in the tenth year of the reign of his present Majesty, any person who shall wilfully take, kill or destroy, any pheasant or Partridge, or use any gun, dog, snare, net, or other engine, for that purpose, in the night, between one hour after sun-setting and one hour before sun-rising, shall for the first offence be committed to gaol, or the house of correction, for any time not exceeding six months, nor less than three; and for every subsequent offence, for any time not exceeding twelve months, nor less than six: and shall also, within three days after commitment for the first or any subsequent offence, be once publicly whipped in the town, &c. where such gaol, or house of correction shall be, between the hours of twelve and one in the day.—What can be more arbitrary, than thus to restrain the poor from the use of those creatures which the Almighty intended should be free? If Partridges and pheasants, like common poultry, could be made legal property, be taught to keep within certain districts, and to feed only on those grounds which belong to the man whose pastimes they improve, or whose table they furnish, it might then, with some appearance of justice, be admitted, that he who fed them had a right to claim them: but the case is far otherwise; they feed every where, and on every man's ground. Those birds which are nourished by all, by the law of reason, belong to all; nor can any one man, or any body of men, justly institute an exclusive right to them while they continue in a state of nature.

The old law luminaries of this country main-

tain, that all wild animals, such as deer, hares, foxes, and the like, are those which, on account of their swiftness or fierceness, fly the dominion of man; and in such therefore no person can have a property, unless they are tamed or reclaimed by him: hence it appears that, by the common law, every man hath an equal right to such creatures as were not naturally under the power of man; and that the mere capture or seizure of them created a property in them.

The immense quantity of game about the environs of Paris has been considered as a badge of national slavery; and yet the French have no game-laws in the remoter parts of their kingdom: the game indeed is preserved for the king in a few places, but is free in almost every other part of that kingdom. In England, the prohibition is general; and the peasant, or even the farmer, cannot possess what slaves in other countries are at full liberty to enjoy.

To return from a digression excited solely by the spirit of liberty: the cock Partridge weighs about fifteen ounces, and the hen thirteen. The bill is white; and the crown of the head is brown, spotted with reddish white. The cheeks and forehead are of a deep orange colour, but much paler in the males than in the other sex; the neck and breast are beautifully marked with narrow undulated lines of ash-colour and black; and in the hind part of the neck there is a strong mixture of rust-colour. On the breast of the male there is a broad mark shaped like a horse-shoe, and of a deep orange hue. Each feather on the back is marked with several semicircular lines of black and reddish brown; and the greater quill-feathers are dusky, spotted with pale red on each web. The tail is composed of eighteen feathers; the six outermost on each side are of a bright rust-colour, the rest being marked with irregular lines of black and pale reddish brown; and the legs are whitish.

The Partridge is found in every country, and in every climate; as well in the frozen regions about the pole, as the torrid tracts under the equator. Wherever it resides, it seems to adapt itself to the nature of the climate. In Greenland, it is brown in summer; but, when winter makes its appearance, it receives a new covering adapted to the season: its outward plumage then assumes the colour of the snow among which it gleams its food, and is clothed with a warm down beneath. Thus, by the warmth and colour of its plumage, it is doubly fitted for its situation; the one defending it from the cold, and the other preventing it from being noticed by its enemies. The Partridges of Barakonda are longer legged and swifter footed; and take up their residence in the highest rocks and precipices.

All naturalists are agreed, that Partridges are extremely falacious; and those who are curious to obtain exact information on this subject, we beg leave to refer to Pliny; and to Edwards, in the preface to his Gleanings. The manners and habits of these birds in many respects resemble all those of poultry; but their cunning and instincts seem superior to those of the larger kinds. Living in the very neighbourhood of their enemies, they have perhaps more frequent occasion to put their little arts in practice, and learn by habit the means of evasion or safety. Whenever a dog, or any other formidable animal, approaches the nest of a Partridge, the hen practises every art to allure him from the site: she keeps at a little distance before

before him, feigning to be incapable of flying; and just hopping up, and falling down before him, but never advancing to such a distance as to discourage her pursuer: at length, having entirely drawn him from her secret treasure, she at once takes wing, and disappears. The danger being over, and the dog withdrawn, she calls her young, who immediately assemble at her cry, and follow her in her excursions. A covey generally consists of ten or fifteen; and a Partridge will live from fifteen to seventeen years, if unmolested.

Partridges, properly speaking, form no nests, but lay their eggs on any spot of ground where they can find a little hay or straw. Their eggs are of a greyish colour, with a yellowish cast; and have pretty hard shells.

Corn-fields are the places that Partridges most delight in, especially while the corn is growing; for that is a safe retreat, where they remain undisturbed, and under which they usually breed. They frequent the same fields after the corn is cut down, but with a different intent; for they then feed on such corn as has dropped from the ears; and find a sufficient shelter under the covert of the stalks, especially in wheat stubble. When the stubble is much trodden down by men or beasts, they retire to the barley stubble, and there conceal themselves in coveys of ten or fifteen. When the winter comes on, and the stubble fields are either trodden down or ploughed up, they then retire to the upland meadows, where they lodge in the high grass, and among rushes: and sometimes they resort to the low coppice-woods, especially if there are corn-lands contiguous to them.

Partridges have been caught by various expedients. Fowlers sometimes provide themselves with two or three nets, having meshes somewhat smaller than those of pheasant nets; and walking round about the covey, fix a net so as to draw over them on pulling a line at a distance. This may be easily effected; for so long as the sportsman continues moving about, and does not fix his eyes too intently on the Partridges, they will permit him to approach sufficiently near to place his nets, without seeming to be disturbed. If they lie so straggling, that one net will not cover them, then two or three must be fixed in the same manner. The sportsman may then draw his net over them; and they will often lie still, covered by the nets, till he comes up and alarms them; when, on attempting to rise, they immediately find themselves entangled.

Another method of catching them is with bird-lime; and this is effected by means of wheat-straws: these must be large, and cut down between knot and knot; they must be well limed with the best and strongest bird-lime; and the sportsman must carry a great number of them along with him. Having discovered a field where a covey of Partridges are feeding, he must imitate their call; and, if they answer, he is then to stick up the limed straws in rows across two or three lands; and, going backwards, call again to them, leading them on in a road where the straws are placed. By this device they will follow each other, like a flock of chickens; and being drawn on the limed straws, will daub and entangle themselves so effectually, that few of them can escape.

However, a still more agreeable mode of catching Partridges is performed by driving them. In order to this, an engine is to be made of canvas

stuffed with straw, so as to represent a horse: this horse, and these nets, being placed slanting in the lower part of the field, the sportsman is to take the favour of the wind, and getting above the birds, is to drive them downwards. His face is to be covered with something green or blue; and placing the horse before him, he is to proceed slowly and gently; by which means the Partridges will be raised on their legs, though not on their wings, and will run before the horse into the nets. If, in their progress, they get into a wrong path, the horse is to be moved to face them; and thus they will be turned back again, and driven in any direction, according to the pleasure of the sportsman.

PARTRIDGE, RED-LEGGED; the Tetrao Rufus of Linnæus. A very beautiful and delicate bird, common in Barbary, and sometimes seen in various parts of Europe. It is somewhat less than the common Partridge; the bill is of a fine scarlet colour; the eyes are hazel; the top of the head is a bright chestnut; which colour passing down the hind part of the head, where it becomes more dusky, comes forward, and forms a ring encircling the neck; which ring is beautifully variegated with small round white spots. The sides of the head and throat are of a light blueish ash-colour, which gradually changes on the breast to a faint rose or blossom colour; the belly, thighs, and coverts under the tail, are light brown; the upper side of the neck, back, and wings, are of a darkish brown hue; the prime quills of the wings are tipped with a light yellowish brown colour; and the scapulars are of a delightful blue, bordered with a dark red. The sides are covered with beautiful feathers, transversely variegated; the tips are orange, within which there are bars of black, succeeded by others of white; the rump is ash-coloured; the middle feathers of the tail are of the same colour, but darker, and transversely barred with dusky; the side feathers of the tail are half way of an ash-colour towards their roots, and the other half towards their tips are of a dirty orange. The legs and feet are red; and the claws are brown.

PARTRIDGE, HUDSON'S BAY; the Tetrao Lagopus of Linnæus. This species bears a pretty near resemblance to the common kind in the shape of the head; but the bill is blunter and shorter. Over the eyes there are small red combs; the legs are muffled; and the general form of the body approaches to the pigeon tribe, except that it is considerably larger.

These birds feed on the buds of the poplar when the snow is on the ground; run very swiftly; and keep together in pretty large flocks. In summer they are nearly of the colour of an English Partridge; but, as winter approaches, their plumage by degrees turns white, except that the larger tail-feathers are tipped with black: these white feathers, except those of the pinions and tail, are double, having one growing under the other; the undermost are smaller than the upper, and also more soft and downy; which keep the birds warm during the inclemencies of winter. They moult these white feathers in the spring; and resume the brown against the summer season; and these are always single.

PARTRIDGE, MOUNTAIN, OF JAMAICA; the Columba Montana of Linnæus. The length of this bird, from the tip of the bill to the extremity of the tail, is ten inches; and the breadth, when the wings are extended, is sixteen. The head is small;

small; and the bill resembles that of a pigeon. The upper part of the body is of a reddish purple colour; the lower part is lighter; and under the belly it is whitish. The irides are yellow; and the eye-lids are of a beautiful red colour. The legs and feet are red, like those of pigeons; and are about two inches long.

This species feeds on berries; and is usually found in mountainous and elevated situations. The hen generally makes her nest in low trees, with twigs placed transversely, and lined with hair and cotton, for the better preservation of her young.

PARTRIDGE, MOUNTAIN, OF HERNANDEZ; called also the Oocolin. This species is larger than the common Partridge: the bill and feet are of a bright red colour; and the whole body is covered with a mixture of brown, pale, and dusky yellow. The wings underneath are cinereous; but above, they are speckled with tawny, white, and yellow spots; as are also the head and neck.

PARTRIDGE, WHITE, OF THE ALPS. This bird is about the size of a domestic pigeon, and has a similar conformation. It measures about a foot and three inches from the tip of the bill to the extremity of the tail; and, when the wings are extended, it is about twenty-two inches broad. The bill is short, black, and shaped like that of a hen; but the upper mandible projects a little over the under. The nostrils are covered with small feathers; and above each eye there is a semilunar excrescence without feathers, of a vermilion hue. The male is distinguished from the female by a black streak; which beginning at the upper mandible of the bill of the former, passes beyond the eyes, and terminates below the ears. All the rest of the body, except the tail, is extremely white; the tail is composed of sixteen feathers, the two middlemost of which are white, as well as the external web of the last feather on each side; and all the remainder of the feathers are of a blackish ash-colour, with white tips. The legs are covered with feathers of a soft texture to the very extremity of the toes; and the claws are very long, and of a leaden colour.

These Partridges are seen on the Alps, particularly in those districts which are covered with snow during the greatest part of the year.

PARTRIDGE, BRAZILIAN; the Jambu of Piso. There are two varieties of these birds: the first is less than the common kind; and the other is nearly of the same size. The feathers, throughout the whole body, are of a dark brown colour, curiously spotted and variegated with yellow.

PARTRIDGE, RED, OF ALDROVANDUS; the Greater Red Partridge of Bellonius. This species is about twice the size of the common Partridge, being as large as a middle-sized hen. The bill and legs are red; the breast and sides are spotted; and the head, neck, breast, and rump, are chiefly of an ash-colour. The cheeks under the eyes, as far as the middle of the throat, are white, except that there is a small red spot at the angle of the lower chap, with a black ring round the white space, which begins at the nostrils, and proceeds over the eyes; and the breast is ash-coloured.

This bird is scarcely ever seen in England; but is sometimes found in the isles of Jersey and Guernsey. It builds its nest in exposed situations, about the month of May, seeking neither cover nor shelter; especially in the islands of the

Archipelago, where it is extremely numerous. Tournefort informs us, that these Partridges are so very plentiful in the Island of Nansio, that the peasants are obliged to destroy their eggs in order to preserve their corn; and that the number of them generally amounts to ten or twelve thousand: however, we have not been able to determine whether these are exactly of the same species with those now described.

PARTRIDGE, INDIAN. An appellation given by the Spaniards to a bird of the West Indies, of which there are three or four varieties; all which Nieremberg assures us are properly of the Partridge kind.

PARTRIDGE, SEA. A name by which some naturalists distinguish the foal, on account of the firmness and delicacy of its flesh.

PARU. A very singular fish caught in the American seas. It is broad, flat, and roundish; usually about five or six inches long, and between three and four broad. It has six fins; one on the back; another on the belly, behind the anus; two more rise behind the gills; and the remaining two are situated on the upper part of the belly. The head is small; the mouth is elevated, and furnished with small teeth; the scales are of a moderate size, half black, and half yellow, which renders the variegations extremely curious; the gills, and the beginning of the fins, are also yellow; and on each side near the head, there is a yellow spot. The flesh is agreeable, and deemed wholesome.

PARUS. The classical appellation for the titmouse.

PASSAGE, BIRDS OF. A term by which naturalists distinguish those birds which periodically appear and disappear.

Among Birds of Passage are the stork, swallow, nightingale, martin, woodcock, quail, cuckoo, wryneck, several species of the pigeon and thrush, the snipe, curlew, sand-piper, plover, land-rail, several species of grebe, divers, mergansers, and many species of ducks, &c.

Pennant remarks, that every species of the genera of curlews, woodcocks, sand-pipers, and plovers, which forsake us in the spring, retire to Sweden, Poland, Prussia, Norway, and Lapland, in order to breed: and, as soon as the young can fly, they return to us again; the frosts, which commence early in those countries, depriving them of sustenance; and the dryness and hardness of the ground in general, during our summer, preventing them from penetrating the earth with their bills, in search of worms, the natural food of these genera.

Of the numerous species of migratory fowls, there are few that may not be traced to Lapland, a country pregnant with lakes, rivers, swamps, and mountains covered with impenetrable and inaccessible forests, which in summer afford shelter to those birds that in winter disperse themselves over all Europe. In the hyperborean regions, by reason of the thickness of the woods, the ground remains moist, and is penetrable by woodcocks, and other slender-billed fowls; and for web-footed birds the waters afford innumerable insects. The days, at that season, are long; and the light nights are favourable to their collecting this food: to which may be added, that the human empire is but thinly spread over the northern wastes; which circumstance encourages the other tribes of nature to take up their residence in those

tracts

tracts where the tyranny of man can be but feebly exerted.

Exclusive of migratory birds, which continue in different countries a whole winter, or a whole summer, there are some others which annually appear in particular places, to reap the harvest of that food whereof their native climates are destitute: of this kind are the rice-bird, and the blue wing of Carolina. Indeed birds, like men in a state of nature, pursue their searches after food, or whatever else is necessary or agreeable, through distant climes: when they discover some new kind of provender, they return to acquaint their community with their good fortune; and then, joining in numerous flights, make annual excursions, in order to solace themselves with this exotic food.

Since the discovery of America, several sorts of grain have been introduced there, which were not found out nor coveted by birds of this migratory kind till a considerable period of time had elapsed. A very beautiful bird of this kind, some years ago, made it's first appearance in Virginia: it arrives annually about the season of wheat-harvest since it first discovered that grain; and hence the inhabitants call it the wheat-bird.

PASSER. A classical appellation for the common plaise.

PASSER ARUNDINACEUS, AND ARUNDINACEUS TORQUATUS. Names by which naturalists express the reed-sparrow.

PASSER ASPER. An appellation for the fish called in English the dab.

PASSER BRITANNICUS. A name by which some ichthyologists express the soal-fish, and others the turbot.

PASSER FABER. An appellation given by Nieremberg to a bird called also *turdus chiappæ*; the genus of which is not certainly known. It is remarkable for perforating the bark of the pine, and lodging it's food there, to which it occasionally resorts.

PASSER FLUVIATILIS. A name by which some naturalists express the common flounder.

PASSER INDICUS; the *Macrouros Alius* of Aldrovandus, or the other long-tailed Indian sparrow. A beautiful bird with a black head, a blue bill, and the body chiefly of a fine scarlet colour.

PASSER MOSQUITUS. An appellation used by some ornithologists to signify the humming-bird; called also the quainumbi.

PASSER SOLITARIUS. A bird properly of the merula or blackbird kind, nearly of the same size with the common blackbird, and not very different from it in colour.

PASSER STULTUS. An appellation given by Nieremberg to a species of *larus*, or sea-gull; so tame and foolish, that it will suffer itself to be taken without resistance, or endeavouring to escape.

PASSER TROGLODYTES. A name by which some ornithologists express the wren.

PASSERES. In the Linnæan distribution of nature, the name of a whole order of birds; the distinguishing characters of which are: that they have conic, sharp-pointed bills; and that their nostrils are ovated, wide, and naked.

To this order belong fifteen genera: the *columba*, or pigeon; the *alauda*, or lark, comprehending eleven species; the *sturnus*, or starling, including five species; the *turdus*, including

twenty-eight species; the *ampelis*, comprehending seven species; the *loxia*, including forty-eight species; the *tanagra*, including twenty-four species; the *fringilla*, including thirty-nine species; the *muscapa*, or fly-catcher, comprehending twenty-one species; the *motacilla*, or water-wag-tail, whose species amount to forty-nine; the *parus*, or titmouse, comprehending fourteen species; the *hirundo*, or swallow, including twelve species; and the *caprimulgus*, goat-sucker, or churn-owl, of which there are usually reckoned two species.

PASTINACA MARINA. A fish called also the poison-fish, fire-flaire, and sting-ray. It is of the flat, cartilaginous kind, somewhat resembling the common skate. Artedi distinguishes it from the other species of the *raia*, or ray-fish, by the name of the smooth-bodied ray, without any fins on the tail, but with a long bony serrated spine in their room. It appears to be the trogon of Aristotle and Oppian. The tail, in which all it's poison is said to be lodged, is long, smooth, and round, with a thorn or dart, about four inches long, toothed on each side like a saw, having the teeth standing upwards, or towards the head: this is placed at the distance of one-third of the length of the tail, which from this place becomes very slender, and terminates in a point. This fish sometimes weighs about ten pounds; and, after the tail is cut off, it is commonly exposed to sale in the Italian markets.

The more credulous part of mankind believe that this creature is capable of communicating a very subtle poison by a stroke of it's tail; but Pennant assures us, that no credit is due to the generally received opinion of it's venomous qualities, though even Linnæus himself has adopted it. The spine is a weapon of defence, with which this fish is armed; and it is capable of inflicting a very dangerous wound, particularly when it happens on any tendinous part; but a cure is effected by the usual mode of treating wounds, without having recourse to the antidotes against poison. See **TORPEDO.**

PASTOR PISCIS. A fish of the mullet kind, common in the American seas and rivers, the flesh of which is esteemed very delicate. It grows to the size of the common trout, and in it's figure pretty much resembles that fish. It's scales are large, and of a silvery white colour, ranged in a similar manner with those of the perch, having greyish lines between the several rows. It has seven fins, all very large, particularly the dorsal one; the tail is remarkably forked; all the fins are white; and the coverings of the gills are scaly, but not bony, as in most other fishes.

PATA. An appellation used by the Portuguese of Brazil to express a very large and beautiful species of duck common in that country; known among some by it's Brazilian name *Ipecati-apoa*.

PATELLA. See **LIMPET.**

PATELLA is also an appellation given by Lister, and some others, to a certain little husk or shell found on the bark of the cherry, plum, and rose trees, enclosing an animal useful in colouring. These *Patellæ* are of a globular form, except when they adhere to the tree; and, in most kinds, of a shining chestnut-colour. The husk itself strikes a very fine crimson colour on paper; and within it there is found a white maggot, which in time hatches into a small but beautiful bee. The whole size of this bee is not more than that of

half the body of an ant: it has a sting like that of the common bee; and three spots placed in a triangle on the forehead, which are supposed to be eyes. The body is black, except that there is a large round whitish or pale yellow spot on the back; the upper pair of the wings are shaded and spotted; but the under pair are gauzy.

Dr. Lister, who first observed these *Patellæ*, proceeded so far, on comparing them with the common kermes, as to declare that they were of the same nature with that production; but his history of their being the workmanship of a bee, to preserve her young maggots in, is by no means compatible with the true history of the kermes, that being an insect of a very peculiar kind. Indeed, this author has been justly blamed for a too great precipitancy in his decisions; and perhaps in no instance has he more merited this censure than the present.

It is very possible that these *Patellæ* may be the same sort of animals with the kermes; but then they produce their young within this shell or husk, which is no other than the skin of the parent animal's body: but as there are many flies whose worms or maggots are bred in the bodies of other animals, it is probable that this little bee, now under consideration, may delight to lay it's egg in the body of the proper insect here mentioned; and the maggot hatched from that egg may eat up the original progeny, and undergoing it's own natural changes there, issue out at last in form of the bee. This may have been the case in some few which Dr. Lister examined; and he was probably misled by this to suppose it to be the natural change of the insect.

PATELLA FERA, the Wild Limpet. An appellation very improperly bestowed by Rondeletius and Aldrovandus on the *auris marina*, or *concha Veneris*.

PATTALIA. An Aristotelian term for a stag or deer of the age of two years.

PAVO. The classical appellation for the peacock.

PAVO is also another name for the peacock-fish.

PAUXI. An American bird described by Nieremberg, seemingly the same with the *mitu* of the Brazilians described by Marcgrave, and likewise with the *tepetototl* of Nieremberg: the only difference being this; that the *Pauxi*, instead of a crest, has a fleshy protuberance at the base of it's bill; whereas the other has a hard pear-shaped substance, of a beautiful pale blue colour.

PEACH GALL-INSECT. A small Gall-Insect abounding on this tree, of an oblong figure, flat on the belly and prominent on the back, pointed, and not unaptly resembling a boat in miniature with it's bottom turned upwards. It's colour is usually a faint brown; sometimes, however, it approaches to a coffee-colour, sometimes to a bright chestnut, but more frequently it has a reddish tinge.

This insect soon dies after it has laid it's eggs; and it's dried body makes an excellent covering and defence for them: and, what is very remarkable, as the insect is now immoveable, and cannot draw itself over it's eggs, they are not protruded behind it's body, but, as they are laid, are drawn under it's belly, and carefully arranged there.

In the space of ten or twelve days the eggs are hatched; after which the young animals remain several days under the shelter of their parent's

skeleton. About the beginning of June they emancipate themselves; and may then be found running very nimbly over the branches of the tree, if microscopically examined, for as yet they are too small to be perceived by the naked eye: the branches, thus covered with these young animals, are in a few days cleared again; and the insects found in the form of small scales, covering the leaves, are now large enough to be distinguished by the naked eye.

Not only the Gall-Insects of the Peach, but all the species of this genus, after a certain period, become immoveably fixed to one spot, and lose every locomotive power. During the months of July, August, September, and October, their growth is very slow. At the beginning of November, they are found somewhat enlarged in breadth, and all of a reddish hue. About the commencement of March, they begin to swell with the nascent eggs; their backs become a little convex; and, when viewed with a microscope, they appear to be covered with small tubercles. At this stage of their existence, seven or eight long threads may be perceived running from several parts of their bodies; which adhering to the branch at a distance from the creature, fix it immoveably in it's place. In the beginning of April, it becomes much more convex; and though no longer capable of motion, yet gives evident proofs of an animal existence. At this time, by very slow motions, it changes it's skin; and it is not till after this transformation that it assumes so exactly the figure of a Gall, and grows so very quickly to it's full size. Seven or eight days, at this stage of it's life, effect such a change, that it is almost impossible to pronounce it the same animal; but it is not till the beginning of May that it acquires it's full magnitude. About the middle of that month, it is in a condition to lay; as the eggs are discharged, the belly is pushed closer and closer to the back; and, when all are laid, it becomes the shell already described, affording that protection to the eggs which itself experienced in it's nascent state.

About the end of April the branches of the Peach, and some other trees, covered with these Insects, are much frequented by a sort of small flies, beautiful enough to demand attention: their heads, breasts, bodies, and legs, are all of a deep red colour; they have only two wings, but they are very large, less transparent than those of the common flies, and of a dusky white hue, fringed with the most beautiful red. But what principally distinguishes this from every other species, is, that two long threads proceed from their posteriors, twice the length of their wings; and between these there appears a sort of tail or piercer, about one-fourth part as long as one of these filaments: this, like all other instruments of a similar kind, is thicker at the base than the point, and bent a little downwards. It is easy, at first sight, to conceive, that these are the flies which have been produced from worms fed in the bodies of the Gall-Insects of a former year; and that they are now seeking an opportunity to deposit their eggs in the bodies of these little creatures, there to be hatched into worms, and thence to come forth in the form of the parent flies.

If these flies are microscopically examined, they will be found introducing this seeming piercer always at the same place into the body of the Gall-Insect.

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PEACOCK. In the Linnæan system of nature, a distinct genus of birds of the order of gallinæ: the distinguishing characters of which are; that the head is adorned with an ornament of plumes reversed; and that the tail-feathers are long and ocellated. Linnæus enumerates three species.

PEACOCK, COMMON. This beautiful bird is said by the vulgar of Italy to have the plumage of an angel, the voice of a devil, and the guts of a thief; and, in fact, each of these qualities is properly enough ascribed to this extraordinary bird. When it appears with its tail expanded, none of the feathered creation can vie with it in beauty; but the horrid scream of its voice diminishes the pleasure we receive from its brilliance; and, still more, its insatiable gluttony, and its spirit of depredation, render it one of the most noxious domestics that man has taken under his protection.

Peacocks were first introduced into Europe from the East Indies; and, in several parts of those extensive regions, they are still found wild in prodigious flocks. So beautiful a bird, and one esteemed such a delicacy at the tables of the luxurious, was not long suffered to continue in its distant and original retreats. So early as the days of Solomon, we find, among the articles imported in his navies, apes and Peacocks. Ælian relates, that they were brought into Greece from some barbarous country; and were there held in such high esteem, that a male and a female were valued at upwards of thirty pounds English money. We are also informed, that when Alexander was in India, he observed them flying wild in vast numbers on the banks of the River Hyarotis; and was so struck with their beauty, that he imposed a severe fine on all who either killed or disturbed them. Nor is this very surprising; for the Greeks so much admired these beautiful creatures, when first seen among them, that every person paid a fixed price for their exhibition; and numbers of people travelled from Lacedæmon to Athens purely to gratify their curiosity.

The uncommon beauty of the Peacock was probably the reason of its being first introduced into the West; but mankind, from contemplating its gracefulness, soon began to think of rendering it subservient to another appetite. Aufidius Hurco stands charged by Pliny with being the first who fattened up the Peacock for the entertainment of the luxurious. But whatever delicacy there may be in the flesh of a young Peacock, certain it is that an old one is very indifferent food: nevertheless, there is no mention made of selecting the youngest; it seems rather probable, that these birds were killed indiscriminately, the beauty of their plumage in some measure stimulating the appetite. Hortensius the orator was the first who served them up at an entertainment at Rome; and from that time they were considered as one of the principal delicacies at every feast. Whether the Roman method of cookery, which was much higher than ours, might not have rendered them more palatable than we find them at present, cannot be ascertained; but it is unquestionable, that they ranked Peacocks among the first of viands.

However, this fanciful reputation of delicacy did not long continue; for we find that, in the reign of Francis I. it was customary to serve up the Peacock at the tables of the great, not with an intention to be eaten, but only to be seen. Their

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manner was to strip off the skin; and then preparing the body with the warmest spices, they covered it up again in its former skin, with all its plumage in full display, and in no respect injured by the preparation. The bird, thus prepared, was often preserved for many years without corrupting; and it is asserted of the Peacock's flesh, that it will continue free from putrefaction longer than that of any other animal. To give a higher zest to these entertainments, particularly at nuptials, they filled the bird's beak and throat with cotton and camphire, which they set on fire, in order to amuse and delight the company.

Like other birds of the poultry kind, the Peacock feeds on corn; but its chief predilection is for barley. However, being a very proud and fickle bird, there is scarcely any food it will not at times covet and pursue: insects and tender plants are often eagerly sought, even at a time when it has a sufficiency of its natural food provided more conveniently. In the indulgence of these capricious pursuits, walls cannot easily confine it: it strips the tops of houses of their tiles or thatch; lays waste the labours of the gardener; roots up his choicest seeds; and nips his favourite flowers in the bud. Thus its beauty is but a poor compensation for the mischief it occasions; and almost every fowl of the gallinaceous kind is preferred before it.

Nor is the Peacock less a libertine in his affections than a glutton in his appetites. He is still more salacious than even the cock; and though not possessed of the same vigour, yet burns with more immoderate desire. He requires five females at least to attend him; and, if there be not a sufficient number, he will take up with the sitting hen. For this reason, the Pea-hen endeavours, to the utmost of her power, to hide her nest from the male, as he would otherwise interrupt the office of incubation, and probably break her eggs. The Pea-hen, in this climate, seldom lays above five or six eggs before she sits. Aristotle describes her as laying twelve; and it is probable that, in her native solitudes, she may be thus prolific: for it is certain that, in the forests where she naturally breeds, this species is numerous beyond conception. This bird lives about twenty years; and it is not till the third year that it acquires the beautiful variegated plumage which adorns its tail.

Taverner informs us, that near the city of Baroch, in the kingdom of Cambaya, whole flocks of these birds are seen in the fields; that they are extremely shy; run off swifter than partridges; and conceal themselves in thickets. They perch on trees by night; at which time the fowler approaches them with a kind of banner, on either side of which the figure of a Peacock is painted: at the top of this decoy a lighted torch is fixed; and the birds, when disturbed, fly to the representation, supposing it to be a real bird, and are caught in a noose provided for that purpose.

The Pea-hen has no great variety in her colours; her wings, back, belly, thighs, and feet, being entirely brown, inclining to ash. The top of her head and her tuft are of the same colour, except that a few greenish spots are dispersed on the former; her irides are of a leaden hue; her chin is extremely white; and the feathers on her neck are green and undulated, but white at their extremities near her breast.

PEACOCK OF THIBET. This bird is by far the most

most beautiful of the feathered creation; having it's plumage of the most vivid colours; and disposed in such a manner, that it is impossible for art to imitate or words to describe it.

PEACOCK, WILD, OF SONNERAT. This elegant bird, which was discovered in the Isle of Luçon, is about three feet in length from the extremity of it's beak to that of it's tail; it's feet have only three toes, all pointing forwards; and it's legs are naked a considerable way above it's knees. The bill is long, pointed, and straight, except that it is a little elevated towards it's point; the head, the neck, and the belly, are covered with plumage of a bright grey colour, cut by transverse semicircular rays of black; the head is adorned with a beautiful long plume, pointing backwards, and terminating in a sharp point; and the feathers which compose it are black above, and grey beneath, barred with black. The back, the wings, and the tail, are brown; the coverts of the wings are white, bordered with grey; the belly is white; and the bill is of a deep black colour.

This bird seems rather to belong to the plover than the Peacock kind: nevertheless, to avoid the confusion which naturalists have so much reason to lament of changing names in an arbitrary manner, we have retained the appellation given it by Sonnerat, by which it is likewise known at the Cape of Good Hope.

PEACOCK-FISH. An appellation given to a large species of the turdus or wrasse, of a middle nature between the long and flat-bodied kinds. It usually weighs about three pounds; it's colour on the back is a mixture of blackish and dusky blue, the blue being disposed in three or four longitudinal parallel lines, on a dusky, blackish ground; about the head and gills the blue lines are more bright and numerous; the lower jaw is almost wholly blue; and the belly is of a fine saffron-colour. The lips are very thick; and the teeth are sharp, though not very large. The back fin, on the anterior part, is of a fine deep blue colour edged with purple, and sometimes with yellow; and the remainder is red at the bottom, yellow at the top, and finely variegated in the middle with blue spots. The foremost rays of the dorsal fin are rigid and prickly, having soft and flexile rays accompanying them beyond the limb or edge of the fin; the gill-fins are a mixture of red and yellow; the other belly-fins are of the same colours; and the tail is wholly blue.

This fish is remarkably beautiful; and from the elegant spots and variegations of it's fins, it has received it's name.

PEARCH, OR PERCH. In the Linnæan system, the name of a genus of fishes of the order of thoracici: the distinguishing characters of which are; that the membranes of the gills have seven bones, and the back one or two fins, the first spiny, the second soft; that the body is covered with rough scales; and that the edges of the gill-covers are scaly and ferrated. Linnæus enumerates thirty-six species.

PEARCH, COMMON; the *Perca Fluviatilis* of Linnæus. This fish was known to the ancients; and those of Britain were particularly admired by the Romans. The Dutch are excessively fond of the Pearch, when made into a dish called waterfouchy; and by European nations in general it is esteemed firm and delicate.

The Pearch is a gregarious fish, commonly

lodging in deep holes and gentle streams; and is extremely voracious, biting with such avidity, that if the angler meets with a shoal of them, he is sure of catching the whole.

It has been vulgarly supposed that the pike will not attack the Pearch, being apprehensive of it's spiny fins, which it erects on the approach of the former. This may be true with respect to large fish; but it is well known that small ones are the most tempting bait which can be laid for the pike.

The Pearch is so excessively tenacious of life, that it has frequently been carried fifty or sixty miles among dry straw, and yet survived the journey. It seldom grows to any considerable magnitude. We have indeed heard of one caught in the Serpentine River, Hyde Park, which weighed nine pounds; but this is very uncommon. The body is deep; the scales are extremely rough; the back is much arched; and the side-line is placed near the back. The irides are of a golden hue; the teeth are small, disposed in the jaws, and on the roof of the mouth; the edges of the covers of the gills are ferrated; and on the lower end of the largest there is a sharp spine. The first dorsal fin consists of fourteen spiny rays, and the second of sixteen soft ones; the pectoral fins, which are transparent, consist of fourteen rays, the ventral of six, and the anal of eleven; and the tail is a little forked. The colours are extremely beautiful, the back, and part of the sides, being of a deep green, marked with five broad black bars pointing downwards; the belly is white, tinged with red; the ventral fins are of a rich scarlet colour; and the anal fins and the tail are of the same hue, but somewhat paler.

Pennant mentions a singular variety of the Pearch; the back of which is quite hunched, and the lower part of the back-bone next the tail strongly distorted: but in it's colour, and other parts of it's conformation, it exactly resembles the common kind. It has been caught in a lake of Merionethshire, called Llyn Raithlyn; and also in the Thames, near Marlow.

The Pearch affords excellent diversion for the angler; and the best season for this kind of sport is between the spring and the middle of summer. This fish will bite the whole day, if the weather be cloudy; but the best time of catching it is from eight to ten in the morning, and from three to six in the afternoon.

PEARCH, GILDED. See RUFFE.

PEARCH, SEA; the *Perca Marina* of Linnæus. A sea-fish much resembling the common freshwater Pearch in shape, size, and colours; but somewhat thinner in proportion to it's length, and more variegated. The back is marked with six or seven blackish transverse lines; and the intermediate space inclines to reddish, especially towards the head. The whole head, and part of the belly, are elegantly variegated with red and blue streaks; the dorsal fin is of a pale yellow colour, with several reddish yellow spots, very long, furnished with fifteen strong spiny rays, and fourteen soft; the mouth is extremely wide, and generally open; the teeth are sharp; and the eyes are very large.

This fish is very common in the Mediterranean; and it's flesh is held in considerable estimation.

PECARY; the *Sus Tajacu* of Linnæus. This animal, which of all others most resembles a hog, and

and yet in it's formation is very distinct from it, is a native of South America; and found there in such numbers, that herds of several hundreds together are seen grazing in the woods:

At first view, the Pecary resembles a small hog; the form of it's body, the shape of it's head; the length of it's snout, and the formation of it's legs, are entirely similar: however, on a closer inspection, the differences begin to appear; the body is less bulky; the legs are not so long; the bristles are thicker and stronger than those of the hog, resembling the quills of a porcupine rather than hair; and, instead of a tail, it has only a fleshy protuberance, which does not even cover it's posteriors. But it's most remarkable peculiarity, and in which it differs from every other quadruped, is, that it carries a lump on it's back resembling the navel in other animals; which separates a liquor of a very rank smell.

The Pecary is the only creature having those kind of glands which discharge the musky substance on that part of it's body. Some have these ducts under the belly, and others under the tail; but this animal, by a conformation peculiar to itself, has them on it's back. This lump, or navel, is placed on that part of the back which is over the hinder legs; and it is in general so closely covered with bristles, that it cannot be seen unless they be drawn aside. This being done, a small space appears, beset with a few fine short hairs only; and in the middle it rises like a lump, in which is an orifice large enough to admit a common goose-quill. The hole or bag is not more than one inch in depth; and round it, under the skin, a number of small glands are arranged, which distil a whitish liquor, in colour and consistence resembling that procured from the civet. Perhaps this analogy between the two animals induced Dr. Tyson to say, that it smelt agreeably also, like that perfume. However, Buffon absolutely denies this circumstance; and if additional authorities were necessary to confirm this great naturalist's assertion, they might easily be produced.

The colour of the body of this very singular animal is grisly, the bristles being variegated with black and white; the belly is almost bare; and the bristles on the sides gradually increase in length as they approach the ridge of the back, where they are about five inches long. Between the ears there is a large tuft of bristles, chiefly black; the ears, which are about two inches and a half long, stand upright; and the eyes resemble those of the common hog, except that they are smaller. From the lower corner of the eye to the snout it usually measures about six inches; and the snout itself, though small, resembles that of the hog.

Between the Pecary and the common hog some anatomical differences appear in the internal structure. Dr. Tyson was led to imagine that it had three stomachs; whereas the common hog has but one: however, in this he was deceived; as Daubenton has plainly evinced, that the stomach is only divided by two closings, which seem to alter it's appearance, though there is no conformation that prevents the food in any part of it from going or returning to any other.

This animal is capable of being tamed like the hog; and has nearly the same habits and natural inclinations. It feeds on the same aliments; it's flesh, though drier and leaner than that of the

hog, is yet tolerable food; it is improved by castration; and, when killed, not only the parts of generation must be instantly removed, but also the navel on the back, with all the glands that contribute to it's supply: for if this operation be deferred for only half an hour, the flesh acquires such a rancid taste, as to be totally unfit for food.

The Pecary is a gregarious animal; and sometimes herds of two or three hundred unite together for their common defence. They are particularly fierce when their young ones are attempted to be wrested from them: they surround the plunderer, attack him without fear; and frequently make his life pay the ransom of his temerity. When any of the natives are pursued by a herd in this manner, they frequently climb trees in order to avoid them; while the Pecaries gather round the roots; threaten with their tusks; and their rough bristles standing erect, as in the hog kind, they exhibit a very formidable appearance. In this manner they continue for hours together; while the hunters are obliged to wait patiently, and not without apprehensions, till their enemies think proper to retire.

The Pecary appears to be rather attached to mountainous situations than to lowlands: it seems neither fond of marshes nor mud, like our hogs; keeps among the woods, where it subsists on wild fruits, roots, and vegetables; and is an unceasing enemy to the lizard, the toad, and all the serpent race, with which these uncultivated forests abound. As soon as it perceives a serpent; or a viper, it immediately seizes it with it's fore hoofs and teeth; and skinning it in an instant, devours it's flesh. This fact has often been seen, and may therefore be credited: but, with respect to the assertion of it's applying to a proper vegetable immediately after, as an antidote to the poison of the animal it has devoured, we are rather inclined to suspect it's authenticity. Neither the flesh of the toad, nor of the viper; as most people know, is poisonous; and therefore there can be no need of any remedy against it's venom. Ray questions the whole account. However, we can have no reason to disbelieve that it feeds on serpents and toads: only the circumstance of it's using a vegetable antidote appears improbable; and which, perhaps, originated from the credulity and ignorance of the natives.

The Pecary is extremely prolific. The young follow their dam till they arrive at maturity: if early taken from her, they are easily tamed, soon losing their natural ferocity; however, they never shew any remarkable signs of docility, but continue in a state of stupidity, without attachment, or even seeming to know the hand that feeds them: they only refrain from mischief; and may be permitted to run tame, without the apprehension of any dangerous consequences. They seldom stray far from their sty; they return of themselves; and rarely quarrel with each other, except when they happen to feed in common: at such times they utter an angry sort of growl, stronger as well as harsher than that of a hog; but they seldom scream like the former; only, when irritated, they sometimes have an abrupt angry manner of blowing like the boar.

Though the Pecary agrees with the common hog in many respects, it is nevertheless a distinct race, and will not mix, nor introduce an intermediate breed. The European hog, which has been transplanted into America, and suffered to

run wild in the woods, has often been seen to herd among a drove of Pecaries, but never to breed from them. They may therefore be considered as two distinct creatures: the hog is the larger and more useful animal; the Pecary is more feeble and local: the hog subsists in most climates of the world, and in almost every climate; the Pecary is a native of the warmer regions of South America only, and cannot subsist in ours without shelter and assistance. It is, however, extremely probable that we could readily propagate the breed of this quadruped; and that, in two or three generations, it might be familiarized to our climate; but as it is in every respect inferior to the hog, it would be needless to admit a new domestic, whose services are better supplied in the old.

PECORA. In the Linnæan system of zoology, a classical term expressive of a whole order of quadrupeds: the distinguishing characters of which are; that the creatures have cutting-teeth in their under jaws, but none in their upper; that they have no canini; but five molares each way. Linnæus enumerates six genera of this order; namely, the camel; moschus; cervus, or stag; the capra, or goat; the ovis, or sheep; and the bos, or ox; including collectively thirty-five species.

PECTEN. A genus of shell-fish: the characters of which are; that the shell is bivalve, shutting close in all parts, of a flatted shape, striated after the manner of a comb, and often auriculated, sometimes semi-auriculated, and sometimes not at all auriculated. There are also some species elate, though they are generally depressed.

This genus received the appellation of Pecten from the longitudinal striæ with which the surface of the shell is covered, which resemble the teeth of a comb. According to the general characters of this shell, it will be readily apprehended, that under the denomination Pecten, cockles, as well as scallops, are intended to be included.

Though the having ears is the common mark of distinction between the Pectens and cockles, (which last are usually destitute of any) yet the genera are not so distinct as some have imagined: for there are shells allowed to be Pectens or scallops, which have yet no ears; and others universally allowed to be cockles, which nevertheless are furnished with ears. From this appears the error of Lister, who made these two distinct genera; and gave the ears, and equal convexity of both shells, as their principal characters.

Conchologists in general have made the genus of cockles very extensive; but all the supposed species may be aptly admitted into the genus of the cordiformis or heart-shell, and the Pectens. Hence, if this establishment of the genus of the Pecten is allowed, the species are to be enumerated under several distinct heads. Thus, some Pectens are auriculated on both sides, of which there are seventeen species; of Pectens which are semi-auriculated, there are six species; and of those without ears, there are seven species.

The Pectens possess the power of spinning or forming threads, like the muscle; but their texture is much shorter and coarser than that of the muscle; nor can the threads be fabricated into any sort of work, like those of the pinna marina. The use of the threads which the Pecten spins, is to fix the creature to any contiguous body, whether it be a stone, a piece of coral, or ano-

ther shell: all these threads proceed, as in the muscle, from one common trunk; in those shells which are furnished with ears, they make their way out a little below that ear; in the others, it seems they issue out on each side. As a proof that this fish possesses the faculty of fixing itself at pleasure to any solid body by means of these threads, the scallops are often found tossed on those rocks where there were none the day before; and yet these are fixed by their threads as firmly as those which have remained a considerable time in their place.

PEDETICHE. An appellation given by some Greek writers to the chamois goat, the creature whose skin affords the chamois or shammy leather. See GOAT, CHAMOIS.

PEDICULUS. The classical name of the louse. See LOUSE.

PEDO. An appellation given by some naturalists to the tipula, or father-long-legs; called by others gruina, or the crane-fly.

PEGASUS. An appellation by which naturalists express a genus of the amphibia nantes: the characters of which are; that the mouth is furnished with a retractile proboscis; that the upper jaw is denticulated; that the snout is linear, and ensiform; that the opening of the gills is before the pectoral fins; that the body is articulated by bony joints; and that the ventral fins are abdominal. There are three species of this genus, all inhabitants of the Indian ocean.

PEGORELLA. A name by which some authors express a fish of the truttaceous kind, caught in the Mediterranean, and more usually called callarias.

PEKAN. A North American animal of the weasel kind, resembling the martin in shape; about one foot seven inches long from nose to tail, the tail measuring eleven inches more. The whiskers are long and strong; the ears are a little pointed; the hair on the head, back, and belly, is cinereous at the root, of a bright bay at the ends, and very soft and glossy. The sides are tinged with grey; the legs and tail are black; the toes are covered with thick hair above and below; and between the fore-legs there is a white spot.

PELÆAS. An appellation given by the ancients to that species of pigeon now known by the name of the livia, and sassorolla. It is of a grey colour, with some variegations of green and purple; and is of a very small size.

PELAGIÆ. A term used to express such sea-shells and fishes as are hardly ever found near the shores; but always reside in the deep, or in those parts of the bottom of the sea which are very remote from land.

PELAGIA. An appellation usually given by Pliny, and other ancient naturalists, to the purpura.

PELAMYS. A name by which the ancients expressed the young brood of the thynnus, or tunny-fish, at a certain age and size: however, later writers have appropriated the word to the name of a distinct species of fish of the genus known by the appellation sarda, and Pelamys sarda. This fish is shaped like the tunny; but it's skin is smooth, and entirely free from scales, except about the gill-fins; and it's teeth are large, long, and crooked. These are the only external marks by which it may be distinguished from the young brood of the tunny; but the hardness of it's flesh forms a certain criterion.

PELAMYS VERA. An appellation given by

by Rondeletius, and some other ichthyologists, to the fish more distinctly known by that of amia.

PELECANUS. A name by which some ornithologists express the platea, or spoon-bill; a bird very different from the pelican, being of the stork or heron kind.

PELICAN. In the Linnæan distribution of nature, a distinct genus of birds of the order of anseres; the characteristic of which is a straight beak, with a hooked point, and furnished with a large bag or purse beneath. There are eight species.

PELICAN, AFRICAN; the *Pelecanus Onocrotalus* of Linnæus. This species is considerably larger than the swan, and nearly of the same shape and colour. It's four toes are all webbed together; and it's neck in some measure resembles that of a swan. But, in the peculiarity of it's bill, and the great pouch underneath, it differs from all other birds. This enormous and wonderful bill is fifteen inches long from the point to the opening of the mouth, which is placed a considerable way behind the eyes. At it's base, the bill is somewhat greenish; but varies, towards it's extremity, to a reddish blue: it is very thick at the beginning, but tapers off to the end, where it hooks downwards. The under-chap is still more extraordinary; for to it's lower edges is suspended a bag, reaching the whole length of the bill to the neck, which is said to be capable of containing fifteen quarts of water. This bag the bird possesses the faculty of wrinkling up into the hollow of the under chap; but by opening the bill, and putting any thing down into the bag, it may be distended at pleasure: the skin of which it is formed will then appear of a blueish ash-colour, with many fibres and veins running over it's surface. It is covered with a short downy substance, as smooth and soft as fatten; and is attached all along the under edges of the chap, to be fixed backwards to the neck of the bird by proper ligaments; and reaches near half way down. When this bag is empty, it is scarcely perceptible; but when the bird has been successful in fishing, it is incredible to what an extent it is then dilated: for the first thing the Pelican wishes to effect in fishing, is to replenish the bag; and then it returns to digest it's burden at leisure. When the bill is opened to it's widest extent, a person may run his head into the bird's mouth, and conceal it with the greatest ease. Yet this is nothing to what Ruysch asserts, namely, that a man has been seen to hide his whole leg, boot and all, in the monstrous jaws of one of these birds. At first sight, this might seem impossible, as the sides of the under-chap, from which the bag depends, are not above one inch asunder when the bill of the Pelican is first opened: but then they are capable of great separation; and it must necessarily be so, as this creature preys on the largest fishes, and hides them by dozens in it's pouch. Tertre affirms, that it is capable of concealing as many fish as will suffice six hungry men for a meal.

Such is the formation of this extraordinary bird, which was once known in Europe, particularly in Russia; but seems now to have deserted our coasts: and such is the bird of which so many fabulous accounts have been propagated; some of which were, that it fed it's young with it's own blood, and carried in it's great reservoir a stock of water for them when in the deserts. But the absurdity of the first relation is self-evident; and as to the last, the Pelican uses it's bag for a very dif-

ferent purpose than that of filling it with water. It's prodigious pouch may be considered as analogous to the crop in other birds; with this difference, that as theirs lies at the bottom of the gullet, this is placed at the top. Thus, as pigeons and other birds macerate food for their young in their crops, and then supply them; so the Pelican furnishes it's brood with provisions by a more ready contrivance, macerating them with it's bill, or storing them for it's own particular support.

The ancients appear to have been carried away by a desire of ascribing admirable qualities and parental affections to this bird. Struck, perhaps, with it's extraordinary figure, they were willing to supply it with as many extraordinary appetites; and having found it possessed of a large reservoir, they amused themselves with turning it to the most tender and parental uses. But the fact is; Pelicans are very heavy, sluggish, voracious birds; and very ill fitted to take those flights, or make those prudent provisions for a distant time, which they have commonly been supposed to do. Labat, who seems to have studied their manners with great exactness, has given a very minute history of this bird.

'The Pelican,' says this author, 'has strong wings, furnished with thick plumage; the eyes are small when compared to the magnitude of it's head; there is a sadness in it's countenance, and it's whole air is expressive of melancholy. It is as dull and reluctant in it's motions as the flamingo is active and sprightly: it is slow of flight; and, when it rises on the wing, it performs it with difficulty and labour. Nothing, as it would seem, but the spur of necessity, could make these birds change their situation, or induce them to ascend the air: indeed, they are torpid and inactive to a great degree, so that nothing can exceed their indolence but their gluttony; it is only from the stimulations of hunger that they are excited to labour, for otherwise they would continue always in fixed repose. When they have raised themselves about thirty or forty feet above the surface of the sea, they turn their heads, with one of their eyes, downwards, and continue to fly in that posture. As soon as they perceive a fish sufficiently near the surface, they dart down on it with amazing swiftness, and with unerring certainty, and store it up in their pouch: they then rise again, though not without great labour; and continue hovering and fishing, with their heads on one side, as before.

'This work they prolong with great effort and industry till their bag is full; and then they fly to land, to devour and digest at leisure the fruits of their industry: this, however, it would appear, they soon effect; for towards night, they have another hungry call, and they again reluctantly return to labour. At night, when their fishing is over, and the toil of the day crowned with success, these lazy birds retire a little way from the shore; and though they have the webbed feet and clumsy figure of a goose, they will be satisfied to perch no where but on trees, among the light and airy tenants of the forest: there they repose during the darkness, and often spend a great part of the day, except when they are engaged in fishing, sitting in dismal solemnity, and seemingly half asleep. Their attitude is, with the head resting on their great bag, and that reclining on the breast: there they remain motionless, till the calls of hunger break their repose, and they find it indispen-

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dispensably necessary to fill their magazine for a fresh meal. Thus their life is spent between sleeping and eating; and they are as foul as they are voracious, every moment voiding excrements of a prodigious size.

The same indolent habits seem to attend these birds, even in preparing for incubation, and defending their young when excluded. The female makes no preparation for her nest; nor seems to prefer any place to lay in before another; but drops her eggs on the bare ground, to the number of five or six, and in that situation continues to hatch them. Attached to the place, though without any desire of defending her eggs or her young, she in general patiently suffers them to be taken from her: now and then, indeed, she just ventures to peck, or to cry out when any person offers to disturb her; but she seems more actuated by personal resentment than parental affection.

However, the Pelican feeds her young with macerated fish for some time; and when they seem importunate, she flies off in quest of a new supply. The above-mentioned naturalist tells us, that he took two of these when very young, and tied them by their legs to a post stuck into the ground, where he had the pleasure of seeing the old one, for several days successively, come to feed them; remaining with them the greatest part of the day, and spending the night on the branch of a tree which overshadowed them. By these means they were all three become so familiar, that they suffered themselves to be handled; and the young ones very readily accepted whatever fish was presented to them; always putting them first into their bag, and then swallowing them at their leisure. It seems, however, that these birds in a domestic state, are neither agreeable nor useful: their gluttony can scarcely be satiated; and their flesh smells very rancid, and tastes still worse than it smells.

But with all the seeming hebetude of this bird, it is not entirely incapable of instruction when domesticated. Father Raymond assures us, that he has seen one so tame and well educated, that it would go off in the morning at the word of command, and return before night to its master, with its pouch distended with plunder; part of which the proprietor made it disgorge, and part he permitted it to retain for its own sustenance.

The Pelican, according to Faber, is not destitute of other qualifications. One of those which was brought alive to the Duke of Bavaria's court, where it lived forty years, seemed to be possessed of very uncommon sensations. It was much delighted with the company and conversation of men: and with music, both vocal and instrumental; for it willingly stood by those who sung, or sounded the trumpet; and stretching out its head, and turning its ear, listened very attentively to the harmony, though its own voice was scarcely more melodious than the braying of an ass. Gesner tells us, that a tame Pelican, the property of the Emperor Maximilian, lived above eighty years, and always attended his army, on their march; that it was one of the largest of the kind; and had a daily allowance by the Emperor's order. In confirmation of the great age to which the Pelican lives, Aldrovandus makes mention of one which was kept several years at Mechlin, and was verily believed to be fifty years old.

PELICAN, AMERICAN; the *Pelecanus Onocrotalus Niger* of Linnæus. This species entirely

coincides with the former in its general conformation and habitudes; however, it differs a little in colour, and has therefore been considered as a distinct species. The whole head and neck are covered with white feathers; the feathers on the back are small, white at their shafts, and of a dusky black ash-colour on their sides, all terminating in points; the tail is ash-coloured; the great quills of the wings are black; the lesser coverts of the wings are white in their middles, edged with cinereous; and the breast, belly, and sides, are of a dark ash-colour, approaching to black, without any intermixture of lighter colours. The legs, which are short, are of a dirty yellow greenish colour; and the claws are dusky.

This bird is a native of the West Indies, and several parts of the continent of America. The savages kill vast numbers of them; not to eat, (for they are not even admitted to the banquet of a savage) but to convert their large bags into purses and tobacco-pouches. They bestow abundant pains in dressing their skins with salt and oil, in order to form them to their purposes: thus they become so soft and pliant, that the Spanish ladies sometimes decorate them with gold and embroidery for work-bags.

PELLA. An appellation by which some naturalists express the common grey heron.

PELLACK. The name of a young spout whale, often found in Zetland; where it runs into creeks, and is so entangled among the rocks, that it is either forced ashore, or easily taken.

PELORIDES. An appellation given by some conchologists to a peculiar species of chama. Bellonius, who first introduced the word, never uses it singly as the name of the shell, but only as an epithet, derived from Peloro, the name of a place where a particular species of the chama was very frequent.

PEN-FISH. A name used by some ichthyologists to express a kind of eel-pout, with a smooth skin, entirely destitute of scales, and about a foot long. The back is brown; the belly is of a pale blue colour; and the fins are brown, sharp, and venomous. The flesh is well-tasted, but unwholesome when eaten too freely. This fish is found in lakes and ponds.

PEN, SEA. A genus of zoophyte, which, though it swims about freely in the sea, approaches near to the gorgonia. This genus has a bone along the middle of the inside, which is its chief support; and this bone receives the supply of its ossaceous matter by the same polype mouths that furnish it with nourishment. Linnæus enumerates seven species.

PENGUIN. An appellation given by mariners, and adopted by naturalists, to a class of aquatic fowl, of which there are several species, known by different denominations.

These birds, though they generally frequent the same places with the gull kind, are neither long-winged nor swift fliers: they are indeed but indifferently formed for flight, and still less adapted for walking. The duck is not half so unwieldy an animal as the whole tribe of the Penguin kind. Their wings are much shorter, more scantily furnished with quills, and the whole pinnion placed too forward to be usefully employed: for this reason the largest of the Penguin kind, which have thick heavy bodies to raise, cannot fly at all; their wings serve rather as paddles to assist their progressive motion when they attempt to hasten

hasten their pace, and in a manner walk along the surface of the water. Even the smaller kinds seldom fly by choice: they flutter their wings with the swiftest efforts, without advancing; and though they have but a small weight of body to sustain, they seldom venture to quit the water, where they are provided with food and protection.

As the wings of the Penguin tribe are ill-adapted for flight, their legs are still more awkwardly formed for walking: all the space above the knee is hid in the belly; and nothing is seen but two short legs, or feet, as they might be called, that appear as if stuck under the rump; and on which the animals are but badly supported. They seem, when sitting, or attempting to walk, like a dog which has been taught to sit up, or to move in a minuet: their short legs drive their bodies in progression from side to side; and, were they not assisted by their wings, they would scarcely move faster than a tortoise.

This unsuitable position of the legs of the Penguin, which so incapacitates it for living on land, adapts it admirably for an aquatic life. In that element, the legs placed behind the moving body, pushes it forward with great velocity: and these birds, like Indian canoes, are the swiftest in the water, by having their paddles in the rear; and hence our sailors give them the coarse, but expressive name, of arse-feet.

Nor are the Penguins less qualified for diving than swimming: by inclining their bodies ever so little forward, they lose their centre of gravity, and every stroke with their feet only tends to sink them the faster. In this manner they can either dive at once to the bottom, or swim between two waters, where they continue fishing for some minutes; and then ascending, catch an instantaneous breath, to descend once more in renewal of their operations. Hence it is that these birds, which are so defenceless, and so easily taken by land, are insuperable in the water: if they perceive themselves in the least pursued, they instantly sink, and shew only their bills, till their enemy is withdrawn. Their very internal conformation assists their power of continuing long under water: their lungs are fitted with numerous vacuities, by which they can take in a very large inspiration; and this probably serves them for a considerable length of time.

As these birds never visit the land, except for the purpose of breeding, their plumage derives a tinge from situation: that part of them which has been continually bathed in the water is white; while their backs and wings are of different colours, according to their different species. They are also covered more warmly all over their bodies with feathers than any other birds whatever; so that the sea seems to be entirely their element; and, but for the necessary duties of propagating their species, we should seldom have any opportunity of seeing them, and consequently their history would be unknown.

PENGUIN, MAGELLANIC. This bird is the largest and most remarkable of the kind, being little inferior in size to the common goose. It never flies, as its wings are very short, and covered with stiff hard feathers, which are always expanded, and hanging useless down by the animal's sides. The upper part of the head, the back, and rump, are covered with stiff black feathers; while the belly and breast, as is common

in all this kind, are of a snowy whiteness, except a line of black which crosses the crop; and the bill is black, marked transversely with a stripe of yellow, and corrugated about half way up from the base.

These birds walk erect with their heads on high, their fin-like wings appearing as arms; so that, when viewed at a distance, they resemble so many children with white aprons. From hence they are said to unite in themselves the qualities of men, fowls, and fishes: like men, they are erect; like fowls, they are feathered; and, like fishes, they have instruments resembling fins, which beat the water before, and answer the purposes of swimming rather than flying. They uniformly feed on fish, seldom coming on shore, except at the season of incubation; and as the seas in that part of the world where they abound are plentifully stocked, they seldom want food; and indeed their extreme obesity is a proof in what affluence they live. They dive with great rapidity; and are voracious to a high degree: one of them, described by Clusius, though very young, would swallow an entire herring at a mouthful, and often three successively before it was satisfied. In consequence of this gluttonous appetite, their flesh is rank and fishy, though sailors sometimes make a meal of it: but, in some, the flesh is so tough, and the feathers are so thick, that they withstand a blow of the sharpest weapon.

These creatures are social and gregarious, especially when they come on shore, where they are seen drawn up in rank and file on the ledges of rocks, standing together with the albatross, as if in deep consultation. This is previous to their laying, which generally commences, in that part of the world, about the month of November. Their preparations for laying are soon adjusted; a small depression in the earth, without any nest, answering their purpose: nevertheless, the warmth of their feathers and the heat of their bodies is such, that the progress of incubation is carried on with great rapidity.

But there is a difference in the manner of this bird's nestling in other countries; which may be ascribed to the frequent disturbances it has received from man or quadrupeds in its recesses. In some places, instead of contenting itself with a superficial depression in the earth, the Penguin burrows two or three feet deep in the ground: in other places, it forsakes the level, and clammers up the ledge of a rock, where it lays its egg, and hatches it in that bleak, exposed situation. These precautions were most probably adopted in consequence of dear-bought experience. In those countries where the bird fears for her own safety, or that of her young, she may providentially provide against danger by digging, or even climbing; for both which exertions she is but ill-adapted by nature.

However, the Magellanic Penguins have but few visits from man; and their nests are therefore formed, with the most confident security, in the middle of some large plain, where they assemble by thousands. In that unguarded situation, neither expecting nor fearing any powerful enemy, they continue to sit brooding; and, even when some of the human species make their first appearance among them, they have no apprehension of their danger. But the experience of a few of their unfriendly visits has taught others of them to be more cautious in choosing their situations, as

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well as to quit those retreats where they were so little able to oppose their invaders.

The Penguin lays but one egg; and burrows like the rabbit. Sometimes three or four take possession of the same hole, and hatch their young together. In the cavities of those rocks where nature has formed retreats for them, several of this tribe, as Linnæus assures us, are frequently seen together: there the females lay their single egg in a common nest, and sit on them by turns; while one is placed as a centinel, to give notice of any approaching danger. The egg of the Magellanic Penguin is very large for the size of the bird, considerably exceeding that of a goose.

PENGUIN, NORTHERN, of Edwards. This bird is nearly about the size of a tame goose: the bill is dusky, or black; the head and neck, and also the back, tail, and upper sides of the wings, are of a deep black colour; and the feathers are very soft and even, with a silky gloss. Between the bill and the eyes, on each side of the head, there is a large oval white spot; the breast, belly, and coverts under the tail, are white; the legs and feet are covered with black scales; and it has only three toes, all standing forward, and webbed together.

This species, according to Edwards, is common to the northern parts both of Europe and America.

PENGUIN, BLACK-FOOTED, of Edwards. This bird, which is supposed to be a native of the Cape of Good Hope, is somewhat less than a common goose: the bill is black, except that it is crossed near the point with a yellowish stripe or bar; the throat, and the sides of the head, are of a dirty brown hue; and from the basis of the bill above the eyes, on each side of the head, passes a broad white line, which unites itself with the white on the sides and under-side of the neck. The top of the head, the upper side of the neck, the back, and the upper part of the wings, are of a dark brown colour; the under-side, the neck, breast, and belly, are white, excepting a transverse line of brown, which passes over the breast, and reaches on each side as far as the legs. The rump is white; the tail is composed of only a few short bristles; the legs and feet are black; and the toes are armed with strong claws, three of which are webbed together, and the fourth is very small and loose.

PENICILLI MARINI. A kind of marine tubuli, forming a distinct genus of these shells. They are defined to be shelly tubes, extremely slender, and terminating in the shape of a painter's pencil; many of them, in their natural shape, adhering to stones on the sea-shore by means of a soft and lax substance. Some are white and pellucid, and others yellowish or brown: they are usually about three inches long, and the thickness of a wheaten straw; but some are funnel-shaped, having their mouths surrounded by a sort of hairs or filaments. These are denominated by some probosciplectani; others are called *cadi*; and others, *entalia*.

PENNEVISCH. An appellation given by some ichthyologists to the most common species of the fish called *bagre*, caught in the East and West Indian seas.

PENTACEROS. A name used by Linkius and others to express the *stella marina*, or sea star-fish, composed of five principal rays, with several transverse hairy or downy processes.

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PENTACTINODOS. An appellation by which some express that species of star-fish whose body is composed of five rays.

PENTADACTYLOS PISCIS. A fish common in the Oriental seas, and there called by the Dutch *viif vinger visch*. It receives its name from five black streaks on each side, resembling the prints of five fingers. It is about eighteen inches long: the head is small in proportion to the body; and the fins are large, reaching almost to the tail. Its general colour is very bright and elegant, being yellow, with an admixture of purple; it has no scales; and its flesh is dry, but not ill-flavoured.

PENTADACTYLOS-ASTER. An appellation given by several authors to a species of star-fish; composed of a small body; and five principal rays, each of which have several processes issuing from them covered with down.

PENTAGON-ASTER. A name by which some authors express the *asterias*, or *stella marina*. See **ASTERIAS**.

PENTELASMIS. An appellation given by some conchologists to the *concha anatifera* of authors.

The *Pentelasmis* is a genus of animals, composed of a shelly body, affixed to a fleshy and soft pedicle: the body is composed of five valves; and the pedicle is sometimes short, and sometimes long. The inclosed animal is a triton.

PENTOPHTHALMOS. An East Indian fish, approaching to the European *liparis*, or butter-fish, but larger, and called by the Dutch *viif oog*. It receives its name from five round spots in the tail-fin, resembling five eyes. It is of a yellowish colour, covered with a smooth skin, without any scales: the body is thick; the head is small; the beak is long; the fins are red; and the tail is bluish. It inhabits fresh waters; and its flesh is much esteemed.

PEPPER-BIRD. An English appellation for the *rhamphastos*, with a yellow rump; called also the *toucan*.

PERANEMA. A Brazilian sea-fish, of the size of a peach, about ten or eleven fingers in length, and about three fingers broad. The mouth is large and round, without any teeth, the want of which is supplied by rough sharp prominences; the eyes are large; and the dorsal fin is long, and supported by rigid prickly rays. The tail is even; the whole body is of a silvery white colour, with a faint blush of red; the fins are extremely small, and of a triangular figure; and the belly is very white. The flesh of the *Peranema* is wholesome and well-flavoured.

PERCA AMBOINENSIS. A fresh-water fish, somewhat resembling the common peach, but differing from it in being of a brown colour, and in having several blue lines under its snout. It is caught in the lakes and rivers of Amboyna; and its flesh is highly esteemed for its flavour and delicacy.

PERDIX. The classical term for the partridge.

PERDIX is also a name given by conchologists to a genus of shells, supposed to resemble the partridge in the shades and disposition of the colours. The partridge shell is of the *dolium*, or *concha globosa* class; and is striated and spotted in a manner peculiarly elegant.

PERIWINKLE. An English appellation for a species of shells; the *Turbo Littoreus* of Linnæus.

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næus. This shell has five spires: the first is ventricose; in younger subjects, spirally striated; in old ones, smooth, and of a dusky colour.

Periwinkles abound on most rocks, far above low-water mark; and are commonly eaten by the poor. The peasants in Sweden entertain a belief, that when these shells creep high up the rocks, they indicate a storm from the southern quarter.

PEROQUETTE. A small kind of the psittacus or parrot tribe, with a long tail. See **PARROQUET.**

PERSICA CONCHA. A name by which conchologists express a very singular and beautiful shell, of the concha globosa or dolium genus. Aldrovandus seems at a loss to refer it to any particular class; but says it would be of the turbinated kind, if it was not destitute of the turba.

PESCE VACCA. An appellation given by Augustino Scilla to a kind of dog-fish.

PETIMBUARA. An American fish, called also the tobacco-pipe fish: a name more frequently used for the acus Aristotelis.

This fish grows to the length of three or four feet: the body is long, slender, and anguilliform; the mouth is destitute of teeth; the upper jaw is shorter than the lower; and the eyes are remarkably large. The skin is smooth like that of an eel, of a liver colour on the back and sides, with several rows of blue spots disposed in three ranks on the back; there are also some green spots interspersed with the blue ones; and the belly is flat, and of a whitish cast, inclining to brownish red. The flesh is much esteemed.

PETOLA. A species of coluber; the scuta of whose abdomen are two hundred and nine, and the squamæ of the tail ninety.

PETREL. A bird of the gull or larus kind; the distinguishing characters of which are: that the bill is straight, and hooked at the extremity; that the nostrils are cylindrical and tubular; that the legs are naked above the knees; and that a sharp spur, pointing downwards, supplies the place of the back toe.

PETREL, COMMON; the Procellaria Cinerea of Brisson. This species, which is also called the fulmar, inhabits the isle of St. Kilda, one of the Hebrides, where it continues during the whole year, except the months of September and November. It lays a very large, white, and brittle egg; and the young are hatched about the middle of June.

The Common Petrel is somewhat larger than the common gull: the bill is very strong, much hooked, and yellow; the nostrils are composed of two large tubes, lodged in one sheath; the head, neck, whole under-side of the body, and the tail, are white; the back and coverts of the wings are cinereous; the quill-feathers are dusky; and the legs are yellowish.

These birds feed on the blubber or fat of whales, and other similar substances; which being soon convertible into oil, supplies them constantly with means of defence, as well as provision for their young, which they cast up into their mouths.

The whole genus of Petrels have a peculiar faculty of spouting from their bills, to a considerable distance, a large quantity of pure oil: this they discharge on the first appearance of an enemy; so that the natives, who esteem this substance as peculiarly beneficial in medicine, generally seize them by surprize.

PETREL, MANKS; the Procellaria Puffinus of

P E T

Linnæus. This species is about fifteen inches in length; and the expansion of the wings is thirty-one inches. The bill is one inch and three quarters long; the head, the whole upper part of the body, the wings, the tail, and the thighs, are of a dull black colour; the under-side, from the chin to the tail, and the inner coverts of the wings, are white; and the legs, which are weak, and compressed laterally, are dusky behind, and whitish before.

This bird, which is a native of the Isle of Man, and several of the British isles, lays a single egg, of a white colour, and blunt at each end. The young are fit to be taken about the beginning of August, when great numbers are killed, salted, and barrelled; and when boiled, commonly eaten with potatoes. During the day, the old ones keep at sea, being engaged in fishing; but, towards night, they return to their young, whom they feed by discharging the contents of their stomachs into their mouths. They quit the Isle of Man about the beginning of September; and, according to the most recent accounts, it seems probable that they are dispersed over the whole Atlantic Ocean.

This bird likewise inhabits the Orkneys, where it is known by the appellation of the lyre. It forms it's nest in some hole near the shelves of rocks, and head-lands; and is much esteemed, both on account of it's flesh and plumage.

PETREL, STORMY; the Procellaria Pelagica of Linnæus. This species is about the size of the house-swallow. The whole body is black, except the coverts of the tail and the vent-feathers, which are white. It possesses the same faculty of spouting oil from it's bill as the other species; and, if we may credit Mr. Brunnich, the inhabitants of the Ferroe Islands make this bird answer the purpose of a candle, by drawing a wick through it's mouth and rump; which being lighted, the flame is fed by the fat and oil of it's body.

Except during the season of incubation, these birds are continually at sea; and are dispersed over the vast Atlantic Ocean, at the greatest distance from land, often following vessels in vast flocks, in expectation of picking up any thing that may chance to fall overboard. Their appearance is generally deemed a preface of stormy weather, particularly when they try to shelter themselves under the sterns of ships. However, they brave the utmost fury of the storm; sometimes skimming with incredible velocity along the hollows of the waves, and sometimes on their summits.

These animals are the Cypseli of Pliny, which he places among the Apodes of Aristotle; not because they want feet, but because, by keeping always on the wing, they have little use for them. They breed in the Hebrides, and some other places.

PETREL, GREAT BLACK; the Procellaria Æquinoxialis of Linnæus. This species is about the size of a raven: the bill is yellow, and pretty much hooked at the point; the plumage of the whole body is of a dull black colour; and the legs and feet are also black, inclining to flesh-colour.

Edwards, who first described this bird, supposes it to be a native of the African seas bordering on the Cape of Good Hope.

PETREL, WHITE AND BLACK, SPOTTED; the Procellaria Capensis of Linnæus. This bird, which

is common about the Cape of Good Hope, is about the size of the domestic pigeon. The bill is black; the head, and the under-side of the neck, are also black; the back and lesser coverts of the wings are white, prettily spotted with black; as are the rump, and the covert-feathers of the tail. The tail is wholly black; the whole under-side, from the bill to the coverts under the tail, is white, with a few longitudinal black spots; and the legs, feet, and claws, are blackish or dusky.

PETROCOSSYPHUS. An appellation given by some authors to the bird more usually called *cœruleus*, from its colour. It frequents rocks and woody mountains; and sings with very pleasing modulations.

PETROMYZON; the Stone-sucker. A genus of amphibia nantes in the Linnæan system, comprehending the lamprey. It is usually found in rivers, adhering to stones by suction, which enables it to hold its situation.

According to Artedi, the characters of this genus are: that the foramina or apertures of the branchiæ are seven in number on each side placed longitudinally, besides which there is a single aperture in the head situated immediately between the eyes; that the body is long, smooth, and nearly of a cylindrical figure; and that there are only two fins, which are both placed on the back.

Both Linnæus and Artedi enumerate three species of this genus.

PETRONELLUS. An appellation given by some ornithologists to the bunting.

PETRONIA MARINA. A small bird of the *cœnanthe* kind, or nearly allied to that genus. The beak is strong and sharp, like that of the chaffinch; the head is of a brownish grey colour; the neck is cinereous, variegated with black near the bottom; the rump is of a brownish green hue; the long wing-feathers are blackish, edged and tipped with green; the breast is of a dusky white colour; and the tail is brownish, variegated with yellow. A fine large yellow spot on the centre of the throat distinguishes this bird from all others of the kind.

PETTY-CHAPS; the *Motacilla Hippolais* of Linnæus. This bird, which is found in Yorkshire and some other counties of England, is sometimes called the beam-bird, from its nesting under beams in out-buildings. The inside of the mouth is red; the head, neck, back, and wings, are of an olivaceous ash-colour; the quill-feathers are darker, edged with olive; and the inner coverts of the wings are yellow. The breast is white tinged with yellow; the belly is of a silvery white colour; the tail is dusky; and the legs are blueish.

PEWIT; the *Larus Redibundus* of Linnæus. This bird, called also the *larus cinereus*, the cephew, the black-cap, and the sea-crow, belongs to the *larus* or sea-gull tribe; and is about the size of a pigeon. The beak and legs are red; the head and throat are of a greyish black colour; and the neck, tail, breast, and belly, are white. It receives its English name from its note, which seems to express the word Pewit. Many have affirmed that the head of this bird is black at particular seasons only.

Pewits are birds of passage, resorting to pools and fens in some of the interior counties, particularly Staffordshire, which they visit in the spring, and afterwards disperse to the sea-coasts. The

young were formerly much esteemed, and fattened for the table. Plot superstitiously relates that, at the death of the lord of the soil, they have been known to shift their quarters for a certain time. There is a piece of ground near Portsmouth, which formerly produced forty pounds yearly by the sale of those Pewits only which bred there.

PEWIT is also a provincial appellation for the bastard plover, or lapwing. See **LAPWING**.

PHŒNICOPTERUS. A name by which some authors express the flamingo.

PHAETON. A genus of anseres in the Linnæan system. Its distinguishing characters are; that the bill is sharp, straight, and pointed; that the nostrils are oblong; and that the hinder toe is turned forwards. There are two species, the penguin, and the tropic-bird.

PHAGRUS, the Sea-bream. In the Artedian system of ichthyology, a species of the *sparus*; distinguished by that author under the name of the reddish *sparus*, with the skin hollowed into a sinus at the roots of the dorsal fins.

PHALACROCEPHALUS INDICUS. An appellation by which some naturalists express an anadromous fish caught in the Oriental seas. The head and neck have a very naked appearance; the whole body is of a greyish white colour, variegated with red about the mouth; the eyes are very large and prominent; and the irides are yellow.

This fish generally measures about eighteen inches in length; and its flesh, which is extremely delicate, is deservedly admired. The Dutch in the East Indies give it the name of *kaelkop*.

PHALÆNA. A genus of the lepidoptera order of insects: the characters of which are; that the antennæ are setaceous, sensibly attenuated from the base to the apex; and the wings are generally deflexed.

Linnæus enumerates four hundred and sixty species, under the several titles of *phalæna*, *attacus*, *bombyx*, *noctua*, *geometra*, *tortrix*, *pyralis*, *tinea*, and *alucita*.

PHALANGER. An appellation by which some naturalists express the opoffium.

PHALANGIUM. A peculiar genus of spiders: the distinguishing characters of which are; that they do not move regularly and progressively after the manner of other spiders, but hop like fleas. This was the characteristic given them by Pliny, and others of the ancients; and it has been found perfectly applicable to the different species of this genus. The forehead of each of these spiders is square; and in it are placed eight eyes of different magnitudes, disposed in a circular form.

PHALANGIUM APULUM. A name sometimes expressive of that large and poisonous species of spider vulgarly called the tarantula; from Tarentum, a city of Calabria, near which it is very common.

PHALAROPE. A bird of the *tringa* kind, in the Linnæan system: the general characters of which are; that the bill is straight and slender; that the nostrils are minute; that the body and legs are like those of the sand-piper; and that the toes are furnished with scalloped membranes. There are several varieties.

PHALAROPE, GREY; the *Tringa Lobata* of Linnæus. This bird weighs about an ounce: its bill is black, about an inch long, flattened on the top,

top, and channelled on the sides; and the eyes are placed remarkably high in the forehead. The forehead is white; the crown of the head is covered with dusky plumage, spotted with white and pale reddish brown; but the rest of the head, and the whole under part of the neck and body, are white. The upper part of the neck is of a light grey hue; the back and rump are of a deep dove-colour, marked with dusky spots; the edges of the scapulars are a dull yellow; the coverts are dusky; the primaries are likewise dusky, with white shafts; and the smaller quill-feathers are tipped with white. The feathers on the back are either wholly grey or black, edged with a pale red; and the tail is dusky, edged with cinereous. The legs are of a leaden colour; and the toes have curious scalloped membranes like the coot.

This species, which is sometimes seen in Yorkshire, is described by Edwards under the appellation of the grey coot-footed tringa.

PHALAROPE, RED; the *Tringa Hyperborea* of Linnæus. The bill of this bird is about one inch long, black, slender, and straight almost to the point, which bends downwards; the crown of the head, the hind part of the neck, and the coverts of the wings, are of a deep lead-colour; the back and scapulars are of the same hue, except that they are striped with dirty yellow; and the quill-feathers are dusky, with white shafts. A stripe of white crosses the greater coverts; the chin and throat are white; the under part and sides of the neck are ferruginous; the breast is dark cinereous; and the belly is white. The coverts of the tail are barred with black and white; the tail is short, and of a cinereous colour; and the legs and feet are black.

This species has sometimes been caught in Yorkshire; and is common to the northern parts of Europe and America.

PHALLUS MARINUS. An appellation given by some authors to a species of the *canalis* or *tubulus marinus*, found near Amboyna. It is an oblong shell, with a large head, pierced full of small holes; so that at once it resembles the glans penis and the nose of a watering-pot.

PHATAGIN. An animal resembling the pangolin, of which it is deemed a variety. It is about one foot long from the head to the tail; and the tail is about twice the length of the body. The back is protected by a shelly covering like the pangolin; but the belly, breast, and throat, are covered with hair. It is a native of the warm latitudes of the Indies and Africa.

PHE SANT. A genus of birds of the *gallinæ* order; the distinguishing characteristic of which is, that the area, or space about the eyes, is naked.

Pheasants were first imported into Europe from the banks of the Phasis, a river of Colchis, in Asia Minor; and from this river they received their name. There are several species.

PHEASANT, COMMON. Next to the peacock, the Pheasant is the most beautiful of birds, as well for the vivid colour of its plumes, as for their delightful mixtures and variety. The utmost efforts of the pencil cannot represent any thing so glossy and brilliant, or points so delicately blending into each other. It is reported that Cræsus, king of Lydia, when seated on his throne, adorned with all the pomp of eastern splendour, asked Solon if he had ever seen any thing so fine? The Greek philosopher, unawed by the objects before

him, or priding himself in his native simplicity, replied, that after having seen the beautiful plumage of the Pheasant, he could be astonished at no other finery.

Indeed this is certainly a most elegant bird. The irides are yellow; and the eyes are surrounded with scarlet, sprinkled with small black specks. On the fore-part of the head there are blackish feathers, mixed with a shining purple. The top of the head, and the upper part of the neck, are tinged with a darkish shining green. In some varieties, the top of the head is of a shining blue colour; and the head and neck appear either blue or green, according to the light in which the spectator views them. The feathers on the breast, the shoulders, the back, and the sides, are blackish, exquisitely edged with a varying colour, under which appears a transverse golden streak. The tail is about eighteen inches long; the legs, feet, and toes, are horn-coloured; the legs are furnished with black spurs, shorter than those of a cock; and two of the toes are connected by a membrane. The hen is less beautiful than the cock: her feathers are nearly like those of the quail. She lays about eighteen or twenty eggs once a year; and brings up a numerous brood.

The Pheasant is not only beautiful to the eye; it is also a peculiar delicacy for the table: but, as if disdainful the protection of man, it takes shelter in the thickest woods and remotest forests. The cock, the turkey, the pintada, and all others of the domestic kind, when once reclaimed, have still continued in their domestic state, and persevered in the habits and appetites of willing servitude: but the Pheasant, though removed from its native warm and agreeable climates, retains its attachment to genuine freedom; and now continues wild among us, ornamenting our parks and forests, where it feeds on acorns, berries, and grain, the scanty produce of this cold climate.

But though, in the woods, the hen Pheasant lays from eighteen to twenty eggs in a season, yet in a state of captivity she seldom produces above ten. In the wild state, she hatches and rears her brood with patience, vigilance, and courage; but when kept tame, she becomes so very remiss in her duty, that a common hen is generally made her substitute. It is therefore more advisable to leave the Pheasant at large in the woods, than to endeavour to tame it when in a state of captivity: in the former state, its fecundity is sufficient to stock the forest; its elegant plumage adorns it; and unrestrained freedom communicates a finer flavour to its flesh.

Many persons of ample fortune have attempted once more to take these birds from the woods, and to keep them in places fitted up for their reception. Like the rest of the poultry kind, they have but little sagacity, and hence are easily taken. At night they roost on the highest trees of the wood; and descend by day among the brakes and bushes, in quest of food. In winter they may easily be traced in the snow, and are frequently taken in springs. They are shot with the most facility of any birds; for, when they rise, they always make a whizzing noise, sufficient to put the sportsman on his guard; and being a large mark, and flying very slow, the most indifferent fowler can hardly miss his aim.

When Pheasants are taken very young into keeping, they become as familiar as chickens. The female, in a state of nature, forms her nest of

dried grafs and leaves; therefore, when brought up tame, the same materials should be placed within her reach, which in general she will dispose of in a regular manner. If she neglects to sit upon her eggs, a common hen must be procured to hatch them; which task she will perform with perseverance and success. However, it is extremely difficult to rear the young ones; and care must be taken to supply them with ant-eggs, the food to which the parent bird conducts them when at liberty in the woods. In order to make this sort of food last the longer, it may be chopped up with curds, or other similar provision. The brood must be fed with great regularity, both with regard to quantity and time: and it is beneficial to vary their food sometimes; wood-lice, earwigs, and other insects, being occasionally a very acceptable banquet. The place in which they are reared must be kept extremely clean; and their water should be changed two or three times in one day. They should not be exposed in the morning till the dew is exhale; nor suffered to remain abroad after sun-set. When they become adult, they are capable of shifting for themselves; and then they shew a great predilection for oats and barley.

When full grown, the Pheasant seems to feed indifferently on every thing that offers: and we are assured by a French writer, that one of the king's sportsmen, shooting at a parcel of crows which were gathered round a dead carcase, on his coming up, found, to his great surprise, that he had killed as many Pheasants as crows. But this account seems to be exaggerated; though the most respectable writers allow, that these birds are of a carnivorous disposition.

Like all other domestic fowl, there are many varieties of the Pheasant; some are white, some are crested, and others are spotted.

PHEASANT, CHINESE, BLACK AND WHITE. The bill of this species is of a yellowish colour, dusky towards the point; the eyes are yellow, encircled with a broad space of fine scarlet; thinly sprinkled with hairs, which rise in the upper part on each side in the form of horns, and extend backwards in a point, hanging down on the cheeks like the gills of a cock. The top of the head, from the bill backward, is covered with long black feathers, having a purplish gloss, which hang down it's neck behind; the sides of the head, the upper side of the neck, the back, wings, and tail, are white, curiously marked with black striæ; the two upper feathers of the tail are white; the under side, from the bill to the coverts beneath the tail, is black, with a purplish gloss; the legs and feet are scarlet; and the spurs, which resemble those of the common cock, are white. The hen is much less elegant; being wholly of a dusky brownish colour, with some few variegations.

PHEASANT, PEACOCK. This very beautiful bird, which is a native of China, is about the size of the common Pheasant: the bill is dusky, the upper mandible being red from the nostrils to the point; the eyes are yellow; and the cheeks, as well as a small space above the eyes, are whitish. The feathers on the crown of the head are of a dark brown hue, their tops reflecting forwards. The neck is bright brown, transversely barred with a darker tinge; the upper part of the back, and all the wing-feathers except the greater quills, are of a dark brown colour, finely painted on the tip of each feather with bright shining round pur-

plish spots, varying to blue, green, and gold-colour: these are encompassed with circles of black; and each feather is tipped with bright yellowish brown. The spaces between the marks on the wing and the back are powdered with fine light brown spots; the greater quills are wholly of a dark brown or black colour; the breast, belly, and thighs, are of a dark brown, transversely variegated with black; the lower part of the back, and the coverts of the tail, are brown, sprinkled with a brighter brown; and the tail-feathers are of a pretty dark brown, elegantly powdered with a lighter colour. Every tail-feather has two beautiful eyes towards it's tip, one on each side of the shaft, of the same changeable beautiful colour with those on the back and wings, encircled with black. The legs and feet, which resemble those of a hen, are of a dirty brown or black colour; and there are two pair of spurs, the largest placed near the middle of the leg.

PHEASANT, CHINESE, PAINTED. This species is somewhat less than the common English Pheasant: the bill is of a light yellow colour; the eyes are encircled with a bright yellow; the sides of the head are of a flesh-colour; and the crown of the head is adorned with beautiful gold-coloured plumes, which the bird can either raise or depress. The upper part of the neck is covered with orange-coloured feathers, transversely barred with black; the bottom of the neck, and the beginning of the back, are of a fine dark green hue, reflecting a golden yellow, with black transverse bars at their tips; and the remainder of the back, to the tail, is of a beautiful yellow colour, mixed in some places with a few bright scarlet feathers. The primaries are dusky or black, with yellowish brown spots on their webs; the middle quills are of a dull red hue, mixed and spotted with black; and some of the lesser quills are of an exceeding fine full blue. All the covert-feathers are of a dull reddish colour, the first row immediately covering the quills inclining somewhat to yellowish, with transverse lines of black. The under side of the bird, from the bill to the tail, is of a fine scarlet colour; the thighs are clay-coloured; the tail is a mixture of black and reddish brown; the two middle feathers are black, spotted with brown; and the side-feathers are obliquely streaked with black and brown. A few long narrow scarlet feathers, with yellowish shafts, extending near half the length of the tail, project from the rump; and the legs and feet are of a yellowish colour, with short yellow spurs.

These very beautiful birds are frequently imported from China; and, being pretty hardy, seem capable of supporting the rigours of this climate. Some naturalists distinguish them by the appellation of the red Pheasant.

PHEASANT, HORNED, INDIAN. The size of this bird is between that of a common hen and a turkey, and in shape it greatly resembles the latter. The bill is brown; and on the fore-part of the head, and round the eyes, a blackish kind of hair supplies the place of feathers. The top of the head is red; and over each eye there is a horn of a callous substance pointing forwards. A flap of loose skin depends from the fore-part of the neck, of a beautiful blue colour, with orange spots. The neck and breast are reddish, inclining to orange; and the breast and lower part of the neck are spotted with white, each spot being encircled with a black ring. The back, wings, tail, and belly,

belly, are of a yellowish brown hue, which gradually intermixes with the red round the bottom of the neck. The whitish spots on the back, wings, tail, and belly, resemble pearl drops, the sharp ends being towards the head: these are all surrounded with black. The thighs are of a brownish colour; and the legs and feet resemble those of a cock.

PHEASANT, BRAZILIAN. This bird is somewhat smaller than the common hen; but the tail is broad, and about twelve inches long. The plumage is principally black, intermixed with a little brown and white. The head is adorned with a kind of crest, which the bird erects or depresses at pleasure. The upper part of the neck is naked, having only a red skin over it; the lower part of the body, and the hind part of the wings, are covered with black and white feathers intermixed; the tail, and the upper part of the legs, are black; and the feet are of a beautiful red colour.

The natives of Brazil give this bird the appellation of jacupema, on account of its cry, which resembles jacu jacu. It is easily tamed; and its flesh is much esteemed.

PHEASANT, TURKEY. This bird, which is supposed by Edwards to be a mixed species between a Pheasant and a turkey, is of a middling size between the two kinds. The bill is blackish, with long black feathers above the nostrils forming a tuft; the eyes are hazel, surrounded with a plat of reddish skin; and the remainder of the head, and that part of the neck which in turkeys is destitute of feathers, are covered with short brown plumage with dusky transverse lines. The lower part of the neck is of a purplish colour; the whole belly and sides are of a dusky black; and the coverts beneath the tail are orange-coloured, with transverse lines of black. The back, and the upper sides of the tail and wings, are brown, variegated with greater and smaller transverse lines of black; the legs and feet are of a dark cinereous hue; and the tail is composed of sixteen feathers.

These birds have sometimes been shot in England.

PHEASANT, SEA, OR CRACKER. This bird frequents the sea-coasts of Suffolk, and several other parts of England. The body is slender, about the same size with the common widgeon, and has a longish neck. The bill is variegated with blue and black; the head is of a rusty iron-colour, tinged behind the ears with purple; and from the back part of the head on both sides a white line extends towards the throat. The under part of the body, as far as the vent, is white; but the feathers under the tail are black. The upper part of the body is adorned with beautiful colours; but the two middle feathers of the tail are considerably longer than the rest, which sufficiently distinguishes it from all other aquatic fowl of that kind. This species is also denominated the pintail duck. See **DUCK, PINTAIL.**

PHILANDER. See **DIDELPHIS** and **OPOSUM.**

PHOCA. A genus of the order of feræ, and class of mammalia, in the Linnæan system: the characteristics of which are; that the number of fore-teeth in the upper jaw is six, which are parallel, the exterior being larger than the others; that there are four teeth in the lower jaw, parallel, distinct, equal, and a little obtuse; that there is

one canine tooth in each jaw, though Pennant reckons two; that the grinders are five or six, with three points; that there are no external ears; and that the hind feet are palmated.

To this genus belong three species; the sea-bear, the sea-lion, and the sea-calf. Some derive the generic name Phoca, from Phoke; others, from Boke, signifying a kind of grunting noise made by these animals.

PHŒNICOPTERUS. A genus of grallæ, in the Linnæan distribution of birds; of which there is only one species, the flamingo.

PHŒNICOPUS GALLINULA. An appellation used by some ornithologists to express the bird more usually known by that of tringa.

PHŒNICURUS. A name by which some of the ancients expressed the ruficilla, or redstart.

PHŒNIX. A fabulous bird of antiquity, described as being about the size of the eagle, covered with the most beautiful plumage, and having eyes resembling stars. It was supposed to live five or six hundred years in the wilderness; and, whenever it perceived the approach of senility, it was fabled to erect a funeral pile of sweet woods and aromatic gums, to which it set fire by the wafting of its wings, and thus consumed itself. From its ashes a worm was produced, which in time became another Phœnix; so that two individuals never existed at one and the same period.

PHŒOPUS. An appellation used for two different birds: the one called by the Germans brachvogel; and the other, the whimbrel, or aquata minor, the small curlew of English ornithologists. The first of these, or the brachvogel, is of a deep black colour, spotted with a yellowish and reddish brown; the beak is long, slender, and black, moderately incurvated; the neck is grey; and the belly is white. Ray suspects that these two birds are not essentially different.

PHOLAS. A genus of shells, belonging to the testacea order in the class of worms, according to the Linnæan distribution: the characters of which are; that the inclosed animal is an ascidia; that the shell is bivalve, opening wide at each end, with several lesser shells at the hinge; that the hinges fold back, and are united by a cartilage; and that beneath the hinge internally there is an incurvated tooth. Linnæus enumerates six species.

Of all animals of the shelly tribe, the Pholades are the most extraordinary. From their amazing powers of penetration, compared with their apparent imbecility, they justly excite the astonishment of the curious observer. They are found in different places; sometimes clothed with their proper shells, at the bottom of the water; sometimes concealed in lumps of marly earth; and sometimes lodged, shells and all, in the substance of the hardest marble. In their proper shells they assume different figures; but in general they somewhat resemble muscles, except that their shells are found actually composed of five or more pieces, the smaller valves serving to close up the openings left by the irregular junction of the two principal shells. But their penetration into rocks, and their residence there, constitutes the most extraordinary part of their history.

When divested of its shell, the Pholas resembles a roundish, soft pudding, without any instrument in the least adapted for boring into stones,

or even penetrating the softest substances. It is indeed furnished with two teeth; but those are placed in such a situation as to be incapable of touching the hollow surface of its stony dwelling. It has also two covers to its shell; but these can render it no assistance as a miner. The instrument with which it performs all its operations, and buries itself in the hardest rocks, is only a broad fleshy substance, somewhat resembling a tongue, issuing from the bottom of its shell: with this soft yielding tool it perforates the most solid marbles; and having, while yet young and small, made its way, by a very narrow entrance, into the body of the stone, it there begins to expand, and gradually to increase its apartment.

The seeming unaptness, however, of these animals, for penetrating into rocks, and their forming habitations, has induced many philosophers to conjecture, that they enter the stone while yet in a spongy state; and, from the petrifying quality of the water, that the whole rock afterwards hardens round them by degrees. Thus it was supposed that any penetrating quality was unjustly ascribed to them, as they only bored into a soft substance, which became indurated by time. This opinion, however, has been confuted in the most satisfactory manner by Dr. Bohads, who observed, that many of the pillars of the temple of Serapis at Puteoli were penetrated by these animals. Hence he very rationally concludes, that the Pholades must have penetrated them posterior to their erection; for no artificer would have laboured a pillar into form, had it been honey-combed by worms in the quarry. In short, there can be no doubt but that the pillars were perfectly sound when erected; and that these animals attacked them during the time they continued buried under water by means of an earthquake which swallowed up the city.

From hence it appears, that in all nature there is not a greater instance of perseverance and patience than what the Pholas appears to exhibit. Furnished with the bluntest and softest auger, by slow, reiterated, and successful applications, it effects what other animals are incapable of performing by force, penetrating the hardest bodies by means of its tongue alone. When, while yet naked and very small, it has gained an entrance, and has buried its body in the stone, it there continues for life at its ease; the sea-water which enters by the little aperture supplying it with whatever its nature demands. When at any time the animal has admitted too great a quantity of water, it is observed to spurt it out of its hole with some degree of violence; and on this seemingly spare diet it quickly grows larger, and soon finds itself under the necessity of enlarging both its habitation and its shell.

The motion of the Pholas is slow beyond conception; its progress keeps pace with the growth of its body; and, in proportion as it acquires magnitude, it makes its way farther into the rock. When it has penetrated to a certain length, it changes its former direction, and hollows downward; till at last, when its habitation is completed, the whole apartment resembles the hole of a tobacco-pipe, the aperture in the flank being that by which the animal entered.

Thus immured in its rocky cell, the Pholas lives in darkness, indolence, and plenty; never removing from the narrow mansion into which it

has penetrated; and seeming fully satisfied with being enclosed in its own sepulchre: the influx of sea-water, that enters by its little gallery, supplies all its wants; and, without any other sustenance, it grows from seven to eight inches in length, and proportionably thick. The shell which covers the animal in the body of the rock assumes different forms; being sometimes composed of a number of valves; and sometimes resembling a tube with holes at either end, one for receiving its food, and the other for voiding its excrements.

Nevertheless, though the Pholas is thus immured, it is not that solitary animal which it at first sight appears to be: it sometimes proceeds a great way into the heart of the rock, penetrates into the retreats of others of the same species, and frequently crosses their galleries. Whether this meeting of the kinds be accidental or of choice, few can presume to determine; but certain it is, they are most commonly found in numbers in the same rock, and sometimes above twenty are discovered within a few inches of each other.

These creatures are found in great numbers at Ancona, in Italy; they are also discovered along the shores of Normandy and Poitou, in France; and on the coasts of Scotland and Wales. Their flesh is generally considered as a peculiar delicacy at the tables of the luxurious.

PHOSGAS. An appellation by which some ornithologists express a bird of the duck kind, about the size of the common widgeon. The body is remarkably flat; the beak and legs are blue; and the head and neck are brownish, variegated with numerous triangular black spots.

PHOXINUS. A classical name by which some authors express the roach and the minnow.

PHRYGANEA. A genus of the neuroptera order of insects: the characters of which are; that the mouth is destitute of teeth; the palpi are four, and the stemmata three; the antennæ are longer than the thorax; and the wings are incumbent, the longer being folded.

Linnaeus enumerates twenty-four different species. See **CADE-WORM.**

PHYCIS. A fish of the truttaceous kind; more usually called callarias, or asellus callarias; and tinca marina, or sea-tench.

PHYCIS is also an appellation given by Artedi, after Aristotle, Pliny, and other ancient naturalists, to a fish nearly allied to the genus of the blenni; called by some trebius and fuca; and, according to Rondeletius, denominated tinca marina by the Italians. Salvian, however, contradicts this assertion; and the matter is yet undecided among ichthyologists.

PHYSALUS. An appellation by which Rondeletius expresses a species of sea-insect of the scolopendra marina kind; supposed by some to be synonymous with the scolopendra marina or centipes of the Irish sea, described by Molyneux; but, on an accurate investigation, this does not appear to be the case. The Physalus of Rondeletius has no mouth, whereas the sea centipes of Ireland has a remarkably large one: that of Rondeletius is wider in the middle, and tapers at each end; but the Irish kind is largest at the head, and tapers from thence all the way to the tail. Rondeletius's has tubercles on the back, but that found in the Irish sea has only hairy stripes; the former is poisonous, the latter is by no means so. On the whole, we may safely conclude, that these are

are two distinct species of the same genus. See SCOLOPENDRA.

PHYSETER. A genus of fishes of the plagiuri kind in the Artedian system, but of the order of cetæ and class of mammalia in the Linnæan distribution. The distinguishing characters are these: that the teeth are crooked, and arranged only in the lower jaw; that there is one high fin or spine on the back; and a fistula or pipe in the forehead.

Artedi mentions two species of this genus; namely, the Physeter with the upper jaw longer than the under, and a long spine on the back; and the Physeter with a very high back fin, and the tops of the teeth flat.

The former, which is the Physeter Microps of Linnæus, and the Blunt-headed Cachalot of Pennant, has an exceeding large head, occupying near half the body, and thicker than any part of it; the upper jaw extends five feet farther than the under one; the eyes are remarkably small, being scarcely larger than those of a haddock; and the fistula or pipe, which is placed a little above the centre of the head, is divided into two channels, covered with the same operculum. The teeth are forty-four in number, falciform, roundish, a little flattened, thickest and most arched in the middle, and terminating at the end in a sharp-pointed cone.

The latter species, the Physeter Turfio of Linnæus, has also a very large head, in the middle of which is situated the fistula or pipe; and the dorsal fin stands so high, that it has sometimes been compared to the mizen-mast of a ship.

Besides these two species, Linnæus mentions two others; the Catodon, without a dorsal fin, and with the spout-hole at the extremity of the nose; and the Physeter Macrocephalus or Catodon without a back fin, and the spout-hole in the head.

The term Physeter being of Greek origin, is derived from the verb *Phusao*, to Blow: a name which the animal received from a quality it possesses of admitting a great quantity of water, and ejecting it again with considerable violence.

PHYSTA. An appellation given by Gesner, and some others, to the fish called by the Greeks and moderns *Ballerus*. Artedi denies its claim to any generical name; ranking it as a genus of the cyprini, to which it evidently belongs; and distinguishing it from others of that numerous tribe by the specific name of the very broad and thin cyprinus, with forty rays in the pinna ani.

PIABA. A small fresh-water fish caught in the Brazils, and some other parts of America. It is about the size of the common minnow; and its flesh is extremely delicate.

PIABUCU. An American fish, about six inches long, and one inch and a half broad. The belly is a little prominent; the irides are silvery; the tail is bifid; and the scales are of a silvery colour, with a broad white line running along the sides, above which the back is olivaceous, mixed with a shining green.

This fish is extremely ravenous; and so fond of blood, that if a man enters the water with any excoriation or wound in his flesh, it will eagerly advance and suck it.

PICA. A classical appellation for the magpie.

PICA is also a name by which some authors express the *lanius* or butcher-bird.

PICA MARINA, the Sea-pie; called also the

Hæmatopus. It is about the size of the common magpie: the beak is long, straight, and reddish, ending in a point, and seemingly well adapted for removing shell-fish from the rocks, it's ordinary food. The legs are red; the toes are in part connected by a membrane; the head, neck, back, throat, and half the breast, together with the rump, are black; and the tail and wings are half black and half white.

This bird is common on the western shores of England, and on the coasts of Wales.

PICA MARINA is also used by Gesner, though improperly, to express the bird commonly known by the name of *Anas Arctica Clusii*. See **PUFFIN**.

PICACUROBA. A Brazilian species of pigeon, of a greyish colour, variegated with a reddish brown, and with very red legs and feet.

PICÆ, Pyes. In the Linnæan system of nature, a whole order of birds; the general character of which is, that the beak is convex, and flattened above. To this order belong twenty-two genera, and two hundred and forty-three species. See **PARROT, TOUCAN, CROW, BIRD OF PARADISE, ORIOLE, CUCKOW, KING'S FISHER, HOOPOE, CREEPER, &c.**

Under this class of birds may be arranged all that noisy, restless, chattering, teasing tribe, which, from the raven down to the smaller genera, flutter round our habitations; and, rather with the spirit of pilferers than of robbers, make free with the fruits of human industry.

Of all the other classes, this seems to be that which the least contributes to furnish out the pleasures, or supply the necessities of man. The falcon hunts for him; the poultry tribe supplies him with luxurious food; the little sparrow race delight him with the melody of their warbling; the crane kind constitutes a studied variety in his entertainments; and the class of anseres are not only delicate in their flesh, but many of them extremely useful on account of their feathers. But, among the Pye kind, there are few, except the pigeon, that are in any respect useful; they tend rather to tease man than to assist or amuse him: like faithless servants, they are attached to his neighbourhood, because they derive their chief sustenance from his labours; but their principal study is what they can plunder in his absence, while the forfeiture of their lives makes him no atonement for their depredations.

But though, with respect to man, this whole class is rather noxious than beneficial; though he may justly consider them in the light of false, noisy, troublesome neighbours; yet, with respect to each other, no class of birds are so ingenious, so active, or so well adapted for society. Could we suppose a kind of morality among birds, we should find that these are by far the most industrious, the most faithful, the most constant, and the most connubial. The rapacious kinds drive out their young before they are fit to struggle with adversity, or procure their food with ease; but the Pye kind cherish their offspring to the last. The poultry class are faithless, and promiscuous in their amours; but these live in pairs, and their attachments are wholly confined to each other. The sparrow kind frequently overleap the bounds of nature, and form illicit varieties; but these keep within the most rigid bounds: they live in harmony with each other; every species is true to its kind; and transmits an unpolluted, unmixed race, to posterity. As other birds generally build

their nests in rocks, or on the ground, these shew an invariable predilection for trees and bushes. The male participates in the toil of building the nest; and often relieves his mate in the duties of incubation: both take this office by turns; and, when the young are excluded, both are equally active in making an ample provision.

Birds of the Pye kind sometimes live in societies, in which general laws are observed; and a species of republican form of government is observed among them. They not only watch for the general safety, but for that of every other bird of the grove. How often are fowlers disappointed in their game, by the alarming note of a crow or a magpie! It's single voice gives the whole feathered tribe warning, and teaches them to secure a retreat in due time.

Nor are these birds less remarkable for their capacity for instruction than their instincts. There is an apparent cunning or archness in the looks of the whole tribe; and ravens and crows may be taught to fetch and carry like a spaniel. Indeed, many of this tribe, without any previous instruction, are but too fond of such exercise. Every person must be sensible what a passion they have for brilliant objects, and such toys as mankind frequently value. A whole family has been alarmed by the loss of a ring; every servant has been suspected in turn; when, to the confusion and amazement of false accusers, it has been found in the nest of a tame magpie or jack-daw, where it was least of all expected.

However, as this class is extremely numerous, it is not to be supposed that the manners of all are alike: some few are gentle, and serviceable to man; others are noxious, capricious, and noisy. In a few general characters they all agree; in having hoarse voices, slight active bodies, and a facility of flight that baffles even the swiftest and boldest of the rapacious kinds in the pursuit.

PICICTLI. A bird described by Nieremberg as a native of the Spanish West Indies. It's head and neck are black; and it's whole body is grey. It is a bird of passage, making it's appearance in Mexico a little after the rainy season; but the place where it breeds is unknown.

PICKERELL. A provincial appellation for the jack or pike.

PICUIPINIMA. A Brazilian species of pigeon, not much larger than the sky-lark. The head, neck, and wings, are of a pale lead-colour, with a black semilunar mark at the extremity of each wing; but the long wing-feathers, which are seen when the wings are expanded in flying, are of a reddish brown hue on one side, and blackish on the other, with black tips. The tail is long, and variegated with black, white, and brown; and the plumage on the belly is white, marked with semilunar spots.

PICUS, OR PICUS MARTIUS. A large genus of birds of the wood-pecker kind; the characters of which are these: that they have a straight, hard, strong, sharp bill, proper for making holes in trees; and a very long, cylindrical-shaped tongue, terminated by a sharp, bony spine, ferrated or notched at each end, adapted for seizing on, and tearing their food. Their thighs are very short and strong; their toes are four in number, placed two before and two behind; and their tails are stiff, and bent downwards, consisting of ten feathers, bare at their extremities.

Some understand the word Picus in a larger

sense, comprehending under it the Sitta, Picus Murarius, Junco, Certhia, and all birds that climb trees. In this extensive sense the characters of the genus are; that they have very short, thick, strong legs, adapted to the running up the bodies and branches of trees.

In the Linnæan distribution of nature, the Picus constitutes a distinct genus of birds of the order of picæ. The characters of this genus, according to that celebrated naturalist, are; that the bill is straight and angular, terminating in the form of a wedge; that the nostrils are covered with bristly feathers, reflected downwards; that the tongue is long, cylindrical, formed for seizing worms, sharp-pointed, and jagged; and that the feet are formed for climbing. Linnæus enumerates twenty-one species.

PICUS IMBRICÆTUS; the Picus Principalis of Linnæus. An American bird described by Nieremberg, and called by the natives Quatoto-mimi. It is about the size of the hoopoe: the beak is long; the head is small and red, adorned with a beautiful crest of the same colour; on each side of the neck a broad white line passes on to the breast; and the legs and feet, which prove it's affinity to the wood-pecker tribe, are of a blueish colour. It builds on high trees; feeds on insects; and is principally found near the shores of the South Sea. See **IPICU**.

PICUS MURARIUS. An appellation by which some ornithologists express the bird known in England by the name of the wall-creeper, and improperly ranked among the Pici; it belonging to the genus of certhia, or creeper, which, exclusive of this species, comprehends twenty-four others. It is about the size of the common sparrow: the bill is black, long, and slender; the head, neck, and back, are grey; the breast is white; and the wings are partly grey, and partly red. The tail is short and black; the long wing-feathers, the lower part of the belly, and the legs, (which are short) are of the same colour.

This bird is common in Italy, Germany, and some parts of France. It is extremely lively and active; and as the common wood-pecker climbs trees, and feeds on the insects in their cracks and cavities; so this bird runs up old walls, and feeds on what it finds in their interstices.

PICUS NIDUM SUSPENDENS. A name by which some have expressed the galbula; a yellow bird of the thrush kind, remarkable for it's beauty, and the curious manner of suspending it's nest.

PICUS SALUTIFERUS. An appellation under which Nieremberg has described a Mexican bird, called by the natives Henquecholtotl. It is about the size of the common blackbird: the beak is long and black; the head, and part of the neck, are red, the former being adorned with a red crest; and the breast and belly are grey.

This bird is of the wood-pecker kind; and receives it's name from the supposed virtues of it's feathers, particularly those of the crest, in curing the head-ach.

PIERCER. The English appellation for that genus of shell-fish more commonly called the teredo; the distinguishing character of which is, that the shell is slender and bending.

PIETERMAN. A name used by some ichthyologists to express a fish of the cuculus kind, approaching to the nature of the draco marinus, or weever; and more usually described by it's Brazilian appellation, Niqui.

PIEXE-GALLO. A Brazilian fish; called also, in the language of the aborigines, Abacatuia; which bears a pretty near resemblance to the dorée or faber.

PIEXE-PORCO. An appellation under which some have expressed the monoceros piscis, or unicorn fish of Clusius. It's mouth somewhat resembles that of a hog.

PIGEON. In the Linnæan system of ornithology, a distinct genus of birds of the order of passeræ; and, according to some authors, of the order of picæ: the distinguishing characters of which are; that the tongue is whole and even; that the beak is straight, and scurfy at the base; and that the nostrils are long, and externally covered with a tumid membrane. Linnæus enumerates forty species; the most curious of which, together with some non-descripts in the English language, follow.

PIGEON, COMMON; the *Columba Cœnas* of Linnæus. This bird, and all it's beautiful varieties, derive their origin from one species, the stock-dove; the name implying the stock or stem from which the other domestic kinds have proceeded. In it's natural state, this species is of a deep blueish ash-colour; the breast is dashed with a fine varying green and purple; the side of the neck with a splendid copper colour; and the wings are marked with two black bars, one on the quill-feathers, the other on the coverts. The back is white; and the tail is barred near it's end with black. Such are the colours of the Pigeon in a state of nature; and from these simple tints the art of man has produced a variety which words can neither describe nor fancy suggest. Nature, however, preserves her general outline; and though the form and colour of these birds may be altered by art, their natural habits and inclinations still remain unchanged.

This Pigeon is easily induced to build in artificial cavities; and, from the temptation of a ready subsistence, is usually tamed without much difficulty. From the domestic Pigeon many elegant varieties may be produced; which are distinguished by names expressive of their several properties: such as tumblers, carriers, jacobines, croppers, pouters, vents, turbits, owls, nuns, &c. But it would be idle to attempt an enumeration of all; for so much are their figure and colour under human controul, that bird-fanciers, by coupling a male and a female of different sorts, can, according to their phrase, breed them to a feather.

The domestic Pigeon breeds every month; but, during severe weather, it is necessary to supply it with food: at other times it may be left to provide for itself, and it's owner is sufficiently repaid for affording it protection. It lays two white eggs, which usually produce young ones of different sexes. After the eggs are laid, the female continues to sit about fifteen days, relieved at intervals by the male. Their turns are generally regulated with great exactitude: the female sits from about four in the evening till nine the next morning; at which time she is relieved by the male, who supplies her place till about three, while she is searching for provisions abroad. Thus they alternately sit till the young are excluded. If, during this term, the female neglects her duty, the male pursues her, and drives her to her nest; and if the male does not return at the expected time, the female retaliates with equal severity.

When the young Pigeons are hatched, they

require no food for the three first days; but they must be kept warm during that period, a duty which the female takes upon herself, never leaving them but while she takes a little food for her own support. After this they are fed for eight or ten days with whatever the parent birds have collected in the fields, or treasured up in their crops, from whence they discharge it into the mouths of their expectant offspring. This mode of feeding the young from the crop, in birds of this kind, differs from that of all others. Pigeons, it is well known, live solely on grain and water: these are mixed together in their crops, and digested in proportion as the animals lay in their provisions. But when about to feed their young, which are extremely voracious, they take in a more plentiful supply, to give the food a kind of half maceration, in order to adapt it to their tender appetites. For this purpose, Nature has provided very large crops for birds of the Pigeon tribe; and that variety called croppers distend them in such a manner, that their breasts appear larger than their bodies. The necessity for this peculiar mechanism is very obvious: the young, with open mouths, receive from their crop this tribute of affection; and are thus fed about three times daily. The males usually supply the young females with food, and the females perform the same office for the young males. At first, the young are served with food considerably macerated; but as they grow older, the parents gradually diminish the trouble of the preparation, and at length send them forth to shift for themselves. However, when they have plenty of provisions, they do not wait for the total dismissal of their young: for it is not uncommon to see young ones almost fit for flight, and eggs hatching at the same time in the identical nest.

The fidelity of the turtle-dove is become proverbial; but the Pigeon of the dove-house can boast of no such constancy, having imbibed licentiousness from man, among it's other domestic habits. Two males frequently quarrel about the same mistress; and sometimes, being displeased with their respective mates, have been known to make an exchange, and live with their new companions in perfect harmony.

The produce of domestic Pigeons is so very amazing, that from a single pair near fifteen thousand may be bred in the space of four years. Stock-doves, however, seldom breed above twice a year; for during the winter months they are so fully employed in providing for their own preservation, that they neglect transmitting a posterity. But they have a stronger attachment to their young than those which breed often; owing, perhaps, to their affections being less divided by the multiplicity of the claimants.

Pigeons are extremely perspicacious; and their auditory organs are very clear. They are also very swift in flight, particularly when pursued by the hawk or the kite. They are gregarious by nature; bill in their courtship; and utter a mournful or plaintive note.

A lord of a manor may erect a Pigeon-house upon his land, but a tenant must obtain his lord's licence to render it legal: and when persons shoot at or kill Pigeons within a certain distance of the Pigeon-house, they are liable to a forfeiture.

That a Pigeon-house may be erected to advantage, it is necessary to pitch on a convenient situation; and none is more proper than the middle

dle of a spacious court-yard; because Pigeons being naturally timid, they are alarmed at the smallest noise. With regard to the size of the dove-house, that must depend entirely on the number of birds intended to be kept; but it should rather be too large than too little: and as to its form, the circular should be preferred to the square; because rats cannot so easily climb up the former as the latter. It is also much more commodious; because a person, by means of a ladder turning on it's axis, may visit all the nests in the house without the least difficulty, which cannot be effected in a square house.

A Pigeon-house should also be built in the vicinity of water, that the birds may convey it to their young; and, as they carry it in their bills, it acquires a wholesome warmth before it is consigned to their offspring. The covering of the house should be so very compact, that no possibility may remain of any wet penetrating; and the whole structure should be covered with hard plaster, and white-washed within and without. There should be neither window nor aperture to the eastward; but these should always face the south, that the rays of the sun, of which Pigeons are very fond, may have free access.

The nests in a Pigeon-house should consist of square holes, made in the walls, of a sufficient size to admit the cock and the hen to stand in them. The first range of these nests should not be less than four feet from the ground, and the wall underneath very smooth, that rats may not be able to reach them. These nests should be arranged in quincunx order, and not directly over each other: nor should they be continued any higher than within three feet of the top of the wall; and the upper row should be covered with a board projecting a considerable distance from the wall, lest vermin should find some means or other to come at them.

Duhamel thinks that Pigeons neither feed on green corn, nor have bills sufficiently strong to search for it's seeds in the earth; but only pick up such grains as are not covered, which would infallibly perish, or become the prey of other animals. 'From the time of the sprouting of the corn,' says he, 'Pigeons live chiefly on the seeds of wild uncultivated plants, and therefore considerably lessen the quantity of weeds that would otherwise spring up; as will appear from a just estimate of the quantity of grain necessary to feed all the Pigeons of a well-stocked dove-house.' But Worlidge and Lisle adduce facts in opposition to this opinion. The latter relates, that a farmer in his neighbourhood assured him he had known an acre sown with peas; and rain coming on, so that they could not be harrowed in, every pea was carried off in half a day's time, by Pigeons. And the former says, that it is to be observed, wherever a flight of Pigeons alights, there they fill themselves, and return again where they first rose, thus traversing a whole field in order.

Indeed, the injury which these birds do the husbandman is such, that we may safely rank them among some of his greatest enemies: and the greater, because farmers in general have not the privilege of erecting dove-houses; whereby they might receive a share of their own spoils; none but the rich being allowed this privilege. The poor are deterred even from the defence of their own property by the severity of the laws: for, by an act passed in the reign of his present Majesty, it was enacted, that if any person shall shoot at,

or by any any means kill or take, with a wilful intent to destroy any Pigeon, he shall, on conviction thereof, by confession or oath of one witness, before one justice, forfeit twenty shillings to the prosecutor; and, if not immediately paid, such justice shall commit him to the gaol or house of correction, for any term not exceeding three months, nor less than one; unless the penalty be sooner paid.

The Pigeon was the favourite bird of Venus. According to Homer, Pigeons took care to provide for the nourishment of Jupiter; a fable founded on the same word signifying, in the Phœnician language, either a Priest or a Pigeon; for it is said that the priests of Cybele took care of the nourishment of Jupiter. The inhabitants of Ascalon entertained a sovereign respect for Pigeons: they neither presumed to kill nor eat them, through fear of feeding on their gods themselves. Pigeons were also consecrated by the Assyrians; because they believed that the soul of their famous Queen Semiramis had fled to heaven in the shape of a dove.

Silius Italicus informs us, that two Pigeons formerly rested on Thebes: that one flew to Dodona, where it communicated the virtue of delivering oracles to an oak; and that the other, which was white, passed over the sea to Lybia, where it settled on the head of a ram, between the two horns, and gave oracles to the people of Marmarica. The Pigeon of Dodona also delivered oracles. Philostratus says it was of gold; that it settled on an oak, surrounded by people who went thither, either to sacrifice, or consult the oracle; and that there were always priests and priestesses there, who gained a good maintenance by the oblations. And, if we may credit the poetic Sophocles, the Pigeons of the forest of Dodona gave Hercules an oracle which determined the end of his life.

PIGEON, CARRIER. See **CARRIER.**

PIGEON, BARBARY. This bird is of a dark colour, inclining to black; the bill, legs, and feet, are black; and round the eyes there is a small fleshy circle. A tuft of feathers rises from the back part of the neck, over the top of the head. Some of this kind are feathered on the legs and feet, but others are not. They likewise differ in colour; but the blackest are most esteemed.

PIGEON, JACOBINE. This bird is also called the capper, from a tuft of feathers on the back part of the head, turning towards the neck, like the cap or cowl of a monk. The bill is short; and the irides are perlaceous.

PIGEON, BROAD-TAILED SHAKER. This variety receives it's name from it's head and neck being continually in motion. The number of it's tail-feathers is twenty-six; and, when the bird walks, it carries it's tail upright like a hen. There is another variety, denominated the narrow-tailed Shaker.

PIGEON, RUNT. This is the greater domestic Pigeon; being nearly as large as a pullet. It varies it's feathers like the common sort; and flies much slower than other kinds.

PIGEON, TUMBLER. Birds of this species are of various colours. They receive their name from their extraordinary motions in flying, frequently turning themselves in the air, and proceeding with an undulating and irregular motion.

PIGEON, HELMET. The head, tail, and prime feathers of the wings, in this species, are of a distinct colour from the rest of the body.

PIGEON,

PIGEON, WILD, OF BRAZIL; the Picui Pinima of Marcgrave. This bird is about the size of a lark: the bill is brown, and shaped like that of the common Pigeon; the eyes are black, surrounded with bright yellow irides; the head, the top of the neck, the sides, back, and wing-feathers, are ash-coloured, and extremely long: the tail is of a brownish ash-colour; but, in some varieties, it is white, and black about the middle. The feathers on the belly are white, with brown edges; and the legs and feet are of the same colour. The flesh of this species is reckoned very delicate.

PIGEON, MEXICAN. This species is entirely of a dusky colour, except the breast and the extremities of the wings, which are of a dirty white; and the irides are red.

PIGEON, RING-TAILED, OF JAMAICA. This species is about fifteen inches long; and the expansion of the wings is twenty inches. The bill has a double protuberance at the base, near the nostrils; and the irides are red. The head, neck, and breast, are purplish; the belly is white; the upper part of the neck is of a greenish purple hue, shining and changeable; the back and tail are of a palish blue; and the wings are dusky.

PIGEON, BALD PATE, OF JAMAICA. This species is about eleven inches long, and eighteen in breadth. The bill is half an inch long, red at the base, and protuberant, but white below the nostrils. In old birds, the top of the head is white, from whence their name is derived. The body is wholly of a dark blue colour, except the upper part of the neck, which is of a changeable blue and green.

PIGEON, GREENLAND. The eyes of this bird are black, with yellow irides; and on the covert-feathers of each wing there is a white spot, but in every other part the body is black. There are twenty-seven feathers in each wing; and the legs and feet are of a bright red colour.

PIGEON, CHINESE. This bird, which is of a moderate size, has a blueish ash-coloured bill; and the irides are of a beautiful white. The sides of the head are yellow; but the top, and the space round the eyes, are cinereous. The extremities of the feathers on each side of the head and neck are red; and there are blue feathers about the rise of the wings. The hind part of the neck and the back are brown; and the extremities of the feathers are black: those on the shoulders are lighter, and variegated at the tips with black and white. The first and last covert-feathers are black, with white external edges; the long feathers of the wings are black, with white edges; and the breast and belly are of a beautiful pale rose-colour. The tail, which is composed of twelve feathers, is a mixture of dusky and bright; the legs and feet are red; and the claws are black.

PIGEON, WOOD, OF CAROLINA. This species pretty nearly resembles that of the same name in England, except that it has a longer tail. About two hundred miles from the sea-coast of Carolina, these birds are found in prodigious numbers: they are generally very fat; and their flesh is esteemed excellent.

PIGEON, TRIANGULAR SPOTTED. This beautiful species, which was first described by Edwards, is a native of the interior parts of Africa. The bill is dusky; the irides are of a bright yellow colour, inclining to a gold; and round the eyes there is a space of red, without any feathers. The whole head, neck, belly, thighs, and coverts under the

tail, are of a light ash-colour, in some places inclining to white; the feathers all round the neck end in sharp points, tinged on their edges with a red vinous colour; the upper part of the back, the coverts of the wings, and some of the quills next the body, are of a pleasant reddish brown, in some positions appearing purplish; and all the coverts of the wings, and a few of the quills next the body, are beautifully painted with triangular white spots. The greater quills are black, the edges of the webs being somewhat lighter; the lower part of the back and rump is white; the feathers which cover the tail are of a light ash-colour; the tail-feathers are of a dark ash; the legs are reddish; and the claws are brown.

PIGEON, GREAT-CROWNED, INDIAN. Though this bird unquestionably belongs to the Pigeon family, it is nearly as large as a turkey. The bill is straight, and black; and from the upper mandible on each side pass broad spaces of black, terminating in points toward the hinder part of the head. The irides are red. The head is adorned with a towering crest or crown, supposed to be always erect: it is composed of very delicate feathers, with slender shafts and fine webs, wholly detached from each other. The head, crest, neck, quill-feathers of the wings, the tail, and the whole under side, are of a fine lightish blue ash-colour; the coverts of the wings and the middle of the back are of a dark reddish brick-colour; some of the first row of coverts above the quills are white, with red tips; the remainder of the same row of coverts, next the back, are ash-coloured; and the legs and feet, which are of the usual conformation, are whitish.

PIGEON OF THE ISLE OF NICOBAR. This beautiful bird is about the size of a common tame Pigeon. The bill is blackish or dusky; and the eyes are hazel-coloured, with black pupils. The head, neck, breast, belly, thighs, and coverts beneath the tail, are of a dark blueish purple hue; the plumage on the neck is long and pointed, reflecting the most beautiful varying colours; the back and upper sides of the wings are green, changing to copper and gold; the extreme quills are of a fine blue colour, as are the covert-feathers immediately above them; and the tips of the quills, for a considerable way, are of a dark dusky blue. The tail and upper covert-feathers are white; and the legs and feet are covered with reddish purple scales.

PIGEON, WHITE, OF THE ISLE OF LUÇON. This beautiful bird, which was first described by Sonnerat in his Voyage to New Guinea, is about the size of the common European Pigeon. It's whole body is of a shining white colour; but on the breast, at the bottom of the neck, appear a few red feathers, forming a large spot of a sanguine hue. The feet and the bill are red; and the irides are of a reddish violet-colour.

PIGEON, GREY, OF THE ISLE OF LUÇON. This species is somewhat less than the common stock-dove. The top of the head is of a whitish grey-colour; the hind part of the neck is of a violet-hue, varying to green; and the forepart of the neck is white. The breast is adorned with a red sanguine spot, of the most vivid beauty in the middle, but paler towards the extremities. The belly is greyish, shaded with red; the back, the primaries, and the extremity of the tail, are black; each wing is marked with three transverse grey circular bars, and two black ones; the tail is greyish at it's origin; the bill is black; and the feet are of a reddish violet-colour.

PIG

This species was first figured and described by Sonnerat.

PIGEON, PURPLE. This bird, which is a native of Java, is about the size of the common Wood-Pigeon. The forehead is of a fine pale green colour; the head and neck are of a beautiful light purple; and the breast is orange. The back, scapulars, and belly, are of a light green hue; the primaries are dusky; the tail is blueish and dusky; and the vent is scarlet.

PIGEON, POMPADOUR. This beautiful species, which is a native of the Isle of Ceylon, is less than the turtle-dove. The crown is of a light blue colour; the cheeks and chin are of a pale yellow; the back, breast, and belly, are of a light green; the coverts of the wings are of a fine pompadour; the primaries and secondaries are black, edged with yellow; the tail is long, and of a light green hue; and the legs are red.

PIGEON, YELLOW-FACED. This species is also a native of Ceylon. The crown of the head is of a light blue colour; the front is of a fine pale yellow; the body and coverts of the wings are of a pea-green; the primaries are of a dark dull green, edged with yellow; the tail is green; and the legs are red.

To the Pigeons already enumerated might be added a copious list of foreign and domestic varieties; but to increase the catalogue of animals, without enlarging the bounds of the science, is certainly both an unprofitable and unpleasing task. Pigeons, as previously remarked, are all derived from one common stock; they differ but little in their nature, though considerably in their colours; they are disseminated over almost every part of the globe; and are universally allowed to be grateful to the taste, though unentertaining to the ear.

PIGEON, SEA. This fish receives its name from the peculiar structure of its head, which is supposed to resemble that of a Pigeon; while its breast is large like that of a cropper. Its skin is furnished with scales, and marked with a variety of different coloured spots. It is a very rare species; and its flesh is disagreeable to the taste.

PIGNOLETTI. An appellation used by several ichthyologists to express the *Aphua Cobitis*, a small fish of the goby or sea-gudgeon kind, common in the Mediterranean, and exposed to sale in the markets of Rome and Venice.

PIGUS. A species of leather-mouthed fish, approaching to the nature of the carp. It is about the same size and shape with the common carp; and its eyes, fins, and fleshy palate, are exactly similar. A crooked dotted line runs from the gills to the tail; the back and sides are blueish; and the belly is reddish. The body is covered with large scales, from the middle of every one of which rises a fine pellucid, sharp prickle. The flesh is esteemed preferable to the common carp; and is in season about March and April.

This fish is caught in the lakes of some parts of Italy; and seems to be described by Pliny, though without a name. In the Artedian system it is distinguished by that author under the appellation of the *Cyprinus*, called *Piclo* and *Pigus*: who adds, that the tail is bifid, and the scales are large; that in spring and autumn white pyramidal prickles grow out of the scales, which, after continuing about six weeks, drop off; that the back is of a blackish hue; and the belly white, with a faint cast of red. It never exceeds five or six

PIK

pounds in weight; and its flesh is extremely well tasted.

The Pigus is also found in the lakes of the Northern nations.

PIISSKER. A fish of the *mustela* kind, usually known by the appellation of the *Mustela Fossilis*, or *Piscis Fossilis*, the fossil fish. It commonly grows to the length of three inches, though sometimes considerably more: the back is greyish, marked with a great number of spots and transverse streaks, partly black, and partly blue; the belly is yellow, spotted with red, black, and white; and on each side there is a longitudinal black and white line. Several fleshy excrescences proceed from the mouth, which are expanded in swimming, but contracted when out of the water.

These fish make their way into caverns of the earth in the sides of rivers and marshy places, penetrating a great way; and are often dug up at a considerable distance from the water. They seem to be nearly of the same kind with the *Fisgumfish*; and possibly both it and the *Pæcilia* of Schonefeldt are the same.

PIKE; the *Lucius Efox* of Linnæus, and the *Oxyrinchus* of the ancient Greeks. The head of this fish is very flat: the upper jaw is broad, and shorter than the lower; and the under jaw turns up a little at the end, and is marked with minute punctures. The teeth are extremely sharp, disposed in the front of the upper jaw only, but in both sides of the lower, in the roof of the mouth, and often on the tongue. The opening of the mouth is very wide; and the eyes are small. The dorsal fin, which is placed very low on the back, consists of twenty-one rays; the pectoral is composed of fifteen, the ventral of eleven, and the anal of eighteen; and the tail is bifurcated.

Pikes spawn in March or April, according to the mildness of the season. When in perfection, their colours are very fine, being green spotted with bright yellow; and the gills are of a most vivid full red. When out of season, the green changes to grey; and the yellow spots assume a palish hue.

These fish are common in most of the European lakes: but the largest and finest are found in Lapland; which, according to Schæffer, are sometimes eight feet long. They are taken there in great abundance, dried, and exported. The largest fish of this kind ever caught in England weighed about thirty-five pounds.

According to a common report, Pikes were first introduced into England in the reign of Henry VIII. about the year 1537. They were then so rare, that a single one was sold for double the price of a house-lamb in the month of February, and a Pickerel for more than a fat capon.

All writers who treat of the Pike describe it as the most active and voracious of fishes; and those of our poets who have contented themselves with barely skimming the surface of nature, call it the tyrant of the watery plain. In fact, in proportion to its strength and celerity, the Pike does considerable mischief; but what are its efforts, when compared with those of the cachalot or the shark, but the petty depredations of a robber put in competition with the ravages of a conqueror. However, the Pike will attack every fish smaller than itself; and it is even sometimes choaked in attempting to swallow such as are too large for its gullet. Of what species soever the animals it pursues happen to be, seems but of very little consequence;

PIK

quence; all are indiscriminately devoured: so that every fish owes it's safety to it's minuteness, it's celerity, or it's courage. Nor does the Pike confine it's appetite to fish alone; it devours frogs; and frequently draws down water-rats and young ducks as they swim about: and Gesner tells us that a famished Pike once seized a mule by the nose, when drinking; and was not disengaged till the animal flung it on shore. So great is it's rapacity, that it will contend with the otter for his prey, and even endeavour to force it from him. On this account it is dreaded by all other fish: and the smaller kinds shew the same detestation and uneasiness at the sight of their tyrant as little birds at the approach of the hawk or the owl; for when the Pike lies asleep near the surface of the water, as it commonly does, the lesser fish are observed to swim round it in vast numbers, with a mixture of caution and terror.

Pikes are frequently caught in a very peculiar manner in the shallow water of the Lincolnshire fens. The fisherman uses what is called a crown net, which is no other than a hemispherical basket, open at the top and bottom. He stands at the end of one of the little fen-boats, and frequently lets his basket down to the bottom of the water; then poking a stick into it, discovers whether he has had any success by the striking of the fish; and after this manner vast numbers are taken.

The longevity of the Pike is no less remarkable than it's voracity. Rzaczynski tells us of one that was ninety years old; while Gesner relates that, in the year 1497, a Pike was taken at Hailbrun, in Swabia, with a brazen ring affixed to it, on which the following words were engraven in Greek characters: 'I am the fish which was first of all put into this lake by the hands of the governor of the universe, Frederick II. the 5th of October 1230.'

PIKE, GAR. This fish, frequently denominated the Sea-needle, comes in shoals on the British coasts about the beginning of summer, preceding the mackarel, which it resembles in taste. It sometimes grows to the length of three feet and upwards. The jaws are long, slender, and sharp-pointed; the under extends considerably farther than the upper; and the edges of both are armed with numbers of short, slender teeth. The inside of the mouth is of a purple colour; the eyes are large, with silvery irides; and the nostrils are wide and round. The body is slender; the belly is quite flat; and the lateral lines are rough. The pectoral fins consist of fourteen rays, the ventral of seven, the dorsal of sixteen, and the anal of twenty-one; and the tail is much forked.

When this fish remains in the water, it's colours are extremely beautiful: the back is of a fine green, beneath which appears a rich changeable blue and purple; and the sides and belly are of a fine silvery hue.

PIKE, SAURY; the Saurus of Rondeletius, and the Skipper of the Cornish. This fish is about eleven inches long: the nose is slender; the jaws are produced, and of equal lengths; and the upper mandible is slightly incurvated. The eyes are large; and the body is anguilliform, becoming suddenly very small towards the tail. On the lower part of the back there is a small fin; and between it and the tail there are six spurious ones, like those of the mackarel: corresponding with these are the anal fin below, and six spurious ones; the pectoral and ventral fins are very small;

PIL

and the tail is much bifid. The back is dusky; and the belly is bright and silvery.

Great numbers of these fish are sometimes seen on the coasts of Scotland. Rondeletius describes them as natives of the Mediterranean; but speaks of them as a rare kind.

PILARIS. An appellation by which some ornithologists express the field-fare.

PILCHARD. This fish has a general resemblance to the herring; but differs from it very essentially in several particulars. The body of the Pilchard is less compressed than that of the herring, thicker, and rounder; the nose is shorter in proportion, and turns up; and the under-jaw is also shorter: the back is more elevated; and the belly is less sharp. The dorsal fin of the Pilchard is placed exactly in the centre of gravity; so that, when taken up by it, the body preserves an equilibrium; whereas that of the herring dips at the head. The scales of the Pilchard adhere very closely; whereas those of the herring very easily drop off. The Pilchard is generally less than the herring; though the former is fattest, as well as fullest of oil.

These fish appear in vast shoals off the Cornish coasts about the middle of July, and retire towards the beginning of winter. Their brumal retreat is the same with that of herrings, as well as their motives for migrating: and they affect, during summer, a warmer latitude; for they are not found in any quantities on any of the British coasts except those of Cornwall.

The arrival of Pilchards is announced nearly by the same tokens as that of herrings. Predaceous birds and fishes constantly attend their progress; and the whole country prepare to reap the advantages of this valuable treasure providentially thrown in their way. The natives sometimes inclose a bay several miles in extent with their nets called seines. In order to direct them in their operations, several persons, denominated huers, are stationed on eminences near the shore: these, with brooms in their hands, exhibit signals how far the nets may be extended, and where the shoals of Pilchards are situated; which they are enabled to do from observing the colour of the water, which assumes a particular tincture from the fish under it. By these means they frequently take twelve or fifteen barrels of them at one draught, which they place in heaps on the shore: and it often happens that the quantity caught exceeds the salt or the utensils for curing them; and then they are applied to the purposes of manure.

This fishery employs not only great numbers of men at sea, training them to naval affairs; but also numbers of women and children at land, in salting and curing the Pilchards; and in making boats, nets, ropes, and casks, for the purposes of taking and preparing them for sale. The poor are fed with the superfluity of these captures; the land is manured with the offals; the merchant finds the gain of commission; and the fisherman a comfortable subsistence from his labour. 'Ships,' says Dr. Borlase, 'are often freighted thither with salt, and into foreign countries with the fish, carrying off at the same time a great part of our tin. The usual produce of the number of hogsheads exported for ten years, from 1747 to 1756 inclusive, amounted to near thirty thousand hogsheads each year; and every hoghead has amounted, on an average, to the price of one pound thirteen shillings and three-pence. Thus

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the money paid for Pilchards exported has annually returned near fifty thousand pounds.'

The numbers which are sometimes taken at one shooting out of the nets is indeed astonishingly great. Dr. Borlase assured Mr. Pennant, that on the fifth of October 1767, there was at one time enclosed in St. Ives's Bay 7000 hog-heads, each hog-head containing 35000 fish; in all 245000000.

PILE-WORMS. A kind of worms of various sizes, from three to thirteen inches in length, found in the piles of the sea-dikes in Holland. Their heads are covered with two hard shells, or hemispheres; which together form a figure resembling an auger, and with which they bore the wood. The best remedy against them is to perforate the piles with many holes, each about an inch asunder; then to rub them over with varnish in the hottest sun; and, while the varnish is warm, to strew it over with brick-dust. This operation should be repeated till the piles are covered with a strong crust, impenetrable to every insect.

PILHANNAW. An appellation given by the Indians to an American bird of prey, very large and bold; described by Josselyn as being four times as big as the European goshawk, and having a remarkable large head. The other tribes of birds dread its approach; but it principally feeds on young quadrupeds.

PILLVENKEGEN. An appellation given by Aldrovandus to a bird of the snipe kind, supposed by many to be the same with the bird called by us the Knot.

PILOT FISH. This fish receives its name from a quality ascribed to it of following the tracks of ships till they reach their harbours. It is about the size of the mackerel; has a long smooth head; and a snout advancing four inches beyond the mouth. It has two small fins near the head; another fin running along the back from the head to the tail; and a third under the belly, of similar length. The head is very small; and the body is covered with a lozenge-coloured skin.

PINIROLO. A bird of the tringa kind, somewhat approaching to the sand-piper, but larger. The bill is black; the body is of a mixed chestnut-colour and black; and the belly and breast are perfectly white. This bird is common in several parts of Italy.

PINNA. In the Linnæan system, a genus of the testacea worms. The animal is a slug. The shell is bivalve, fragile, and furnished with a beard; it gapes at one end; and has a hinge without a tooth. Linnæus enumerates eight species.

The Pinna Marina, like the muscle, is held by a number of threads, proceeding from its body, fixed to any adjoining substance; and with these threads it possesses the faculty of spinning, after the manner of the spider and the caterpillar: they are almost as fine as the threads of the silk-worm; and, like them, have at all times been manufactured into use. The finest byssus of the ancients was fabricated from these filaments; and at present they are manufactured at Palermo, and several other places, into gloves, stockings, and other wearing apparel.

It may be naturally supposed that threads of such a delicate contexture cannot possibly possess great strength: however, what is wanting in the force of each, is made up in the number of them. They differ in nothing from the threads of the muscle, except in their firmness and length, which

in these is much greater, and this renders them more valuable. In order to make the distinction still more obvious to those who are unacquainted with the different species, let it be observed, that the Pinna is the silk-worm of the sea, and the muscle the caterpillar.

Several species of the Pinna or nautilus are found on the British coasts.

PINTADO. An appellation given by the ancient Romans to the Guinea hen. See GUINEA HEN.

PIPE FISH. A genus of fish; the distinguishing characters of which are: that the nose is long and tubular; that there is no orifice to the gills; that the breathing aperture is on the hind part of the head; that there are no ventral fins; and that the body is covered with a strong crust.

PIPE, LONG; the *Syngnathus Barbarus* of Linnæus. This species is sometimes two feet long, but commonly sixteen inches. The nose is one inch in length, compressed sideways, and reverted at the extremity of the lower mandible; and the aperture of the mouth is very small. The irides are red; and behind each eye there is a deep brown line. The body, at the thickest part, is about the thickness of a swan's quill, hexangular from the end of the dorsal fin, and from thence to the tail quadrangular. The belly is slightly carinated, and marked along the middle with a dusky line; and under the tail there is a sulcus or groove, six inches and a half long, covered by two longitudinal valves, which at the proper season conceal a multitude of young fish.

The general colour of the Long Pipe is an olive brown; the sides are marked with numbers of blueish lines, pointing from the back to the belly; the dorsal fin, which is narrow and thin, consists of forty rays; the pectoral fins are composed of twelve; and the anal of three. The body, as far as the vent, is of an equal thickness; but from thence tapers to a very small point.

When this fish is dried, it appears as if covered with numbers of angular crusts, finely radiated from their centre.

PIPE, SHORT; the *Syngnathus Acus* of Linnæus. This fish is shorter and thicker than the former, though it sometimes measures sixteen inches in length. The middle of the body, in some, is hexangular; in others, heptangular; and from hence Linnæus considers them as two species, though they are more properly varieties of the same. The mouth is small; the irides are yellow; and close behind the head are situated the pectoral fins, which are small and short. On the lower part of the back there is one narrow fin; and beyond the vent the tail commences, which is long and quadrangular; and at its extremity there is a round radiated fin. The body is covered with a strong crust, elegantly divided into small compartments; the belly is white; and the other parts are brown.

PIPE, LITTLE; the *Syngnathus Ophidion* of Linnæus. It is about five inches long, slender, and tapering off to a point; it wants both the pectoral and tail fins; and is covered with a smooth skin, whereas the other kinds are furnished with a crust.

This species is not viviparous. On the belly of the female there is a long sulcus, in which the eggs are disposed in two or three rows.

PIPER; the *Trigla Lyra* of Linnæus. This fish is frequently caught on the western coasts of this

this kingdom; and it's flesh is extremely admired. It sometimes weighs upwards of three pounds. The head is large; and that part of the body next to it is very thick. The nose is divided into two broad plates, each terminated with three spines; and on the inner angle of each eye there is a strong spine. The covers of the gills are armed with one very sharp and strong spine; and exactly over the pectoral fin there is another spine, very large and sharp-pointed. The eyes are large; the lower jaw is much shorter than the upper, and both are set with very minute teeth. The first dorsal fin consists of nine very strong sharp spines; and the second, which begins exactly behind the first, is composed of eighteen soft rays. The pectoral fins, which are long, have twelve branched rays; the ventral have six very strong and thick rays; the anal have eighteen, the first ray of which is spiny; and the tail is small, and forked. The back, on each side of the dorsal fin, is beset with strong and very large spines, pointing towards the tail like the teeth of a saw; the scales are small, hard, and rough; and the lateral line is bent a little at it's origin, but proceeds from thence in a straight direction to the tail.

PIPERIVORA AVIS. An appellation given by some ornithologists to the toucan, or Brazilian magpie, from it's feeding on pepper.

PIPRA. In the Linnæan system of nature, a genus of the order of passeræ. The characters are: that the bill is shorter than the head, triangular at the base, entire, and incurvated at the apex; and that the feet are formed for walking. Linnæus enumerates thirteen species.

PIPRA is also an appellation used by Aristotle and other ancient writers to express the picus varius major, the great spotted woodpecker or wit-wall.

PIQUE. A name given by the Spaniards to an insect of the magnitude of a flea; and called by the Indians tung. It is common in the East, and West Indies; where it eats it's way into the flesh under the human nails.

PIQUITINGA. A small American river-fish, about two inches long. The mouth appears small, but is capable of a great expansion for it's size; the eyes are large and black, with silvery irides; and it has six fins, exclusive of the tail, which is bifid. The head is of a silvery white colour; the back is olivaceous; the belly and sides are covered with silvery scales; the fins are wholly white; and the lateral lines are broad, bright, and shining.

PIRA-ACA. An appellation by which Marcgrave expresses the little horned fish of the West Indies; called by Clusius and others, the monoceros piscis, or unicorn fish.

PIRA-ACANGATA. A Brazilian fish, resembling the common perch in shape and size. The mouth is small; the tail is bifid; and there is one long dorsal fin, supported by rigid and prickly spines, which it can depress at pleasure, and fold up in a fulcus made for it in the back. The scales are of a silvery white colour; and the flesh is wholesome, and agreeable to the palate.

PIRA-BEBE. An appellation given by some ichthyologists to the milvus, or kite-fish.

PIRA-COABA. An American fish of the truttaceous kind, much esteemed for the delicacy of it's flavour, and which grows to the length of one foot. The nose is pointed; the mouth is large, but destitute of teeth; the upper jaw over-

hangs the lower in the form of a cartilaginous prominence; the eyes are very large; and the tail is bifid. Under each of the gill-fins there is a beard, composed of six white filaments; and the body is entirely covered with silvery scales.

PIRA-JURUMENBECA. A Brazilian fish described by Marcgrave; called also the bocca molle. It seems attached to the muddy bottom of the American seas; where it grows to a vast size, being sometimes ten or eleven feet long, and two feet and a half in circumference. It has one long dorsal fin, the anterior part of which is thin and pellucid; and on the back there is a fulcus, into which this fin may be laid at pleasure. The scales are of a silvery colour and brightness; and the flesh is extremely well tasted.

PIRA-PIXANGA. A fish of the turdus or wrasse kind, caught in the Brazilian seas, and called by some the gatvisch. It's usual length is from four to five inches: the mouth is large, and furnished with very small and sharp teeth; the head is small; but the eyes are large and prominent, the pupil being of a fine turquoise colour, and the irides yellow and red in various shades. The coverings of the gills terminate in a triangular figure, with a short spine or prickle; the scales are small, and very evenly arranged; and the tail is rounded. The whole body, head, tail, and fins, are of a pale yellow colour, variegated with beautiful sanguine spots; and the fins are also spotted in a similar manner, and fringed with red.

This fish is caught among rocks, about the shores; and it's flesh is reckoned very delicate.

PIRANHA. An appellation given by the Americans to the fish more usually denominated piraya.

PIRAQUIBA, OR IPERAQUIBA. A Brazilian appellation for the remora, or sucking-fish of ichthyologists.

PIRATIA-PUA. An American fish, which grows to a very considerable size. While young, it's flesh is esteemed a peculiar delicacy; but, when full grown, it becomes coarse, rank, and strong. It has six fins besides the tail, which is composed of one very large fin of a square shape. The body is entirely of a dusky orange colour, but more obscurely so on the back than on other parts; and the sides are variegated with grey spots, dispersed in such a manner, that they represent a kind of net-work.

PIRATIPIA. A Brazilian fish, approaching to the nature of the turdus or wrasse. It's body, which is oblong, and very thick, sometimes weighs upwards of fifty pounds; and it's flesh is greatly esteemed.

PIRAUMBU. A Brazilian fish described by Marcgrave, called by the Portuguese chayquarona. It's figure resembles that of the carp; it's usual length is from six to seven inches; and it's greatest breadth is about three inches. It frequents rocky coasts; and is much valued for the delicacy of it's flesh.

PIRAYA. An American fresh-water fish, of which there are two varieties; the one growing to the length of a foot, and very broad in proportion, with one dorsal fin; the other nearly about the same size, but having two dorsal fins. The former variety is attached to the muddy bottoms of rivers; the latter frequents sandy places. Their flesh is reckoned wholesome.

PIRIT. A Philippine appellation for a pecu-

liar species of sparrow common in those islands. It is smaller than the European sparrow; and its usual food consists of the seeds of the canary-grass, which grows wild in great abundance.

PISCIS SANCTI PETRI. An appellation given by Jovius, and some other ichthyologists, to the faber, or John Doree. It is properly a species of the zeus.

PISMIRE. A name by which some naturalists express the ant. See **ANT.**

PIT-FISH. This fish, which is caught in the Oriental seas, is about the size of the finel. The body is roundish, destitute of scales, and variegated with green and yellow spots. It possesses the singular faculty of protruding or drawing back its eyes at pleasure. It delights in deep and muddy situations; and is extremely nimble, being capable of springing to a considerable distance. Its flesh is very agreeable to the taste.

PITHECALOPEX, the Ape-Fox. An appellation by which Aldrovandus and some other naturalists express that singular animal generally known by the name of the opossum. It is so called from a supposed resemblance in its nature to that of the ape and the fox.

PLACENTA. A name by which some authors express one of the classes of echini marini. Its distinguishing characters are; that the body is of a depressed or flatted form, wrought into a variety of shapes; that the top is adorned with a cinquefoil flower; that the mouth is situate in the middle of the base; and the aperture for the anus usually near the edge. There are three genera belonging to this class; the mellitta, the lagnum, and the rotula.

PLAGIURI. A term by which one of the great families or classes of fish is expressed: the characters of which are; that their tails are placed horizontally; that they respire by means of lungs, and have usually a double fistule in the head; that they are viviparous, being furnished with the same organs of generation as terrestrial animals; and that the females support their young with milk.

The term is derived from the Greek *Plagios*, Transverse; and *Oura*, a Tail. Under this class are comprehended the following genera: the physeter, delphinus, balæna, monodon, catodon, and thrichechus.

PLAISE; the *Pleuronectes Plateffa* of Linnæus. This fish, which is also called the plateffa, the passer lævis, and quadratulus, according to the Artedian system, is a species of the pleuronectes; and is distinguished by that author under the appellation of the pleuronectes with smooth sides, and with a spine near the anus, and the eyes and six tubercles placed on the right side of the head.

These fishes are very common on most of the British coasts; and some have been taken that weighed fifteen pounds. However, they seldom attain to that size, one of eight or nine pounds being reckoned a large fish. The best and largest are caught off Rye, in Suffex. They spawn about the beginning of February.

The body of this fish is extremely flat; behind the left eye there is a row of six tubercles, reaching to the commencement of the lateral line; the upper part of the body and fins is of a clear brown colour, marked with large bright orange-coloured spots; and the belly is white.

PLATEA. An appellation by which many ornithologists express the spoon-bill.

PLATESSA. A name by which Aufonius, and some other ichthyologists, have expressed the passer fish, or common plaife.

PLATONIA. A term whereby the modern Greeks express the prox of Aristotle; more commonly known by the appellation of the cervus platyceros, or broad-horned stag.

PLATYCEROS OVIS. An appellation given by Gesner, and some others, to a species of sheep commonly called *Ovis Laticauda*, or broad-tailed.

PLATYRYNCHOS. A name by which some ichthyologists express the nasus, or nese, a fresh-water fish caught in the Danube and other large German rivers, bearing a strong resemblance to the common chub.

PLESTYA. An appellation whereby some ichthyologists express the carcassii tertium genus of authors; a fish of the leather-mouthed kind, in no respect essentially differing from the common carcassius.

PLEUROCYSTUS. A term by which some authors express one of the general arrangements of the echini marini: the distinguishing character of which is; that the anus is neither in the summit nor the base, but in some part of the superficies of one of the sides.

The term is derived from the Greek *Pleuron*, the Side; and *Kustos*, the Anus.

PLEURONECTES. A genus of fishes of the malacopterygious kind: the characters of which are; that the branchiofstege membrane on each side contains six cylindric bones; and in the middle between these, but lower down, two others are joined together at their extremities, which are scarcely conspicuous: that both the eyes are placed in one side of the head; in some, they are in the right side; in others, in the left: that the eyes are covered with a skin; and that one side of the fish is always white, the other being spotted or obscure.

Some of these fishes have a very short spine at the anus; and the eyes are generally on the right side. Artedi enumerates seven species of this sort. The other species of the *Pleuronectæ* have their eyes on the left side of the head; and no spines, except at the anus. Of the last mentioned, Artedi enumerates three species.

In the Linnæan system, this is a genus of the thoracici, comprehending seventeen species, including the holibut, plaife, flounder, dab, sole, pearl turbot, &c.

The term is of Greek origin, and is derived from the words *Pleuron*, the Side; and *Nectes*, a Swimmer; expressive of the peculiar and distinctive character of these fishes, which is, that they all swim on one side.

PLOTUS. A genus of anseres, in the Linnæan system: the characters of which are; that the beak is straight, sharp, and denticulated; that the face is covered; and that the feet are palmated, with the toes joined. There is only one species of this genus, the anhinga of Marcgrave.

PLOVER, BASTARD. See **LAPWING.**

PLOVER, LESSER; the *Charadrius Mounellus* of Linnæus. See **DOTTEREL.**

PLOVER, GOLDEN; the *Charadrius Pluvialis* of Linnæus. This elegant bird frequents our moors and heaths in small flocks, during the winter season. Its length is about eleven inches; and the expansion of its wings twenty-four. The bill is short and black; the feathers on the head, back, and

and coverts of the wings, are black; beautifully spotted on each side with light yellowish green; the breast is brown, marked with greenish oblong strokes; the belly is white; the central feathers of the tail are barred with black and yellowish green, the rest with black and brown; and the legs are black. However, there are some varieties in these birds; but these have not been sufficiently observed to distinguish the age or sex.

The female lays four eggs, sharply pointed at the lesser end, of a dirty white colour, and irregularly marked, especially at the thicker end, with black blotches or spots. It breeds on unfrequented mountains; and is very common in the Hebrides.

This bird makes a shrill whistling noise; and may be enticed within shot by a skilful imitator of its note.

Some naturalists have supposed this species to be the *Pardalis* of Aristotle, on account of its spots; but that author makes no mention of those generic distinctions, so as to enable us to decide on the propriety of this opinion. The Romans seem to have been unacquainted with the Plover, as the name does not once occur in any of their writings.

PLOVER, LONG-LEGGED; the *Charadrius Himantopus* of Linnæus. This is one of the most singular birds that frequent the British islands. The legs are of a length and slenderness extremely disproportioned to the body; and this, added to a defect in the back toe, must necessarily render its paces awkward and infirm. The naked part of the thigh is three inches and a half long; and the legs are four and a half: these and the feet are of a blood-red colour. The entire length of the bird is thirteen inches; and the expansion of its wings is twenty-nine. The forehead, and the whole under side of the body, are white; the crown of the head, the back and the wings, are black; on the hind part of the neck there are a few black spots; and the tail is of a greyish white colour.

This species is by no means common in Britain: Sir Robert Sibbald mentions two which were shot in Scotland; and a few years since another was shot at Stanton Harcourt, near Oxford.

PLOVER, BLACK-BREASTED INDIAN. This bird is somewhat larger than the lapwing: the bill is of a moderate length, blackish, and pointed; the feathers on the crown of the head are black with a green gloss, forming a crest about an inch long; the cheeks, the hinder part of the head, and two broad lines down each side of the neck, are white; the lower part of the neck behind, and the whole back and coverts of the wings, are brown; the greater quills are black; the lesser next the back are brown; and the ridge of the wing is adorned with black and white feathers. The breast, and part of the belly, are black, with a fine purplish gloss on the former; the thighs, the lower belly, and the coverts under the tail, are white; the tail-feathers are of equal lengths, white at their bottoms, and black across their ends; and the legs, feet, and claws, are of a dirty black brown hue.

PLOVER, SPOTTED AMERICAN. This species is about the same size, make, and proportion, as the golden Plover; and has a black bill, bending a little towards the point. The forehead is white almost to the bill, and parted from it by a line of black feathers. A white line passes on each side

above the eye, and then down on each side of the neck; which unite before like a collar, parting the neck and the breast. The under side of the head and throat above it are white; and the top of the head, the hinder part of the neck, the back, rump, and covert-feathers of the wings, are of a dark brown colour, beautifully spotted with a bright orange yellow. The greater quills of the wings are of a dusky black; and the quills next the back and tail-feathers are variegated transversely with black and brown. The whole under side is of a deep black hue, except a few white spots on the covert-feathers under the tail. There are only three toes, which all stand forward; and the legs and feet are black.

PLOVER, CHATTERING, OF CATESBY. This bird, which the inhabitants of Virginia call the kill-deer, is about the size of the snipe; and has large eyes, surrounded with a red circle. The fore-part of the head is white, the top black, and the hinder part brown. A black streak runs from the base of the bill under the eye, to the back part of the head on each side; a large black ring surrounds the neck; and the breast and belly are white; but the breast is traversed with a black streak, running from one wing to the other. The back and wings are brown; the coverts of the tail are of a reddish yellow colour; and the remainder, together with the legs, are black. There is no heel; and the thighs are naked.

PLOVER, NORFOLK, OR GREATER. See **STONE-CURLEW.**

PLOVER, RINGED. See **SEA-LARK.**

PLOVER, STONE. See **GODWIT.**

POCHARD; the *Anas Ferina* of Linnæus. A bird of the duck kind, about nineteen inches long, and thirty inches in breadth. The bill is of a deep lead colour; the head and neck are of a bright bay; the breast, and part of the back, are black; the coverts of the wings, the scapulars, the back, and sides under the wings, are pale grey, elegantly marked with narrow lines of black; and the quill-feathers are dusky. The belly is cinereous and brown; the tail is composed of twelve short feathers of a deep grey colour; the legs are lead-coloured; and the irides are a bright yellow, tinged with red.

The female differs considerably from the male: her head is of a pale reddish brown hue; her breast is of a deeper colour than that of the male; the coverts of her wings are of a pale ash; and her belly is cinereous.

These birds frequent both fresh and salt waters. Their flesh, which is extremely delicate, is much prized in the London markets, where they are generally known by the appellation of dun-birds.

PODARIA. A classical appellation for such insects as have limbs, but no wings. See **APTERA.**

The Podaria class comprehends two subdivisions: such aptera Podaria as have oblong bodies with numerous legs or more than six pair, of which kind are the julus, or gally-worm; the scolopendra, or centipes; and the oniscus, or woodlouse: and, secondly, such aptera Podaria as have shorter bodies, and fewer legs than six. This last subdivision contains numerous genera; as the pulex, the puceron, the pediculi, the monoculi, the acari, the aranei, the scorpio, and many others.

PODICEPS. An appellation by which some ornithologists

ornithologists express several kinds of the colymbi or divers.

PODURA. A genus of the aptera order of insects: the distinguishing characters of which are; that it has six feet formed for running; two octonous eyes; a bifurcated inflexed tail, formed for leaping; and long setaceous antennæ. There are fourteen species.

POGGE; the *Cataphractus Cottus* of Linnæus. A small sea-fish, very common on most of the British coasts, and seldom exceeding six inches in length. The head is large, bony, and rugged; the end of the nose is armed with four sharp upright spines; on the throat there are numbers of short white beards; and the teeth are very small, and arranged in the jaws. The body is octagonal, and covered with a variety of strong bony crusts, divided into several compartments; the extremities of which project into a sharp point, forming several echinated lines along the back and sides, from the head to the tail. The first dorsal fin consists of six spiny rays; the second, which is placed exactly behind the first, consists of seven soft rays; and the pectoral fins, which are broad and rounded, are composed of fifteen rays.

There is another variety of the Pogge found on the coasts of America, bearing a strong resemblance to the preceding. It has three angles on the hinder part of its head, one on each side, and the third in the middle; the upper chap is elliptic; the mouth is somewhat prominent; and the head is covered with a brown bony helmet. The back, sides, and tail, are covered with brown scales, engraved with small parallel lines of a rhomboidal figure; and the belly has a thin flexible skin.

POGO. An appellation by which the natives of the Philippine islands express a species of quail, common in that country.

POINTER. See Doc.

POLA. A small flat fish, caught in the Mediterranean, and commonly known by the appellations of the cynoglossus and linguatula. It bears some resemblance to the soal, but is shorter and smaller.

POLE-CAT; the *Mustela Putorius* of Linnæus. An animal of the weasel kind, called also the fitchet. It is larger than the common weasel, being about seventeen inches in length, exclusive of the tail, which is six. The colour of this creature is a deep chocolate, with a space of white round the mouth; and the ears are short, rounded, and tipped with white. It so nearly resembles the ferret in shape, that many have supposed it to be the same animal. Like the whole genus, it is long and slender, nimble and active; and is capable of creeping up a wall with great agility. It is also very destructive to poultry of all kinds: it robs the dairy; is a formidable enemy to pigeons; but rabbits seem to be its favourite prey: a single Pole-Cat is almost sufficient to despoil a whole warren; for it possesses such an insatiable thirst after blood, that it kills more through wantonness than necessity. The female brings forth about five or six at a time.

Warreners affirm, that the Pole-Cat and the ferret will copulate together; and that they frequently procure an intercourse between these two animals, in order to improve the breed of the latter, which, by long confinement, becomes less eager after rabbits, and consequently less useful.

Buffon denies that the Pole-Cat will admit the ferret: nevertheless, he gives us a variety, under the appellation of the ferret Pole-Cat, which has every appearance of being a spurious offspring.

Indeed, the ferret agrees in many respects with the Pole-Cat; but in none more than its thirst after the blood of rabbits. When alive, the smell of the Pole-Cat is rank and disagreeable even to a proverb: however, its fur is dressed with the hair on, and used for various cheap purposes; but its offensive smell can never be wholly removed or suppressed.

The Pole-Cat seems to be an inhabitant of the temperate climates, scarcely any being found towards the north, and but very few in the warmer latitudes. The species seems to be confined, in Europe, from Poland to Italy. It is certain that these animals dread the cold, as they often enter houses in winter, and as their tracks are never found in the snow near their retreats. It is also probable that they are afraid of heat, being but thinly disseminated over the southern climates.

POLE-CAT, STRIATED; the *Viverra Putorius* of Linnæus. This animal, called also the flunk, has round ears; the head, neck, belly, legs, and tail, are black; and the back and sides are marked with five parallel white lines, one on the top of the back, the others on each side, the second extending some way up the tail, which is long, and bushy towards the extremity.

This animal, which is about the size of the European Pole-Cat, is a native of North America. When attacked, it bristles up its hair, and flings its body into a round figure, at the same time emitting a horrid stench.

POLIOPUS. An appellation given by Aldrovandus, and some others, to the grinetta, a small bird of the moor-hen kind.

POLLACK. A name generally used to express two different species of the *afellus* or *gadus* kind, with the different epithets of Raw and Whiting. The Raw-Pollack is the same species which is known in some parts of England by the appellation of the cole-fish, the *Afellus Niger* of authors: the other is called the Whiting-Pollack, the *Gadus Pollachius* of Linnæus.

According to the Artedian system, both these species belong to the genus of *gadi*; and as the names derived from their colours, black and green, are by no means sufficiently expressive, the colours being neither permanent, perfect, nor entire; Artedi has devised others for them, by which they may be distinguished at one view. The Raw-Pollack, or cole-fish, he distinguishes by the name of the *gadus* with three fins on the back, without any beard at the mouth, with the lower jaw longer than the upper, and with the lateral line straight. The other, or the Whiting-Pollack, he distinguishes by the name of the *gadus* with three fins on the back, without any beard, with the lower jaw longer than the upper, and the lateral line crooked. These names not only distinguish the two species from each other, but likewise from every species of the same genus.

The Whiting-Pollack is common on many of the rocky coasts of this island; and, during summer, large shoals of them are seen sporting on the surface of the water, and throwing themselves into a thousand different attitudes. At that time they wantonly bite at every thing that appears on the surface of the waves; and are often taken with a goose-quill fixed to the hook. They appear to be

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very strong, being capable of maintaining their stations at the feet of the rocks in the most boisterous and rapid seas.

The flesh of these animals is esteemed excellent food; and some have been caught that weighed near twenty-eight pounds, though they are generally no more than six or seven each. The under jaw is longer than the upper; the head and body rise pretty high; and the side-line is incurvated, rising towards the middle of the back, then sinking, and running straight to the tail, which is broad and brownish. The first dorsal fin has eleven rays; the middle nineteen; and the last sixteen. The colour of the back is dusky, in some inclining to green; the sides underneath the lateral line are marked with yellow streaks; the belly is white; and the tail is slightly forked.

POLLARD. A provincial appellation for the young of the cole-fish, or raw-pollack.

POLPOCH. A species of serpent, said to be found in Jucatan, a country bordering on New Spain; which, if we may credit report, can bite with it's mouth, and sting with it's tail.

POLYGLOTTA AVIS. A bird described by Nieremberg, about the size of the European starling; which that author informs us he saw, and heard sing with all possible variety of modulations. The back is brown; the breast and belly are white; the neck and tail are variegated with spots and streaks of white; and the head is adorned with a streak of white representing a silver crown.

The Spaniards of the new world mightily admire this bird, whose melody is said to be infinitely superior to that of all others. They usually cage it, and feed it with seeds, fruits, bread, or flesh. It seems much attached to warm latitudes; but is capable of enduring the more temperate ones without injury.

POLYGLOTTOS. In the Linnæan system, a species of the turdus. See **MOCK-BIRD**.

POLYNEMUS, the Finger-fish. A genus of abdominales: the characteristics of which are; that the head is compressed and squamose; that the beak is very obtuse and prominent; that the gills consist of five or seven rays; and that there are several distinct processes or appendages placed by the pectoral fins. There are three species, one of which has been denominated the Paradise fish by Edwards.

POLYPUS, OR POLYPE. In the Linnæan system, a species of insect belonging to the genus of hydra, in the class of worms, and order of zoophytes.

The ancients gave the name Sea-Polype to the star-fish or sea-nettles, because of the great number of feelers or feet which they all possess, and with which they have a slow progressive motion. But the moderns have applied the appellation of Polypi to certain reptiles which live in fresh-water, by no means so large or observable: these are found at the bottoms of wet ditches, or attached to the under surfaces of such broad-leaved plants as grow and swim on the surface of the waters. However, the same difference holds between these and the Sea-Polypi, as is perceptible between all the productions of the land and the ocean. The marine vegetables and animals grow to a monstrous size: the eel, the pike, or the bream, of fresh-waters, is but small; but in the sea, they grow to an enormous magnitude. The herbs of the field are at most but a few feet high; those of the ocean often shoot forth stalks of a hundred.

This difference likewise obtains between the Polypi of both elements: those of the sea are found from two to four feet in length; and Pliny has described one, the arms of which were no less than thirty feet long. But those of fresh-waters are comparatively minute: at their utmost size, they seldom exceed three quarters of an inch in length; and, when gathered up in their usual form, do not appear above one-third of those dimensions.

On these minute animals the power of dissection was first tried in multiplying their numbers. They had been long considered as unworthy the attention of observers, and were consigned to that neglect in which thousands of minute species of insects remain to this day. It is true, indeed, that Reaumur observed, classed, and named them: by contemplating their motions, he was enabled distinctly to pronounce on their belonging to the animal, and not to the vegetable kingdom; and he called them Polypi, from their great resemblance to those larger ones which were found in the ocean. Still, however, their properties were neglected, and the most important part of their history was unknown.

The first person to whom we are indebted for a discovery of the amazing powers and properties of this little vivacious creature, was Mr. Trembley. He divided this class of animals into four kinds; namely, those inclining to green, those of a brownish cast, those of a flesh colour, and those which he calls the Polype de Panache. The difference of structure in these, as well as of colour, are sufficiently perceptible; but the manner of their subsisting, of seizing their prey, and of their propagation, is pretty nearly the same in all.

Whoever has had the curiosity to look into the bottom of a wet ditch when the water has been stagnant, and the effect of the sun powerful, must have observed many little transparent lumps of jelly, each about the size of a pea, and flatted on one side. Such also who have examined the under sides of the broad-leaved weeds that grow on the surface of the water, must have perceived them to be studded with a number of these little jelly-like substances, which were probably then disregarded, because their nature and history were unknown: these small substances, however, were no other than living Polypi, gathered up into a quiescent state, and seemingly inanimate, because not excited to action by the calls of appetite, nor disturbed by their enemies. When they are seen to exert themselves, they assume a very different appearance from that when at rest. In order to form a just idea of their figure, we may suppose the finger of a glove cut at the bottom; and also several threads or horns planted round the edge, after the manner of a fringe. The hollow of this finger will convey to us some idea of the creature's stomach; and the threads issuing forth from the edges may be considered as the arms or feelers, with which it hunts for it's prey. The animal, when at it's greatest extent, is seldom above one inch and a half long; but it is considerably shorter when contracted, and at rest: it is neither furnished with muscles nor rings; and it's manner of lengthening and contracting itself rather resembles that of the snail than the worm or any other insect. The Polypus contracts itself more or less in proportion as it is touched, or as the water in which it lives is agitated. Warmth animates, and cold benumbs it; but a degree of cold approaching to congelation is necessary to reduce it to perfect inactivity.

activity. Where this animal is not molested, and the season is favourable, it's arms are thrown about in various directions, in order to entangle and seize it's puny prey; and sometimes three or four of the arms are thus employed, while the rest are contracted, like the horns of a snail, within the animal's body: and it seems to be capable of protruding these arms to whatever distance it pleases, in proportion to the remoteness of the object it wishes to seize.

The Polypi have a progressive motion, which is performed by the faculty they possess of lengthening and contracting themselves at pleasure: they move from one part of the bottom of the water to another, mount along the margin, and climb aquatic plants. They are often seen near the surface of the water, where they suspend themselves by their lower ends. As their motion is but slow, they employ a considerable time in every exertion, affixing themselves very strongly to whatever substances they chance to move on as they proceed; which adhesion is voluntary, and probably performed after the manner of a cupping-glass applied to the body.

All animals of this kind have a remarkable propensity of turning towards the light; and this circumstance might naturally induce an enquirer to search for their eyes: but, however carefully this scrutiny has been pursued, and however excellent the microscope with which every part has been examined, yet nothing bearing the least resemblance to this organ has ever been found over the whole body; and it is extremely probable that, like several other insects which hunt their prey by feeling, they are destitute of organs which are by no means necessary for their accommodation.

The mouth of the Polypus, as already observed, is placed in the centre of the arms; and this (which serves at once as a passage for food, and an egress for it after digestion) is opened and shut according to the pleasure of the insect. The inward part of the animal's body seems to be one great stomach, open at both ends: the purposes which the aperture at the bottom answers are as yet unknown; but certainly the excrements do not pass this way, being invariably observed to be ejected by the same opening whereby they are admitted.

If the surface of this little creature's body be examined with a microscope, it will be found studded with a number of warts; as also the arms, particularly where they are contracted; and these tubercles, as will presently appear, answer a very important purpose. If we investigate the manner of this animal's life, we shall find it chiefly subsisting on other insects much less than itself; particularly a kind of millepedes, that live in the water; and a very small red worm, which it seizes with great avidity. In short, no creature whatever, smaller than itself, seems to come amiss. Whenever the Polypus perceives it's prey, of which it gains a knowledge by the sense of feeling, it is sufficient only to touch it, and it is immediately entangled. The instant one of the long arms of the Polypus is laid on a millepede, the little animal sticks to it so effectually, as to be utterly unable to escape; and the greater the distance at which it is touched, the greater the facility with which the Polypus brings it to it's mouth. But if the little object be near, though irretrievably caught, it is not without great difficulty conveyed to the mouth, and swallowed.

When the Polypus is unsupplied with food, it indicates it's hunger by opening it's mouth; the aperture, however, is so small, as not to be easily perceived: but when, with any of it's long arms, it has seized on it's prey, it then opens it's mouth distinctly enough; and this opening is always in proportion to the size of the animal which it would swallow; the lips dilate insensibly by small degrees, and adjust themselves precisely to the figure of the prey. Mr. Trembley, who amused himself with feeding this unobtrusive tribe, found that they could devour food of every kind, fish and flesh, as well as insects; but he acknowledges that they did not feed so well on beef and veal as on the little worms of their own providing: and when he offered one of these famished reptiles any substance improper for aliment, it at first seized it with avidity, but after keeping it some time entangled near it's mouth, it let it drop with a kind of discriminating nicety.

When several Polypi happen to attack the same worm, they dispute their common prey with considerable resolution. Two of them are often observed seizing the same worm at different ends, and dragging it at opposite directions with great force. It frequently happens, that while one is swallowing it's respective end, the other is also employed in the same manner; and thus they continue swallowing each his part, till their mouths meet together: they then rest for some time in this situation, till the worm breaks between them, and then each goes off with it's share. But an apparently more dangerous combat often happens when the mouths of both insects are thus joined together on one common prey; the largest Polypus then gapes, and swallows it's antagonist: and, what seems rather wonderful, the animal thus swallowed appears a gainer by the misfortune; for, after it has lain in the captor's body about an hour, it issues thence uninjured, and often in possession of the very prey which had been the original occasion of the dispute.

Thus these animals continue feeding during the whole year, except when the cold approaches to congelation; and then, like most others of the insect tribe, they yield to the general torpor of nature, and all their faculties are suspended for two or three months: but if they abstain at one time, they are equally voracious at another; and, like snakes, ants, and other animals which are torpid in winter, the meal of one day suffices them for several successive months. In general, however, they devour more largely in proportion to their size; and their growth is exactly in proportion as they are fed: such as are best supplied, soonest acquire their largest size; but they diminish also in their growth with the same facility, when their food is either lessened or taken away.

Such are the more obvious peculiarities of these little animals; but the most wonderful still remain to be described. Their manner of propagation, or rather multiplication, has for some years been the astonishment of all the learned and curious in Europe. They are produced as variously as any species of vegetable: some Polypi are propagated from eggs, as plants are from their seeds; others are produced by buds issuing from their bodies, as plants are raised by inoculation; while all may be multiplied by cuttings, and this to a degree of minuteness that exceeds even philosophical perseverance. With regard to such of this kind as are hatched from the egg, but little curious can be added,

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added, as it is a method of propagation so common to all the tribes of insect nature; but with regard to such as are produced like buds from their parent stem, or like cuttings from an original root, their history requires a more particular explanation.

If a Polypus be carefully observed in summer, (when these animals are chiefly active, and more particularly prepared for propagation) it will be found to protrude from divers parts of its body several tubercles or small knobs, which gradually become larger and larger: after two or three days inspection, what at first appeared but a small excrescence, assumes the figure of a minute animal, entirely resembling its parent, furnished with feelers, a mouth, and all the requisite apparatus for seizing and digesting its prey. This little creature continues to increase, like the parent to which it is attached; spreads its arms, in order to lay hold of whatever insect is proper for aliment, and then devours it for its own particular benefit: thus it is possessed of two sources of nourishment; that which it receives from the parent by the tail; and that which its own industry acquires by the mouth. The food which these insects receive often tinctures their whole bodies; and on this occasion the parent is often seen communicating a part of its own fluids to that of its attached progeny; while, on the contrary, it never acquires any tincture from the food or juices of its young. If the parent swallows a red worm, which gives a colouring to all its fluids, the young one participates of the parental tincture; but if the latter should seize on the same prey, the parent Polypus is no way advantaged by the capture, but all the benefit remains with the young one.

We are not, however, to imagine, that the parent is capable of producing only one young Polypus at a time; several are thus seen at once, of different magnitudes, growing from its body; some just budding forth; others acquiring their perfect form; and some arrived at sufficient maturity, and just ready to drop from the parental stem. But, what is still more singular, those young ones themselves, that continue attached to their parent, are observed to propagate their young also, each holding the same dependance on its respective parent, and possessed of the same advantages already described in the first connection. Thus we behold a surprising chain of existence continued; and numbers of animals naturally produced, without any union of the sexes, or other previous disposition of nature.

Indeed, this seems to be the most natural way by which these animals are multiplied; their production from the egg being less common: and though some of this kind are found with little bladders attached to their bodies, supposed to be replete with eggs, which afterwards come to maturity; yet the artificial method of propagating these animals is much more expeditious, and equally certain. It seems of no consequence whether one of them be cut into ten, or ten hundred parts; each becomes as perfect an animal as that which was originally divided. But it should be observed, that the smaller the part is which is thus separated from the rest, the longer it will be in coming to maturity, and assuming its perfect form.

It would be endless, and perhaps uninteresting, to recount the numerous experiments which have been tried on this minute prodigy: the animal has

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been twisted into all manner of shapes, turned inside out, and cut in every direction; yet still it continued to move; its parts adapted themselves again to each other; and, in a short time, it became as voracious and industrious as before.

Besides the Polypi observed and described by Mr. Trembley, there are various others which have been lately discovered through the vigilance of succeeding observers; and some of these so strongly resemble a flowering vegetable, that many naturalists have mistaken them for such. Hughes, in his Natural History of Barbadoes, has described a species of this animal under the appellation of a sensitive flowering plant. He observed that it took refuge in the holes of rocks; and, when undisturbed, spread forth a number of ramifications, each terminated by a flowery petal, which shrunk from the approach of the hand, and withdrew into the hole from whence it had been perceived to issue. This plant, however, was no other than an animal of the Polypus kind, which is not only found in Barbadoes, but also on some parts of the British coasts, and along the shores of the continent.

The reproduction of its parts, though one of the most extraordinary properties of the Polypus, seems by no means peculiar to it alone. If a lobster or crab lose a limb, its place is always supplied with a fresh one: and Bonet, Lyonet, Reaumur, and Folkes, have all found, on experiment, that several earth and aquatic worms have the same property, some of them even when cut into numerous portions. The *urtica marina*, or sea-nettle, has been observed to have the faculty of reproduction; and particularly the sea-star, a real species of the Polypus, has long been known to possess the same virtue.

POLYPUS is also an appellation given by some of the earlier writers to the thin-shelled nautilus, or nautilus papyraceus. The body and arms of this creature somewhat resemble those of the Polype; and it was supposed to be a species of Polype enclosed in a shell, which it could occasionally quit, in order to feed ashore.

POLYSACTINODOS. A name by which some naturalists express those star-fish whose bodies are divided into more than five rays.

POLYTHALAMIUS. A term used by Breynius, and some others, to express a class of shells: the characters of which are; that they are hollow, either straight or spirally twisted; always wide at the mouth, and growing narrower to the other extremity. They are divided into several cells or chambers, called thalami, each separated from the other by a diaphragm, or partition of shelly matter: the upper or largest chamber contains the body of the animal; but all the others are perforated by a siphunculus, giving them a communication with each other, and running from the mouth to the very apex.

Breynius makes four genera of this class; the orthoceros, lituus, ammonites, and nautilus.

POMATIA. A large species of garden-snail, so called from its feeding on apples and other similar fruits. It is originally a native of Italy; but has been introduced into Britain, where it is now very common.

This animal is reckoned a sovereign remedy in consumptive decays; and has therefore been propagated in this country, in some places with assiduity and abundant success.

The Pomatia is much larger than the common snail.

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snail, and of a paler colour. It is of a roundish figure; and has five spires or twists at the head, placed very close together: the mouth is large, and almost circular; and is destitute of any duplication or folding, being of an equal thinness with the rest of the shell.

POMPILIUS. A sea-fish belonging to the genus of coryphæna in the Linnæan system, remarkable for following the rudders of ships to vast distances. It is destitute of scales; a broad line runs from the gills to the tail, under which are a number of dotted transverse lines reaching to the belly; the back is spotted with different colours; the mouth is moderately large, and furnished with small teeth; and the forehead is of a golden colour. There are four fins, two at the gills, and two on the belly; and besides these, one fin runs the whole length of the back, and another from the anus to the tail.

POMPILIUS is also used by some naturalists to express the nautilus, including the papyraceous as well as the cancerated kinds.

PONGO. An appellation by which some zoologists express the ourang-outang, or great ape. See **APE, GREAT.**

PONTICUS MUS. An animal described by the ancients, and generally supposed to be a species of squirrel.

POOL-SNIPE. A provincial appellation for the red-shank.

POOR; the *Gadus Minutus* of Linnæus. This fish, which is sometimes caught on the Cornish coasts, is the only species of cod-fish, with three dorsal fins, which is found in the Mediterranean Sea. Near Marseilles, they are sometimes taken in such abundance, as to become a nuisance; for no other species of fish approaches during their season. Their flesh is excellent, but incapable of being either salted or dried; and Belon asserts that it becomes as hard as horn when dried in the sun.

This is the smallest species of *gadus* yet discovered, being no more than six inches long. On the chin there is a small beard; the eyes are covered with a loose membrane; and on the gill-covers, and jaws on each side, there are nine punctures. The first dorsal fin consists of twelve rays, the second of nineteen, and the third of seventeen; the pectoral fins have thirteen rays, and the ventral six; the first anal fin contains twenty-seven rays, and the second seventeen; the back is of a light brown colour; and the belly a dirty white.

POPE. An appellation given in some countries to the *anas arctica* Clusii. See **PUFFIN.**

PORBEAGLE. A provincial appellation for a small species of shark found on the Cornish coasts. The nose is long, slender, and sharp-pointed; the mouth is placed far beneath; and the body is thick and deep, but extremely slender at the insertion of the tail. The first dorsal fin is placed almost in the middle, the other pretty near the tail; the belly is very deep; the ventral and anal fins are small; and the tail is bifurcated, the upper fork being a little longer than the other.

PORCELAIN-SHELL, PORCELLANA, OR CONCHA VENEREA. A genus of shell-fish; the distinguishing characters of which are these: the shell is univalve; having for it's mouth a narrow slit, dentated on each side; and being of a conglobated, oblong, gibbose, or umbonated form.

Linnæus classes these shells under the genus of *cypræa*; including forty-four species, whose cha-

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acters are; that the animal is a slug; the shell univalve, suboval, and blunt at each end; and the aperture of the length of the shell, longitudinal, linear, and toothed.

This genus originally received the appellation of *Porcellana* and *Concha Venerea* from the resemblance of it's mouth to the pudendum muliebri: but of late the import of the word has been so far misunderstood, that many have supposed it to be derived from the word *Porcelain*, imagining that the Chinese porcelain-ware was fabricated with a pulverization of this shell.

These shells, though known by various names, are more properly distinguished by the appellation *Porcellana*, because different conchologists have frequently confounded separate genera, by assigning them one common name. They pass current as money in several parts of Africa, Asia, and America; and, when pulverized, have sometimes been applied to medicinal purposes.

PORCELLUS INDICUS. A name whereby some naturalists express the little animal more usually denominated the Guinea-pig.

PORCO. An appellation for the fish more commonly called the capricus, supposed to be the *Porcus* of Pliny. See **GOAT-FISH.**

PORCUPINE. In the Linnæan system, a genus of animals of the order of glires: the distinguishing characters of which are; that the animal has two cutting-teeth in each jaw, eight grinders, and the body covered with long, hard, and sharp quills; to which may be added, that the upper lip is divided. Linnæus enumerates four species.

PORCUPINE, COMMON; the *Hystrix Cristata* of Linnæus. This species is about two feet long, and fifteen inches broad. It has a long crest on the top of the head, reclining backwards, composed of stiff bristles. The body is covered with quills from ten to fourteen inches long, and very sharp at the points: each quill is thickest in the middle; and inserted into the animal's skin, in the same manner as feathers grow on birds. These quills are varied with black and white; and between them there are a few hairs. The head, belly, and legs, are covered with strong bristles, terminated with soft dusky-coloured hair; the whiskers are long; and the ears resemble the human. There are four toes before, and five behind; and the tail, which is short, is covered with quills. All the quills naturally incline backwards, like the bristles of a hog; but when the animal is irritated, they stand erect like bristles. The muzzle bears some resemblance to that of a hare, but is black; the legs are very short; and the eyes are small, like those of a hog, measuring only one-third of an inch from one angle to another.

The Porcupine bears a strong similarity to the hedge-hog; and, like that animal, has received a formidable apparatus of arms, rather for it's own defence than the annoyance of an enemy; and as to the opinion of it's being able to dart it's quills at it's enemies, it is now universally exploded: the quills are too firmly fixed in the skin to be discharged by a voluntary effort; and are only shed when the animal moults them, as birds do their feathers. Ellis, it is true, informs us, that a dead wolf was found at Hudson's Bay, having the quills of a Porcupine fixed within it's mouth: but that might very naturally happen; for the wolf, in the rage of appetite, probably attempted to devour the Porcupine, quills and all; and paid for

for its temerity with its life. It is moreover certain, that those Porcupines which have been imported into Europe, have never been known to launch their quills, though irritated to the highest degree. Dr. Shaw, who saw numbers of these creatures in Africa, says that none of them ever attempted to launch their quills; their usual method of defence being to lie down on one side, and, at the approach of an enemy, to rise up suddenly, and wound him with the points on the other. It is generally imagined that this animal is seldom the aggressor; and, when attacked by any other, that it only directs its quills so as to oppose their points to the foe: in general, it is then secure; and Kolben asserts, that even the lion will not dare to provoke it when thus on its guard.

Pennant asserts, that the Porcupine is a harmless animal; living on fruits, roots, and vegetables: other naturalists, however, affirm, that it chiefly hunts for serpents, and all other reptiles, for subsistence; that between the serpent and the Porcupine such an irreconcilable enmity subsists, that they never meet without a mortal engagement; and that on such occasions the Porcupine rolls itself on the serpent, by which means it destroys, and afterwards feasts on it. Those animals, however, of this genus, introduced into Europe, are usually fed on bread, milk, and fruits; but they have no objection to meat whenever offered them.

The Americans, who hunt the Porcupine, assure us that it lives from twelve to fifteen years. During the season of love, which is in the month of September, the males become very fierce and dangerous, often destroying each other with their teeth. The female goes seven months with young; and brings forth only one at a time, which she suckles about a month, accustoming it betimes to live like herself; and at this season, though naturally timid and harmless, she becomes very resolute in defence of her progeny.

The Porcupine never attempts to bite, or any way injure its pursuers. If hunted by a dog or a wolf, it instantly climbs a tree, and continues there till it has tired the patience of its adversary; but should this resource be wanting, it lies down on one side, (as already observed) and presents its quills to the foe. However, the Porcupine does not easily escape from the Indian hunter, who eagerly pursues it, in order to make embroidery of its quills; and also to feast on its flesh, which, as commonly reported, is tolerable eating; though, when savages are the arbiters of delicacy, we can hardly expect that their ideas and ours will coincide. With regard to the embroidery manufactured from the quills, it is both curious and elegant: the Indians dye the quills of various colours, and split them into slips, with which they decorate their baskets, belts, and many other articles of furniture and ornament.

The Porcupine is a dull and torpid animal; extremely voracious, though capable of enduring hunger. It is hardly possible to domesticate it: and the poets very properly gave it the epithet of fretful; for, when confined in a cage, its resentment is excited by the slightest approach, and its quills are immediately erected in defiance.

The Porcupine inhabits India, Persia, Palestine, and every part of Africa; and is also found wild in Italy, though not originally indigenous to Europe. The Italian Porcupines, which are

sometimes exposed to sale in the markets at Rome, have smaller crests and shorter quills than those of Asia and Africa.

PORCUPINE, LONG-TAILED; the *Hystrix Macroura* of Linnæus. This animal has large bright eyes; short naked ears; and long whiskers. The body, which is short and thick, is covered with long stiff hairs, as sharp as needles, reflecting different colours according as the rays of light happen to fall on them. The feet are divided into five toes, one of which turns backwards, and supplies the place of a thumb. The tail is about the length of the body; and very slender towards the end, which is considerably tufted, the bristles being thick in the middle, transparent, and shining.

This animal inhabits the islands of the Indian Archipelago, living chiefly in unfrequented forests.

PORCUPINE, BRAZILIAN; the *Hystrix Prehensilis* of Linnæus. This creature is much smaller than the common Porcupine; and its quills are about three-fourths shorter. It has a short blunt nose; and long white whiskers. Its tail is one foot and a half long, tapering towards the extremity; the last ten inches of which are almost naked; but it is possessed of a strong prehensile quality.

This species is a native of Mexico and Brazil, where it chiefly lives in the woods, feeding on fruits and poultry. It sleeps in the day-time, and hunts for its food during the night. It makes a peculiar noise with its nostrils, as if out of breath; and grunts like a hog. It possesses the faculty of climbing trees; and, in descending, twists its tail round the branches, to prevent it from falling. Its flesh is fat and well-flavoured; and the animal itself seems easily tamed, though seldom seen in Europe.

PORCUPINE, CANADIAN; the *Hystrix Dorata* of Linnæus. This animal, which Buffon denominates the Urson, has a less round body than any of the other species, but more the resemblance of a pig in shape. It is covered with long bristly hair, with shorter hair underneath, amid which great quantities of quills lie concealed: these quills are white, with brown tips, and bearded, being about four inches in length.

These creatures form their nests under the roots of large trees, where they sleep a great part of their time, feeding at intervals on fruits and bark, especially the bark of the juniper. In winter, the snow serves them for drink; and in summer they lap water like dogs. When they cannot escape their pursuer, they make towards him sideways, in order to wound him with their quills: but these prove but feeble instruments of defence; for, on stroking the hair, they adhere to the hand, and come out of the skin. The Indians stick these quills in their noses and ears, to form openings for their ear-rings and other decorations. The edges of their deer-skin garments are also trimmed with fringes made of these quills; and with them they also decorate their bark-boxes.

This species is very numerous near Hudson's Bay; and many of the trading Indians feed on their flesh with great avidity, esteeming it both wholesome and delicate. Sir Joseph Banks imported one of these animals from Newfoundland, which was about the size of a hare, but shorter and more compact; and the length of the tail was about six inches.

PORCUPINE-FISH. In the Artedean system,

tem, a species of ostracion; but of the diodon, belonging to the class of amphibia nantes, according to the Linnæan distribution. It usually measures from twelve to twenty inches; the body is very thick, and covered with a whitish coriaceous skin, beset with strong sharp thorns, each of which, at its basis, has two other smaller ones buried under the skin; the aperture of the mouth is large; the lips are rough and rugged; and two broad bones supply the place of teeth, one situated in the upper jaw, the other in the lower, both being slightly arched and prominent. The eyes are large; and the eye-lids are elevated, and armed with four thorns from one to three inches in length. The belly is white; and the back is brown, spotted with black; as are also the sides.

This species is found near the Cape of Good Hope.

PORCUS ACULEATUS. See PORCUPINE.

PORCUS FLUVIATILIS. An appellation by which some of the old Latin writers express the fish called also cornua, and aurata; in English, the ruffe.

PORCUS GUINIENSIS, the Guinea-pig. A small animal, resembling the common hog, which has been domesticated in this country. The colour is a reddish tawny; the hair is short and shining; but it has no bristles, except a few near the rump.

PORPUS, OR PORPESSE. An English appellation indiscriminately, though improperly, applied to two different fishes, the phocæna and the dolphin. However, Artedi, who has attentively collected the synonyma of authors, tells us, that this name ought to be confined to that species of the dolphin, the characters of which are, according to his system, that the body is almost of a conic form, and subacute, and the back broad. This species is the Phocæna of Aristotle, the Turfio of Pliny and Rondeletius, and the Delphinus Phocæna of Linnæus.

This fish is ranked among the cetaceous kind, and is the smallest of the tribe, seldom exceeding five feet in length; whereas the dolphin, with which it is commonly confounded, is frequently known to measure twelve feet: the snout also of the Porpus or Phocæna is much smaller than that of the dolphin, which is another discriminating mark.

The Porpus has a roundish body, gradually growing smaller towards the tail; the nose is long, pointed, and furnished with strong muscles, by means of which it turns up mud and sand, in search of small animals. The skin is smooth and thin; the back is of a dusky blueish colour, almost black in some individuals; and from the middle of the sides downward, it becomes whitish. There are no gills, nor any aperture in their stead; but in the middle of the upper part of the head, before the brain, there is a pipe or spiracle, of a semilunar form, through which the fish respire, and spouts water: this pipe terminates outwardly in one hole, but within is divided into a bony septum, so as to represent two nostrils; and at its lower end it again becomes one hole, opening into the mouth by a common orifice, furnished with a very strong sphincter muscle, by means of which it is shut and opened at pleasure. Above this sphincter, the sides of the pipes are lined with a glandulous flesh, from certain small openings in which, when pressed, a glutinous liquor issues.

Above the nostrils there is a strong valve or membrane, serving to stop the pipe at pleasure, and to prevent any water from gaining admission, except when the animal requires it. Within the fistula there are six blind holes, without any outlet; four tending towards the snout; two placed above the valve which stops the nostrils, and two beneath it: the other two tend towards the brain, having a long and narrow cavity, which seems intended for the purpose of smelling, though, on opening the brain, no such olfactory nerves are discoverable. The eyes are small; the auditory ducts, if any, are extremely minute; and the teeth, which are forty-eight in each jaw, are small. There are two fins on the breast, and one on the back, which are cartilaginous and flexile; the tail is slightly bifid, forming the figure of a crescent in a horizontal position, like those of the cetaceous kinds; not vertical, as in other fishes. Nature's intention is, in this position of the tail, that it may supply the place of the hinder pair of ventral fins in other fish, those of the cetaceous kind having none such. These fins (in other fish) serve to balance the body, and keep it under water, answering in many respects the hinder legs of quadrupeds; and hence we may observe, that those fishes which are not supplied with this hinder pair of fins, nor the horizontal tail, cannot suspend themselves at ease in the water, but are compelled to keep grovelling at the bottom: this is the case with eels, and other similar fish; but the use of respiration being as necessary to the Porpus as to quadrupeds, Nature has abundantly provided for that defect in the hinder fins, by giving it a transverse tail, assisted by which it can in a moment throw itself on the surface from the deepest water. The lungs and heart resemble those of quadrupeds. The brain is large, and formed like that of a man; and probably an observation of this particular has given rise to the opinion that these fishes possess a great share of will and understanding. The tongue is flat, pectinated at the edges, and united to the bottom of the mouth. The blood of the Porpus is as warm as that of quadrupeds; and the blubber, or fat, which lies in great quantities under the skin, affords a vast quantity of excellent oil.

These fishes are found in great numbers in all such parts of the sea as wash the British islands; but in still greater at those periods when fish of passage make their appearance, which they pursue up the bays with the utmost eagerness. In some places they almost darken the sea as they rise above the water to respire. However, they not only hunt their prey near the surface, but often descend to the bottom in search of sand-eels and sea-worms, which they dislodge from the sand.

To contemplate the various revolutions of fashion in the single article of food only, would be curious and entertaining; we should then find, that the sea-gull, the heron, and the fat Porpus, were once esteemed delicacies: the latter in particular formed a royal dish, even so late as the reign of Henry VIII. and, from its magnitude, must have cut a respectable figure at table. In a household book of that prince, extracts from which appear in the third volume of the Archaeologia, it is ordered, that if a Porpus should prove too big for a horse-load, allowance should be made to the purveyor. Even in the reign of Queen Elizabeth, this fish continued in vogue; for Dr. Caius, in mentioning a dolphin which was presented

presented to Thomas, Duke of Norfolk, says, that his Grace divided it among his friends; and that it tasted best when served up with Porpus sauce, which was composed of vinegar, crumbs of fine bread, and fugar.

PORPHYRIO. An appellation by which ornithologists express a bird very imperfectly described. According to some accounts, it is of the gallinula or moor-hen kind; and is represented as being of a fine deep blue colour, except that the extremity of the tail is in the middle of a greyish white, and that the legs and feet are of a fine shining purple. Some fabulous circumstances have been related concerning it, so that it is extremely difficult to separate truth from error. In the Linnæan system, this bird is a species of fulica or coot.

PORPHYRIO AMERICANUS. A name by which some authors have expressed the quachilto, a very beautiful species of American moor-hen.

PORPHYRY SHELL. A species of seashell of the purpura-kind, with a short clavicle and beak.

PORTIUS PISCIS. An appellation given by ichthyologists to the mugil ater, or black mullet; a very scarce species, pretty much resembling the common mullet in shape. The body is extremely black, having several lines of a deeper black than the rest running longitudinally from the gills to the tail; the mouth is very wide; and the back is armed with seven or eight prickles, united to each other by means of a fin.

PORTUGUESE MAN OF WAR. A nautical term for the *Holothuria Physalis* of Linnæus; a very curious and beautiful animal, which seems to consist of a small bladder about seven inches long, very much resembling the air-bladder of fishes; from the bottom of which descend a number of bright blue and red strings, some of which are three feet long; and, on being touched, they sting very violently, after the manner of a nettle. On the top of the bladder there is a membrane, answering the purpose of a sail, and turned in such a direction as most easily to catch the wind: this membrane is curiously marked with pink-coloured veins, and exhibits a very pleasing appearance.

POSSUM. See *OPOSSUM*.

POTTO. An appellation given to an animal of the weasel kind; called also the yellow maucauco.

POULTRY. Under this term, when taken in an extensive sense, are comprehended all those birds which have white flesh, and bulky bodies in proportion to their heads and legs. They are furnished with strong short bills, for picking up grain, their chief, and often their sole support; their wings are short and concave, which render them incapable of long flights; they lay a great number of eggs; they generally form their nests on the ground; and the toes of all of them are united by a membrane, as far as the first articulation.

Under this class therefore may be ranked the common cock, the peacock, the turkey, the pintada or Guinea-hen, the pheasant, the bustard, the grous, the partridge, and the quail. All these bear a strong similitude to each other, being equally granivorous, fleshy, and delicate to the taste. These are among birds what beasts of pasture are among quadrupeds; peaceable tenants of the field; and averse to the recesses of the forest, which

abound with animals too numerous for them either to oppose or avoid.

As Nature has formed the rapacious class of birds for hostility, so she seems equally to have adapted these for peace, rest, and society. Their wings are short, and therefore but ill-formed for distant excursions; their bills are also short, and incapable of annoying their enemies; their legs indeed are very strong; but their toes are made for scratching up their food, and not for holding or tearing it. These are sufficient indications of their harmless nature; while their bodies, which are fat and fleshy, render them unwieldy travellers, and incapable of straying far from each other. Accordingly we find the Poultry tribe chiefly in society: they live together; and though they have their disputes on some occasions, yet, when kept in the same district, or fed in the same yard, they learn the arts of subordination; and, in proportion as each knows his own strength, he seldom, after having experienced a single defeat, hazards a second.

Thus, all of this kind seem to lead indolent, voluptuous lives; and as they are internally furnished with very strong stomachs, so their voraciousness knows no bounds. Though kept in close captivity, and separated from all their former companions, they still retain the desire of food, and soon become fat in their prisons. Indeed, the Poultry kind may be regarded as sensual epicures, governed solely by their appetites; the indulgence of which seems to influence their other habits, and to destroy, among them, that connubial fidelity for which most other kinds are remarkable. The eagle and the falcon, how fierce soever to other animals, are yet gentle and true to each other; and their connections, when once formed, subsist to their death: the male and female, in every exigence, mutually assist each other, particularly in the duties of incubation, and providing for their young; and, even after they have drove out their offspring to shift for themselves, and fight their own battles, they still retain their former affection, and seldom separate to any considerable distance.

But the case is very different with respect to the luxurious class now under consideration: their courtship is but short, and their congress fortuitous. The male pays no manner of attention to his progeny; but, contented with the pleasure of originally generating, devolves all the care of providing for posterity on the female. Wild and unrestrained in his appetites, he ranges from one female to another, laying claim to every one whom he has sufficient strength to keep from his fellows. Though timorous when opposed to birds of prey, he is incredibly bold among those of his own species; and as his desires extend to all, every creature becomes his enemy that dares to be his rival. The female likewise, being destitute both of fidelity and attachment, yields to the most powerful suitor. She stands a quiet spectator of the combat, and is ready to reward the conqueror with every compliance. She takes on herself all the labour of hatching and rearing her young, removing as far as possible from the presence of the cock. As soon as her offspring have quitted the shell, she leads them to such situations where they are likely to meet with the greatest quantities of grain; and takes particular care, by pecking, to point out to them the proper sort. Though at other times voracious, she is then extremely abstemious; and being solely intent on providing

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providing for and shewing her young their food, she scarcely takes any nourishment herself. Parental affection seems to suppress every other passion; but, in proportion as her brood becomes able to provide for themselves, this fondness decreases, and all her former voraciousness returns.

The habit of dusting themselves may be deemed peculiar to this class. They lie flat in some dusty place, and with their wings and feet raise and scatter the dust over their whole bodies. It is difficult to assign a plausible reason for this practice: perhaps the heat of their bodies is such, that they require this powder to be interposed between their feathers, in order to prevent their lying too close together, and thus increasing the heat, which they find incommodious.

Almost all the domestic birds of the Poultry kind retained in our yards are of foreign extraction: but there are some which properly belong to this class as yet in a state of nature, though perhaps they only wait till they become sufficiently scarce to be taken under the care of man, to multiply their propagation. It is certainly curious enough to consider how much the tame Poultry imported by us from distant climates have increased; and how much those wild birds of the Poultry kind, that have never yet been taken into servitude, have been diminished and destroyed. The numbers of every species are much reduced; and many of the kinds, in proportion as cultivation and population have increased, are either become scarce, or utterly annihilated.

POUSSE PIED. A French appellation for a genus of shell-fish; called also the pollicipes.

POUT, OR WHITING POUT; the *Gadus Barbatus* of Linnæus. This fish, which seldom exceeds one inch in length, is distinguished from all others of the kind by its great depth. The back is much arched and carinated; and the scales are pretty large. The mouth, which is small, is furnished with a short beard; and on each side of the lower jaw there are seven or eight punctures. The first dorsal fin, which is triangular, terminates in a long fibre; the lateral line is white, broad, and crooked; the tail is even at the end, and of a dusky colour; the fins are black; and at the bottom of the pectoral fins there is a black spot. The body is white; the belly is tinged with yellow; and the flesh is reckoned extremely delicate.

PRAWN. A small animal of the lobster kind; having a long serrated snout, bending upwards; three pair of very long filiform feelers; small claws, furnished with two fangs; and a smooth thorax. The tail is composed of five joints; the middle caudal fin is subulated; but the two extreme ones are flat and rounded.

This creature is very common on several shores, amid loose stones; and it is also sometimes found at sea. When fresh, its colour is cinereous; but when boiled, it becomes a fine red.

PRESBYS. An appellation by which many of the ancient naturalists expressed the *regulus cristatus*, or golden-crowned wren.

PRIAPE DE MER. A term by which French naturalists express a peculiar species of *canalis*, or *tubulus marinus*; called also by some writers of that nation *arrofoir*. It is an oblong, thick shell, having a large head, pierced with a great number of holes, in some respects resembling the glans penis and the head of a common watering-pot. This species is a native of Amboyna.

PRICKET. A term used to express a deer when in the second year of its age. See **DEER**.

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PRICKLE-BACK. A small fish, so called from the great number of prickles on its back. Numbers of these little animals are found in almost all fresh waters where it is possible for fish to exist. They are extremely destructive to all sorts of fish; and are themselves tormented by a kind of louse of an oval figure, with eight legs and a very transparent body: this louse has little fins always in motion, whether it be swimming or fixed on the fish. See **STICKLE-BACK**.

PRIDE OF THE ISIS. An appellation by which some authors express a fish of the lamprey kind, the *Petromyzon Branchialis* of Linnæus. It is caught in the Isis, near Oxford, in great abundance; but is by no means peculiar to that river, being also found in several other English rivers. It is generally between six and eight inches long, and about the thickness of a swan's quill. The body is marked with various transverse lines crossing the sides from the back to the bottom of the belly, which is divided from the mouth to the anus by a straight line; and the tail is lanceolated, and sharp at the end. Instead of lodging under stones, as is common to the lamprey kind, this species dives in the mud, and never adheres to any neighbouring object.

PRIMATES. In the Linnæan system, the first order of animals belonging to the class of mammalia: the characters of which are; that they are furnished with fore-teeth or incisives, four above and parallel; and that they have two pectoral teats. To this class belong four genera, the man, the ape, the maucauco, and the bat.

PRISTIS. See **SAW-FISH**.

PRIVET-FLY. A species of fly very common on the shrub from whence it derives its name. It is also called *crinopterus*; and is remarkable for having its wings deeply divided into segments, so that they seem as if composed of feathers resembling the wings of a bird. The whole insect, when at rest, has the appearance of a small feather.

PROBOSCIPLECTANUS. A name by which some naturalists express a peculiar and very elegant species of *penicillus marinus*, of a funnel-form shape, and having its mouth surrounded by thin hair-like filaments.

PROCELLARIA, the Petrel. A genus of auferes in the Linnæan system: the characters of which are; that the bill is sub-compressed, and formed of equal mandibles, the upper hooked at the extremity, and the lower canaliculate; that the nostrils are superincumbent and cylindrical; and that the feet are webbed, without a back toe, but furnished with a sharp spur pointing downwards. Linnæus enumerates six species. See **FULMAR**.

PROCICADA. A name given by some authors to the insect called *procigale* by the French. It strongly resembles the cicada, but is destitute of its power of sound.

PROCIGALE. An appellation by which Reaumur, and other French naturalists after him, have expressed a species of four-winged fly, bearing a strong resemblance to the cicale or cicada, except that it is incapable of making any noise.

This creature has a long trunk, closely laid on the belly, and contained in a case or sheath like that of the cicada. The female has also an instrument at her tail for boring holes in wood, where she deposits her eggs.

There is another small insect, mentioned by Reaumur as reducible to this class, though the minuteness

minuteness of its wings renders its structure scarcely perceptible; and hence it is difficult to determine whether it has four wings, or only two cases and two wings. This little fly is extremely common on rose-trees: its wings are yellowish; its body is white; and it possesses the power of hopping as well as flying. During the summer season, there is scarcely a rose-tree that is not loaded with these insects, though they seem to be particularly attached to the extremities of the young branches.

PROGALL INSECT. A creature nearly resembling the gall insect class, but differing from it in several respects.

Animals of this class spend a great portion of their lives in the same manner as the gall insects, fastened to the bark of trees, where they remain motionless. Some of them also, like the gall insects, cover their young brood with their bodies; but they are easily distinguishable as animals in every stage of their lives, while the gall insects are not: in particular, the annular depressions of their bodies may be distinguished in every state, especially with the help of a magnifying glass; whereas this mark disappears in the gall class.

The gall insects are valuable, and worthy of observation, on several accounts: nor are the Progall Insects of less consequence, the cochineal belonging to them being very much esteemed as a dye and a drug.

The most common and obvious species of the Progall Insect, in this country, is that of the elm.

PROSCARABÆUS. An appellation by which some authors denominate the meloe, a genus of four-winged flies.

PROTIPULA. A name by which naturalists distinguish a species of fly resembling the tipula, or long legs; but differing with respect to the essential character, namely, that the Protipula is destitute of the two beards growing on the anterior part of the head, occasionally falling over the mouth, and closing its aperture in the tipula.

PROX. An Aristotelian appellation for the cervus platyceros, or broad-horned stag.

PSETA. A name by which Athenæus expresses the fish called also passer lævis and plateffa; in English, the plaife.

PSEUDO PULEX ARBOREUS. A genus of insects described by Reaumur; somewhat approaching in shape to the Pulex Arboreus, but having their wings covered with a squamose case, and having broader and flatter bodies than the latter.

This insect is found principally on the box and the fig-tree. It undergoes a kind of metamorphosis; and appears a hopping fly, supposed by some of the nature of the grasshopper, though without just reason, as the one has cases to its wings, and the other has none.

PSEUDO THICA. A species of two-winged fly, resembling the common wasp, but destitute of a sting. It seems to be more properly denominated the wasp-fly.

PSEUDO-TINEA. A remarkable insect described by Reaumur, approaching to the nature of the Tinea, or cloth-moth, while in the worm state; but not differing in the form and substance of its artificial covering.

These creatures are a genuine species of the caterpillar kind, having sixteen legs, which is a number common to that tribe. They feed on wax, forcibly entering bee-hives, and engaging

the bees with such resolution and success, that they frequently drive them from their habitations, and compel them to seek new ones.

All ancient authors who have treated expressly on bees, have complained of these destructive creatures. The bees, which are a match for most other insects, find themselves unable to oppose this race, whose impervious armour defies their most animated assaults. This armour is composed of a double matter. The first, which immediately covers the body, is a species of silk of the animal's own spinning; the exterior is of bees wax: this last is laid on pretty thick; and the creature, just thrusting out its head in order to feed, proceeds to devour the cells without molestation, while a whole army of bees in vain buzz around it, and attempt to wound it with their stings, but without effect.

When the transformation of this creature approaches, it contracts its body within its double covering, and thus passes into the nymph state; whence, after a proper season, it comes forth in the form of a moth, with granulated horns and a crooked proboscis. The bees possess instinct enough to recognize their destructive enemy in this new form; and, as it is now incapable of defence, they dispatch all they can meet with. However, they are seldom fortunate enough to destroy the whole race as soon as produced; and if only a few escape, they eventually prove sufficient to revenge themselves for the death of their kind.

The moth produced from this nymph flies but little; yet it becomes very nimble and swift when any danger seems to threaten it.

Some species of these Pseudo Tineæ infest the subterraneous hives of wasps, and other insects which manufacture wax; some feed on wool; and others on leather: all of them forming themselves coverings from the substances on which they subsist. But whatever be their original food or habitation, they finally become phalenæ or moths; and may be distinguished, in this state, from the other species, by having granulated horns of a remarkable structure, and a proboscis always in some degree incurvated.

PSITTACUS. The classical name for the parrot. See PARROT.

PSOPHIA. A genus of grallæ: the characters of which are; that the beak is cylindric, conic, convex, and sharp, with the upper mandible longer than the lower; that the nostrils are ovated and wide; and that the feet are furnished with five divided toes. There is only one known species.

PSORAS. A name by which some ichthyologists express a fish of the turdus-kind, remarkable for the beauty and variety of its spots; more usually denominated the lepras.

PSYLON. An Aristotelian name for the cyprinus niger of naturalists; in English, the tench.

PTARMIGAN; the Tetrao Lagopus of Linnæus. This bird, called also the white-game, and erroneously the white partridge, (a different bird) is of a pale brown or ash colour, elegantly crossed or mottled with small dusky spots and bars; the head and neck with broad bars of black, rust-colour, and white. In the male, the grey colour predominates, except on the head and neck, where there is a great mixture of red, with bars of white; but the whole plumage of this bird is extremely elegant. The females and young birds have a great portion of rust-colour. Both

sexes agree in their winter dress, being entirely white; except that, in the male, a black line occurs between the bill and the eyes; and the shafts of the seven first quill-feathers are black. The tail consists of sixteen feathers, the two middlemost of which are ash-coloured, mottled with black, and tipped with white; the two succeeding ones are slightly marked with white at their extremities, the rest being wholly black; and the feathers incumbent on the tail, and almost covering it, are white.

Pliny denominates these birds *Lagopi*, because their feet are clothed with feathers to the claws, as those of hares are with fur, which serves to guard them from the rigours of winter. Their nails are long, broad and hollow, scooped off at the end exactly like a writing-pen without the slit; and this enables them to form a lodgment under the snow, where they lie in heaps, in order to protect themselves from the cold.

The length of one of these birds is near fifteen inches, the expansion of the wings twenty-three, and the weight about nineteen ounces. They are found in the British isles only, on the summits of the highest hills in the Highlands of Scotland, and of the Hebrides; though a few have been discovered on the lofty hills near Keswick in Cumberland. They resemble the grouse in taste; and, like them, keep in small companies; but never take shelter in the heath, preferring the loose stones which their mountainous situations usually afford.

These birds obtain the appellation of willow-partridges in Hudson's Bay, from their assembling in large flocks about the beginning of October, and harbouring among the willows, the tops of which are their principal food: they then assume their winter dress; change again in March; and acquire their compleat summer plumage by the latter end of June. They form their nests on the ground, in dry ridges; and are so very numerous in that part of America, that many thousands of them have been killed during one winter.

PTERARIA. A term under which Dr. Hill describes a particular class of insects.

PTEROPHÆNICUS INDIARUM. An appellation given by Nieremberg to an American bird, called by the Spaniards *commendadoza*, remarkable for the beautiful red plumage on the upper part of its wings. It is about the shape and size of the starling; and not much unlike that bird in colour, except for the singularity of the upper part of the wings, which in one part of its life is yellowish or orange, and in the other red.

These birds are caged, and taught to imitate the human voice. They feed on vegetables, particularly Indian corn; and are found in the colder as well as hotter climates, flying in large flocks, and often considerably damaging the fruits of the earth.

PTINUS. In the Linnæan system of nature, a genus of insects of the coleoptera order, with filiform antennæ, and a roundish thorax; comprehending six species.

PUCELAGE. An appellation by which some of the French naturalists express the porcelain-shell.

PUCERON; the *Podura* of Linnæus. A class of insects of a peculiar nature; frequently found in such numbers on the branches of trees and leaves of plants, as almost entirely to cover them.

The Puceron is a small insect, but constituting several genera, and a variety of species; inasmuch, that Reaumur has observed there is scarcely a vegetable to be found that does not afford subsistence to its peculiar species of Puceron.

These animals are all viviparous, and that after a very singular manner: each has six legs, extremely small and slender, and which, when the animal has acquired its full growth, seem unable for its support. Some of the species arrive at a sufficient size to be distinguishable by the naked eye; but the greater number can only be seen by the assistance of glasses. Among these insects, many are furnished with wings, turning to a sort of little flies; and these have been denominated alated Pucerons. Those species which never become winged, bear no resemblance to the caterpillar tribe, approaching nearest to the figure of flies with their wings amputated. All the various species have antennæ, or horns; but vary in different kinds, some being very short, and others remarkably long. Besides these antennæ, the greater part of these insects have two other horns or spines placed in a very singular manner behind them, near the tail: these are much thicker and shorter than the antennæ; and, among the various kinds, some are found which entirely want these appendages.

The Pucerons differ much in colour: the greater number are green; but many are brown, some yellow, and others black. In August, rose-trees afford a vast number of pale red ones; but, in some other months of the year, these trees afford green Pucerons. The sycamore, and several other trees, are covered with green ones in summer, and red ones in November: hence it seems indisputable, that the same individual animals change their colour, the leaves and juices of the plant not being able to afford them one uniform kind of nourishment. Those of the willow and the poppy, and some other plants, are of a woolly appearance; and some resemble velvet. Those of the apricot are shining: some appear of the colour of bronze metal which has received its highest polish; such are those of the tansy, and some other plants. The largest Pucerons are found on the oak. The species are commonly all of one colour, but some are spotted: those of the wormwood are prettily speckled with black and brown; those of the sorrel are green in the middle, and black at each extremity; and there are several others which are variegated with these two colours.

However, naturalists have not been able to determine whether all the species are peculiar to the plants on which they are found; for it has been observed, that when a plant of the common wormwood has been covered with them, they have all accidentally deserted it, and taken up their residence on some neighbouring plant whose juices were more palatable.

These creatures always live in society; they are never found singly, and seldom but in myriads. In plants, they fasten themselves on every part; but in trees, they adhere only to the leaves and young shoots, which they usually cover entirely. The elder-tree seems to be their favourite abode; and on it they may be observed, in their several stages, with the greatest accuracy and facility. They often cover the thick green roots of this tree for many inches together, and sometimes for many feet: these are of a greenish black colour.

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If observed while the branches are undisturbed, they appear perfectly quiet, and seem to pass their whole life in a state of inactivity, though they are all this time engaged in the most important business of it, namely, that of extracting their nourishment from the juices of the tree. This is performed by means of a slender trunk, which easily escapes the naked eye; but, by the assistance of the microscope, is abundantly perceptible: this trunk is generally two-thirds of the length of the body; but when the animal is in motion, it is so closely applied under the belly, as to escape observation.

When two series of these insects are placed one over another, those which occupy the upper series are usually the largest, as well as nimblest in their motions. In this situation they have no power of sucking the plant; but being such animals as have no farther need of nourishment, they are employed in propagating their kind.

The Pucerons multiply so quickly, that there are commonly many females on the same leaf in the act of parturition at once, as has been observed by Reaumur; and such is their fecundity, that when they have once begun, they seem to continue to bring forth incessantly for a considerable time. They often produce fifteen or twenty successively; and if their bodies be slightly squeezed afterwards, vast numbers, in an embryo state, may be expressed.

Wherever these insects are found in abundance, the ant tribes generally attend them. This circumstance has been observed by several naturalists, who have supposed that the ants fed on them; but this opinion has been adopted without sufficient reason: the ants, indeed, frequent the same places; but only for the sake of a thick saccharine matter, which fills up every interstice between the Pucerons. This matter might naturally be supposed to be the juice of the tree simply extravasated; but experience proves, that it is nothing else but the excrement of these Pucerons, which is always found in a liquid state.

Like most other insects, the Puceron changes its skin three or four times before it acquires its full growth: these exuviae perfectly resemble the animal in its natural state, the legs and other parts being all in their proper places; but whatever be the original colour of the Puceron, the slough is always whitish.

The male and female Pucerons greatly differ in their form, even in a nascent state; but much more eminently at the time of their maturity, the male, as has commonly been supposed, being then furnished with wings, of which the female is always destitute. But notwithstanding the general opinion that the winged Pucerons are all males, and the unwinged ones females, it appears that their manner of fecundation is as yet unknown. Indeed, the most recent observations convince us, that the commonly received distinction of sexes is not strictly true; for the winged ones, as well as the others, bring forth young. Some authors have conjectured, that these winged and naked Pucerons are the offspring of different families of several species living together; but the contrary is proved by this circumstance, that the winged ones are found to produce some winged and some naked ones; and the naked to generate both kinds in the same manner.

The young Pucerons being themselves filled with embryos, and that in every individual, as far

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as hitherto examined, has given rise to various strange ideas of their manner of generation. Many have imagined them to be all hermaphrodites; and as no copulation has ever been observed among them, each has been supposed to impregnate itself. However, the most recent opinion is, that when a female is once impregnated by a male, she will bring forth young ones already impregnated with others; and thus to the third or fourth succession: so that copulation is only necessary to these animals once in three or four generations; and the descendants in this degree of an old Puceron that has had congress with a male, will generate without any such personal contact.

PUCERON, BLADDER. A species of the Puceron class, which forms for itself a small bladder on the leaves of trees, and there takes up its residence.

PUCERON, BASTARD. See FIG-INSECT.

PUCERON, GRUB. See GRUB.

PUCERON-EATER. See LION PUCERON.

PUDENDUM REGALE. See APHRODITA.

PUDIANO. An American fish, called also *pædrano*, *apaimixira*, and *tetimixira*; about the size of a middling perch, though not so broad. The whole body is of a gold colour; except that the upper part of the head, and the back to the extremity of the dorsal fin, are of a beautiful purple; and that the rim or edge of the ventral fin is also purple. The flesh is wholesome, and agreeable to the taste.

PUDIANO VERDO. An American fish of an oblong shape, about seven inches long, and two broad. The colour is very beautiful; and the flesh is delicate and well-flavoured.

PUFFIN; the *Alca Arctica* of Linnæus; and the *Anas Arctica Clusii*, or the northern duck. The weight of this bird is about twelve ounces; its length is twelve inches; and the expansion of its wings is twenty-one. The bill is short, broad at the base, compressed on the sides and running up to a ridge, triangular, and terminating in a sharp point. The base of the upper mandible is strengthened with a white, narrow, prominent rim, full of small holes; the bill, near the head, is of a blueish grey colour, and the lower part red; in the former there is one transverse furrow, but in the latter there are three furrows. The size of the bill varies in different birds. The nostrils are long and narrow; the irides are grey; and the edges of the eye-lids are of a fine crimson colour. On the upper eye-lid there is a singular callous substance, of a grey colour and triangular form; and on the lower there is another of an oblong shape. The crown of the head, the whole upper part of the body, the tail, and the covert-feathers of the wings, are black; the quill-feathers are dusky; the cheeks are white, and full of plumage; the chin is of the same colour, bounded on each side by a broad bed of grey; and from the angle of each eye there is a small separation of the feathers, terminating at the back of the head. The neck is encircled with a broad collar of black; but the whole lower part of the body is white. The tail, which is black, is composed of sixteen feathers. The legs are small, of an orange colour, and placed so far behind, as to render the bird incapable of standing otherwise than in an erect position, resting not only on the foot, but the whole length of the leg; which circumstance renders the rise of the Puffin from the ground very difficult;

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difficult; but, when once on the wing, few birds fly either longer or with more strength.

About the latter end of March, or beginning of April, a few of these birds make their appearance in Britain; and, after staying a few days, as if to examine their former haunts, they disappear. About the beginning of May, they return, accompanied by a whole army of their companions: but, if the season happens to prove stormy and tempestuous, and the sea to be troubled, the unfortunate voyagers undergo incredible hardships; and are found cast away on the shores by hundreds, emaciated, and perished through famine. It is most probable, therefore, that this voyage is performed more on the water than in the air; and that, as they cannot fish during stormy weather, their strength is exhausted before they can arrive at their wished-for harbour.

When the Puffin prepares for breeding, which always happens a few days after it's arrival, it scrapes a hole in the ground not far from the shore; and after it has slightly penetrated the earth, it throws itself on it's back, and with it's bill and claws thus burrows inward, till it has dug a hole, having several windings and turnings, from eight to ten feet in depth. It takes particular care to dig under a stone, where it naturally promises itself the greatest security; and in this fortified retreat it lays one egg, which (though the bird itself is not much larger than a pigeon) is equal in size to that of a hen.

The young one being excluded, the industry of the parent can only be equalled by her own rage. Few birds or beasts will venture to attack these fowls in their retreats. When the great sea-raven, as Jacobson informs us, comes to ravish their young, the Puffins boldly oppose him. Their meeting indeed produces a singular kind of combat: as soon as the raven approaches, the Puffin seizes him by the throat with it's beak, and sticking it's claws into his breast, makes the raven desirous of escaping; but the little bird, tenacious of it's hold, never quits him till they both drop into the sea; which circumstance proves fatal to the latter. However, the raven is often the conqueror; and when fortunate enough to surprize the Puffin at the bottom of it's hole, both the parent and the family become his prey.

But whatever depredations may be committed on the Puffin by other animals, if we consider it's own conduct in a moral point of view, it amply deserves them. Near the Isle of Anglesey, in an islet called Priestholm, the number of these birds is immense; and in another islet, called the Calf of Man, birds of this kind, but of a different species, are seen in great abundance. In both places, numbers of rabbits have their residence; but the Puffins, unwilling to be at the trouble of digging holes when that labour can be saved, dispossess the rabbits, and probably destroy their young; and in these dispeopled retreats the young Puffins being found in great numbers, become a very valuable acquisition to the natives. When arrived at their full growth, they are either dug out, or drawn from their holes by means of hooked sticks; and their flesh, though excessively rank, when pickled and preserved with spices, is admired by all such as relish savoury and high-seasoned food. Formerly (we are told) their flesh was allowed by the Church on certain days in Lent; they were also at that season taken by means of ferrets, as rabbits now are caught: at present,

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however, they are taken in the manner already described; and, when seized, make a very disagreeable noise, resembling the efforts of a dumb person to speak. Indeed, the notes of all marine birds are extremely harsh and inharmonious; yet those who are captivated with the charms of nature may enjoy a considerable share of pleasure from listening to the various screams of the feathered tribes, and the solemn roar of the unceasing waves. The sharp voice of the sea-gulls, the reiterated chatter of the guillemots, the loud note of the auks, the scream of the herons, and the periodical croak of the cormorants, joined with the wild scenery of surrounding objects, afford that species of pleasure in a high degree, which arises from gloomy grandeur and varying novelty.

The constant depredations which these birds annually suffer, does not seem in the least to intimidate them, or drive them away: on the contrary, we are told that the nest of the Puffin must be robbed, otherwise the old ones will breed in it no longer. All birds of this kind lay but one egg; yet, if that be removed, they will lay another, and a third: those, however, whose nests have been thus destroyed, are often too late in bringing up their young; which, if not fledged in time for migration when all the rest depart, are left at land to shift for themselves. In August the whole tribe is observed to take leave of their summer residence; nor are they seen any more till the return of spring. It is probable that they direct their course to more southern regions, as our mariners frequently observe myriads of water-fowl on their return, usually advancing to the north. Indeed, the coldest countries seem to be their most favoured retreats; and the number of water-fowl is much greater in those frigid regions than in the warmer climates near the line. The great quantity of oil in their bodies serves as a defence against the cold, and preserves them in vigour against it's severity; but the same provision of oil is rather detrimental in warm countries, as it turns rancid, and many of them die of distempers arising from putrefaction. In general, however, water-fowl can be properly said to be of no climate, the element on which they live being their proper residence. They necessarily spend a few months of summer on land, in order to bring up their young; but the rest of their time is probably wasted in migrations, or near some unfrequented coasts, where abundance of fish invites their stay, and supplies their every want.

PUFFINET. An appellation by which some naturalists express the columba Greenlandica, or the Greenland turtle-dove. This bird is common on the northern coasts: it is entirely black, except two small spots on it's head; but some pretend, though without good authority, that it becomes white in winter.

PUGNAX AVIS. A bird commonly known in England by the name of the ruffe; the female of which is called the reeve. It receives it's Latin name from it's quarrelsome disposition, the males being frequently observed to fight with each other.

PUGNITIUS. An appellation by which some authors express the stickle-back. See **STICKLE-BACK.**

PUGNITIUS LONGUS. A West-Indian fish, in many respects resembling the European pugniti. It is about the length of a man's finger, and nearly of the same thickness: the skin is smooth;

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smooth; the back is black; and the belly is yellow. The head resembles that of the pike, except that the nose is somewhat longer; it has two fins at the gills; and a triangular fin on the back, between which and the neck there is a row of fifteen prickles bending backwards, and unconnected by a membrane. There are two spines on the middle of the belly, and one behind the anus; and the body is terminated by a fine small tail.

PULCHER PISCIS. An appellation given by Gaza to the fish commonly known by the name of the uranoscope, or star-gazer. It is a species of the trachinus, distinguished by Artedi by the name of the trachinus with many beards on the lower jaw.

PULEX. See **FLEA.**

PULEX-EATERS. A term by which naturalists express a genus of worms frequently found on the leaves of trees, which subsist on the animals called pulices arborei.

There are several species of this genus, originating from the eggs of different creatures; for none of them acquire their ultimate state in this situation. They are of distinct forms and structures, according to the different insects from whose eggs they proceed: some have six legs; others belong to the beetle tribe; and some are genuine caterpillars. However, the two general kinds are, the hexapodes, or beetle-worms; and the apodes, or fly-worms. The fly from which the last proceed is furnished with four wings, and always deposits her eggs in those situations where plenty of pulices are found. The worm, as soon as hatched, is surrounded with abundance of food, preying at pleasure on these defenceless animals. The pulices are very frequently dispersed over the branches of the elder and the woodbine; and among them are usually found some of these destroying insects, extracting the juices from their bodies, and then removing the dry husks.

PULEX ARBOREUS. A large genus of minute insects, so denominated by Reaumur. They appear semi-alated, though in their most perfect state some of them have complete wings; and their antennæ are granulated.

The several species of these creatures are of different colours; some brown, others yellow, but commonly green. They uniformly feed on the leaves of trees, which become withered and curled up on their eroding them, or at least of a different figure from the natural ones. The willow and the rose are peculiarly infected by them; and among plants, the bean and the poppy. The females are distinguished from the males by having thicker bodies, and larger bellies.

It is no less singular than true, that of all the known animals of the winged kind, these are the only ones which are viviparous. This is very easily ascertained; for, on examining a cluster of them together with the assistance of a small magnifier, it is usual to see some of the females in the very act of parturition. Reaumur had suspected, from the total want of eggs among so numerous a class, that these insects must necessarily be viviparous; and he was soon convinced by ocular demonstration that this was really the case.

PULMO MARINUS. An appellation sometimes given to a spongy body of a shining colour, and usually resembling the human lungs in shape; called also *urtica marina*, or the sea-nettle.

This substance, which swims on the surface of the sea, emits a considerable degree of light in the

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night-time, and communicates its luminous property to whatever touches it. Being applied to the skin, it excites an itching, and takes off the hair. It was formerly supposed to be a viscid mass, indurated by the sun; but the most recent observations convince us that it properly belongs to the zoophyte class.

PUMA; the *Felis Concolor* of Linnæus. This animal, which inhabits the continent of America from Canada to Brazil, and is by some mistaken for the lion, has a very small head, ears slightly pointed, large eyes, and a white chin. The back, neck, rump, and sides, are of a pale brownish red colour, mixed with dusky hairs; the breast, belly, and insides of the legs, are cinereous; the hair on the belly is long; and the tail is dusky, ferruginous, and tipped with black. The teeth are of a vast size; and the claws are white, the outermost one of the fore-feet being considerably the largest. The body is long, and stands high on the legs; the length, from the nose to the tail, is five feet three inches; and the tail is two feet eight.

This creature may be said to be the scourge of the colonies in the warmer American climates. Fierce and ravenous to a high degree, it swims across very broad rivers; attacks cattle in their inclosures; and when pressed by hunger, even men frequently fall victims to its blood-thirsty disposition. In North America, however, its fury seems to be repressed by the severity of the climate: there the smallest dog, in the company of his master, compels it to climb trees for security; though it is equally destructive among the domestic cattle, lying in wait on the branch of a tree till some devoted victim passes beneath, which it immediately seizes and destroys, hiding whatever part of its prey it is then unable to devour. Its fur is soft, and of some estimation among the Indians, who use it as a winter garment. Its flesh also is eaten by them; and is said to be as white and delicate as veal.

PUNARU. A small fish of the *alauda* kind, with an oblong body, a thick head, and an obtuse snout. The mouth is small; and in the lower jaw there are two oblong teeth, sharp and pointed like needles. The eyes stand high in the head; the pupil is black; and over the irides, which are yellow, there are two red short filaments. The gills are large, and have two oblong fins placed behind them; the dorsal fin reaches from the head to the tail, and is prickly at the edge; the ventral fin reaches from the anus to the tail; and both the skin and the fins are brown.

There is another variety of this kind diversified on the sides with dusky purple: the jaws are beset with very small teeth; and the fins are destitute of prickles.

Both kinds are found among the rocks on the Brazilian shores; and sometimes take up their residence in the shells of the larger kinds of testaceous animals.

PUNAY. A Philippine appellation for a beautiful species of turtle, common in these islands. It is about the size of a parrot: its colour is a beautiful green; but the extreme feathers of the wings are tipped with white; and the lower part of the belly is saffron-coloured.

PUPA. A term introduced by modern naturalists, as synonymous with *Chrysalis* and *Aurelia*; because many insects in this state resemble an infant in swaddling cloaths; and all of them, except the hemiptera order, receive no nourishment.

PURPLE FISH; *Purpura.* A genus of shell-

fish: the distinguishing characters of which are; that the shell is univalve, jagged, and beset from the head to the tail with spines, tubercles, and striæ; the mouth is small and roundish; and the tail is short.

Chonchologists have too generally confounded the genera of the murex and Purpura, and used the words as synonymous: but though there is some external resemblance between many of the shells of the two genera, they are easily distinguished, by the Purpura having a shorter, less dentated, and alated mouth, than the murex. The bodies and heads of the shells of this genus are less elevated than those of the murex, and not covered with points or buttons at the mouth. Hence, if a shell has a small, smooth, round mouth, and a body covered with undulated leaves, somewhat resembling those of the savory or endive, and sometimes with long points, while the tail is hollowed, and slightly bent; this may be denominated a Purpura, and not a murex: nevertheless, Linnæus makes the Purpura a species of the murex.

On examining the whole family of the Purpuræ, four remarkable specific differences may be distinguished between them: the first comprehends those Purpuræ which have the body of the shell adorned with a kind of undulated foliage in clouded ridges, and a short crooked tail; the second includes those which have the body of the shell covered with acute points and a long tail; the third consists of those which have a long tail, and a smooth body, or only a few slight protuberances on it; and the fourth comprehends those which are small, with an elevated clavicle, a short crooked tail, and the body covered with slender spines or hairs.

This genus, as well as the murex, supplied the ancients with that beautiful purple dye which has been so much celebrated in their writings, though the manner of it's application is now in a great measure unknown. The Purpura and murex are both fished up in great plenty in the Gulph of Tarentum; but the small quantity of coloured juice which each fish contains, and the necessity of using it while the animal is alive, render it impossible to be brought to any regular traffic.

These shells are also found in various parts of the Mediterranean: nor are they confined to the European seas; but are met with in various parts of the West Indies, and on the coasts of the South Sea islands.

PURPURA, PERSIAN, or Persian shell. A species of the dolium. See DOLIUM.

PUTORIUS. See POLE-CAT.

PUTORIUS SERPENS. An appellation given by some authors to that species of serpent called by others dryinus.

PYE. See PICA.

PYE, SEA. See PICA MARINA.

PYE, GREY, OF BRAZIL; the Lanius Negeta of Linnæus. This bird has a dusky bill, slightly incurvated; and from the angles of the mouth pass broad black lines under the eyes to the hinder part of the head. The top of the head, the upper side of the neck, the back, and the lesser coverts of the wings, are of a dark brownish ash-colour. The tail is black, the exterior feathers deeply tipped with white, and the middle ones long, gradually shortening towards the sides. The quills are black or dusky; and the coverts are also dusky, with light ash-coloured tips. Round the eyes, and from the throat to the coverts under the tail, the

whole under side is covered with light ash-coloured plumage. The legs and feet are of a dark cinereous hue; and the claws are black.

PYE, GREEN, OF CEYLON; the Turdus Zeylonicus of Linnæus. This bird has a black bill; and from the nostrils on each side passes a yellow line towards the eyes. The throat, immediately below the bill, is of a bright yellow colour; and from the angles of the mouth beneath the eyes pass black lines, which turn downwards, and unite in a large black spot on the beginning of the breast. The breast, belly, thighs, and coverts beneath the tail, are of a yellow colour; as are the sides under the wings, and the inner coverts of the wings. The top of the head, the upper side of the neck, the back, rump, and upper coverts of the wings, are of an olive green hue, somewhat brighter on the rump and the edges of the greater quills than in other parts; the tips of the greater quills are dusky; the middle feathers of the tail are the largest, and all of a blackish colour both above and below, except the tips, which are yellow; and the legs, feet, and claws, are lead-coloured.

PYE, YELLOW-WINGED; the Oriolus Cayanensis of Linnæus. This bird has a sharp black bill, somewhat incurvated: the plumage of the whole body is of a dull black colour, except the lesser covert-feathers of the wings, which are of a bright yellow; the tail is composed of twelve feathers, the middle ones being the longest, and gradually shortening towards the sides; and the legs, feet, and claws, are pretty strong, and of a black or dusky colour.

This Pye is a native of Guiana, in South America.

PYE, SHORT-TAILED; the Corvus Brachiurus of Linnæus. This bird has a straight, sharp-pointed bill, of a brownish flesh-colour; a black line passes from the upper mandible of the bill along the crown of the head, and down the hinder part of the neck; above the eyes run lines of a light brown colour on their upper borders, and white beneath; and from the angles of the mouth beneath the eyes, and a little way down the sides of the neck, passes a pretty broad black line. The throat below the bill is white; the back and greater coverts of the wings are of a fine darkish green colour; the upper coverts of the tail and lesser coverts of the wings are of a fine bright sky blue colour; the quills, and some of the coverts, are black; and about six of the exterior quills are transversely barred with white. The tail is composed of twelve very short feathers of a blackish colour, with green tips; the breast, belly, and thighs, are of a yellowish buff colour; and the lower belly, with the coverts beneath the tail, are of a fine light red colour. The legs, feet, and claws, are of a dull orange colour; and the exterior toes adhere to the middle ones at the bottom.

This bird is a native of the Isle of Ceylon; and was first introduced into Europe by Governor Loten.

PYE, CRESTED, LONG-TAILED; the Muscicapa Paradisi of Linnæus. The bill of this bird is of a dark ash-colour, pretty straight, sharp-pointed, and angled; the neck and head are covered with black feathers, reflecting a blue or greenish gloss; and the plumage on the crown forms a crest. The back, wings, and tail, are of a bright reddish cinnamon colour; the tips of the quills are dusky; and the two middle feathers of the tail are longer than the exterior ones at least

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nine inches. The breast is of a blueish ash-colour; the belly, thighs, and coverts under the tail, are white; and the legs, feet, and claws, are ash-coloured.

This curious and beautiful bird is an inhabitant of the Isle of Ceylon.

PYGARGUS; the *Vultur Albiulla* of Linnæus. This bird, called also *albiulla* and *hinnularia*, has been classed by Linnæus among vultures, because it's bill is much straighter than is usual among eagles; but Pennant observes, that it can have no claim to be ranked with that genus, since it is wholly feathered; whereas the characteristic mark of the vulture is, that the head and neck are quite bare, or only covered with down.

This is a large and fierce bird: the beak is yellow, and covered with a membrane of the same colour at it's base; the eyes are large and hazel-coloured; the feet are yellow; and the claws are extremely strong and sharp. The head is white; the upper part of the neck is of a reddish brown colour; the rump is black; and the rest of the body is of an obscure rust-colour. The wings are partly black, and partly grey; the upper half

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of the tail is white, and the other is black. The male is considerably darker than the female.

The *Pygargus* inhabits Scotland and the Orkneys, feeding on fish and terrestrial animals.

PYGARGUS ACCIPITER. An appellation by which some naturalists have called the *subluteo*, a bird of the hawk kind; the male of which is called in English the hen-harrier. The female is supposed by some to be the ring-tail.

PYRALIS. A name by which some authors express an insect supposed to be produced in the violent fires of glass and metal furnaces.

PYROLAMPIS. An appellation given by some naturalists to the glow-worm. See **GLOW-WORM**.

PYRRHALA. A term by which some ornithologists express the bird called also *rubicilla*; in English, the bull-finch.

PYRROCORNIX. A bird of the crow kind, described by some authors as constituting a distinct species; but Ray, and other accurate naturalists, esteem it synonymous with the *coracias* or Cornish chough, considering it's variations as the effects of accident or age.

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QUAB. A kind of fish, which vulgar credulity has represented as being originally a tadpole, then a frog, and lastly a fish. However, Dr. Mounsey, who accurately investigated this strange relation, and had an opportunity of seeing the fish itself, affirms, that it spawns after the manner of other fishes, and exhibits not one appearance that can justify this improbable description. He adds, that it delights in very clear water, as of rivers which have sandy or stony bottoms; and is never found in standing lakes, or streams which pass through marshy or mossy grounds, where frogs generally reside.

QUACHILTO. A beautiful Brazilian bird of the moor-hen kind, called also *Porphyrio Americanus*. It is of a fine blackish colour, variegated with white: the beak is at first white, then red; and round it's base there is a naked space resembling that of the coot; and the legs are of a yellowish green colour.

This bird generally frequents watery situations, and feeds on fish: nevertheless, it's flesh is well-flavoured. It's voice resembles the crowing of a cock; and it is seldom heard but in the morning.

QUADRANGULARIS PISCIS. A curious fish, usually about fifteen inches long, four inches high in the middle, and three inches and a half broad: the forehead is square, slightly hollowed, and about two inches and a half over; the nose is blunt; and the mouth is very small. The back becomes somewhat convex towards the tail, and on the sides obtusely angled; as is also the belly, which is plain and flat, only rising a little towards the tail. There are five fins, two near the gills, and two near the tail, together with the tail-fin, which is pretty long. Part of the

head and tail is covered with a soft skin; and the rest of the body with a kind of crust, adorned with small round knots, in general arranged in hexagonal figures, and subdivided into equilateral triangles.

QUADRISSETÆ. A term by which some naturalists signify those flies which have four hairs or bristles growing from their tails, in contradistinction to those which have only three, two, or one.

QUADRUPEDS. A large, useful, and formidable order of animals; whose essential characters are: that their bodies are covered with hair; that they have four feet; that the females are viviparous; and that they suckle their young. This order has been with great propriety divided into digitated, hoofed, pinnated, and winged Quadrupeds; though the Aristotelian distinctions were restrained to Quadrupeds with solid, divided, and digitated hoofs.

If we take a comparative view of the various animals that people the globe, we shall be convinced that, next to man, Quadrupeds demand the foremost rank, and consequently deserve no inconsiderable share 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 the air or the water, their constant services, or their unceasing hostilities to man, all conspire to render them the most interesting parts of irrational nature, and entitle them to our first attention.

In the first ages of the world, when these animals were not so completely subdued as at present, it is highly probable that they were more nearly on an equality with us, and in some degree disputed

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 their destruction was the first (and happy had it been for human nature had it been the last) employment of heroes. But when he began to multiply, and arts to accumulate, the most noxious of these rivals were banished from the plains; an undisputed empire was established 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.

But, instead of rivals, Quadrupeds are now become the assistants of man: to them he allots laborious employments; and finds them patient, humble, ready to obey, and satisfied with the smallest retribution. Yet the independent spirit of these animals could not be broken without long and reiterated efforts: several generations must pass before the savage freedom of wild beasts can be totally subdued. Dogs and cats, when taken from a state of natural wildness in the forest, still transmit their ferocious dispositions to their young; and, though in general concealed, it will discover itself on various occasions: thus, not only their dispositions, but their very shapes, are altered by the assiduity and application of man.

Of all the ranks of animated nature, Quadrupeds bear the nearest similitude to man. The resemblance is particularly obvious when they are taught to walk forward in an upright posture, erected on their hinder feet: we may then perceive that all their extremities correspond, in a great degree, with ours, and present us with a rude imitation of the human form. In some of the ape kind, the similitude is so very striking, that anatomists can scarcely discover in what part of the human body man's superiority consists. On comparing the internal structure of Quadrupeds with our own, the resemblance will appear still more striking than from a contemplation of their external forms; and we shall then perceive that they enjoy many advantages in common with us above the lower tribes of nature. However mortifying to human pride the reflection may be, they are, like us, placed above the class of birds, by bringing forth their young alive; like us, they are also ranked above the tribe of fishes, by breathing through their lungs; like us also, 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 ranks of animated nature, by being either wholly or partially covered with hair. How little reason then has man to be proud of his person alone, to the perfection of which Quadrupeds make such near approaches!

The similitude of Quadrupeds to the human species is likewise perceptible in the fixedness of their nature, and their being less liable to be changed by the influence of food or climate than the lower ranks of nature. Birds, it is well known, are very apt to alter both in colour and size; fishes vary still more; insects may be taught to change and adapt themselves to almost any climate; and, if we descend to plants, which perhaps may be allowed some degree of animated existence, their kinds are readily altered, and taught to assume new forms. The figure of every ani-

mal may be considered as a kind of drapery, which human assiduity may induce or divest: in man, indeed, it is almost invariable; in Quadrupeds, it admits of some variation; and, if we descend to the inferior classes of animated existence, the variety may still be increased.

But though Quadrupeds are in general thus strongly marked, and 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 degraded to those below them. The bat, for instance, approaches to the aerial tribe, and might by some be ranked among birds; the porcupine, being covered with quills, has some pretensions to the same class, as it demonstrates that birds are not the only part of nature which is furnished with such a defence; the armadillo, being covered with a shell, might be referred to the insect or snail tribe; and the seal and the morse, being furnished with fins, and almost constantly residing in the water, might be ranked among fishes. All these animals become less perfect in proportion as they recede from the human figure, and may be regarded as the lowest kinds of that class to which naturalists have assigned them.

But though there is such infinite variety in Quadrupeds, they are all well adapted to their respective stations, and probably enjoy a state of happiness consonant to their natures. We may apprehend that the sloth, which spends two months in climbing up a single tree; or the mole, whose whole life is spent in subterraneous darkness; are miserable and helpless creatures; but perhaps their life is to them a state of luxury; their most pleasing food is easily obtained; and, as they are abridged of one pleasure, the enjoyment of those which remain is probably doubled. At the 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 dreads: he would therefore be the most unfortunate of all creatures, were his views bounded by mortality, and his hopes to expire in the grave.

The heads of Quadrupeds, though very different from each other, are generally well adapted to their mode of life. In some, they are sharp, the better to facilitate the turning up of the earth, in which their food lies hid. In others, they are long, in order to afford a greater exercise of the olfactory nerves; as in dogs, which discover and pursue their prey merely by the scent. In some, as lions, they are short and thick, to give strength to the jaws, and the better to qualify them for the conflict. And all Quadrupeds which pursue gramineous food are enabled to hold down their heads to the ground by means of a strong tendinous ligament extending from the head to the middle of the back.

The teeth of all animals seem perfectly fitted for the nature of their diet. With respect to those which subsist on vegetables, they seem entirely calculated for bruising and gathering their simple food, being edged before, and fitted for cutting; but broad, and suited 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 grinders in the one; in the other, as weapons of defence. In both, however, the surfaces of the grinding teeth are

are unequal, with cavities and prominences, tallying with each other when the jaws are brought into contact. These inequalities serve better for grinding and comminuting their food, but they grow smoother with age: old animals, therefore, require a longer time to chew their cud than those in the prime and vigour of life.

The legs and feet of Quadrupeds are entirely suited to the respective motions and exercises of each. In some, they are formed for strength only, in order to support a vast unwieldy frame; and possess neither flexibility nor beauty. 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 entirely useless, as they are not destined to pursue other animals for their support; and, conscious of their own superior strength, there are none which they study to avoid. Deer, hares, and other animals whose safety depends on flight, have slender and nervous legs: were it not for this advantage, their races would long since have been exterminated, as they would have necessarily become the prey of every carnivorous beast. The means of security 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, which feed only on fish, are adapted for swimming: the toes of these animals are connected by membranes, like those of geese and ducks, whereby they swim with great rapidity. Animals which lead a life of hostility, and prey for the means of their subsistence, have their feet armed with sharp claws, which some of them can sheath and unsheath at pleasure: on the contrary, peaceful animals generally have hoofs, which serve some of them as weapons of defence, and are more convenient for all of them, in traversing extensive tracts of country, than the claw-feet of their oppressors.

The stomachs of animals are generally proportioned to the quality of their food, or the facility with which it is procured. In those which subsist on flesh, and such nutritive substances, the stomach is small and glandular, affording such juices as are best adapted to digest and macerate its contents. On the contrary, such animals as subsist entirely on a vegetable diet, 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. However, Buffon asserts, that in Africa, where plants are more succulent than in our temperate climates, several animals, which with us have four, are there found to have only two stomachs: but it is certain that the size of the intestines is proportioned to the nature of the food in all animals; where that is plentifully furnished, the stomach dilates, to answer the increase. It is large in domestic animals, which are abundantly supplied; but, in wild animals, whose nourishment is precarious, it is more contracted, and the intestines are considerably curtailed.

Thus all animals are fitted by nature to fill up some peculiar station. The largest live an inoffensive life, ranging the forest without molesting others; and, supported by the spontaneous productions of the earth, they neither attack nor shun their fellow brutes. With their strength nature has joined gentle and inoffensive dispositions, otherwise those enormous creatures would exercise dominion over the rest of the creation: for, were

the elephant, the rhinoceros, or the buffalo, as mischievous as the lion, the tiger, and the wolf, the most terrible devastations would unavoidably ensue.

To oppose those larger animals, and, in some degree, prevent their exuberance, there is a species of the carnivorous kind inferior in strength, but of superior cunning and activity. The lion and the tiger lie in wait for the larger kinds of prey, attack them at a disadvantage, and seize them by surprize. Except the dog alone, none of the carnivorous kinds make a voluntary attack, unless the advantage is on their side: cowards by nature, they usually seize their prey by a sudden spring from their lurking-places; for the larger animals are too powerful for them; and the smaller too fleet.

A lion will not attack a horse without much reluctance; and nothing but the keenest sensation of hunger can compel him to it. Combats between the lion and the horse are frequent in Italy, who are both enclosed in a kind of amphitheatre. The lion wheels about as he approaches, while the horse presents his hinder parts to the foe. The lion continues moving round and round, gradually narrowing his circle till he finds himself at a proper distance to make his spring; and, at the very instant he leaps, the horse strikes him 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 station between the horse's shoulders. If the lion is either stunned or left sprawling, the horse generally leaves him without attempting another stroke; but if the lion succeeds, he never quits the horse till he has torn him in pieces.

But hostilities are not confined to the larger animals of the forest; there are more treacherous contests 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 mouse are the natural game of the wild cat. The deficiency of strength in each carnivorous animal is fully atoned for by unwearied patience, assiduity, and cunning.

The predaceous tribes generally exert their destructive talents by night. In countries inhabited by the human race, they are deterred by their fears during the day; and in those extensive regions of which they reign the undisputed tyrants, they are discouraged by the excessive heat of the sun. As soon as the morning appears, they retire to their dens; at which time the elephant, the deer, and other innoxious animals, come abroad. But, when night returns, the state of hostility commences: the whole forest resounds with a variety of different howlings; the roaring of the lion, resembling distant thunder; the shrill, but more hideous yells of the tiger; the jackall pursuing by the scent, and barking like a dog; the hyæna, with a note peculiarly solemn and tremendous; and the hissings of the various kinds of serpents. All these sounds form a concert dreadful beyond description, and terrible even in idea.

However, beasts of prey seldom devour each other; and nothing but the greatest degree of hunger can induce them to it: yet, in such extremities, the weakest affords its antagonist but an ungrateful repast. The deer or the goat is what they principally seek after, and which they either pursue or surprize. Among the fiercest animals, their most usual method is to hide themselves

near some path frequented by their prey, or some water at which the harmless tribes come to drink; and to seize them at once with a bound. The lion and the tiger are said to leap twenty feet at a spring; and on their dexterity in this respect they depend for a supply, more than either their strength or fleetness.

There is still another class of the carnivorous kind that hunts by the scent, from which it is more difficult to escape. All animals of this sort pursue in companies; and, by their mutual cries, encourage each other: of this kind are the jackall, the hyagush, the wolf, and the dog; and these pursue rather with perseverance 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, on hearing a cry of this kind begun, pursue the pack; and, when these have hunted down their prey, those make their appearance, and monopolize the spoil: hence arose the vulgar opinion of the jackall's being the lion's provider; while, in reality, the former hunts only for himself, and the latter is always an unwelcome intruder on the fruits of his industry.

But, notwithstanding all the powers which carnivorous animals possess, they generally lead a life of hunger and fatigue. Their prey has so many methods of escape, that they are often without food for twelve or fourteen days together: but nature has endued them with patience equal to their condition; and though 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 it, 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 the most defenceless animals find protection in holes, where nature has directed them to bury themselves; others owe their safety to swiftness; and those who possess neither of these advantages, generally herd together, and, by their united force, endeavour to repel the attacks of their enemies. All indeed have a spirit of mutual defence: the females fall into the centre; while the males, forming a ring round them, oppose their horns to the assailants. Some animals which feed on fruits, that are attainable at one season of the year only, store their cells with a variety of plants; and there lie concealed during the rigours of winter, contented with their prisons, which afford them both plenty and protection. Their holes are very artificially constructed. In general, they have two apertures, by one of which the little inhabitant can always escape when any stronger animal has taken possession of the other: such are the contrivances of the badger, the hedgehog, and the mole. Many creatures avoid their enemies by placing centinels to warn them of approaching danger: a duty they generally perform by turns; and they have modes of punishment for such as either desert their posts, or prove neglectful of their common safety.

These are some of the efforts exerted by the weaker races of Quadrupeds to elude their invaders, and they are generally attended with suc-

cess: such are the exertions of instinct for security, which are in general sufficient to repel the hostilities of instinct only. Man is the only creature against whom all their little arts can never prevail: wherever he has extended his dominion, scarcely 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 their utmost cunning only proves their natural imbecillity. Such as he has chosen to protect, have calmly submitted to his sway; such as he has thought proper to destroy, engage in an unequal conflict, and their numbers daily decrease.

Before the untamed animal falls under the dominion of man, he is subject to few alterations. In a savage state, he continues for ages the same, in size, shape, and colour: but his external, and even internal form, is altered by human assiduity; and 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; and they seem to have few desires which he is not willing to gratify. Humble, patient, resigned, and attentive, they submit to the duties of their station; are ready for labour, and satisfied with their allotted subsistence.

The greater number of domestic animals seem to bear the marks of servitude very strongly upon them: the varieties in their colour, the length of their hair, together with the depending length of their ears, at once originate from, and indicate a long continuance of slavery. What a 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 scarcely to be traced; and the tame animal no longer represents 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 tawny, being almost their only varieties. But, with respect to tame animals, it is far otherwise: their colours are various, and their figures different; the nature of the climate, which indeed operates on all, has a peculiar effect on them; the nourishment furnished by the hand of man is not adapted to their appetites, but to his own convenience; the climate, the rigours of which he can soften, and the various employments to which they are assigned, produce innumerable distinctions, which are not to be found among the savage tribes. Though at first accidental, they in time become hereditary; and a new race of artificial monsters is propagated, chiefly to gratify human pleasure. Their very appetites may be totally changed; and those animals which are naturally herbivorous, may be rendered fond of flesh. 'I have seen,' says Goldsmith, 'a sheep that would eat flesh, and a horse that would devour oysters.'

But not only their figures and appetites, but their very dispositions and natural sagacity, are altered by the vicinity of man. In countries unfrequented by the human species, some animals have been found established in a kind of civil society. Remote from the tyranny of man, they seem to be no strangers to mutual friendship and benevolence. In these distant solitudes, the beavers

vers possess the ingenuity of architects, and rule like citizens. Their habitations exceed the buildings of the human inhabitants of the same country, both in neatness and convenience. But when man intrudes on their society, they are impressed with the terrors of their inferior situation, their bond of union is dissolved, and every animal seeks for safety in solitude, where it exerts its little industry to provide only for itself.

Next to human influence, the climate appears to have the strongest effects on the nature and shape 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, are unable to shield themselves from the inclemency of the weather, or to soften the intense heat of the sun; and consequently undergo the greater change by its variations. It is a general remark that, the colder the country, the longer and warmer the fur of the animals; nature having wisely ordained that the inhabitant should be adapted to its situation. In temperate climates, the fox and the wolf have short hair; but in the frozen regions near the pole, they have a fine long fur; and those dogs which in our latitudes have long hair, when carried to Guinea or Angola, presently drop their covering, and assume a lighter one, better adapted to the warmth of the climate.

Beavers and ermines, which are very numerous in the colder regions, are remarkable for the warmth and delicacy of their furs; while the elephant and the rhinoceros, who are natives of the line, are almost destitute of hair. Human industry can, in some measure, represent the effects of climate in this particular. We are sensible what alterations proper care can produce in the fleeces of sheep in different parts of our own country; and the same industry is attended with equal success in Syria, where many animals are clothed with long and beautiful hair, which being improved, is manufactured into camblet, a stuff well known in most parts of Europe.

The disposition, as well as the figure of Quadrupeds, seems to be marked by the climate. What has rendered the human inhabitants of the rigorous climates savage and ignorant, has also operated on their animals. The wild Quadrupeds are fierce and untractable both at the line and the pole: there their innate ferocity has not been quelled by any efforts of man; and being still farther stimulated by the severity of the weather, they continue savage and untractable. All efforts hitherto made to subdue wild beasts brought either from the pole or the equator, have in general proved ineffectual: while young, they are gentle and inoffensive; but their natural ferocity increases with their bulk, and they soon attempt to tear the very hand that feeds them.

In all countries where the human species are most barbarous, the animals are also most savage and cruel. Africa has ever been disgraced by the barbarity of its men, and the ferocity of its beasts: its crocodiles and its serpents are as dreadful as its lions and its leopards; their dispositions seem to be entirely stamped with the nature of the climate; and, bred in extreme heat, they discover peculiar ferocity, invincible either by the force or ingenuity of mankind. Fortunately, however, for the wretched inhabitants of those climates, its most formidable enemies are

all solitary ones, and ignorant of the arts of uniting, in order to oppose or oppress mankind.

The quantity of food in any country, or its nutriment, adapted to every peculiar species, also constitutes a variety in the size of the respective animals. Those Quadrupeds which feed in the vallies are generally larger than such as glean a scanty subsistence on the mountains. In warm climates, whose plants are large and succulent, the animals are equally remarkable for their bulk: the ox fed in the plains of Hindostan is considerably larger than that which is but sparingly maintained on the sides of the Alps.

Indeed, the largest, as well as fiercest animals, are produced in the deserts of Africa, where the herbs are extremely nutritive; and perhaps, for a contrary reason, America does not afford such large animals as are found in the ancient continent. It is however certain, whatever may be the reason, that though America does not produce such stately animals of the Quadruped kind as the Old World, it infinitely exceeds it in the size of its reptiles: thus, for instance, the largest animal of the New World is the tapiir, which is by no means comparable to the elephant of Africa. Its beasts of prey also are divested of that courage and strength which are so formidable in that part of the world. The American lion, tiger, and leopard, if such diminutive animals deserve these appellations, are neither so fierce nor so valiant as those of Asia and Africa. The tiger of Bengal has been known to measure twelve feet, exclusive of its tail; whereas the American animal of the same name seldom exceeds three. This difference obtains still more in the other animals of that country: hence some authors have been of opinion, that all the Quadrupeds of South America are of a different species from those most resembling them in the Old World; and that there are none common to both but such as have entered America by the north; and which, being able to endure the rigours of the frozen pole, have travelled from the ancient continent, by that passage, into the new. Thus the bear, the wolf, the elk, the stag, the fox, and the beaver, are common in the northern parts of America as well as of Europe; while most of the various kinds to the southward, in both continents, bear no resemblance to each other. In short, such as particularly belong to the new continent are destitute of any marks of the Quadruped perfection: they are generally almost defenceless; neither their teeth, horns, nor tail, are formidable; their figure is awkward; and their limbs want proportion. Some of them, such as the ant-bear and the sloth, appear to be so miserably formed, as scarcely to possess the power of moving and feeding: they apparently drag out a miserable and languid existence in the most deserted solitudes; and would soon be destroyed in a country where there were either inhabitants or powerful animals to oppose them.

But if the American Quadrupeds are smaller, they are much more numerous; it being an invariable rule throughout all nature, that the smallest animals are always most prolific. The goat, when imported from Europe to South America, soon begins to degenerate; but, as it grows less, it becomes more fruitful; and, instead of one or two kids at a time, generally produces five, and sometimes more. Whether this change is effected by the food or the climate, is perhaps difficult to determine; though we should be inclined to ascribe it

it to the heat, were it not, that on the African coast, where it is still more intense, this rule does not obtain; for in that region, instead of degenerating, the goat seems rather to improve. Nature, however, seems to observe 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 and tiger seldom bring forth more than one at a time; while the cat, which is of a similar nature, has often five or six. Thus the lower tribes become extremely numerous; and but for this surprising fecundity, from their natural weakness, they would speedily be extirpated. Were the mouse as slow in production as the elephant, the breed would long since have been extinct. But Providence has wisely ordained, that those animals which are incapable of making such resistance, should possess the means of repairing that destruction which they must often suffer by their quick reproduction.

The wisdom of Providence is equally displayed with regard to 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, were they more prolific; and, consequently, many of them would perish for want of food, and life would be indulged without the necessary means of subsistence. Besides, did the elephant, the rhinoceros, and the lion, possess 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 once, 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 as soon as they have quitted the teat. In proportion to their size also, most animals prolong the time of their pregnancy: the mare goes eleven months with young, the cow nine, the wolf five, and the bitch only nine weeks. The intermediate litters are generally the most fruitful in all; the first and the last producing usually the worst of the kind, as well as the fewest in number.

Animals of all kinds, whatever their natural dispositions may be at other times, acquire new courage and fierceness in defence of their young. Neither terrors nor dangers can drive them from the post of duty; and even the most gentle then exert their little force, and threaten their invaders. Where no hopes are entertained from resistance, they incur every danger in order to rescue their young by flight, and neglect their own security in providing for that of their offspring. Such as are naturally strong, and subsist by rapine, during this season are terrible indeed! No obstacles can put a stop to their ravages, nor any threats deter them: the lioness then appears more daring than even the lion himself; she attacks men and beasts indiscriminately; and carries all she can subdue, reeking, to her cubs, whom she thus early inures to blood and cruelty.

Milk is the first aliment of all Quadrupeds, a

liquor at once nutritive and easy of digestion: this, in carnivorous animals, is much more sparing than in others; and probably for this reason, because all such carry home their prey alive, in order that the blood may supply the deficiency of milk.

Nature, which has furnished animals with courage to protect their young, has also imparted to them instinct to chuse the proper seasons 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 abundance; and in general they couple at such times, that the females may bring forth during the mildest seasons: the wolf, for instance, couples in December, that she may produce in April, the time of pregnancy being five months; and 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 for the winter, as the beaver and the marmotte, couple towards the latter end of autumn, in order to bring forth about January; for which unpropitious season they have provided the necessary supplies. With respect to some of the domestic kinds, however, the seasons of copulation are generally regulated by the quantity of provisions with which they are at any time supplied: we may therefore cause these animals to breed whenever we please, by feeding, and protecting them from the rigours of the climate; and by this means lambs are produced all the year round.

The choice of situation for parturition is also worthy of admiration. Among the most rapacious kinds, the female takes the utmost precaution to conceal from the male the place of her retreat, otherwise the stimulations of hunger would frequently tempt him to devour the cubs: she therefore seldom strays far from her den, and never enters it while the male continues in view. Animals of tender constitutions are particularly careful in providing places of warmth as well as safety for their young: the rapacious kinds bring forth in the thickest woods; the ruminant, together with the various tribes of the vermin kind, make choice of some hiding-places in the vicinity of man; some seek the hollows of trees; others dig holes in the ground; and all the amphibious kinds rear their young near the water, and habituate them early to either element.

There is, however, one class of Quadrupeds, which seems to be entirely left to chance, without parents or instructors to teach them the arts of defence, or assist them in procuring subsistence: such are those produced from eggs, as the lizard, the tortoise, and the crocodile. Of all animals, these are the most prolific, often bringing forth above two hundred at a time. But as the offspring is more numerous, the parental care is less necessary for the continuance of the breed: without farther solicitude, they bury their eggs in the sand, leaving them to be matured by the warmth of the sun; and they arrive at perfection almost as soon as disengaged from the shells: and indeed it is a general observation, that the more imperfect any animal is, the sooner it arrives at maturity. Most of them, without any 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 themselves, by a strange kind of rapacity, are said to reduce their numbers. Providence

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

The ancient Egyptians, who honoured Quadrupeds with public worship, replenished their temples with those of every kind their country produced, which they fed and lodged with particular care, embalmed after their deaths, and interred in magnificent catacombs. It was ever customary to bring dead animals from foreign countries, to procure them an honourable sepulture in Egypt; and at length, whoever killed one of the consecrated animals, was punished with death. But this was only a relative worship: the animals were nothing but symbols representing the Divinity; and this adoration was first founded on that formerly paid to the stars, which had received the names of animals; secondly, on a tradition of the Egyptians, that the gods, when they were pursued by Typhon, had concealed themselves under the figures of various creatures; thirdly, on the doctrine of the metempsychosis, which teaches a continual transfusion of souls into different bodies of men and animals; and, lastly, on the benefits received by the Egyptians from certain creatures. 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 a similar manner the good qualities of other consecrated animals procured them a grateful homage.

QUAIL; the Tetrao Coturnix of Linnæus. This bird, the least of all the gallinaceous kind, is about half the size of the partridge: its length is seven inches and a half; and its breadth fourteen. The plumage of the head is black, edged with dusky brown; the crown of the head is divided by a pale yellow line, beginning at the bill, and extending to the back; and above each eye there is another line of the same colour. The chin and throat are whitish; and the breast is of a pale yellowish red colour, spotted with black. The scapulars and back are marked with a long pale yellow line in the middle, and with iron-coloured and black bars on the sides. The coverts of the wings are of a reddish brown hue, elegantly barred with paler lines, bounded on each side with black. The tail, which is composed of twelve short feathers, is barred with black, and a pale brownish red; and the legs are of a palish hue.

The Quail, in its habits and nature, resembles all others of the poultry kind, except in its being a bird of passage. Indeed, when we consider its sluggish manner of flying, and the scantiness of its plumage in proportion to its corpulence, it appears surprising that a bird, evidently so ill qualified for migration, should adventure such extensive journeys; nevertheless, it is unquestionably a bird of passage. Bellonius assures us, that when passing from Rhodes to Alexandria about the autumnal season, several Quails, in flying from the north southward, were caught in his ship: and when sailing, about the Spring quarter, the contrary way, (from south to north) he observed them on their return, when numbers were captured in a similar manner. The testimonies of

many other naturalists confirm this assertion; and some add, that these birds chuse a north wind for their migrations, the south being more unfavourable, as it retards their flight by moistening their plumage.

But though it is universally admitted that Quails are birds of passage, it still remains a doubt whether they make such long journies as Bellonius has asserted. Some have lately maintained, that they only migrate from one province of a country to another: in England, for instance, they exchange the interior for the maritime counties, and remain there during the winter. If expelled from the stubble-fields or marshes by frost or snow, they retire to the sea-side, seek for shelter among the weeds, and subsist on what the tide forces on shore. The period of their appearance on the coast of Essex exactly coincides with their migration from the more internal parts of this kingdom. Pennant says, that they are birds of passage; some of them entirely quitting our island, and others shifting their quarters. It seems therefore highly probable, that the account which Bellonius has given us may be strictly true; and the assertion of other authors, that they sometimes only migrate from one province to another, may also equally deserve our belief.

The Quail builds its nest on the ground; and is much less prolific than the partridge, seldom laying more than six or seven whitish eggs, marked with ragged rust-coloured spots. Their ardour in courtship is scarcely inferior to that of any other bird: at that season they are fierce and cruel; fighting with the utmost desperation; and often indulging their animosity against each other to such a degree, that they become regardless of their personal safety.

Quail-fighting was a favourite amusement among the Athenians: they abstained from the flesh of these birds, deeming it unwholesome, from a notion of their feeding on white hellebore; but they reared great numbers of them for the combat, and staked considerable sums of money on their success. Fashion, however, has altered the opinion of mankind with regard to the Quail: its courage is now disregarded; but its flesh is esteemed a peculiar delicacy.

Quails are easily caught by a call. The fowler having spread his net early in the morning, hides himself under it among the corn, on which they feed: he then imitates the voice of the female with his Quail-pipe; which the cock hearing, approaches with the utmost speed; till having got under the net, the fowler immediately discovers himself; which terrifies the Quail to such a degree, that his desire of escaping only serves to entangle him still more in the meshes of the net.

QUAIL, INDIAN, OF BONTIUS. This Quail, which is easily domesticated, and kept like common poultry, is about the size of a pigeon; and resembles the common Quail in colour; but its bill is somewhat longer. Its note resembles that of the bittern more than any of its tribe.

QUAIL, ARABIAN. This bird is found only in Arabia Felix, where it is called saleva. It is by some pretended to be totally destitute of bones, and that every part of it may be eaten: but this is certainly a mistake. Herbelot acquaints us, that this species is peculiar to that part of Africa called Yemen; and that it is larger than a sparrow, but less than a pigeon. He likewise affirms, that its bones and tendons are so

extremely slender and juicy, that they may be as easily eaten as the flesh; hence probably arose the vulgar notion that it was entirely without bones.

QUAIL, BENGAL. This species is somewhat larger than the European: the bill is cinereous; the angles of the mouth are red; and the nostrils are large and oblong. The irides are white; the top of the head is black; but under it there is a yellow space, beyond which a black bar runs from the corners of the mouth round the back part of the head, and below this appears a white space. The belly and thighs are yellowish; the hind part of the head, the back, and the feathers which cover the wings, are of a yellowish green hue; and the quill-feathers are black. The legs and feet are orange-coloured; and the claws are of a dark dirty red hue.

QUAIL, CHINESE. This species has a black bill; the fore-part of the head, the breast, and sides, are of a blueish ash-colour; the belly, thighs, and coverts beneath the tail, are of a dark orange; and a dusky white line runs along the middle of the belly. The sides of the breast are spotted with black; there is a black spot on the throat, under the bill, surrounded with white; and beyond that a black line proceeding from the angles of the mouth: these lines join in a black list on the fore-part of the neck. The hinder part of the head and neck, with the back, wings, and coverts of the tail, are brown; the middle part of the plumage on the back and rump is of a light brown colour, with black lines on each side, and some sprinklings of black in the intermediate spaces; the wing-feathers are also irregularly barred with transverse dusky lines; and the legs and feet, which are shaped like those of the common Quail, are of a bright yellow orange colour.

This bird is sometimes imported into Europe. In China, it's native country, it is often tamed, and taught to fight like the English cock.

QUAN, OR GUAN; the *Meleagris Cristata* of Linnæus. This bird, which some suppose to be synonymous with the *Jacupema* of Marcgrave, is a native of the West Indies, and somewhat larger than the common hen. The bill is straight, slightly bending at the point, and of a black colour; the sides of the head are of a blue purplish hue, and destitute of plumage; the irides are of a dark dirty orange colour; under the chin depends a fine red loose skin, thinly set with black hairs; and the top of the head is invested with black feathers, which the bird can erect into a crest. The whole body is covered with black, or dark rusty brown feathers; the fore-part of the neck, the breast, and the belly, have white spots and dashes tending downward, intermixed with the dark colour; the coverts of the wings have somewhat of a green and purple gloss; and the back and rump reflect a copper-coloured gloss: but all these tints vary according to the light in which they are viewed. The thighs and lower belly are of a rusty black colour; the tail, which is pretty long, is shaped like that of a turkey; the legs and feet are of a bright red colour; the three forward toes are connected at their bases by a membrane; and the claws are black.

QUAPACHTOTOTL. An appellation by which Nieremberg has described a bird which, according to his account, imitates the human laugh. The body and tail are each about eight inches long; the beak is of a blueish black colour, bent

and crooked; the breast is grey; and the belly is black. The tail is of a brownish black hue; and the wings, neck, and head, are of a yellowish brown.

QUATOTOMOMI. An American bird of the woodpecker kind, having it's head adorned with a red crest, from which two white lines descend to the breast. Nieremberg calls it *Picus Imbrifœtus*.

QUAUHTZONECOLIM. An American bird, generally accounted a species of quail, but by Nieremberg referred to the partridge tribe. It is about the size of the European partridge; and of a brownish colour, adorned with a crest.

America affords two other species of birds nearly allied to this: the one has a yellow body, with a black and white head; the other is small, and brown, without any crest.

QUEEN BEE. A term used by modern naturalists to express a large, long-bodied Bee; of which kind there is only one in a whole swarm, and always treated with peculiar respect by the rest.

It is generally allowed that the generation and whole œconomy of Bees depends in a great measure on this female sovereign; and that her presence is absolutely necessary to the prosperity and safety of the whole community. Of such consequence indeed is this individual, that the loss of her would prove the total and inevitable destruction of the whole hive or swarm, unless another ruler immediately assumed the helm of government. Without her presence and direction, the other Bees will neither collect wax nor honey; nor will they breed and propagate their kind. A stock, deprived of it's Queen, would speedily yield to invaders, or else languish and pine away: but no sooner is it supplied with a Queen, than pleasure and activity are visible throughout the whole society; the presence of their sovereign restores vigour and exertion; and her voice commands universal respect and obedience. As the parent and sovereign of every swarm is a female, so the whole government is vested in her alone; for where there happen to be several candidates for royalty, anarchy and discord prevail, till they are either all expelled, or reduced to the obedience of one.

As it may be of some consequence to distinguish the Queen Bee from the rest, we shall subjoin the discriminations which peculiarly mark her. She is much larger than the common working Bees; her body is longer than that of any of the drones; and her hinder part is more taper, to enable her with the greater facility to reach the bottoms of the cells, where the eggs are deposited for the propagation of the species. Her upper parts differ very little from those of the common Bees in colour; but her belly and legs are of the brightest yellow, resembling pure gold. It is also said that she may be distinguished by her voice, which is an octave; and by her being one of the last which falls with her belly upwards, when the Bees of a single stock are dropped into an empty hive, in order to be incorporated with others.

A variety of discordant opinions have been propagated by naturalists respecting the generation of Bees in general, and particularly of the Queen; but, according to the doctrine of M. Schirach, whose observations have been confirmed by the experiments of Mr. Debray, all the working or common Bees are females in disguise; and the

Queen Bees

Queen Bees lay only two kinds of eggs, namely, such as produce the drones, and those from which the working Bees are to proceed; and from any one or more of these one or more Queens may be produced: so that every worm of the latter, or common kind, which has been hatched about three days, is capable, under certain restrictions, of becoming the Queen or mother of the hive. In proof of this doctrine, new and singular as it may appear, he alleges a number of satisfactory and decisive experiments, which have since been verified by others. The conclusion of his observations informs us, that all the common or working Bees are originally of the female sex; but, after having undergone their last metamorphosis, they are condemned to a state of perpetual virginity; and the organs of generation are obliterated, merely by their being lodged, fed, and brought up in a particular manner while in their worm state. He likewise infers, that the worm designed by the community to be a Queen, owes its metamorphosis into that dignified individual, partly to the extraordinary size of its cell, and its peculiar position there; but more particularly to a certain appropriate nutriment with which the working Bees carefully supply it while in the embryo state. See BEE.

QUERQUEDULA. A term by which some authors express the teal. See TEAL.

QUICKHATCH. An appellation given by some naturalists to the wolverene, a variety of the glutton, found in Canada and Hudson's Bay. See WOLVERENE.

QUIJUBATUI. An American species of parroquet, about the size of a lark, and generally of a yellow colour. The eyes are black; the beak is grey; the edges of the wings are of a dusky green hue; and the tail is long and yellow.

This bird is remarkably beautiful, and tamed with the greatest ease.

QUILAQUIL. A Philippine name for an elegant species of parrot very common in those islands, whose whole body is of a vivid green colour. It is smaller than the common parrot; and so extremely wild, that it can neither be tamed nor taught those acquirements of which the congenerous birds are generally susceptible.

QUIRPELE. A small animal of the weasel kind; denominated by different authors the Indian ferret, *Viverra Indica*, and the Quil.

Some naturalists, who give very remarkable accounts of the enmity which this creature bears to all kinds of serpents, tell us, that when this little animal meditates an attack on one of these reptiles, it first gnaws a quantity of the root of the *lignum colubrinum*, or snake-wood, as an antidote against danger; and after it has fully impregnated its saliva, it anoints its whole body therewith; and then boldly attacks the snake, which it never quits before it has obtained a complete victory. It is indeed probable that this creature may attack a snake when almost famished with hunger; but the relation of its mode of finding a preservative against poison favours too much of the fabulous to be entirely believed: though, it must be allowed, the instinct of animals is such, that it is difficult to distinguish between real qualities and fictitious attributes, where the creatures themselves are not subjected to frequent and accurate observation.

QUOJAS MORROW. A term by which the Africans denominate the ourang-outang.

QUOLL. An appellation used by the natives of New-Holland to express an animal resembling the pole-cat; with a brown back spotted with white; and the belly of a pure white colour; in which it differs from others of this kind.

QUURBATOS. An African bird of the king-fisher kind, about the size of a sparrow, and covered with very beautiful variegated plumage. The bill is long, strong, sharp, and armed on the inside with small teeth resembling those of a saw.

These birds skim the air and surface of the water with prodigious swiftness; and on the banks of the Senegal they are numerous beyond conception. Their nests, which are composed of earth mixed with moss and feathers, are so artfully constructed, as to be water-proof: and Le Maire informs us, that they are usually suspended from the slender branches of palm-trees, where they hang by reeds or straws of about a foot and a half in length, at the extremities of which they appear like so many balls pendent in the air.

R.

RABBIT. A well-known animal of the hare kind, of which there are several species.

RABBIT, COMMON; the *Lepus Cuniculus* of Linnæus. The hare and the Rabbit, though they nearly resemble each other in their form and disposition, are nevertheless distinct kinds, and refuse to engender together. Buffon bred up several of both kinds in the same place; but, from being at first indifferent, they soon became enemies, and often fought till one of the parties was either disabled or destroyed. It is however asserted by some naturalists, that an animal is often produced between the two kinds, which, like the mule, is marked with sterility.

Pliny judiciously remarks, that nature has been particularly beneficent in rendering those animals most prolific which are the most innocent in their lives, and of the greatest utility to man. The fecundity of the Rabbit finely illustrates this observation: this creature will breed seven times in one year, and perhaps bring forth eight young each time: and, on a supposition that this happens regularly for four years, a single pair will in that time multiply to one million, two hundred and seventy-four thousand, eight hundred and forty. From this account, we might justly be apprehensive of being overstocked with their numbers, if they were not diminished by every beast and bird

of prey, and more particularly by the human race. But, notwithstanding they have so many enemies, Pliny and Strabo inform us, that they were once so great a nuisance to the inhabitants of the Balearic Islands, that in the reign of Augustus they implored the assistance of a military force from the Romans in order to their extirpation.

Though Rabbits are capable of enduring a pretty cold climate, they seem to delight in a temperate one; and Spain may be said to be their native country. In Sweden they are obliged to be kept in houses; and, in still more northern regions, are entirely unknown.

The hare discovers various arts and instincts for escape, by doubling, squatting, and winding. The Rabbit has only one mode of defence; but finds more security in that one than the hare in all the cunning of which it is possessed. This creature forms a hole in the earth, where it continues a great part of the day, and nurses its young: there also it remains secure from the fox, the hound, and the kite, and almost every other enemy.

About the time of parturition, the female makes choice of a retreat apart from the male. On this occasion she digs a hole different from the ordinary one, as well as more intricate, and forms a spacious apartment at its bottom. She then plucks from her own body a large quantity of hair, with which she prepares a kind of bed for her young, whom she never leaves for the two first days, except to procure nourishment, and then returns with the utmost dispatch. She continues to suckle them for near six weeks; about the expiration of which time they are generally able to come abroad. During this period the female is seldom visited by the male; but as soon as the little family is capable of reaching the mouth of the hole, he seems to acknowledge them as his offspring; takes them between his paws, smooths their skins, and licks their eyes; each in its turn receiving an equal share of his caresses.

Tame Rabbits, conscious of protection, never dig holes for their retreats. Wild Rabbits are invariably brown; but domestic ones, like all other creatures under the direction of man, are of various colours, white, black, brown, mouse-colour, and mottled: these animals, though less than hares, are longer lived; and in general fatter; but their flesh is less delicate. Tame Rabbits are larger than the wild race, because of a more copious supply of provisions; but their flesh is softer, as well as more insipid. The counties of Lincoln, Norfolk, and Cambridge, are generally esteemed the most famous for these animals of any in England. Their skins are sometimes substituted in the room of fur for trimmings: but their principal use is in the manufacture of hats; and such parts of the fur as are too coarse for that purpose, are now and then applied to the stuffing of beds, instead of feathers.

Rabbits are subject to two distempers. Of these the rot is the principal, which is generally occasioned by their feeding too plentifully on green vegetables, particularly when impregnated with much rain or dew. The origin of this disease is always too much moisture: their greens therefore should be given dry, and a sufficient quantity of hay, or other dry food, intermixed with them, in order to imbibe the superabundant moisture of their juices. On this account the shortest and sweetest hay that can be procured is the very best food for tame Rabbits, one load of

which will serve two hundred couple for a whole year: and of this stock of two hundred an equal number may be consumed in the family, as many fold, and a sufficient number retained in case of accidents.

The other malady incident to Rabbits is a species of madness; which may be perceived by their wallowing and tumbling about with their heels upwards, and hopping in a very singular manner. This distemper is supposed to originate from the rankness of their food; and the general cure consists in keeping them low, and supplying them plentifully with the prickly herb called tare-thistle.

RABBIT, SYRIAN. This species, like other creatures bred in that country, is remarkable for the length and fine texture of its hair, which falls along the sides in wavy wreaths; and, in some places, is curled at the end: it is shed annually in large masses; and it often happens that the Rabbit, when dragging a part of this robe on the ground, appears as if possessed of an additional leg, or an enormous long tail.

RABBIT, HOODED. This creature has a double skin over the back, into which it can withdraw its head; and another under the throat, in which it can place its fore-legs. There are two holes in the loose skin of the back, which admit light to the eyes. The colour of the body is a palish yellow; and the head and ears are brown.

RABBIT, BRAZILIAN; the *Lepus Braziliensis* of Linnæus. This animal has very long ears, black eyes, and a white ring round the neck. The face is of a reddish colour; the chin is white; the body is somewhat darker than that of the common hare; the belly is whitish; and there are scarcely the rudiments of a tail.

Some of these animals are destitute of the white ring about the neck. They inhabit Brazil and Mexico, living in the woods, but never burrowing. They are extremely prolific; and their flesh is esteemed excellent food.

RABBIT, BAIKAL. The fur of this animal is of the colour of the common hare, except that it is red about the neck and feet; and the tail is long, black above, and white beneath.

This creature, which is larger than the common Rabbit, inhabits the country beyond the Lake of Baikal.

RABBIT, CAPE; the *Lepus Capensis* of Linnæus. This species, called also the mountain-hare, has long ears of a rose-colour; the head and back are dusky, mixed with tawny; the cheeks and sides are cinereous; the breast, belly, and legs, are rust-coloured; and the tail, which is bushy, and carried upright, is of a pale ferruginous colour.

RABCHORCADO. An American bird, described by Nieremberg with so many fabulous circumstances, that it is impossible to determine unto what genus of the feathered tribe it properly belongs.

RABOLANE. An appellation by which some naturalists express the lagopus, a bird found in mountainous countries; more generally called the white partridge.

RACCOON; the *Ursus Lotor* of Linnæus. This animal, which some authors denominate the Jamaica rat, is about the size of a small badger. The body is short and bulky; the nose is black and sharp-pointed; the ears are short and rounded; and the eyes are encircled with two broad patches of black. The upper jaw is longer than the under;

der; a dusky line extends from the forehead to the nose; the face, cheeks, and chin, are white; the upper part of the body is covered with hair, ash-coloured at the root, whitish in the middle, and tipped with black; the tail is very bushy, and annulated with black; the toes are black, and quite divided; and the fore feet, which are shorter than the hinder, are both armed with five sharp claws, with which and it's teeth it makes a vigorous resistance when attacked.

This animal, like the squirrel, uses it's paws to hold it's food while eating: but it differs from the monkey kind, which use but one hand on these occasions; because, being furnished with a thumb, of which the Raccoon is destitute, one paw is sufficient for grasping or holding.

Though the Raccoon is short and bulky, it is nevertheless extremely active. It's pointed claws enable it to climb trees with great facility: it runs on their trunks with the same swiftness that it moves on the plain; and sports among the extreme branches with great agility, security, and ease. It's progressive motion is performed by bounding; and though it proceeds in a kind of oblique direction, it generally out-runs it's pursuers.

These animals inhabit the southern parts of America: they are never found in the ancient continent; but, in the climates where they reside, they are prodigiously numerous; particularly in Jamaica, where they lodge in the mountains, and only descend to commit depredations on the plantations of sugar-canes. The planters of that island, who consider them as a very great nuisance, have invented various methods of destroying them; but still the breed is so plentiful, that neither traps nor fire-arms can extirpate them. But though they are highly injurious to the labours of industry when wild, in a domestic state no animals are more harmless or amusing; and they are capable of being instructed in several little tricks which divert their owners. They are sportive and cleanly, and feed on whatever is offered them: nor can any cat be a better provider; they examine every corner for vermin; and, if left at liberty in a garden, neither snails, worms, beetles, nor other insects, can escape them. However, they shew a particular fondness for sweets of every kind; and, in order to be possessed of these in a wild state, they incur every danger. Though they will eat their provisions dry, they are apt to dip them in water whenever opportunity serves: and they have one peculiarity which few other animals are found to possess; in drinking, they both suck up their liquor like the horse and lap it like the dog with equal facility.

RAHAS. A name by which some naturalists express the torpedo or cramp-fish.

RAIA. A distinct genus of animals, of the general order of nantes, in the Linnæan system: the distinguishing characters are; that the body is flattened; that the mouth is placed under the head; and that there are five bronchial apertures on each side of the neck underneath.

According to Artedi, the characteristics of this genus of fishes are; that they are of the chondropterygious kind; the apertures of the bronchiæ are five on each side, situated on the breast a little below the mouth; the head and whole body are of a remarkably depressed figure; the sides are terminated in broad fins; the eyes are placed in the upper side of the head, and the mouth ge-

nerally in the lower; and there is a foramen on each side of the head behind the eyes.

There are nine species of this genus, five with sharp, and four with obtuse teeth. See **RAY**.

RAIL, OR WATER RAIL; the *Rallus Aquaticus* of Linnæus. This bird has a long, slender body, with short concave wings; the bill is slender, slightly incurvated, and about one inch and three quarters long; the upper mandible is black edged with red, the lower orange-coloured; and the irides are red. The head, the hind part of the neck, the back, and the coverts of the wings and tail, are edged with an olive brown; the base of the wing is white; the quill-feathers and secondaries are dusky; the throat, breast, and upper part of the belly, are ash-coloured; and the sides under the wings are beautifully variegated with black and white bars. The tail, which is very short, consists of twelve black feathers; the tips of the two central ones are rust-coloured; and the under coverts of the tail are white. The legs are placed far behind; the toes are very long, and divided at their origin; nevertheless, the Rail takes the water, swims with great facility, and is often observed to skim along the surface.

This bird is less ambitious of flying than running, which last it does very swiftly along the margins of streams. Pennant says that the Water Rail is properly *sui generis*, agreeing with no other tribe; though Brisson and Linnæus place it with the Land Rail, and Ray with the water-hen. It's flesh is much admired.

RAIL, LAND; the *Rallus Crex* of Linnæus. This bird, which is common in the Hebrides, the Orkneys, and other parts of Scotland, is migratory, leaving this kingdom before winter. It has a strong, short, thick bill; long legs; and a singular note, resembling the word *Crex* often repeated. The crown of the head, the hind part of the neck, and the back, are black, edged with bay; the coverts of the wings are of the same colour, but not spotted; the tail is short, and of a deep bay; the belly is white; and the legs are cinereous.

These birds are also very numerous in Anglesea, where they appear about the 20th of April; and are supposed to come from Ireland, in which island they abound.

RAIL, CEYLONESE. This species is about the size of the common kind: the bill is lead-coloured; the head, neck, and breast, are ferruginous; the back and coverts of the wings are brown; the primaries are dusky; the belly is white, transversely barred with black; and the tail is very short, and of a brownish colour.

RAIL, OF LOTEN. This bird, which was first described from the collections of Governor Loten, is a native of Ceylon, and considerably larger than the European bird of the same name. The bill is red; the head is dusky; the neck, the upper part of the back, and the tail, are ferruginous; the coverts of the wings are also ferruginous; and the primaries are black. The breast, belly, and under-side of the neck, are of a light reddish clouded brown hue; and the legs are red.

RAIN-FOWL. An English appellation given by many authors to the common green woodpecker, or *picus viridis*, from an observation that it is always most clamorous before the approach of rainy weather. For the same reason

the Latins have denominated this bird the *pluvialis avis*.

RALLUS. A genus of grallæ in the Linnæan system: the characters of which are; that the bill is slender, a little compressed, thicker at the base, and smaller towards the apex, with a slight incurvation; the nostrils are ovated; the feet have four divided toes; and the body is compressed. There are ten species of this genus.

RAM. The male of the sheep kind. See **SHEEP**.

RANA. A classical appellation for the frog. See **FROG**.

RANA ARBOREA. A term by which many authors express the tree-frog.

RANA PISCATRIX. See **ANGLER** and **SEA-DEVIL**.

RANUNCULUS VIRIDIS, the Tree-Frog. An animal, generally reputed of a poisonous nature, common in many parts of the world, and easily distinguished from the common kind by being much smaller and of a green colour. It usually sits on the leaves of trees and shrubs, making a noise more resembling the singing of a bird than the croaking of a frog.

RAPACIOUS ANIMALS. A term by which naturalists express such animals as subsist on prey. When applied to birds, it includes the accipitres of Linnæus: the distinguishing characters of which are; that the head is large, and the neck short; that the beak and talons are hooked, strong, and sharp-pointed, adapted for tearing flesh; that the thighs are strong and brawny; that the tongue is broad and fleshy; and that the tail-feathers are twelve in number.

Rapacious birds have membranous stomachs; are extremely quick-sighted; and in general solitary.

RAPAX. An appellation by which Schoneveldt expresses the *corvus piscis* of some naturalists; a species of chub or cyprinus; called Rappe by the Germans; and by Gesner, *Capito Fluviatilis Rapax*.

RAPHIDIA. A genus of four-winged flies, of the neuroptera kind. The distinguishing characters of which are: the head is corneous, depressed, and furnished with two teeth; the feelers are four in number; the stemmata are three; the wings are deflexed; the thorax is cylindrical; and the tail is armed with a weapon of a slender form, sharp, horny, and single.

RAPPE. An appellation given by some naturalists to the *fluviatilis rapax* of Gesner, more frequently known by that of *corvus piscis*.

RASPECON. A name by which some authors express the *uranoscope* or star-gazer.

RAT. A well known animal of the order of glires, of which there are several species.

RAT, COMMON; the *Mus Rattus* of Linnæus. If we consider animals in a philosophic light, from the largest to the smallest, from the enormous elephant to the diminutive mouse, we shall discover that we suffer greater injuries from the contemptible meanness of the one than the formidable invasions of the other. Man can oppose united strength and art against the lion, the elephant, and the rhinoceros: these he has sometimes driven into their native solitudes, and compelled to keep their distance in the most inhospitable climates and sterile tracts; but no force can be exerted against the unresisting timidity of the feebler animals, no arts can diminish their astonishing increase; legions of Rats may be destroyed almost

instantaneously, yet their loss is scarcely felt, and quickly repaired. Nature, though she has denied them strength, has supplied them with numerous means of escape; and, to compensate for numerous enemies, has endued them with unbounded fecundity.

The Rat is indeed the most pernicious of all the smaller quadrupeds: our food, drink, cloaths, furniture, and every conveniency of life, is a prey to this destructive creature; and it makes equal havock among our poultry, rabbits, and game. Being a domestic animal, always residing in houses, barns or granaries, and Nature having furnished it with prodigious strong teeth, it can penetrate the hardest wood, or the most solid mortar. It's temporary residence, or nest for it's young, is usually in some hole near the chimney; and when intended for the latter purpose, it renders it warm and commodious with purloined rags, hay, straw, and wool.

The Rat breeds several times in the year, and usually brings forth six or seven young at a time. It's fecundity frequently overstocks it's abode; in which case a scarcity of food usually compels the strongest animals to devour the weaker. Happily for mankind, this unnatural disposition prevents them from attacking the human species, though instances might be produced of their having gnawed infants when asleep.

The weasel is one of the most powerful and successful enemies of the Rat: it possesses more agility than the cat; and, from the slender form of it's body, being enabled to pursue it through all it's retreats, destroys more of these vermin than the combined force of men and other animals can effect. The Norway Rat also, since it's introduction into this country, has considerably thinned the numbers of the common kind, and in many places almost extirpated them.

As the common Rat, though so universally known, will probably become extinct in a few ages, a description of it may therefore be the more necessary. It's length, from the nose to the tail, is about seven inches; and the tail nearly eight. The nose, which is sharp-pointed, is furnished with long whiskers; the colour of the head, and the whole upper part of the body, is a deep iron grey, bordering on black; the throat and belly are of a dirty white, inclining to grey; and the feet and legs are of a dirty pale flesh-colour, almost destitute of hair. The tail is covered with small dusky scales, mixed with a few hairs, which increases the natural deformity of this detestable creature. The fore feet want the thumb or interior toe, having only a claw in it's place; and the hind feet are furnished with five toes each.

The Europeans first introduced these animals into America about the year 1544, which are now become the pest of all that continent. They were formerly so great a nuisance in this kingdom, that the sovereign of England had a Rat-catcher belonging to his household; which office is still continued, though it's necessity no longer exists. The habit of this officer is as singular as his employment is ridiculous; being red embroidered with yellow worsted, and decorated with the figures of mice destroying wheat-sheaves.

RAT, NORWAY; the *Surmulot* of Buffon. This animal, which made it's first appearance in England about fifty years ago, burrows in the banks of rivers, ponds, and ditches; takes the water very readily; and swims and dives with great celerity. It does incredible damage to those mounds which

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are raised to prevent inundations. It forms its hole very near the edge of the water, where it chiefly resides during the summer, feeding on small animals, fish, and grain. When winter approaches, it draws near some farm-house, and burrows in the corn, where it consumes much, but wastes more. In short, nothing eatable escapes its voracity. It destroys rabbits, poultry, and all sorts of game; and scarcely any of the feebler animals can escape its rapacity, except the mouse, which finds protection in its little hole, where so large an enemy can by no means enter.

Buffon and Goldsmith assert that Rats frequently bring forth from fifteen to thirty at a time; but Pennant limits the number to eighteen. Their bite is not only severe, but dangerous; the wound being immediately succeeded by a large and painful tumefaction, which requires a considerable time before it can be healed. They are sometimes so daring as to turn on their pursuers, and endeavour to fasten on the stick or hand of the person who attempts to molest them.

The head, back, and sides, of the Rat, are of a light brown colour, mixed with tawny and ash; the breast and belly are a dirty white; the feet are naked, and of a dull flesh-colour, the fore ones being furnished with four toes, and a claw instead of the fifth. The length, from the nose to the tail, is about nine inches; and the tail is about the same length.

This animal differs principally in colour and size from the black, or common Rat, as it is generally called, though now no longer common. This new invader, possessing superior strength, has found means to destroy almost the whole species, and to occupy their retreats.

Indeed, not only the black Rat, but all other animals of inferior strength, were obliged to submit to the rapacity of the Norway Rat. The frog was utterly incapable of combat or defence. It had been intentionally introduced into Ireland, some years before the arrival of the Norway Rat, and began to multiply exceedingly. The natives were pleased with the addition of this harmless animal to the zoology of their country: it served to rid their fields of insects; and, as they imagined, contributed to render their waters more salubrious. But the Norway Rat soon put a period to its propagation; for, being of an amphibious nature, it pursued the frog to the watery element, and seized it as its prey. Frogs are therefore said to be once more become almost extinct in that kingdom; and the Norway Rats, having fewer animals to destroy, and consequently a more scanty provision, are also grown less numerous.

The prodigious increase of these animals would speedily over-run the whole country, did they not destroy each other. The large male Rat generally keeps in a hole by itself, and is dreaded by its own species as their most formidable enemy. Thus are these pernicious creatures kept within due bounds; and that their fecundity may not prove incommodious to mankind, it is repressed by their own rapacity.

All the stronger carnivorous animals entertain a natural antipathy against these Rats. The dog, though he detests their flesh, pursues them with alacrity, and attacks them with great animosity. Such dogs as are habituated to the destruction of these vermin, dispatch them with a single squeeze; but novices, which generally hesitate, are sure to

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prove sufferers. The Rat always takes advantage of a momentary delay; and, instead of waiting for the attack, becomes the aggressor, seizing its enemy by the lip, and often inflicting a dangerous wound.

Cats are also great destroyers of Rats; and yet many are afraid either to assault them, or, when killed, to feed on them. Some indeed will pursue and seize the Rat, though they often meet with a vigorous resistance. When very hungry, the cat will sometimes eat the head; but generally contents itself with the victory. The weasel, however, is one of the Rat's most dangerous foes, from which it cannot easily escape; and man himself has contrived a variety of expedients to reduce the number of these ungrateful intruders.

When animals are either entirely useless or inimical; when they either increase our terrors, or subsist on our industry, without any grateful returns; mankind have ever deemed it salutary to study the most effectual means of their destruction: rewards have been proposed to stimulate ingenuity; and the arts of individuals have sometimes proved beneficial to the community. Most people know by experience what detriment is received from the animals now under consideration; and therefore it is hoped the following receipts for their destruction will be as acceptable as any part of their history.

The Dublin Society gave a premium, in 1762, to a person of the name of O'Hara, for this prescription: Take one quart of oatmeal, four drops of rhodium, one grain of musk, and two nuts of nux vomica, finely rasped. Form this mixture into pellets, and lay it in the holes and places which the Rats frequent.

Another celebrated receipt. Take of the seeds of staves-acre, or louse-wort, powdered, one fourth part; and of oatmeal three parts: mix them well, and make them up into a paste with honey. Lay pieces of it in the holes and places frequented by Rats or mice, and it will infallibly kill such of them as are tempted to eat it.

However, Rat-catchers have adopted more compendious methods of destroying numbers at once. To effect this, their first object is to draw the Rats of any house to one proper situation, before they attempt to molest them; for there is such an instinctive caution in these animals, accompanied with such a surprising sagacity in discovering the most distant approach of danger, that if any of them are injured, or pursued in an unusual manner, the rest take the alarm, and become so very shy and wary, that they elude all the devices and stratagems of their pursuers for a considerable period afterwards. This place, where the Rats are to be assembled, should be a small room, into which all the avenues may be secured; and it should be situated as nearly as possible to the centre of the building.

Various means are used to allure these animals to a desired place. One of which, very easily and efficaciously practised, consists in trailing some pieces of their most favourite food (which should be of that kind which emits the strongest scent, such as toasted cheese, or broiled red herrings) from their holes or entrances to their accesses in every part of the house, or contiguous buildings, whence it is intended to draw them. At the extremities, and in different parts of the course of this trailed track, small quantities of meat, or some favourite food, should be laid, in order to bring

bring the greater number into their tracks, and to encourage them to pursue it to the central place, where they are intended to be taken. At that place, when time admits, a more plentiful repast should be laid for them; and this trailing may be repeated for two or three nights.

Besides this method of trailing, some experienced Rat-catchers have adopted a shorter, and perhaps more effectual method of collecting these vermin; namely, the calling them by a kind of whistling resembling their natural voice; and by this means, with the assistance of way-baits, they draw them out of their holes, and lead them to the repast prepared for them at the place designed for their capture. But this is much more difficult to be practised than the art of trailing; for, to acquire the exact notes of any animal so as to deceive it, is not very easily attained.

In attempting either of the foregoing methods, great caution must be used by the operator to suppress and prevent the effluvia of his feet and body from being perceived; which is effected by overcoming that scent by others of a stronger nature. In order to this, the feet should be wrapped in cloths impregnated with assafoetida, or other strong-smelling substances; and even oil of rhodium is sometimes used for this purpose, but sparingly on account of its dearth, though it has a very alluring as well as disguising effect. If this caution of avoiding the scent of the operator's feet, near the track, and in the place where the Rats are intended to be collected, be not properly observed, it will essentially obstruct the success of the pursuit; for they are very shy of coming where that scent is perceptible, as it intimates to their sagacious instinct the vicinity of the human species, whom they naturally dread.

When the Rats are thus enticed and collected, if time permits, and the whole number is intended to be destroyed, they are suffered to regale on what they like best, and then to go away without molestation, for two or three nights together; by which means those Rats which are not allured the first night, are brought afterwards, either by their fellows, or the effects of the trailing. But many Rat-catchers are unwilling to delay their operations so long, and therefore content themselves with what vermin can be drawn together in one night or two; but this never proves effectual, except where the building is small and entire, and the Rats but few in number.

Various methods are used to secure these creatures when brought into one company. Some entice them into a very large bag, the mouth of which is sufficiently capacious to cover nearly the whole floor of the place where they are collected; and this is accomplished by smearing some vessel, placed in the middle of the bag, with oil of rhodium, at the same time laying baits of their favourite food within the bag: this bag, which before lay flat on the ground, with its mouth spread open, is suddenly closed on the Rats. Others drive or frighten them by slight noises or motions into a bag of a long form; the mouth of which, after all the Rats have got in, is drawn up to the opening of the place by which they entered, every other avenue being secured. Others again intoxicate or poison them, by mixing with their repast the coculus Indicus, or nux vomica. A receipt for this purpose has been published, which directs four ounces of the coculus Indicus, with twelve of oatmeal, and two of treacle or honey,

made up into a moist paste with strong beer: but if the nux vomica be used, a much less proportion will serve than is here given of the coculus. Any similar composition of these drugs with that species of food which has a strong flavour, and is generally admired by the Rats, to conceal the nature of the drugs, will be equally efficacious. If indeed the coculus Indicus be well powdered, and infused in the strong beer for some time, at least half the quantity here directed will suffice as well as the whole. When the Rats appear to be thoroughly intoxicated with the coculus, or sick with the nux vomica, they may be taken with the hand, and put into a bag or cage; the door of the place being first shut, lest any should have strength and sagacity enough remaining to make their escape.

RAT, WATER; the *Mus Amphibius* of Linnæus. This animal is nearly as large as the Norway Rat, but has a larger head, a blunter nose, and smaller eyes. Its ears are very short, and almost hid in the fur; and the tip of its tail is whitish. Its head and back are covered with long black hair, and its belly with iron grey.

This creature somewhat resembles the beaver; which induced Linnæus, in the first edition of his *Fauna Suecica*, to denominate it *Castor Cauda Lineari Tereti*. It is very expert at swimming and diving; and was supposed, both by Ray and Linnæus, to be web-footed; but this has been found to be a mistake, its toes pretty much resembling those of its kind. It is a native of Europe and North America. It never frequents houses; but generally resides near the margins of rivers, ditches, and ponds, where it burrows and breeds, usually bringing forth about six at a time. It feeds on frogs, small fish, roots and insects; and is itself the prey of the pike.

This animal and the otter are permitted to be eaten in France on maigre days.

RAT, MOUNTAIN. See **MARMOTTE**.

RAT GOOSE. An appellation given by some naturalists to a small species of wild Goose, common in some of the northern counties of England. See **GOOSE**.

RAT-TAILED WORMS. A species of flying Worms with long tails resembling those of Rats, whence they receive their name. They are of several sizes, and are found in different countries; but all change into two-winged flies, having a strong similitude to bees; and are therefore commonly called bee-flies.

RATEL; the *Viverra Ratel* of Sparman. A name whereby the Hottentots express an animal of the weasel kind which inhabits the country near the Cape of Good Hope, feeds on honey, and is extremely destructive to bees. It has a blunt black nose; no external ears, but a small rim round the orifice; a rough tongue; short legs; and very long claws, which are straight like those of the badger, and canulated beneath. The colour of the forehead, crown, and the whole upper part of the body, is a cinereous grey; the cheeks and space round the ears, throat, breast, belly, and limbs, are black; and a dusky line extends from each ear to the tail along the sides, beneath which there is another of grey. The length, from the nose to the tail, is forty inches; and the tail is twelve.

This animal preys in the evening; ascends the highest parts of the desert for the benefit of a view; and then puts one foot before its eyes, to prevent

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prevent the dazzling of the sun. The reason of it's seeking an eminence is for the sake of seeing or hearing the honey guide cuckow, the cuculus indicator, which lives on bees, and as it were leads the way to their haunts.

The Ratel is incapable of climbing; and therefore, when the bees are lodged in trees, it tears the bark from their bottoms through rage and disappointment; by which sign also the Hottentots are certified that there is a nest of bees above.

The hair of this animal is very stiff; and the hide so tough, that it is not easily killed. It makes a stout resistance by biting and scratching; and dogs cannot easily fasten on it's skin: a pack which could tear a moderate-sized lion to pieces, can make no impression on the hide of this beast; and though they frequently worry it to death, they never leave any apparent wounds.

This seems to be the Stinkblincom of Kolben, which he characterises as emitting a most noisome stench.

RAT-SHER, OR ALDERMAN. An appellation given by Martin to a species of gull or mew.

RATTLE-SNAKE. A very formidable and poisonous reptile; a native of the New World only, being wholly unknown in the Old. It is sometimes found as thick as a man's leg, and six feet in length; but the most usual size is from four to five feet long. It resembles the viper in most particulars: like that animal, it has a large head, and a small neck; it's colour also is dusky; and it's fangs inflict the most terrible wounds. It differs, however, in having a large scale pendulous over each eye; and the eye also is furnished with a nictitating membrane, which preserves it from dust. It's scales are pretty hard; of an orange, tawny, and blackish colour, on the back; and of an ash-colour on the belly, inclining to lead. The male may be easily distinguished from the female by a black velvet spot on the head, and by the head itself being longer and more slender. But, exclusive of their superior malignity, that which more particularly distinguishes these from all other animals, is their Rattle; an instrument lodged in their tails, by which they make such a loud noise when in motion, that their approach may be readily perceived, and consequently the danger avoided. This Rattle, when separated from the tail, somewhat resembles the curb-chain of a bridle; and is composed of several thin, hard, hollow bones, linked together, and rattling on the slightest motion. Some are of opinion that the Snake acquires an additional bone every year; and that by this means it's age may be precisely ascertained: however this may be, certain it is that the young Snakes of a year or two old are destitute of Rattles; while many old ones have been killed which had eleven or thirteen joints each. These Rattles are shaken with prodigious noise and rapidity when the animals are disturbed; and then most creatures tremble at the sound, and instantly provide for their safety in flight. The vulture and the peccary, however, rejoice at this signal; hasten to their favourite prey; and seize the Snakes with the utmost alacrity.

The case is widely different with regard to almost every other animated being. The certain death which ensues from the bite of this terrible reptile creates a kind of solitude wherever it is heard. It moves along with the most majestic rapidity, neither offering to offend the larger ani-

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mals, nor appearing apprehensive of their insults. Unprovoked, it never annoys any creature but it's natural prey; but, when accidentally trod on, or pursued, it then makes a dreadful and desperate defence: it erects itself on it's tail, throws back it's head, and inflicts it's wound in an instant; then parts, and meditates a second wound; after which, if we may credit some authors, it remains torpid and inactive, without even attempting to escape.

The moment this wound is inflicted, though seemingly trivial, it is considerably more painful than the sting of a bee: this pain, far from abating, becomes every moment more excruciating and dangerous; the affected part swells; the venom soon reaches the head, which assumes a monstrous appearance; the eyes appear red and fiery; and the heart beats quick, with frequent interruptions. The pain soon grows insupportable; and some expire under it in five or six hours; but such as have stronger constitutions, survive the agony a few hours longer, but only to yield to an universal mortification, which quickly contaminates the whole frame.

A Virginian gentleman, walking in his fields, accidentally trod on a Rattle-Snake that had been lurking in a stony situation; which, enraged by the pressure, reared up it's head, bit his hand, and shook it's Rattles. The gentleman immediately perceived his dreadful situation; but, determined not to die unrevenged, he killed the Snake, and carrying it home in his hand, threw it on the ground before his family, crying out, 'I am a dead man! here is my murderer!' His arm (in which the swelling had already commenced) was instantly tied up near the shoulder; the wound was anointed with oil, and every precaution used either to check or extract the infection. Having a very sound constitution, he recovered, but not without experiencing the most various and dreadful symptoms for several weeks successively. The arm, below the ligature, appeared of various colours, with a writhing among the muscles, that to his terrified imagination represented the very motions of the animal which inflicted the wound. A fever ensued, the loss of his hair, giddiness, drought, debility, and nervous faintings; till, by slow degrees, a very strong habit co-operating with medicinal applications, expelled the latent malignity.

Several remedies have been tried to alleviate this calamity: a decoction of the Virginian Snake-root is considered as the most efficacious; and, at the same time, the head of the reptile bruised, and laid on the part affected, is judged to assist the cure. In general, however, it is found to be fatal; and the Indians, sensible of this, frequently dip their arrows in the poison lodged under the fangs of this terrible creature, when their savage disposition excites them to execute any signal revenge on their enemies.

Thus far the history of this animal is unanimously confirmed by every naturalist: but the subsequent accounts, though in general credited, are not so well ascertained. First, it's motion, which some describe as the swiftest imaginable; asserting, that it's Indian appellation *Ecacoal*, or the wind-serpent, is to be understood of it's wonderful agility: while others affirm, that it is the slowest and most sluggish of all serpents, and seldom moves from it's place. In this opposition of opinions, there are others who assert, that it moves

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but slowly on level ground; but, when among rocks, that it goes at a prodigious rate. However, if we may argue from analogy, the opinion of those who contend for its slow movement seems the most probable, as the viper, which it so nearly resembles, is remarkable among serpents for its sluggish motions.

But leaving the consideration of this quality to future observers, we proceed to a peculiarity some authors ascribe to the Rattle-Snake, namely, that of charming its prey into its mouth; which some very flatly deny. The inhabitants of Pennsylvania, however, are said to have opportunities of observing this fascination every day: the Snake is often seen basking at the foot of some tree where birds and squirrels take up their residence; there, coiled on its tail, its jaws extended, and its eyes gleaming like fire, it levels its dreadful glance at one or other of the little animals above. The bird, or squirrel, too plainly perceives the meditated mischief, and hops from branch to branch with a timorous, plaintive sound, wishing to avoid, yet incapable of breaking through the charm: thus it continues for some time its feeble efforts and complaints, but is still seen approaching lower and lower towards the bottom branches of the tree; till at last, as if vanquished by the potency of its fears, it jumps down from the tree directly into the throat of its hideous destroyer.

In order to ascertain the authenticity of this wonderful quality, a mouse was put into a large iron cage wherein a Rattle-Snake was kept, and the effect carefully observed: the mouse remained motionless at one end of the cage; while the Snake continued fixed at the other, with an eye glaring full on the timid animal, and its jaws opened to their widest extent. The mouse, for some little time, appeared eager to escape; but every effort served only to increase its terrors, and to draw it still nearer the enemy; till, after several ineffectual attempts to break the fascination, it was observed to run directly into the mouth of the Snake.

To the above relations the incredulous oppose their apparent improbability; and assert, that such a power ascribed to serpents is only a relic of a vulgar error, by which it was supposed that these creatures themselves could be charmed at the same time that they possessed the power of charming: they aver, that animals are so far from running down the throat of the Rattle-Snake when in captivity, that the reptile will not then eat any thing, but actually dies for want of subsistence. Perhaps this scepticism is only an effect of that modern philosophy which doubts of every thing that cannot be solved by human reason; and where that sort of evidence cannot be procured, denies the fact, to discharge the argument. That there is a particular effluvia of the eye in man, as well as in irrational animals, which is capable of a kind of fascination, has been admitted by many who abjure the marvellous, and are by no means the dupes of a blind credulity: may not the Rattle-Snake then possess a quality in a superior degree proportioned to its malignity, which is at least sensibly felt in other creatures?

RAUCA AVIS. A bird of the halcyon kind, described by Nieremberg as frequenting the American rivers and lakes. It is almost as large as a duck. The crown of the head is black; and the breast and belly are white. The neck is naturally very long in proportion to the body; yet it

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may be occasionally contracted in a wonderful manner. The flesh is said to be proper for food.

Ray has classed this bird among those of whose existence he is doubtful; nor have succeeding naturalists cleared up the subject.

RAVEN; the *Corvus Corax* of Linnæus. A bird of the crow kind, considerably larger than the carrion crow or the rook; and not only distinguished from them by its size, but also by its bill, which is somewhat more hooked than that of either of the other two. Its weight is about three pounds; its length is upwards of two feet; the expansion of its wings is rather more than four; and its bill is strong and thick. The colour of the whole bird is black, finely glossed with deep rich blue, except on the belly, where it is dusky.

The Raven inhabits every region of the world; for, being naturally strong and hardy, it is very little influenced by the changes of weather. It bears with equal indifference the heat of the line and the cold of the polar climates. While other birds seem benumbed with cold, or pining with famine, the Raven continues active and healthy; busily employed in prowling for prey, or sporting in the coldest atmosphere. Though 'Black as a Raven,' is proverbial, yet this bird is sometimes found pure white, owing perhaps to the rigorous climates of the north: this change is wrought on the Raven, as on most other animals in that part of the world, where their cloathing, especially in winter, assumes a colour suitable to the country they inhabit.

The Raven is sufficiently docile in whatever is within the compass of any bird's abilities. He may be instructed in the art of fowling, like the hawk; like the spaniel, be taught to fetch and carry; and even to speak like the parrot. Dr. Goldsmith assures us that he may be brought to imitate any vocal music: 'I have heard,' says he, 'a Raven sing the Black-joke with great distinctness, truth, and humour.'

Considered as a domestic bird, the Raven possesses many qualities which render him extremely amusing: active, curious, and impudent, he goes every where; pries into every thing; runs after dogs; plays tricks with poultry; and with great skill and address insinuates himself into the favour of the cook-maid, sensible of her ability to reward him for his attachment and attention. By nature a glutton, and by habit a thief; not confined to petty depredations on the pantry or the larder, like a miser, he hoards what he can neither exhibit nor enjoy: a ring, a tea-spoon, a piece of coin, or any glittering bauble, are always tempting baits to his avarice; these he will watch opportunities to pilfer, and carry them to his magazine of curiosities.

In a state of nature, the Raven is a most voracious plunderer. He is by no means delicate in the choice of his food: whether his prey be living or dead, he greedily devours it; and, after having sufficiently gorged himself, flies to acquaint his companions, that they may participate of the spoil. If the carcase should happen to be already in the possession of a fox, a dog, or any other animal more powerful than himself, he usually sits at a little distance, a patient spectator, till the creature is satisfied. If he can discover no carrion, which from his exquisite scent he can smell at a vast distance, he then contents himself with

with fruits, insects, and the accidental produce of the dunghill.

Ravens usually breed in trees, and lay five or six eggs of a palish green colour spotted with brown. They generally abound in the environs of large cities and towns; and are held in the same kind of veneration as vultures in Egypt, and for the same reason; because they devour those carcases, and that filth, which would otherwise prove inimical to health, as well as offensive to the smell. However, they are not found in the neighbourhood of towns alone; they often build in unfrequented situations, and expel all other birds from their vicinity: they will not even suffer their young to remain in the same district, but oblige them to depart as soon as they are able to provide for themselves. Martin, in his Description of the Western Isles, assures us, that there are three little islands among the number, each of which is occupied by one pair of Ravens, who will not permit any other birds to reside among them.

A kind of respect has always been paid to the Raven by the vulgar, from its having been appointed by Heaven to feed the prophet Elijah when he fled from the wrath of Jezebel. The Romans, who deemed this bird ominous, paid to it the most profound veneration from motives of superstitious fear. Linnæus informs us, that the Swedes regard Ravens as so sacred, that none of the natives ever attempt to molest them. In the southern parts of that country, they fly to a great height when the weather is serene; at which times they utter a very singular cry, which may be heard at a considerable distance.

Pliny informs us that a Raven, which had been kept in the Temple of Castor, flew down into the shop of a taylor; who was so highly pleased with the visit of his new acquaintance, that he taught him several tricks; as also to pronounce the name of the Emperor Tiberius, with the names of the whole royal family. He was beginning to grow rich, from the presents he received of those who came to see this wonderful bird; when an envious neighbour killed the Raven, and deprived the taylor of all hopes of a future golden harvest. The Romans, however, punished the offender, and honoured the Raven with a magnificent funeral.

The Raven is the most remarkable of all birds for its longevity. But though we cannot give implicit faith to what Hesiod asserts, namely, that one of these birds will live nine times as long as a man, yet it is certain that some of them have been known to live one hundred years. Indeed, if constant exercise, and a good appetite, be conducive to longevity, the Raven enjoys both in a superlative degree.

The ancients consecrated the Raven to Apollo, because it was supposed to possess a natural instinct to foretel future events.

RAVEN, NIGHT. An English appellation for a species of heron which flies in the night-time, and makes a very singular hoarse noise. It has been applied by some authors to the bittern, or *ardea stellaris*; but improperly, as it certainly should be appropriated to the *ardea cinerea* minor, or small grey heron.

RAVEN, SEA. A name by which some naturalists express the corvorant or cormorant.

RAVEN FISH. The mouth of this fish bears some similitude to a bird's bill: the body is about

a span long; the back and tail are red; the belly is inclining to yellow; and there are two yellow streaks on each side. The flesh is firm, and wholesome. This fish is a native of the Oriental Seas.

RAY. A genus of cartilaginous fishes, with a broad, flat, thin body; five apertures on each side placed beneath; and the mouth situated quite below.

The whole of this kind bear a strong resemblance to each other in their figure; nor is it easy, without some experience, to distinguish them. The stranger to this dangerous tribe may imagine he is only handling a skate, when he is instantly benumbed by the torpedo; and he may suppose he has caught a thornback, till he is stung by the fire-flaire.

All fish of the Ray kind are broad and cartilaginous; swim flat on the water; and have spines on different parts of their bodies, or at their tails. The eyes and mouths of all of them are placed quite under their bodies, with apertures for breathing either about or near them. They all have teeth, or at least rough bones which answer the same purposes. Their entrails are widest towards their mouths, gradually diminishing to their tails; and even their tails are very different from those of other fishes, always terminating in bunches or points. But the most distinguishing peculiarity of the Ray kind is their prickles, which the different species have on different parts of their bodies: some are armed with spines both above and below; others have them on their upper parts only; some have their spines at their tails; some have triple rows of them; while others have them single. In some species, these spines are comparatively soft and feeble; but, in others, they are strong and piercing: the smallest generally incline towards their tails, and the largest towards their heads.

It is by their spines alone that these animals are distinguished from each other. The skate is rough on the middle of the back, and has a single row of spines on the tail. The sharp-nosed Ray has ten spines near the middle of the back. The fuller, or rough Ray, has its spines indiscriminately dispersed over the whole back. The thornback has a triple row of spines on the back. The fire-flaire, or Sting-Ray, has one dangerous spine placed in the tail, about four inches from the body: this instrument, which is about six inches long, is of a flinty hardness; and the sides are thin, sharp-pointed, and closely and sharply bearded the whole length. While the torpedo is destitute of spines; but, in their room, is possessed of faculties the most extraordinary and potent in nature.

Such are the principal discriminations between these animals; which are as voracious as they are plentiful; and as dangerous to strangers as useful to those who can distinguish their differences.

These fish are the most numerous of all the larger ones of the sea; and, in some measure, they owe their numbers to their size. Excepting the white shark and the cachalot alone, there is no other fish which has a swallow large enough to admit them; and their spines make them still more dangerous morsels: yet the size of them is such, that even the shark himself is unable to devour them. Some have been caught on the British coasts which weighed upwards of two hundred pounds each. But this size is trifling when compared

compared to their enormous bulk in other parts of the world. Labat tells us of a prodigious Ray, speared by the negroes at Guadaloupe, that was thirteen feet eight inches broad, and above ten feet from the snout to the insertion of the tail. The tail itself was fifteen feet long; twenty inches broad at it's insertion, and tapering to a point. The body was two feet in depth; and the skin as thick as leather, and marked with spots. This enormous fish was deemed utterly unfit for an European banquet; but the negroes selected some of the nicest bits, and carefully salted them up, as favourite provision.

Large as the above may seem, it is very probable that we have only as yet seen the smallest of the kind. As they generally keep at the bottom of the sea, the greatest are seldom seen; and as it is possible they may have been growing for ages, the extent of their magnitude is unknown. It is however generally supposed, that they are the largest inhabitants of the deep; and, were we to credit Bishop Pontoppidan, there are some above a whole mile over.

The Ray-fish generally chuse such parts of the sea for their retreats as have a black muddy bottom: the large ones keep at the greatest depths; but the smaller approach the shores, and feed on such living animals as they can surprize, or whatever putrid substances fall in their way. Being naturally ravenous, they easily take the bait; but should it be taken up, and kept a day or two out of the water, they will not touch it. Indeed, almost all fish appear much more delicate in their choice of bait than of their ordinary food. By their motions, they seem to perceive the line, and to dread it: but the impulse of hunger is too powerful to admit of caution; and even though they perceive the danger, if sharp set, they swallow their destruction.

The Ray kind generate in March and April; at which times only they are seen swimming near the surface of the water, several males usually pursuing one female. In the act of coition they adhere so closely together, that the fishermen frequently draw up both together, though only one has been hooked. The females are prolific to an extreme degree, no less than three hundred eggs having been extracted from the body of a single Ray: these eggs are covered with a tough horny substance, which they acquire in the womb; for, before they descend into it, they are attached to the ovary pretty much in the same manner as in the body of a pullet. From this ovary, or egg-bay, as it is vulgarly called, the eggs drop one by one into the womb, and there receive a shell by the concretion of the organic fluids. When arrived at proper maturity, they are excluded, one or two at a time, and often at intervals of three or four hours. These eggs are usually first cast about the beginning of May, but the breeding season continues the greatest part of the summer. In October, when the whole quantity of eggs is excluded, the fishes become very poor and thin; but in November, they begin to improve, and gradually mend till May, when they are in the highest perfection.

Our fishermen take this kind chiefly in the winter season; but the indefatigable Dutch begin their operations earlier, and generally fish with better success than the British. The method practised by the fishermen of Scarborough is generally reckoned the best among the English:

with which, as succinctly related by Pennant, we here present our readers.

When they go to fish, each person is provided with three lines: each man's lines are fairly coiled upon a flat oblong piece of wicker-work; the hooks being baited and placed very regularly in the centre of the coil. Each line is furnished with two hundred and eighty hooks, at the distance of six feet two inches from each other. The hooks are fastened to lines of twisted horse-hair, twenty-seven inches in length.

When fishing, there are always three men in each coble; and consequently nine of these lines are fastened together, and used as one line, extending in length near three miles, and furnished with above two thousand five hundred hooks. An anchor and a buoy are fixed at the first end of the line, and one more at each end of each man's lines; in all four anchors and four buoys made of leather or cork. The line is always laid across the current. The tides of flood and ebb continue an equal time on our coast; and, when undisturbed by winds, run each way about six hours. They are so rapid, that the fishermen can only shoot and haul their lines at the turn of the tide; and therefore the lines always remain on the ground about six hours. The same rapidity of the tide prevents their using hand-lines; and therefore two of the people commonly wrap themselves in the sail, and sleep while the other keeps a strict look out, for fear of being run down by ships, and to observe the weather: for storms often rise so suddenly, that it is often with extreme difficulty they escape to the shore, though they leave their lines behind them.

The coble is twenty feet six inches long, and it's extreme breadth is five feet. It's burden is about one ton; and it is rowed by three pair of oars, being admirably constructed for the purpose of encountering a mountainous sea. They hoist sail when the wind suits.

The five-men-boat is forty feet long, fifteen broad, and twenty-five tons burden. It is so called, though navigated by six men and a boy; because one of the men is hired to cook, and does not share in the profits with the other five. All our able fishermen go in these boats to the herring-fishery at Yarmouth the latter end of September, and return about the middle of November. The boats are then laid up till the beginning of Lent, at which time they go off in them to the edge of the Dogger Bank, and other places, to fish for turbot, cod, ling, skates, and various other kinds. They always take two cobbles on board; and when they come on their ground, anchor the boat, throw out the cobbles, and fish in the same manner as those do who go from the shore in a coble; with this difference only, that here each man is provided with double the quantity of lines; and, instead of waiting the return of the tide in the coble, they return to the boat, and bait their other lines; thus hawling one set, and shooting another, every turn of the tide. They commonly run into the harbour twice a week, to deliver their fish. The five-men-boat is decked at each end, but open in the middle, and has two long sails.

The best bait for fish of all kinds is fresh herring cut in pieces of a proper size; and, notwithstanding what has been said to the contrary, they are taken there at any time in the winter, and all the spring, whenever the fishermen put down their

their nets for that purpose: the five-men-boats always take some nets for that end. Next to herrings are the lesser lampreys, which come all winter by land carriage from Tadcaster. The next baits in esteem are small haddocks cut in pieces, sand-worms, muscles, and limpets: and lastly, when none of these can be found, bullock's liver is used. The hooks employed are much smaller than those used at Iceland and Newfoundland. Experience has shewn, that the larger fish will take a living small one on the hook sooner than any bait that can be put on; therefore such are always used as the fish can swallow. The hooks are two inches and a half long in the shank, and nearly an inch wide between the shank and the point. The line is made of small cording, always tanned before it is put in use. All the Rays and turbot are extremely delicate in their choice of baits: if a piece of herring or haddock has been twelve hours out of the sea, and then used as a bait, they will not touch it.

Such is the method of catching these fish, which usually keep near the bottom, particularly on the English coasts; and Duhamel observes, that the best weather for succeeding is a half calm, when the waves are just curled with a silent breeze.

But the extent of line used in this country (though, as heretofore observed, sometimes three miles in length) is inconsiderable when compared with what the Italians throw out in the Mediterranean. Their fishing is carried on in tartanes, vessels considerably larger than any of ours. They bait a line generally no less than twenty miles long, with about ten or twelve thousand hooks; to which they give the appellation of *parafina*; and the fishing is known by that of *pielago*: this line is not regularly drawn every six hours, as with us, but is suffered to remain in the sea considerably longer, and then requires the space of twenty-four hours to draw it. By means of this prodigious apparatus they take Rays, sharks, and other fishes; some of which often weigh above a thousand pounds. When any of this enormous magnitude are caught, the fishermen strike them through with a harpoon, in order to get them on board, and then dispatch them with all possible expedition.

This method of catching fish is obviously both fatiguing and dangerous; but the value of the capture is generally adequate to the risk. The skate and the thornback are excellent food; and their size, which is from ten to two hundred pounds weight, compensates for whatever trouble and expence there may be in the acquisition. But it sometimes happens that the lines are visited by very unwelcome intruders, namely, the rough Ray, the fire-flaire, or the torpedo: to these the fishermen have a mortal antipathy; and, on discovering them, even shudder at the sight. However, they are not always so much on their guard, but that they sometimes experience the different resentments of this noxious tribe; and then, instead of a prize, they meet a vindictive enemy.

RAY, CLAVATED. See THORNBACK.

RAY, ELECTRIC OR SMOOTH. See TORPEDO.

RAY, FULLER; the *Raia Fullonica* of Linnæus. This species derives its name from that instrument which fullers use in smoothing cloth, the back being rough and spiny: the nose is short and sharp; there are a few spines at the angle of each eye; the nictitating membrane is fimbriated; and the teeth are small and sharp. On the upper

part of the pectoral fins there are three rows of spines pointing towards the back, and crooked; on the tail there are three rows of strong spines, the middle row extending up part of the back; and the tail is slender, and somewhat longer than the body. The upper part of the body is cinereous, usually marked with black spots; and the lower part is white. This fish is equal to the skate in size. At Scarborough, where it is very common, it is called the white hans, or gullet.

RAY, ROUGH; the *Raia Asteria Aspera* of Rondeletius. Pennant informs us that he caught this species in Loch Broom, in Scotland. Its length, from the nose to the tail, was two feet nine inches; and the tail was nearly of the same measure. The nose was short; before each eye stood a large hooked spine; and behind, another beset with smaller ones. The upper part of the body was of a cinereous brown colour mixed with white, spotted with black, and entirely covered with small spines. On the tail were three rows of large spines; besides which, it was interspersed in every part with smaller ones, irregularly disposed. The fins and the under side of the body were equally rough with the upper.

RAY, SHAGREEN. This fish, called also the French Ray, caught near Scarborough, is nearly equal in size to the skate. It is narrower than the more common Rays; the nose is long, and very sharp; the pupil of the eye is sapphire; there are two short rows of spines on the nose; on the corner of each eye there is a semicircular row; on the tail are two rows, continued a little way up the back, small, slender, and very sharp; and along the sides of the tail there is a row of minute spines, intermixed with innumerable little *spiculæ*. The upper part of the body is of a cinereous brown hue, closely set with minute shagreen-like tubercles, nearly resembling the skin of the dog-fish; and the under side of the body is white. The teeth are slender, and extremely sharp; and from the nose to the origin of the pectoral fins there is a tuberculated space.

RAY, SHARP-NOSED; the *Raia Oxyrinchus* of Linnæus. This fish sometimes measures seven feet in length, and upwards of five in breadth: the nose is long, slender, and sharp-pointed; the body is smooth, and very thin in proportion to the size; and the upper part is ash-coloured, marked with numerous white spots, and a few black ones. The tail is thick; towards the end there are two small fins; on each side there is a row of small spines; and in the middle a single row, which runs some way up the back. The lower part of the body is wholly white; and the mouth, which is large, is furnished with a number of small teeth bending inwards.

This fish has been supposed to answer the description of the *bos* of the ancients; which was unquestionably some enormous species of Ray, though we cannot pretend to determine the particular kind. Oppian stiles it the broadest among fishes; and adds an account of its predilection for human flesh; with its method of destroying men, by overlaying them till they are drowned. Philen gives us nearly a similar relation. And Ulloa confirms their description, giving the very same account of a creature found in the South Seas, the terror of those who fish for pearl: the natives term it *manta*, or the quilt, from its surrounding and enfolding the unfortunate diver till he is suffocated; therefore the negroes never descend

without a sharp knife, to defend themselves from the attacks of this formidable animal.

RAY, WHIP. This species, which has been considered by some authors as the Jaberete of Marcgrave, was caught at Scarborough in 1769; but the fisherman, through ignorance, destroyed the body, preserving only the tail, which was exhibited to an ingenious naturalist of that place; and is described as being three feet long, extremely slender and taper, and destitute of any fin at the extremity.

This fish is likewise said to be a native of the Sicilian seas; but at present it may be considered as an obscure species. Pennant gives it the appellation of Whip from the extreme length and slenderness of its tail.

RAY, STING. See **FIRE-FLAIRE** and **PASTINACA MARINA**.

RAYTE, OR RAYCHE. A term by which some ichthyologists express the common skate, or flaire.

RAZOR-BILL. A bird of the auk kind; the *Alca Torda* of Linnæus. Its length is about eighteen inches; and the expansion of the wings is twenty-seven. The bill is two inches long, arched, very sharp at the edges, and of a black colour; the upper mandible is marked with four transverse grooves; the lower with three; and the widest is white, intersecting each mandible. A white line extends from the eye to the bill; the head, throat, and entire upper side of the body, are black; the wings are of the same colour, except the tips of the lesser quill-feathers, which are white; the tail is composed of twelve black feathers; the whole under-side of the body is white; and the legs are black.

These birds, in company with the guillemots, appear in our seas about the beginning of February, but do not settle to breed till the beginning of May. They take up their residence on the ledges of the highest rocks impending the sea, sitting close together, and in rows one above another. The female properly lays but one egg, which is of an extraordinary size in proportion to her bulk, being about three inches long, and of a white or pale sea-green colour, irregularly spotted with black. Should this egg happen to be destroyed, the Razor-Bill will lay another; and if that is removed, then a third. However, she makes no nest, but deposits her egg on the bare rock: and though multitudes lie contiguous, by a wonderful kind of instinct, each bird distinguishes her own. What is also very amazing, the Razor-Bill fixes her egg on the smooth rock with so exact a balance, as to secure it from rolling off: but should it be removed, and then attempted to be replaced by the hand of man, it would be extremely difficult, if not absolutely impossible, to bring it to its former equilibrium.

The inhabitants of the coasts where these eggs are laid, esteem them a very desirable kind of food; and, in order to secure it, run the greatest hazards; being lowered from above by ropes, depending on the strength of their companions at the top, whose footing is often so unstable, that they are forced headlong down the precipice, and meet a dreadful and inevitable death.

RAZOR-FISH; the *Coryphæna Novacula* of Linnæus. The head of this fish is large and compressed; and the whole body is flat. There are scarcely the very rudiments of a snout; for the line, which terminates the fore-part of the head,

runs almost perpendicularly from the top of the head to the mouth, which is small, and armed with little sharp teeth, except four long ones, which are placed forwards. The eyes are small, and placed on the top of the head. At the origin of the back there is a fin, which extends from thence to the tail; and another rises opposite to it on the lower part of the belly, reaching from the vent almost to the tail. The head and covers of the gills are marked with several blue lines; the belly and tail-fins are yellowish and greenish, chequered in a very pleasing manner; the dorsal fin is red, sprinkled with a few blue spots; the rest of the body is of a yellowish red hue; and the tail, which is broad, is covered with large scales.

This fish is common in the isles of Rhodes and Malta; and its flesh is tender, easy of digestion, and exceedingly nutritive.

RAZOR-SHELL. A genus of bivalve shells, of an oblong figure, and open at both extremities. At the hinge, a subulated tooth is turned back, and often double.

The Razor-Shell, called also the pivot, very much resembles the haft of a razor; and, by means of this shape, it is better enabled to dive into the soft sand at the bottom of the ocean. All the motions of this little animal are confined to sinking or rising about a foot downwards or upwards in the sand; for it never quits the spot where it was first planted. From time to time it rises about half way out of its hole; but if disturbed in the smallest degree, sinks perpendicularly down again. Exactly over the place where it buries itself, there is a small aperture, through which the animal respire, or imbibes the seawater. On the desertion of the tide, this hole may be easily distinguished by the fishermen who are in quest of it: and their method of alluring the Razor up from the depth of its retreat is by sprinkling a little sea-salt on its hole; which dissolving, no sooner reaches the creature below, than it instantly rises straight upwards, and displays about half its length above the surface: this appearance, however, is instantaneous; and if the fisher does not seize the opportunity, the shell with great facility sinks to its former depth; no salt can allure it a second time; but it remains unmolested, unless the fisherman gives himself the trouble of digging it out.

Several species of this shell are found on the British coasts, from nine inches to half an inch in length. The names of the most curious are, the pod, sheath, scymetar, pellucid, suboval, and kidney Razor-Shells; their different appellations expressing some peculiarity in their figure, conformation, or colour. The ancients ate the inclosed animals as well as the moderns: Athenæus speaks of them as great delicacies; and peculiarly grateful to widows, but for what reason we are not informed.

RECURVIROSTRA. A genus of birds of the order of grallæ: the characters of which are; that the bill is long, slender, very thin, depressed, and bent upwards, whence the appellation; and that the feet are palmated, and have three toes. The avofetra is the only known species of this genus.

This bird is somewhat larger than the common lapwing; the beak is about two inches long, black, slender, flattened, and bent upwards; the head is moderately large, and very round; and

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both that and the upper part of the neck are black; but above and beneath each eye there is a small white spot. The breast, belly, and throat, are all of a snowy whiteness; the back is variegated with black and white; the wings are of the same colour; the tail is wholly white; and the legs, which are naked far above the knees, are long and blueish.

These birds are very common in Italy, and are sometimes seen about the English shores; When flying, they carry their necks and long legs quite extended; and make a shrill noise, expressive of the syllable *Twit* twice repeated; whence the country people give them the name of yelpers. They feed on worms and insects, which they scoop with their bills out of the sand, leaving alternate semicircular marks wherever they have been in quest of prey.

The *Recurvirostra* lays two eggs about the size of those of pigeons, of a whitish colour tinged with green, and marked with large black spots.

RED-BIRD, OF CAROLINA. The size of this bird is equal to that of a sky-lark: the bill is thick, strong, and of a palish red colour, with a black list round the base; the head is adorned with a crest, which rises and falls at pleasure; and the whole body is of a fine scarlet colour, except the back and tail, which are of a dark red. The hen is brown, with a tincture of red on her wings and other parts.

This bird is very common in America, where the natives cage it for the sake of its song as well as beauty.

RED-BIRD, SUMMER. This bird has a thick strong bill of a yellow colour; the whole plumage is of a beautiful red or scarlet hue, except the tips of the greater quills of the wings, which are of a dusky red; the coverts of the insides of the wings are of a bright red; the insides of the quills, as well as the under side of the tail, are of a reddish ash-colour; and the legs and feet are of a dusky brown.

RED-BIRD, OF SURINAM. Edwards, who first figured and described this bird, acknowledges himself incapable of referring it with certainty to any particular genus of European birds: Linnæus, however, in his nomenclature, gives it the appellation of *Ampelis Carnifex*. The bill is slightly arched, and of a dirty red colour; the top of the head, the lower part of the belly, the thighs, rump, and tail, are of a beautiful scarlet; the sides of the head, the neck, back, breast, and wings, are of a dull dirty red; the tail-feathers are black about half an inch from their tips; the legs, feet, and claws, are of a dirty yellow hue; and the hinder parts of the legs have small feathers or hairs down to the very feet.

RED-BREAST; the *Motacilla Rubecula* of Linnæus. A bird well known in most parts of Europe. The bill is dusky; the forehead, chin, throat, and breast, are of a deep orange colour; the head, the hind part of the neck, the back, and the tail, are of a deep ash-colour, tinged with green; the wings are darker, their edges inclining to yellow; and the legs and feet are dusky.

Though the Red-Breast is so very petulant as to live in a state of continual hostility with its own tribe, yet it is remarkably social with the human race; and in the winter season becomes almost domestic, seemingly claiming the protection of man. Most of the soft-billed birds, such as the nightingale, the swallow, and the titmouse, leave us in the winter, when their insect food is no

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longer found in abundance; but the Red-Breast continues with us the whole year; and endeavours to support the famine of winter by chirping round the warm habitations of mankind; and by entering those shelters from which the inclemency of the season is artificially expelled, and where insects themselves, attracted by a similar cause, are the most numerous.

This bird breeds differently in different places: in some countries its nest is usually found in the crevice of some mossy bank, or at the foot of a hawthorn in hedge-rows; but, in others, it makes choice of the thickest coverts, and conceals its nest by means of oak-leaves. Its eggs are usually four or five in number, of a dull white colour, with reddish streaks.

The song of the Red-Breast is remarkably sweet and soft; and the more to be valued, as we enjoy it during the greatest part of the winter, and early in the spring. In the summer it is equally musical; but then its modest notes are drowned in the general warble of the season. Many of the autumnal songsters seem to be the young cock Red-Breasts of the same year.

Several of our English poets have honoured this bird with particular notice in their lays. Thompson gives a just and elegant description of its domestic qualities during winter; though perhaps it is more indebted to the author of *The Babes in the Wood* for being such an universal favourite in this country, than to all other causes combined. But not only our poets, but even painters, have exerted their respective talents in recommending this harmless songster to our attention; and surely, when genius labours to meliorate our sensations, and to awaken the most generous passions, it demands our love and admiration.

RED-BREAST, BLUE; the *Rubecula Americana* of Catesby. This bird has a slender, sharp-pointed bill, of a dusky colour; the whole upper side, head, neck, back, wings, and tail, are of a fine full blue colour, except the extremities of the greater quills, which are black; and the whole under side, from the bill to the coverts under the tail, is of a reddish colour. The thighs are of a faint light red; the legs and feet are brown; and the claws are dusky.

Edwards, who first described this bird from a specimen communicated by the late Mr. Peter Colinson, says it was imported from Bermudas; and Catesby, in his *History of Carolina*, figures and describes a bird resembling this in almost every respect.

RED-EYE; the *Cyprinus Erythrophthalmus* of Linnæus. This fish, to which the Germans give the appellation of *Rootang*, bears a strong resemblance to the common river-bream, except that it is somewhat thicker. The fins are entirely of a red colour; and the whole body of the fish is stained with a very beautiful red, particularly the irides. When the scales are removed, the body is of a greenish hue.

The Red-Eye seldom exceeds one foot in length; and its flesh is extremely well flavoured. Some English authors call it the rudd; and other Latin ones denominate it *rutilus latior*, and *rubellus fluviatilis*. It is very common in many of the German and British rivers; and is in season the whole year, except about the month of April, when it spawns: during that period the male is marked with numerous white spots on its head,
and

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and is universally more rough than at other seasons.

RED-GAME. A provincial appellation for the fowl common in the mountainous parts of Yorkshire and other counties; to which some give the name of the gor-cock.

RED-POLE. This bird, which is supposed to be a native of Pennsylvania, has a black, slender, sharp-pointed bill; the top of the head is red; the upper side of the body, from the head to the tail, is green; and the under side is of a bright yellow hue, the breast and belly being spotted with red down the shafts of the feathers. The wings and tail are dusky, edged with yellow, except some of the longest quills, which are wholly blackish; and the legs and feet are of a dusky flesh-colour.

RED-POLE, YELLOW. This bird, which was first figured and described by Edwards from a live specimen, appears to be a variety of the Canary bird, whose note it imitates. The upper mandible is dusky, the lower of a yellowish flesh-colour; the eyes are dark; and the crown of the head is of a bright reddish orange colour. The sides and hinder part of the head, the throat, breast, belly, thighs, and coverts beneath the tail, are of a bright yellow hue. The hinder part of the neck, the back, wings, and tail, are covered with dusky plumage, fringed with olive green, somewhat more yellowish on the rump than on other parts; and the legs and feet are of a blueish flesh-colour.

REDSHANK; the *Scolopax Calidris* of Linnæus. An aquatic bird; called also gallinula erythropus, and callidrys. It is about the size of the common plover; the back is of a greyish or brownish green colour spotted with black; the neck is grey; the throat is variegated with black and white; the breast is white, with a few loose streaks of black; and the wing-feathers are diversified with black, brown, and white. The bill is long, slender, and shaped like that of a woodcock, reddish at the base, and blackish lower down; and the legs are of a most beautiful red colour.

This bird, which breeds in fens and marshes, is found on most of our shores; conceals itself during the winter in gutters; and is generally observed singly, or at most in pairs. When disturbed, it flies round its nest, making a noise like the lapwing. It lays four eggs, of a whitish colour tinged with olive, and marked with irregular spots of black, particularly on the thicker end.

Pennant mentions a variety which he distinguishes by the epithet of the Cambridge Redshank, that is considerably larger than the common one. The head, the upper part of the neck, and the back, are of a cinereous brown hue; the lesser coverts of the wings are brown edged with dull white, and barred with black; the primaries are dusky; the secondaries are barred with dusky and white; the under side of the breast and neck are of a dirty white colour; the tail is barred with cinereous and black; and the legs are of an orange red.

REDSHANK, SPOTTED; the *Chevalier Rouge* of Brisson. This species is equal in size to the greenshank; the head is of a pale ash-colour, marked with oblong streaks of black; and the back is dusky, variegated with triangular spots of white. The coverts of the wings are ash-coloured, spotted in the same manner; the quill-

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feathers are dusky; the breast, belly, and thighs, are white; the middle feathers of the tail are ash-coloured; the side-feathers are whitish, barred with black; and the legs are long, and of a beautiful bright red.

REDSTART; the *Motacilla Phœnicurus* of Linnæus. The bill and legs of the male of this beautiful bird are black; the forehead is white; the crown of the head, the hind part of the neck, and the back, are of a deep blue grey colour; the cheeks and throat are black; the breast, rump, and sides, are red; and the two middle feathers of the tail are brown. In the female, the top of the head and the back are of a deep ash-colour; the rump and tail are of a duller red than those of the male; the chin is white; the lower side of the neck is cinereous; and the breast is of a paler red.

This bird appears in Britain only in the spring and summer; and is observed to visit us nearly about the same time as the nightingale. It builds its nest in some hollow tree, the hole of a wall, or other building, lining it with moss externally, and internally with hair and feathers. It lays four or five eggs, resembling those of the hedge-sparrow, but rather paler, and more taper at the less extremity; and if these eggs are but touched, the Redstart is so remarkably shy, as instantly to forsake its nest. Its note is soft and melodious; but being naturally fullen, it is tamed with extreme difficulty. It is remarkable for shaking its tail, and moving it horizontally, after the manner of a dog when fawning.

REDSTART, INDIAN. The bill of this bird is dusky at the base, and black at the point; the top of the head is covered with long, soft, black feathers, hanging over behind in the shape of a crest; and under each eye there is a scarlet spot, encompassed with white on the lower side. The throat, breast, belly, and thighs, are white; but the sides of the neck and breast are black. The hinder part of the neck, the back, wings, and tail, are of a dark brown hue; the ridge of the wing next the breast is whitish; the feathers about the vent, and the coverts beneath the tail, are of a vivid red; and the legs and feet are dusky.

This bird is a native of Bengal, in the East Indies.

REDSTART, BLUE-THROAT. This species, which is supposed to be a native of Spain or the Barbary coast, is somewhat larger than the common Redstart. The bill is straight, slender, and blackish; the upper side of the head, neck, back, and wings, is of a dark dirty brown hue, the edges of the feathers being somewhat lighter; a dull orange-coloured line passes above the eye; and from the angles of the mouth another line of the same colour runs under the eye, beneath which there is a narrow line of faint blue. The throat, from the bill downwards, is white; on the lower part of the neck there is a blue semilunar spot, the angles pointing upwards; the beginning of the breast, for a small space, is orange-coloured, narrower in the centre, reaching a little farther down on the sides; the remainder of the breast, belly, thighs, and coverts under the tail, is white; the two central feathers of the tail are dark brown; and the rest on each side are orange, with blackish tips half an inch deep. The covert-feathers on the upper side of the tail are of a dirty orange colour; and the legs, feet, and claws, are brown.

REDSTART, GREY. This species is about the shape

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shape and size of the common Redstart: the bill is slender, straight, and of a dark brown colour; the forehead, for a little space above the bill, together with the sides of the head and throat, are black; and on the forepart of the head, behind the black, there is a narrow space of white, extending backwards above the eyes on each side. The top of the head, the neck, back, breast, and coverts of the wings, are of a blueish grey or ash-colour; the quills somewhat incline to brown; and the exterior webs of the middlemost are white. The rump and coverts of the tail, both above and beneath, are of a bright orange colour; the two central feathers of the tail are brown; the succeeding ones on each side are orange with small brown tips; and the extreme feathers are wholly orange-coloured. The lower belly and thighs are white; and the legs, feet, and claws, are dusky.

This bird was imported from Gibraltar by Catesby, and is probably a native of Old Spain.

REDSTART, AMERICAN. This bird has a straight, slender bill, of a dusky colour, paler towards the head, and black at the point; the basis of the upper mandible being beset with black hairs or bristles. The head, neck, back, and wings, are black, except the bottoms of the quills, which are orange-coloured; and the sides and coverts under the wings are of a bright orange colour: the black from the lower part of the neck extends in an obtuse point into the breast; whence proceeds a white list along the belly, gradually widening; so that the thighs, lower belly, and coverts under the tail, are white, except a few black spots in the lower part of the belly. The two middle feathers of the tail are wholly black; the side-feathers are orange-coloured at their bottoms, and black at their tips; and the legs, feet, and claws, are black.

This bird is a native of Jamaica. Sir Hans Sloane describes it under the appellation of the small black and orange-coloured bird: and Catesby, in his History of Carolina, informs us, that it frequents the shady woods of Virginia; that it is seen only in summer; and that the hens are brown.

RED STONE POLL. A name by which some English ornithologists express a species of linnet.

RED TAPE FISH. This fish is common in the Italian Seas; and at Genoa is known under the appellation of cavagiro, and fraggia. The body is long and slender, flatter on the sides than an eel, and grows gradually more slender from the head to the tail. The back and sides are wholly of a palish red colour; but the belly is white. The scales of this fish are so small, that they are scarcely perceptible. It has a single row of slender sharp teeth; and near each side of the upper jaw there is a black spot. The eyes are large, and surrounded with silvery irides. The dorsal fin reaches from the head to the tail; and opposite to it there is another from the vent to the tail: in full grown subjects, these are of a beautiful yellow hue on the lower part; but the upper edge is of a reddish purple. The exterior rays of the tail are of a purple colour; but those in the middle are yellow.

REDWING; the *Turdus Iliacus* of Linnæus. This bird, called also the wind-thrush, or swine-pipe, is somewhat smaller than the common thrush, and less spotted. The back, neck, and

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head, are of the same colour with those of the common thrush; but the sides under the wings, and the feathers which line the wings, are orange, or dusky red. The belly and breast are whitish; the throat is yellowish, marked with brown; and the wings are chestnut, with some variegations.

This bird feeds on insects; and in this country is migratory, appearing in large flocks about the same time as the fieldfare, and departing nearly at the same season with that bird.

The flesh of the Redwing is bitterish, and therefore less valued than that of congenerous birds. In this country it has a disagreeable piping note; but in Sweden, during the spring, it sings very melodiously, perching on the top of some tree among the forests of maples. It builds its nest in hedges, and lays six blueish green eggs spotted with black.

REED-SPARROW, OR BUNTING; the *Emberiza Schœniclus* of Linnæus. The head, chin, and throat of the male, are black; the tongue is livid; and at each angle of the mouth a white ring commences, which encircles the head. At the approach of winter, the head changes to hoary; but, on the return of spring, it resumes its pristine jetty hue. The whole under side of the body is white; the back, the coverts of the wings, and the scapulars, are black, deeply bordered with red; the two middle feathers of the tail are of the same colours; and the three succeeding ones are black. The exterior web, and part of the interior of the extreme feather, are white. The head of the female is rust-coloured, spotted with black; she wants the white ring round the neck; but, in other respects, resembles the male.

This bird frequents marshy places, most commonly among reeds, from whence it receives its name. Its nest is worthy of observation for the artful manner in which it is constructed, being fastened to four reeds, and suspended by them, like a hammock, about three feet above the water: the cavity is deep, but narrow; and the materials consist of rushes, fine bents, and hairs. It lays four or five eggs of a blueish white colour, irregularly marked with purplish veins, especially on the larger ends.

The Reed-Sparrow is much admired for its voice; and, like the nightingale, adds to the nocturnal harmony of the grove.

REEVE. An appellation usually given to the female of the *avis pugnax* or ruffe. See **RUFFE.**

REGESTOLA. A name by which some ornithologists express the larger butcher-bird; a very small hawk, not exceeding the common thrush in magnitude, but extremely fierce and voracious.

REGINA AURARUM. An appellation given by Nieremberg to a bird called by the Mexicans *Cozcacoauhtli*, and which receives its name from a faculty of flying against the strongest winds. It is equal to the eagle in magnitude: the whole body is of a blackish purple hue, variegated with a brownish yellow and a deep black; the wings are a mixture of black, yellow, and grey; the legs are red; the claws are strong and sharp; and the beak resembles that of a parrot. It has some rufous skin on the forehead, and about the beak; and its tail is black above, and white beneath. It feeds on all kinds of reptiles and vermin; flies very high; and is a native of Mexico.

Extraordinary medicinal virtues have by some been

been ascribed to the feathers of this bird; but sober naturalists reject the assertion as fabulous.

REIN-DEER. An animal of the deer kind, a native of the hyperborean regions; remarkable for its tractability; its perseverance; and its utility to mankind, both as a faithful servant and as nutritious aliment. See **DEER, REIN.**

RELL. An English appellation for the white-bellied mouse, with a blackish back, and long body. Naturalists are much divided in their opinions concerning the qualities, and even the existence, of this creature.

REMORA, the Sucking-Fish. This fish, which bears some resemblance to the herring, is the Echeneis of the Greeks; and has been celebrated from remote antiquity for its adhesive qualities. It belongs to the genus of echeneis, and class of thoracici in the Linnæan system.

According to the Artedean and Linnæan descriptions, its characters are these: the branchiostegæ membrane on each side contains about ten bones; the head is thick, depressed, naked, and marked on the upper side with transverse rough striæ; the body, which is of a hoary colour, is oblong, roundish, and naked, but somewhat compressed; the dorsal fin is oblong, and placed very far towards the tail; the under jaw is longer than the upper; and in each there are a great number of teeth. The fins are seven in number, two pectoral, two ventral, one anal, one dorsal, and one caudal. The striæ of the head, which are from eighteen to twenty-four, are rough and transverse, but divided as it were into two series by a middle longitudinal line; and these striæ or ridges are the instruments by which the fish can affix itself to any other animal or substance.

Linnæus mentions two species of the echeneis, the Remora and neucrates: the former is distinguished by having a bifid tail, and eighteen striæ on the head; the latter by having an entire tail, twenty-four striæ, a larger body, and sharper fins. Both species are natives of the Indian Ocean.

The ancients, who ascribed marvellous qualities to whatever they could not sufficiently comprehend, unanimously believed that the Sucking-Fish was capable of stopping a vessel in full sail, or a whale in swimming; and hence it obtained the appellation of Remora, from Remorando.

Catesby, however, justly remarks, that several of these fishes together possess no more efficacy than shells or corals, which by adhesion occasion a slight interruption: and also assures us, that he has taken four or five of them from the body of a shark.

REMORA MUTIANI. A term by which some authors express the genus of shells called also concha venerea and porcellana. See **PORCELLAIN SHELL.**

REPTILES. A genus of animals so denominated from their creeping or advancing on their bellies: or they may be defined as a genus of animals and insects which, instead of feet, rest on one part of the body, while they move forward with the remainder. Of this class are earth-worms, snakes, and various other creatures.

Naturalists have remarked the peculiar aptitude of conformation in Reptiles for their destined motion. Thus, with regard to the earth-worm, Dr. Willis observes, that the whole body is only a chain of annular muscles; or, according to Derham, but one continued spiral muscle; the orbicular fibres of which, by being contracted, render

each ring narrower and longer than before; and by this means the creature is enabled, like the worm of an auger, to bore its passage into the earth. Its reptile motion may also be explained by a wire wound on a cylinder, which, when stripped off, and one end extended and held fast, will bring the other nearer: so the earth-worm having shot out, or extended its body, which is formed with a wreathing, it takes hold by the assistance of its minute feet, and so contracts the hinder part of its body. Dr. Tyson adds, that when the fore part of the body is extended and applied to a plane at a distance, the hind part relaxing and shortening, is easily drawn towards it as a centre. In the earth-worm, the feet are disposed in a quadruple row the whole length of the body; and with them, as with so many hooks, it fastens down sometimes this, sometimes that part of its body, to the plane; and at the same time extends or drags after it another.

The progressive motion of serpents is effected after a manner somewhat different, originating from a diversity in their structure; their bodies being composed of a compages of bones articulated together. In these creatures, the body is not drawn together, but as it were complicated, part of it being applied on the rough ground, and the rest ejaculated and shot from it; which being set on the ground in its turn, draws the other after it. The spine of the back, which in these animals is variously wreathed, has the same effects in springing as the joints of the feet in other animals; the springs or leaps of this tribe being performed by means of muscles, which extend the plicæ or folds.

In the Linnæan distribution, Reptiles constitute an order of animals under the class of amphibia. Their distinguishing characteristics are; that they respire through the mouth by means of lungs only; and are furnished with four feet. To this order appertain four genera, namely, the tortoise, frog, dragon, and lizard, comprehending eighty-four species. Linnæus, it ought to be observed, has referred the generality of those animals, which other naturalists have reputed Reptiles, to the order of serpents, and class of vermes or worms. See **SERPENTS and WORMS.**

REUTELE. An appellation by which some ichthyologists express the umbla minor, or red charr; a fish common in the German lakes, and those of the northern parts of England and Wales.

REX MULLORUM. A term used by some writers to signify a species of mullet; distinguished from the other kinds by having a prominent belly, and no beards under the mouth.

RHAQUUNDA. A Brazilian fish, about ten inches in length and two in breadth, nearly of the same size from the head to the tail. The head and mouth are shaped almost like those of a pike; and the jaws are extremely rough, though destitute of teeth. The irides are brown; and from the origin of the back a fin extends almost to the root of the tail, which is three inches long, and nearly one broad, except towards the extremity, where it is somewhat broader. The tail is covered with a hard black shell; and the scales are of a moderate size. The back and sides are of a dark grey hue, with a silvery gloss; and on each side there is a row of round black scales, each about the size of a pea; and between them many blue specks. All the fins, and the tail, are of a gold colour, except the dorsal fins, which are spotted

spotted with blue. The lateral lines are black; and on each side of the tail there is a bright yellow line.

RHEA. In the Linnæan system, a species of the struthio, or ostrich; synonymous with the nhamduguacu of the Brazilians.

RHINE. An Aristotelian appellation for a species of squalus, the Squatus of Iudore and Pliny.

Artemi distinguishes this from the other species of squalus by the circumstances of it's having no pinna ani, and the mouth being situated in the extremity of the snout.

RHINGAU. A name by which some ichthyologists express the lavaretus, a small fish caught in the German lakes, and exported in pickle to most parts of the commercial world.

RHINOBATOS. A flat cartilaginous fish of the squatina or monk-fish kind; but differing from it in having a longer body, a more pointed head, and the mouth placed at a greater distance below the extremity of the snout. This fish, which is common in the Mediterranean, grows to the length of three or four feet. In the Linnæan system, it is a species of ray.

RHINOCEROS. A genus of quadrupeds of the order of belluæ in the class of mammalia, according to the Linnæan distribution; and so called from a horn arising from the nose. There are only two known species of this genus, viz. the Rhinoceros with only one horn, and the Rhinoceros with two horns.

RHINOCEROS, ONE-HORNED; the Rhinoceros Unicornis of Linnæus. This animal, next to the elephant, is the most powerful of quadrupeds. It is commonly twelve feet long from the tip of the nose to the insertion of the tail; it's height is from six to seven feet; and the circumference of it's body is nearly equal to it's length. In magnitude, therefore, it makes a near approach to the elephant; and, if it appears smaller to the eye, the reason is, because it's legs are much shorter.

But it differs still more from the elephant in it's natural powers and intelligence; for nature has not endowed it with any qualities whereby it is elevated above the ordinary rank of quadrupeds: it is destitute of all sensibility in it's skin; neither has it hands, to enable it to profit by the sense of touching; and, instead of a trunk, it has only a moveable lip, to which all it's means of dexterity or address are limited. It's chief sources of superiority over other animals consist in it's strength; it's magnitude; and the offensive weapon on it's nose, which is entirely peculiar to the kind. This weapon is a very hard horn, solid throughout it's whole extent, and situated more advantageously than the horns of ruminating animals, which defend only the superior parts of the head and neck. But the horn of the Rhinoceros protects the muzzle, the mouth, and the face; for which reason, the tiger will rather attack the elephant, whose trunk it lays hold of, than the Rhinoceros, which it dares not face without running the risk of having it's bowels torn out. The body and limbs of the Rhinoceros are covered with a blackish skin, so impenetrable, as to resist either the claws of the lion or the tiger, the sword, or the shot of the hunter. It is also thicker and harder than that of the elephant, and altogether insensible to the stings of insects. It is incapable of either extension or contraction; but is rolled up into large folds at the neck, the shoulders, and

the crupper, in order to facilitate the motion of it's head and limbs; which last are maffy, and furnished with large feet, armed with three great toes. The head is proportionably longer than that of the elephant; but it's eyes are smaller, and generally half closed. The upper, which projects over the under lip, being moveable, can be extended about six or seven inches in length; and is terminated by a pointed appendage, which gives the animal a power of collecting herbage in handfuls, as the elephant does with it's trunk: this muscular and flexible lip is a kind of hand or imperfect trunk; but it enables the creature to seize any object with force, and also to feel with some address. Instead of those large ivory tusks which constitute the armour of the elephant, the Rhinoceros has a formidable horn; and two strong incisive teeth in each jaw, which are situated at a great distance from each other, one in each angle of the jaw. The under jaw is square before; and there are no other incisive teeth in the anterior part of the mouth, which is covered by the lips: but, exclusive of the four cutting-teeth in the four corners of the mouth, there are twenty-four grinders, six on each side of the two jaws. The ears, which are always kept in an erect posture, resemble those of the hog, but are proportionably smaller: those are the only parts of the body on which there are hairs, or rather bristles; but the extremity of the tail, like that of the elephant, is garnished with a bush of large, solid, hard bristles.

Though the Rhinoceros was frequently exhibited in the Roman spectacles, from the days of Pompey to those of Heliogabalus; though it has often been transported into Europe in more modern times; and though Bontius, Chardin, and Kolben, have drawn figures of it both in India and Africa; yet so badly has it been represented and described, that it was very imperfectly known till the errors and caprices of those who had published figures of it were detected by an inspection of the animals which arrived in London in the years 1739 and 1741.

In 1743, the ingenious Dr. Parsons published a history of the Rhinoceros; and from a subject so curious, and handled with such accuracy, an extract can neither prove useless nor unentertaining.

The Rhinoceros which the above gentleman described was brought from Bengal. Though not more than two years old, the expence of his food and journey amounted to near one thousand pounds sterling. He was fed with rice, fugar, and hay. He had daily seven pounds of rice, mixed with three pounds of fugar, and divided into three portions: he had likewise hay and green herbs, which last he preferred to hay; and his drink was water, of which he took large quantities at a time. He was of a peaceable disposition, and allowed all parts of his body to be touched. When hungry, or struck by any person, he became mischievous, and in both cases nothing appeased him but food. When enraged, he sprung forward, and nimbly raised himself to a great height, pushing at the same time his head furiously against the walls, which he performed with amazing quickness, notwithstanding his heavy aspect, and unwieldy mass. 'I often observed,' says Dr. Parsons, 'these movements produced by rage or impatience, especially in the mornings before his rice and fugar were brought him. The vivacity and promptitude of his motions,'

tions,' adds this author, 'induced me to think, that he was altogether unconquerable, and that he could easily overtake any man who should offend him.

'This Rhinoceros, at the age of two years, was not taller than a young cow that has never produced; but his body was very long and very thick. His head was disproportionably large. From the ears to the horn there was a concavity, the two extremities of which, namely, the upper end of the muzzle, and the upper part near the ears, were considerably raised. The horn, which was not yet above an inch high, was black, smooth at the top, but full of wrinkles directed backwards at the base. The nostrils were situated very low, being not above an inch distant from the opening of the mouth. The under lip was pretty similar to that of an ox; but the upper lip had a greater resemblance to that of the horse, with this advantageous difference, that the Rhinoceros can lengthen his, move it from side to side, roll it about a staff, and seize with it any object he wishes to carry to his mouth. The tongue of this young Rhinoceros was soft, like that of a calf; his eyes were without any vivacity, in figure resembling those of a hog, and were situated lower or nearer the nostrils than in any other quadruped. His ears were large, thin at the extremities, and contracted at their origin by a kind of annular rugosity. The neck was very short, and surrounded with two thick folds of skin. The shoulders were very thick; and at their juncture there was another fold of skin, which descended on the fore-legs. The body of this young Rhinoceros was very thick, and pretty much resembled that of a cow near the end of her gestation. Between the body and the crupper there was another fold, which descended on the hind legs; and, lastly, another fold transversely surrounded the lower part of the crupper, at some distance from the tail. The belly was large, and hung near the ground, particularly its middle part. The legs were round, thick, and strong; and their joint bended backwards: this joint, which, when the animal lay down, was covered with a remarkable fold of the skin, became apparent when he stood. The tail, that was thin, and proportionably short, grew a little thicker at the extremity, which was garnished with some short, thick, hard hairs. The form of the penis was very extraordinary: it was contained in a prepuce or sheath, like that of the horse; and the first thing that appeared at the time of erection, was a second prepuce, of a flesh colour, from which issued a hollow tube, in the form of a funnel cut and bordered somewhat like a flower de luce, and constituted the glans and extremity of the penis. This anomalous glans was of a fine flesh colour, much paler than the second prepuce. During the most vigorous erection, the penis extended not above eight inches out of the body: the direction of this organ was not straight, but bended backward; hence he threw out his urine behind; and from this circumstance it may be inferred, that the male covers not the female, but that they unite with their cruppers towards each other. The organs of the female are situated like those of the cow; and she exactly resembles the male in figure and grossness of body. The skin is so thick and impenetrable, that when a man lays hold of any of the folds, he would imagine he is touching a wooden plank of half an inch thick. Dr. Grew remarks that, when tan-

ned, it is excessively hard, and thicker than the hide of any other terrestrial animal. It is every where covered more or less with incrustations, in the form of galls or tuberosities, which are pretty small on the top of the neck and back, but become larger on the sides: the largest are on the shoulders and crupper; and are still pretty large on the thighs and legs, where they are spread all round, and even on the feet; but, between the folds the skin is penetrable, delicate, and as soft as silk to the touch, while the external part of the fold is equally hard with the rest. This tender skin between the folds is of a light flesh-colour; and the skin of the belly is nearly of the same colour and consistence. The galls or tuberosities on the skin should not be compared to scales: they are simple indurations only, without any regularity in their figure, or symmetry in their respective positions. The flexibility of the skin in the folds enables the Rhinoceros to move his head, neck, and members, with facility. The whole body, except at the joints, is inflexible, and resembles a coat of mail.'

Dr. Parsons farther remarked, that this animal listened with a deep and long-continued attention to any kind of noise; and that though he was sleeping, eating, or obeying any other pressing demands of nature, he raised his head, and listened till the noise ceased.

The horn of the Rhinoceros sometimes measures nearly four feet in length, by six or seven inches diameter at the base. It is commonly of a brown or olive colour; though there are instances of its being grey, and even white. Under the base it has a slight concavity in the shape of a cup, by which it is fixed to the skin of the nose: with this weapon the Rhinoceros is said to attack, and sometimes mortally wound, the largest elephants, whose tall legs give the animal now under consideration an opportunity of striking with his snout and horn their bellies, where the skin is most tender and penetrable; but, if he misses his first blow, the elephant throws him on the ground, and kills him.

This animal's horn is more esteemed by the Indians than the ivory of the elephant; not on account of its real utility, though several toys are made of it; but on account of certain medicinal qualities which they ascribe to it. The white horns, being the rarest, are in great request; and among the presents sent by the King of Siam to Lewis XIV. of France, in 1636, there were six horns of this animal.

Without being ferocious or carnivorous, the Rhinoceros is perfectly untractable. He is nearly among large what the hog is among small animals, rash and brutal, without intelligence, sentiment, or docility. He seems even to be subject to paroxysms of fury which nothing can appease; for that one which Emanuel King of Portugal sent to the Pope in 1513, destroyed the vessel in which he was transporting; and a Rhinoceros exhibited some years ago in Paris, was drowned in a similar manner in his voyage to Italy.

This animal is fond of wallowing in the mire; shews the greatest predilection for moist, marshy grounds; and never quits the banks of rivers. It is found in the continents of Asia and Africa; but in general the species is not numerous, and much less diffused than that of the elephant. The female produces but one at a time, and at considerable intervals. During the first month, the young

young Rhinoceros does not exceed the size of a large dog. When recently brought forth, it has no horn, though the rudiments of it appear in the foetus. At the age of two years, the horn is about one inch long; and, at that of six, it is from nine to ten inches in length. Now, as some of these horns are known to be nearly four feet in length, it appears that they continue to grow during the half, or perhaps the whole of the animal's life; which must be of considerable extent, since the Rhinoceros described by Dr. Parsons had only acquired about one half of it's height at the age of two years; from whence it may be inferred, that this animal, like man, lives seventy or eighty years.

Destitute of those beneficial qualities possessed by the elephant, the Rhinoceros is equally hurtful by his voracity, and particularly by the prodigious waste occasioned by him in cultivated fields. In a word, he is useless while alive; though his flesh is reckoned excellent by the Indians and negroes; and his skin composes the hardest and best leather in the world. Not only his horn, but all other parts of his body, and even his blood, urine, and excrements, are esteemed antidotes against poison, or remedies for particular diseases: these antidotes or remedies, extracted from different parts of the Rhinoceros, are of equal estimation in the Indian pharmacopœia with the theriaca in that of Europe; but most of the virtues ascribed to both are probably only imaginary.

The Rhinoceros subsists on the grossest herbs, which he prefers to the softest pasture of the most luxuriant meads. He is fond of the sugar-cane; and likewise eats all kinds of grain. Having no appetite for flesh, he neither disturbs the small, nor dreads the larger animals; but lives amicably with all, not excepting the tiger, which sometimes attends the Rhinoceros without daring to attack him. This pacific disposition renders combats between the elephant and the Rhinoceros very suspicious; such contests must at least be seldom, since there is no offensive disposition on either side. Pliny seems to be the first author who makes mention of these conflicts. It appears that these animals were compelled to fight at the Roman spectacles; and hence probably the idea that, when in a state of nature, they fight in the same manner: but every action without a motive is unnatural; it is an effect without a cause, which must originate solely from accident.

These creatures neither assemble, nor march in troops, like elephants: they are more solitary and savage; and it is perhaps more difficult to hunt and overcome them. They never attack men but when provoked; and then they become very furious and formidable. Pennant mentions a Shropshire gentleman, whose belly was ripped open by the horn of one of these animals while engaged in a military capacity in the East, and who was so fortunate as to survive the wound. Their skins are so amazingly hard, as to resist sabres, lances, javelins, and even musket-balls. The only penetrable parts of their bodies are their bellies, their eyes, about their ears, and under the folds: hence the hunters, instead of attacking them face to face, follow them at a distance by the tracks of their feet, and watch them till they lie down to sleep.

Buffon tells us, that there is a foetus of a Rhinoceros in the Royal Cabinet, which was extracted from the body of the mother in the island

of Java. By the memoir accompanying this foetus we are informed, that twenty-eight hunters having assembled in order to attack the dam, they followed her at a distance for some days, detaching one or two of their number from time to time to reconnoitre her situation: that by this means they surprized her while asleep; and silently approached so near, that the whole twenty-eight muskets were discharged at once into the lower part of her belly.

In some parts of the continent of Asia, where the natives are more ambitious of appearing warlike than proving themselves brave, these animals are tamed, and led into the field in order to strike terror into the enemy; but they are always unmanageable and restive, and probably more dangerous to their owners than to those whom they are designed to annoy.

If we may credit some naturalists, the Rhinoceros is the unicorn of Holy Writ, and of the ancients, the oryx and the Indian ass of Aristotle, who says it has but one horn. He might indeed fitly compare the clumsy shape of the Rhinoceros to that of the ass, so as to be easily induced to pronounce it a whole-footed animal. However, though this opinion is not universally adopted, it seems very probable that the Unicorn of Scripture possessed all the properties which belong to the Rhinoceros.

RHINOCEROS, TWO-HORNED; the Rhinoceros Bicornis of Linnæus. This species has two horns, one placed beyond the other; the nose and upper lip resemble those of the common Rhinoceros; it has no fore-teeth; and the skin, which is much granulated or warty, is destitute of plicæ or folds. The general colour is a deep cinereous grey; but between the legs it is smooth and flesh-coloured: in other parts there are a few scattered stiff bristles, most numerous about the ears and the end of the tail; and the tail itself is no thicker than a man's thumb, convex above and below, and flattened on the sides.

These creatures are found only in Africa. Flacourt first observed them in the Bay of Saldagne, near the Cape of Good Hope; but their existence was questioned for some time, till Dr. Sparrman confirmed it's reality. This gentleman, with the laudable perseverance of a naturalist, watched the arrival of those and other animals at a muddy water at some distance north of the Cape, whither wild beasts resort to quench their thirst, and some to indulge in rolling in the mud: in that spot he shot two of these animals; one so very large, that the united strength of five men could not move it. The lesser he measured; and it's length was found to be eleven feet and a half; the girth twelve; and the height between six and seven.

This species, with respect to it's habits, seems to agree with the other: it's flesh, which is reckoned proper for food, tastes like coarse pork; cups are manufactured of it's horns; and whips of it's hide. It feeds on the boughs of trees; and also on succulent plants, particularly the stinking stapelia. During the day-time it continues in a state of rest; but in the evenings and mornings it wanders about in search of food, or of suitable places to roll in. It has no other voice but a kind of snorting, which was observed in females anxious for their young. It's sight is said to be very indifferent; but it possesses the faculties of hearing and smelling in an exquisite degree, the least noise or scent putting it in motion. To the spot whence

these two senses are alarmed it instantly repairs; and whatever objects it meets with in its course, it usually overturns and tramples on: men, oxen, and even carriages, have been overthrown by it, and sometimes destroyed. However, it never returns to repeat the charge, but keeps right on its way; so that a kind of senseless impulse, rather than vehement fury, seems to precipitate the Rhinoceros in these its violent actions.

Martial mentions this species under the appellation of *Rhinoceros cornu gemino*, and relates its manner of combating the bear. Indeed, the Romans procured their Rhinoceros's from Africa only, which was the reason of their being represented as double-horned. The animal figured in the Prenestine Pavement, and that on one of Domitian's coins, are each furnished with two horns.

RHINOCEROS is also a name by which some naturalists express a species of beetle, so called from a kind of horn projecting from its head.

RHINOCEROS AVIS. A term by which some ornithologists express a species of Indian raven, called also *corvus Indicus cornutus*; in the Linnæan system, belonging to the genus of buceros.

This bird, which is extremely ugly and ill-scented, much exceeds the European raven in magnitude: the head and neck are very thick; the eyes are extremely large; and the beak is of a very singular figure, having a large thick horn-like protuberance on its upper part: the whole beak is bent like a bow; and is of a yellowish white-colour below; but on the upper part, towards the head, is of a beautiful vivid red. The upper chap is serrated; and with this the horn proceeds from the head, and running along the mandible, bends up at its extremity.

This species delights in the same sort of food with the common raven.

RHODOPUS GALLINULA. An appellation sometimes given to the tringa.

RHOMBO. A name for a peculiar fish of the rhombus or turbot kind, the *Rhombus Aculeatus* of Aldrovandus and others. It grows to a considerable size. The back is ash-coloured and green; and the belly is white. It is destitute of scales; but the skin of the back is divided by lines. The mouth is large, and well furnished with teeth; and the palate contains a number of tubercles.

The Rhombo is commonly found in the Italian seas; and its flesh is very delicious.

RHOMBUS. A species of the pleuronectes.

RHOMBUS is also a term used by conchologists to express a genus of the murex; the character of which is, that the shape or contour is rhombic. The clavicle, or turban, which is generally situated about the middle, runs out into very sharp or acute angles with the top and bottom; and by this means gives a rhomboidal figure to the shell.

This genus is not very numerous, but contains some very pretty shells.

RICE-BIRD; the *Loxia Oryzivora* of Linnæus. This bird, which was first described by Edwards, is about the size of a green-finch: the bill is extremely thick, and of a fine red colour above and beneath, except towards the point, where there is a little space of white. The eyes are dark; and the irides are red. The whole head is black, except a white oval spot on each cheek; the neck, breast, back, and coverts of the wings, are of a fine blueish ash-colour, the rump being somewhat lighter than the back; while the

ash-colour on the breast changes gradually towards the belly into a blossom-colour; beyond which the lower belly and the coverts under the tail are of a dirty white. The greater quill-feathers, as well as the whole tail, are black; the legs and feet are of a faint red hue; and the claws are of a dirty white.

The plumage of this bird is remarkably smooth and even; from which circumstance it derives a peculiar beauty. It is said to be a native of China.

RING-DOVE. See DOVE.

RING-OUZEL. See OUZEL.

RING-TAIL. An English appellation for the subbuteo, or *pygargus accipiter*; which has generally been deemed the female of the hen-harrier: however, males have been lately found of this species.

The Ring-Tail is distinguished by a chain of feathers round the back part of its head, reaching to the chin on each side; which stand erect, and are brown in the middle, and of a reddish white hue at the edges, forming a kind of crown, which surrounds the head. The top of the head and cheeks are dusky, bordered with ferruginous; and under each eye there is a white spot. The back is dusky; the rump is white, with oblong yellowish spots on each shaft; and the tail is long, and tipped with white. The breast and belly are of a yellowish brown colour, marked with oblong dusky spots; the legs are yellow; and the inside of the mouth is black.

This hawk preys on small birds; flies much higher than the hen-harrier; and sometimes perches on trees. Its eggs are of a reddish hue, with a very few clear white marks.

RING-TAIL EAGLE. See WHITE-TAILED EAGLE.

RIONDO. An appellation by which some ichthyologists express the fish more commonly called aper; a small one caught in the Mediterranean, resembling the faber or dorée in shape.

RIVER-HORSE. See HIPPOPOTAMUS.

ROACH; the *Cyprinus Rutilus* of Linnæus. This fish, called also *rutilus*, *rubiculus*, and *rubellio*, is a species of cyprinus, both according to the Artedian and Linnæan distributions. It has (though without just reason) been reputed extremely vivacious and active; whence the proverb, 'Sound as a Roach.'

In some parts of the world the Roach can exist in stagnant waters only: in this country, it thrives equally in ponds and deep still rivers; and is remarkable for its numerous progeny, a pond being much sooner stocked with this than any other fish. It is a gregarious creature, always keeping in large shoals. It is seldom seen of any considerable size; nevertheless, Walton makes mention of some that weighed two pounds each.

The Roach is deep, but thin; the back is much elevated, and sharply ridged; the scales are large and deciduous; and the lateral line is considerably incurvated in the middle towards the belly.

ROAD GOOSE. An appellation by which some authors express a small species of wild Goose.

ROBIN. The vulgar name for the red-breast, or *rubecula*. See RED-BREAST.

ROCK. A bird mentioned by the Arabian writers, of which many fabulous accounts have been propagated. But, if we may venture to form any opinion on a subject so mangled with fiction, it seems to be a species of condor.

ROCK-FISH. An English appellation for the

ROL

the gobius marinus, or sea-gudgeon. See **GOGET**.

ROCK OUZEL. See **RING OUZEL** and **AMZEL**.

ROCKLING. A provincial appellation for the three-bearded cod. See **COD**.

ROE-BUCK. An animal of the cervus kind, having ramose, cylindric, and erect horns. It is the smallest of the deer kind; and is well known in Germany and Scotland. Formerly it was pretty common in England; but the race is now extinct.

The Roe-Buck is called a Hind the first year; a Gryle the second; a Hensel the third; a Roe-Buck of the first head the fourth; and a fair Roe-Buck the fifth.

ROLLER; the Coracias Garrula of Linnæus. A bird of the magpye kind; called also garrulus argentoratensis, and cornix cærulea. It is common in most parts of Europe, but is seldom seen in England. It equals the jay in size: the bill is black, straight, and hooked at the point; the base is beset with bristles; the space about the eyes is bare and naked; and behind each ear there is also another bare spot or protuberance. The head, neck, breast, and belly, are of a light blueish green colour; the back, and feathers of the wings next to it, are of a reddish brown; the coverts on the ridges of the wings are of a rich blue; beneath them, of a pale green; the upper parts and tips of the quill-feathers are dusky; the lower parts are of a fine deep blue; and the rump is of the same colour. The tail consists of twelve feathers, of which the extreme ones on each side are considerably longer than the rest; the colour is a light blue tipped with black; the middle feathers are of a dull green; and the legs, which are short, are of a dirty yellow hue.

This bird is remarkable for its chattering noise; whence it has received the appellation of garrulus.

ROLLER, INDIAN SWALLOW-TAILED; the Coracias Indica of Linnæus. This very beautiful bird has a pretty straight black bill, with a few bristles or hairs at the basis of the upper mandible; the plumage which surrounds the root of the bill is white; the head, the fore-part of the neck, and the whole under side to the lower covert-feathers of the tail, are of a blueish sea-green colour; the hinder part of the neck, the upper half of the back, and some of the quills next the back, are of a reddish brown, slightly variegated with green on the neck and back; the lower half of the back, and the coverts on the upper side of the tail, are of an ultramarine blue, with transverse lines of a darker tinge; the two exterior feathers of the tail, which are five inches longer than the rest, are of a light sea-green colour, tipped with black; and the central feathers are of a darkish green. The lesser coverts of the wings are of a fine blue colour; those next above the quills are of a blueish sea-green; and the greater quills, for upwards of half their length towards the base, are of a fine blue colour, which gradually changes into a dusky towards the tips. The legs are short; and the toes are divided to their bottoms, and wholly covered with scales of a reddish flesh-colour.

ROLLER is also a name by which some ornithologists express the ampelis, or garrulus Bohemicus. It is about the size of a blackbird. The head is adorned with a little pointed plume of

ROO

feathers, of a fine glossy brown colour; from the base of the bill, which is short, thick, and black, a black bar passes to the hind part of the head over each eye; the neck is variegated with black, brown, and white; and the throat is black, with a small bristly tuft in the middle. The breast is of a reddish brown colour; the belly is grey; the back is of a chestnut brown hue; and the wing-feathers are variegated with black and grey.

The distinguishing characteristics of this bird, in which it differs from all others, are the horny appendages from the tips of seven of the secondary feathers, resembling the finest red wax.

These birds are esteemed peculiar to Bohemia, being seldom found in any other country. However, they annually appear about Edinburgh in the month of February, where they feed on the berries of the mountain-ash. They were once regarded as predictive of pestilences. They are easily tamed; and their flesh is reckoned very delicious.

ROOK. A well known bird of the crow kind; the Corvus Frugilegus of Linnæus.

With respect to shape, the Rook differs little from the carrion crow, but is somewhat larger: the colours in each are the same, the plumage of both being glossed with a rich purple. The principal distinction between the two species is found in the bill of the Rook, which, by being frequently thrust into the ground in search of grubs and earth-worms, is bare of feathers as far as the eyes, and appears of a whitish colour: this discrimination is the more necessary to be pointed out, as the Rook has but too frequently suffered on account of its similitude to the crow; and thus a harmless bird, that has no carnivorous appetites, and feeds only on corn and insects, has been destroyed for another that feeds on carrion, and frequently makes great havock amongst young poultry. The Rook, instead of being proscribed, should be treated as the farmer's friend, as it destroys caterpillars, which would otherwise do incredible damage, by consuming the roots of the corn.

Rooks are sociable birds, assembling in vast flocks. They generally build their nests in woods and forests; but sometimes make choice of groves situated in the centre of large towns or cities, for their retreats and places of security: and not many years ago these birds formed a kind of colony among the lofty trees in the Middle Temple, London, where they passed as inoffensive a life as the other inhabitants of the same place of the black robe. In these aerial abodes, they establish a kind of legal constitution; and exclude all intruders, none being suffered to build among them but acknowledged natives of the place.

At the commencement of spring the Rooks begin to build their nests; and one of them brings materials, while the other watches the building, lest it should be plundered by its brethren. All the old inhabitants, however, are already provided with nests; those which served them in former years requiring only a little trimming and dressing to render them equally commodious with new habitations. The young Rooks indeed are unprovided with nests, and obliged to build them to the best of their abilities. On this occasion the male and female pass several days in attentively examining each tree of the grove, before they fix on a branch suitable to their purpose. The situation being pitched on, they begin to collect materials

terials for their nest; the outside consisting chiefly of sticks, and the inside usually lined with fibrous roots; the whole regularly and substantially disposed. Sometimes, however, the young couple give offence in making choice of a spot too near the mansion of an older pair; a quarrel consequently ensues, and the old ones generally prove victorious.

The young couple, thus expelled, deliberate and examine as before; and having now taken care to keep their due distance, they again begin to build, and in three or four days usually complete their nest. Though they have frequent skirmishes, all hostilities cease whenever the female begins to lay; and not one of the whole grove, that treated her roughly but a little before, now attempts to molest her.

Though native Rooks are sometimes severely handled by each other, yet if a foreign one should attempt to make himself a denizen of their society, he would meet with no mercy; the whole grove would immediately set themselves against, and drive him from the premises.

In some countries, Rooks are considered as a blessing; in others, as a nuisance: but they are generally supposed to be as serviceable in destroying noxious insects, as they can possibly be injurious in consuming the labours of industry. The female lays the same number of eggs with the crow: their colours are alike; but those of the former are smallest.

ROQUET. A small species of West Indian lizard, of a reddish brown colour, variegated with black and yellow spots. It's fore-legs are remarkably long for a creature of this kind; it's eyes are peculiarly vivid and sparkling; and it's head is always carried erect. It is almost incessantly in motion, hopping about like a bird; and usually carries it's tail bent into a semicircle over it's back. It is neither shy nor timorous; seems fond of human society; and, when tired, opens it's mouth and pants, lolling out it's tongue like a dog.

ROSE-FLY. A peculiar species of fly produced from a bastard caterpillar frequently found on rose-bushes; from which circumstance it receives it's name.

The male of this fly has a long body; and the female, which has a short and thick one, deposits her eggs in small holes, which she forms in the bark of the young branches by means of a remarkable instrument placed at the hinder part of her body.

The Rose-Fly is furnished with four wings; and is so extremely common during the summer months, that it may be traced on almost every shrub. It's head and breast are black; it's wings are also edged with black; and it's body and legs are yellow, except that the latter are marked with a few black spots.

If an observer notice these flies in the morning, as they crawl on the branches of the Rose-tree, he will find them employed in depositing their eggs. The manner in which they perform this work is very perceptible; for being naturally of a sluggish disposition, they will suffer themselves to be caught; and when one of them is in a proper situation, it may be examined by bringing the eye near it, and using the common magnifying glass, without interrupting it's operations.

Besides this species, there is another fly of the same genus, produced from a bastard caterpillar

of the Rose-tree; and of the same shape and structure with this, but differing in colour. The head and breast are of a deep violet colour; the body is yellow; and the legs and wings have a violet tinge. This creature also deposits it's eggs in holes formed in the branches of the Rose-tree by means of a double saw at the extremity of the body: but whereas the former species lays them in a single straight line, this disposes them very regularly in two rows.

ROSE-GALLS. An appellation given by naturalists to certain excrescences on the *rosa sylvestris*, or dog-rose, occasioned by the bites of insects. They are of two kinds, one hard, and of a woody substance; the other spongy and hairy.

The common or hairy Rose-Gall exhibits too singular an appearance to have escaped the observation of mankind in any age. In many parts of the world it has been introduced into medicine; and is at this time prescribed in Germany, when pulverized, for diarrhoeas, dysenteries, and other disorders of the bowels; to promote urine, and dissolve the stone. These Rose-Galls, though they appear at first sight to be composed of tufts of hair, are in reality made up of several small Galls, proceeding from a bud on the branch, and forming a cluster on the part: they are oblong, resembling the shape of a plumb-stone; and each is the habitation of a single worm, whose cell is in the centre.

All the Rose-tree Galls afford the same species of worms and flies: the proper inhabitants, however, can scarcely be distinguished by the most curious observer, from the great variety of species which are found in them, all produced from the eggs of other flies of the carnivorous kind lodged in the Gall, not to feed on the juices of the tree, but on the flesh of the original inhabitant. When the parent fly, from which the Galls originate, has deposited her eggs, and in consequence of this operation the tumour begins to be formed, an enemy of the ichneumon kind pierces the covering, and introduces her offspring to feed on the native insect.

ROSMARUS. An appellation by which some naturalists express the sea-horse, more usually denominated the morse. See **MORSE**.

ROSOMACHIA, OR ROSOMAK. A Russian appellation for the glutton. See **GLUTTON**.

ROSPUS. A name by which some naturalists express that singular creature called also the rana piscatrix or frog-fish. See **ANGLER** and **SEA-DEVIL**.

ROSSE. A term by which Bellonius expresses that species of cyprinus called in English the roach.

ROSTRATA. A name given by some ornithologists to the toucan. See **TOUCAN**.

ROTCHET. The English appellation for the cuculus of ichthyologists, more usually denominated the red gurnard.

ROTELE. A name by which some naturalists express the rutilus latior, or rubellio fluviatilis; called also the rud, or finscale; a fresh-water fish having red ventral fins, and a tail of the same colour.

ROTHALS. A term whereby Gesner and some other naturalists express the pochard, or red-headed widgeon; a bird distinguished from all others of the duck kind by being destitute of the variegations in it's wings. See **POCHARD**.

ROTHBEINLEN.

ROTHBEINLEN. See **RED-SHANK.**

ROTKNUSSEL. A German appellation for the *Gallinula Melampus* of Gefner, approaching to the nature of the snipe kind. It's back is brown, with a slight admixture of reddish, and some spots of a dusky colour; it's wings are variegated with black and white; and it's beak and legs are black. This bird is common in many parts of the German empire.

ROTSCHWENTZEL. The German name for a bird apparently the same with the *ruticilla* or red-start.

ROTSIMPA. A Swedish term for a species of *cottus*, called also *scorpius marinus*. Artedi distinguishes it under the name of the smooth *cottus*, with many thorns on the head, and with the upper jaw somewhat longer than the under.

ROTULA. A genus of *echini marini* of the general class of the *placentæ*. The characters of the *Rotulæ* are; that they are flat shells, composed of various pieces, and formed into a circular figure, somewhat like that of a wheel; but wanting one or more parts of it's outer ring, and radiated or dentated. The mouth is situated in the middle of the base; and the aperture of the anus in the third region of the axis, marked with a cinquefoil flower at the summit: however, the great and obvious character is the dentated edge. There are two known species of this genus.

ROTULA is also an appellation given by some authors to the *faber* or *dorée*.

ROUGET. A name by which some French ichthyologists express the *lyra* and *capo* of authors. It is a species of the *trigla*; and distinguished by Artedi under the name of the *trigla* with the long bifid snout and tubulous nostrils.

ROUND-FISH. An East Indian fish, rather imperfectly described, but said to resemble the whiting, except that it has a small head and tail; and a prominent belly, with two fins on the lower part of it, like those of an eel. The flesh is much admired.

RUBELLIO. An appellation by which some ichthyologists have expressed a small sea-fish of a red colour, caught in the Mediterranean, and more usually stiled the *erythrinus*.

RUBELLUS. A name given by some authors to the common roach, and by others to the *rud* or *fincale*.

RUBETA. A classical appellation for the toad. See **TOAD.**

RUBETRA. A name by which Gefner and some other ornithologists express that species of the *œnanthe* commonly denominated the *stone-chatter*, or *moor-titling*.

RUBICILLA AMERICANA. A Brazilian bird, called in that country *guiraticira*. It belongs to the *bull-finch* kind; and is very beautifully variegated with red, black, and grey.

RUBICULUS. A name given by some ichthyologists to the roach. It belongs to the genus of *cyprinus*; and is distinguished by Artedi under the name of the *red-eyed cyprinus*, with the tail and ventral fins red.

RUBUS. An appellation by which some naturalists express the *skate* or *flaire*, a species of *ray*.

RUDD; the *Cyprinus Erythrophthalmus* of Linnæus. The body of this fish is extremely deep, like that of the *bream*, but much thicker; the head is small; the irides are yellow, varying almost to red; the back is extremely arched, sloping off sud-

denly to the head and tail; the scales are very large; and the lateral line is slightly incurvated. The dorsal fin consists of eleven rays: the first is very short; the second very strong, and serrated on each side. The pectoral fins consist of seventeen rays; the ventral of nine; and the anal of thirteen. The back is olivaceous; the sides and belly are yellow, with some marks of red; the ventral and anal fins, together with the tail, are generally of a deep red hue; and the tail is bifid.

This fish, which spawns in April, is found in the *Cherwell*, near Oxford; in the *Witham*, in *Lincolnshire*; and in the fens of *Holderness*. Plot, in his *Natural History of Oxfordshire*, gives it the appellation of *Fincale*. It is also denominated the *red-eye*.

RUDDOCK. An English appellation for the *rubecula*; more commonly called the *red-breast*, or *robin red-breast*.

RUFFE; the *Perca Cernua* of Linnæus. Artedi distinguishes this fish from others of the same genus by the name of the *perch* with only one dorsal fin; and a cavernous head, with small teeth disposed in rows. The dorsal fin extends along the greatest part of the back; it's first rays are strong, sharp, and spiny; but the others are soft. The pectoral fins consist of fifteen rays; the central of six; and the anal of eight. The tail is slightly bifurcated; and the body is covered with rough scales. The back and sides are of a dirty green colour, the last inclining to yellow, and both spotted with black; the dorsal fin is also spotted with black; and the tail is marked with transverse bars.

These fish are bred in several of our English streams; and being gregarious, they assemble in large shoals, in the deepest places.

The *Ruffe* may be kept a considerable time in a glass jar, the water being often changed; where it will become very tame and familiar: however, it must be supplied with more food than the animalcules in the water can furnish, otherwise it will soon languish and die. No fish is more vivacious; for it will live twenty or thirty minutes separate from the water, without sustaining any sensible injury.

RUFFE, BLACK. Jago has left a short description of this creature under the appellation of the *black fish*. It agrees with the *Ruffe* in the form of the body, the smallness of the teeth, and in having a single extensive fin on the back and a forked tail. It is smooth, with very small thin scales; fifteen inches long, and three quarters of an inch broad. The head and nose resemble those of a trout; and it has a little mouth, with a large double nostril.

Two fish of this kind were taken at *Loo*, in the year 1721, in the *Sean*, by means of small *oreweed*.

RUFFE; the *Tringa Pugnax* of Linnæus. A small bird, the female of which is called the *reeve*.

The *Ruffe* has feathers of various colours; but it is principally distinguished by a very remarkable circle of long feathers surrounding the neck, whence it receives it's name. On the back of the neck there is a tuft of feathers, spreading wide on both sides: in some birds, these feathers round the neck are black; in others, white, yellow, or ferruginous; and even in the same bird they frequently differ in colour. The coverts of the wings are brown or ash-coloured; the feathers on

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the breast are black or dusky; the four exterior ones of the tail are of a cinereous brown; and the four middle ones are barred with black and brown. The bill is black towards the end, and red at the base; and the legs are yellow.

This bird, in moulting, loses the neck-feathers; nor do they return again till the ensuing spring, when a set of small pear-shaped yellow pimples break out on the face above the bill. The male birds of the first year want these marks; and the more they advance in age, the more numerous are the pimples, and the fuller and longer the tufts. The length of the male, from the bill to the tip of the tail, is twelve inches; and the greatest expansion of the wings is twenty-four. The Reeve is about ten inches long, and nineteen broad: the former weighs seven ounces and a half; but the latter only four.

The Reeve never changes its colour, which is brown: the back is spotted with black, slightly edged with white; the tail is brown, the middle feathers being spotted with black; the breast and belly are white; and the legs are of a pale dull yellow hue.

These birds, which are migratory, arrive in this country early in the spring, and disappear about Michaelmas. They build in some parts of Lincolnshire, particularly near Croyland; and are also found in the Isle of Ely, in the East Riding of Yorkshire, and for a short time annually near Martin-Mere in Lancashire. They lay four white eggs, marked with large rusty spots, in a tuft of grass, during the first week in May; and sit about a month. Soon after their arrival, the males begin to hill, as it is termed; that is, to assemble on some dry bank, near a pool of water, in expectation of the females, which resort to them. Each male keeps possession of a small piece of ground, which he perambulates till the grass is quite worn away, and nothing but a naked circle is left; and, as soon as a female alights, the Ruffes begin an engagement. When a fowler discovers one of those hills, he places his net at night; and at day-break resorting to his stand, takes those birds which are within his reach at the first pull: he then fixes his stales, or stuffed birds, in order to entice those which are traversing the fen; and after this manner he sometimes catches forty or fifty dozen in one season.

When these birds first arrive, the males are considerably the most numerous; but, by reason of their continual combats, the number soon sinks beneath an equality. After being taken, they are fed with bread and milk, hemp-seed, and boiled wheat; to which, if expedition is requisite, fugar is added, which soon renders them amazingly fat. They are killed by cutting off their heads with a pair of scissars; and, considering their size, are extremely replete with blood. They are dressed with their intestines, after the fashion of woodcocks; and when killed at the proper season, are reckoned the most delicious treat of modern epicures.

RUMINANT. A term used to express such animals as chew the cud; of which kind are oxen, sheep, deer, goats, camels, hares, and squirrels.

Ruminants, says Ray, are all quadrupedal, hairy, and viviparous: some have hollow and perpetual horns; others deciduous ones. The horned Ruminants have all four stomachs, appropriated to that office; they want the dentes pri-

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mores, or broad teeth, in the upper jaw; and they afford that hard kind of fat, called suet, which in them is firmer and less liquifiable than that of other animals.

RUNT: An appellation by which ornithologists express a species of pigeon; of which there are several varieties, particularly the Leghorn, Spanish, and Friesland Runts. The Columba Domestica Pifarum, Hispaniæ, et Frisiæ, of Moore.

The Leghorn Runt is a fine large pigeon, close-feathered, and flat-fleshed; extremely broad-breasted, and very short in the back. It carries its tail in walking somewhat like a duck; its neck is considerably longer than that of any other pigeon, and arched like the neck of a goose; its head resembles that of a swan; its beak is very short, and wattled; and the upper chap falls a little over. This is a very valuable species; but its great delicacy renders care necessary to its preservation.

The Spanish Runt has the longest body of any pigeon: it is short-legged, and loose-feathered; and its colours are extremely various.

The Friesland Runt is a large bird; and has all its feathers reverted, appearing as if placed the contrary way.

RUNT is also a name by which some authors express a Canary bird of the age of three years.

RUNT is likewise an appellation for the small black cattle brought from Scotland and Wales.

RUPICAPRA. A species of goat: called also the chamois. See **GOAT**, **CHAMOIS**.

RUSTICULA. A name by which some ornithologists express the godwit; called also the ægocephalus.

RUTICILLA. A species of the muscipala, or fly-catcher, in the Linnæan system. This bird is a native of America: its body is wholly black, except the breast, the base of the primary and secondary wing-feathers, and those of the tail, which are yellow. There is likewise a yellow spot on the wings.

RUTICILLA is also a classical term for the red-start.

RUTILUS. A classical appellation for the roach. See **ROACH**.

RUTILUS LATIOR. A name by which some ichthyologists express the fish denominated the rudd in English; the Rubellio Fluviatilis of Latinists in general.

RYNCHOPS; the Skimmer, or Cut-Water. A genus of anseres in the Linnæan system: the characters of which are; that the bill is straight; that the upper mandible is much shorter than the lower, and truncated at the extremity; that the nostrils are linear and pervious; that the tail is slightly forked; and that there is a small back toe.

Linnæus enumerates two species: one of which is blackish above, and white below, with its bill red at the base; and the other is yellow, with a black bill; and by Brisson reckoned a variety of the former. Both these birds are natives of America.

The appellation Rynchops is derived from Rugchos, a Bill; and Koptein, To cut, because the upper mandible appears as if cut off.

Pennant gives this bird the name of Skimmer, from the manner of its collecting its food, with its lower mandible, as it flies along the surface of the water.

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SABELLA. A genus of the testaceous worms, of which Linnæus enumerates seven species. The enclosed animal is a nereis. The covering is tubular, and formed of sand and broken shells cohering by a glutinous cement.

SABLE; the *Mustella Ribellina* of Linnæus. This animal resembles the marten both in shape and size, and the weasel in the number of its teeth; the marten having thirty-eight teeth, and the weasel but thirty-four: therefore, in this respect, the Sable seems to form the shade between these two animals. It has long whiskers, rounded ears, large feet, white claws, and a long bushy tail.

The skin of the Sable is held in the highest estimation of any furs belonging to this tribe of animals: it is of a brownish black hue; and the darkest is the most valuable, a single skin being frequently sold for ten or fifteen pounds. But the fur to which fancy has given such a value is not always the same: some of these species are of a dark brown colour all over the body, except the ears and throat, where the hair is yellowish; and there are even instances of their being of a snowy whiteness.

Sables resemble the rest of the weasel kind in vivacity and agility; in sleeping by day, and hunting their prey by night; and in the disagreeable smell by which that race is chiefly characterized. They inhabit Siberia and Kamtschatka; and a few of them are found in Lapland. They usually live in holes of the earth, or beneath the roots of trees; and sometimes, like the marten, they form their nests in the boughs of trees, skipping from one branch to another with amazing agility. The females bring forth about the end of March or beginning of April; and produce from three to five at a time, which they suckle for a month or five weeks.

These animals are hunted in the winter for their skins, as they are then only in season. In Siberia, the hunting of the Sable used to fall to the lot of condemned criminals, who were banished from Russia into those dreary and inhospitable forests; and thus the luxuries and ornaments of the vain were obtained through the miseries of the wretched. These criminals were obliged to furnish a certain number of skins annually, or receive a punishment proportioned to the deficiency. Sables, however, are now more frequently killed by the Russian soldiers, who are sent into Siberia for that purpose: like these offenders, they are taxed in a certain number of skins annually; but, by way of encouragement, are permitted to share the surplus of the skins which they thus procure.

At present, the Sable-hunters form themselves into troops, from five to forty each: the last subdivide into lesser parties; and each chuses a leader, but there is one person who directs the whole party. A small covered boat is prepared for each division, laden with provisions, a dog and a net, for every two men, and a vessel to bake their bread in. Each party is also provided with an in-

terpreter for every country into which they penetrate. They then set forward in whatever course their leader chuses to prescribe; proceed against the current of the rivers; and drag their boats along till they arrive in the hunting-country, where they build themselves huts, and wait till the frost sets in.

Before they begin the chase, their leader assembles them together; and, after preferring a prayer to the Almighty for success, they separate. The first animal they take is called God's Sable, and religiously dedicated to the Church. As they penetrate into the woods, they set marks on the trees, that they may the more easily find their way back. In their hunting-quarters, they form huts of trees, and bank up the snow round them: near these they lay their traps; and then advancing farther, they set more, still building new huts in every quarter, and returning successively to every old one, to visit the traps; from which they take the game in order to skin it, an office which none but their chief is suffered to perform.

In the mean time the hunters are supplied with provisions by persons employed to bring them on sledges from certain places on the road, where they are obliged to form magazines, because of the impracticability of carrying quantities through the rugged country they are forced to pass.

Their traps are a sort of pitfalls, with loose boards placed over them, baited with fish or flesh: but when Sables grow scarce, the hunters trace them to their holes through the new-fallen snow, place their nets at their entrances, and frequently watch two or three days for the appearance of the animals. And it has sometimes happened that these wretched people, through a failure of provisions, have been so severely pinched with hunger, that, to prevent the cravings of appetite, they have taken two of their boards, one of which they have applied to the pit of the stomach, and the other to the back, drawing them tight together by means of cords placed at their extremities. Such are the hardships experienced by the humble to gratify the wanton finery of the proud!

The hunting season being ended, the parties re-assemble; report to their leaders the number of Sables each has taken; prefer complaints of offenders against their regulations; punish delinquents; share the booty; and then continue at the head-quarters till the rivers are clear of ice, when they return home, and deliver up the votive furs to the Church.

The value of one of these skins has been already noticed; but they are of all prices, from one to ten or fifteen pounds. Fine and middling Sable-skins are sold without bellies, and the coarse ones with them. The very finest are vended in pairs, perfectly similar; and are more valued than single ones of the same quality. The blackest are reputed the best. They are in season from November to February; for those caught at any other period are short-haired. The more long hair any skin is possessed of, and the blacker it is, the more valuable is the fur. The best of all have

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none but long black hair. The gloss vanishes in old furs; and dyed Sables always lose their lustre; though the Chinese have a certain method of dying them, which not only affords a permanent colour, but preserves the gloss. White Sables being extremely rare, are therefore purchased only as curiosities; and some, which are yellowish, are bleached on the snow during the spring.

The common Sables are but little superior, in their colour and hair, to the marten. The American fur is more glossy than the Siberian, and of a bright chestnut colour; but of a coarse quality, and therefore little esteemed.

SABLE, MOUSE. See **MOUSE**.

SACA. An appellation by which some naturalists express a beautiful species of wild cat found in Madagascar.

SACER. A name by which Gaza, and some other ichthyologists, express that species of labrus distinguished by Artedi under the appellation of the red forked-tail labrus, called *anthias piscis* by the generality of writers.

SACHET, OR SACHETTUS. A marine fish bearing a strong resemblance to the common river-perch both in shape and colour, and having the same black oblique transverse lines on its sides; being apparently the same with the *channadella* of Bellonius, Rondeletius, and other ichthyologists. It is found in the Mediterranean; and commonly sold in the markets at Rome, Venice, and other parts of Italy. Its flesh is accounted delicate and well-flavoured. See **CHANE**.

SACRE. A term by which some ornithologists express a species of falcon. The names indeed of this kind have been multiplied beyond the necessary limits, and it is difficult to assign the *Sacre* any certain rank. According to Ray, it is a longer bird than the common falcon; its head is flat, and of a greyish colour; its eyes are large; and its beak is blueish. Its back and wings are brown; its breast is white variegated with brown spots; its thighs are white on the inside; its tail is variegated with kidney-shaped spots; and its wings are very long.

The young birds of this species, which are called *fori*, differ considerably in their plumage from those of a more advanced age. See **FALCON**.

SAGOUIN. A very beautiful small species of monkey, described by Clusius; apparently the same with the *Cagui Minor* of Marcgrave, and the *Simia Jacchus* of Linnæus.

Clusius says that it is about the size of a squirrel; that its head resembles a lion's; and that it is very tender and delicate, and impatient of the slightest injury.

SAGRÉE. An appellation by which some ichthyologists express the *galeus spinax*.

SAI. A term sometimes used to denote the capuchin monkey.

SAIGA. A name by which some naturalists denominate the goat.

SAL-MARINUS. A truttaceous fish of the umbla kind, nearly approaching to that species called the *reutele*; and by some authors suspected not to be essentially different from that fish. It is very scarce, and much valued for the table. It delights in clear stony rivers of a sharp current, and feeds on small fish. Its weight seldom exceeds one pound. Its tail and fins are red; its sides and belly are also reddish; and its back is of an orange colour, or a reddish yellow with some

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yellow spots. The scales are moderately large, and not easily removed.

Artedi distinguishes the *Sal-Marinus* by the appellation of the fork-tailed Salmon, with a yellow back and yellow spots.

SALACIA. A genus of insects of the gym-narthria kind; the body of which is ovato-oblong; and the tentacula are numerous, and disposed in small clusters. Some authors call this genus *priapus marinus*, and *mentula marina*.

SALACSAE. A Philippine appellation for a bird by whose flight the natives pretend to divine future events. It is of a small size, variously coloured, and has a long and large beak.

SALAMANDER. A name by which naturalists express several species of the lizard kind; but the principal are the *Salamandra terrestris*, and the *Salamandra aquatica*.

SALAMANDER, LAND; the *Salamandra Lacerta* of Linnæus. This creature has been the subject of much fiction; and vulgar prejudices have always made a wrong estimate of its properties. The ancients described a kind of lizard under this appellation, which they asserted was bred from heat, could subsist amidst fire, and even derived its proper nourishment from that element. As they observed every other element, the air, the earth, and the water, to be inhabited, fancy was set to work in order to invent an inhabitant of fire, that thus every part of nature might be peopled. It will be almost needless to affirm, that no such creature does exist; and that, of all others, the modern Salamander has the least affinity to such an abode.

It is doubtful whether the animal which now goes by the name of the Salamander be the same with that described by Pliny: however, suffice it to observe, that the Salamander of the moderns is an animal of the lizard kind; and that under this name is comprehended a large tribe. No less than seven different sorts of these creatures have been described by Seba; and, in order to form some idea of the peculiarity of their figure, we may suppose the tail of a lizard applied to the body of a frog. The Salamander, like the frog, has its eyes placed towards the back of the head; like that animal also, its snout is round; and its belly is thick and swollen. The claws of its toes are short and feeble; its skin is rough; and its tongue, unlike that of the smallest of the lizard kind, is short, and adheres to the under-jaw.

But it is not in its external conformation alone that this animal differs from the rest of the lizard tribe. In its nature it is dissimilar, being a heavy, torpid creature; whereas the lizard tribe are active, restless, and vivacious: and it farther differs from lizards, in being produced alive from the body of its parent, and completely formed the moment of its exclusion. It varies also in its general reputation of being venomous, though the truth of its malignity has never yet been ascertained.

Indeed many of the lizard kind have been reckoned poisonous; but it were to be wished that mankind, for the sake of their own happiness, would examine into the foundation of this reproach. Certain it is that their deformity is the only cause of offence in those species which are known in this country; and until our prejudices are removed respecting their malignity, we deprive ourselves of that pleasure which might result from a contemplation of creatures which, though

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useless, tend to animate the general scene of nature, and serve to link one class of beings with another.

With regard to the Salamander, the whole tribe, from the moron to the gekko, are said to be venomous to a high degree; yet, when experiments have been tried, no kind of provocation could excite these animals to the rage of biting. They seem timid and inoffensive, living only on worms and insects; they are destitute of fangs; and their teeth are so very minute, as scarcely to be able to inflict a wound. But as their teeth are evidently incapable of offending, the inhabitants of those countries where they are found have recourse to a venomous slaver which they suppose issues from the mouths of these animals. They also tell us of a venom which proceeds from their claws. Even Linnæus seems to acknowledge the fact; but thinks it probable that this venom may rather proceed from their urine.

With respect to it's powers of mischief, the gekko is the most remarkable of all animals of the Salamander kind: nevertheless, even those persons who calumniate this creature the most, acknowledge it's friendly disposition towards the human species; and, though furnished with the most deadly venom, it is never known to bite. To pronounce on the noxious or inoffensive qualities of animals, without some degree of experience, is undoubtedly absurd; but, from an inspection of the teeth of lizards, as well as a knowledge of the harmless qualities of such as are found in Europe, it is probable that the gekko has been unjustly stigmatized, and that it's figure has involved it in the common reproach with serpents.

The Salamander best known in Europe is from eight to eleven inches long, usually black, spotted with yellow; and, when taken in the hand, feels cold to a high degree. The idle report of it's being incombustible by fire has caused many of these poor animals to be burnt. When thrown into that all-devouring element, the creature is observed to burst through the intense heat of it's situation, and to eject it's fluids; and this, we are gravely told in the Philosophical Transactions of our own country, is the method which this animal adopts to extinguish the flames.

The internal conformation of the Salamander is not essentially different from other animals of the lizard kind: it is furnished with lungs, which assist it in the act of respiration; as also with a heart having it's communications open, so that the creature cannot easily be destroyed by water. The ovary of the female is double the size of that common to others of this tribe; and the male is furnished with four testiculi, instead of two. But, what deserves particular notice, is the manner of this animal's bringing forth it's young alive. 'The Salamander,' says an ingenious author, begins to shew itself in spring, and chiefly during heavy rains. When the warm weather returns, it disappears; and never quits it's hole either during great heats or severe colds, both which are equally inimical to it's pleasure or existence. When taken in the hand, it appears like a lump of ice; it consequently loves the shade, and is found at the roots of old trees surrounded with brush-wood at the bottom. It is fond of running along new-plowed grounds; probably in quest of worms, it's ordinary food. One of these (continues our author) I took alive some years ago in a ditch which had been lately made: I laid it at

the foot of the stairs on coming home, and there it disgorged from it's throat a worm three inches long, that lived for an hour after, though wounded, as I suppose, by the teeth of the animal. I afterwards cut up another of these lizards, and saw not less than fifty young ones come from it's womb, all alive, and actively running about the room.'

Salamanders are all amphibious, or at least are found capable of subsisting in either element. If those taken from the dry land are put into water, they will continue there in seeming health; and, on the contrary, such as are removed from the water will live on the land. In water, however, they exhibit a greater variety in their appearance. They sustain the want of food in a surprising manner: one of them, brought from the East Indies, we are told, lived nine months without any other aliment than what it received from licking a lump of earth on which it was placed; another was kept by Seba in an empty phial for six months, without any nourishment whatever; and Rhedi mentions a large one brought from Africa, that lived for eight months without any food whatever. Indeed, both Salamanders and lizards are nearly in a state of torpidity during the winter season; and therefore their great abstinence seems the less extraordinary.

SALAMANDER, WATER; the *Lacerta Palustris* of Linnæus. This animal, called also the water-newt or eft, is common in fish-ponds and other stagnant waters; and is distinguished from all the others by the flatness of it's tail. However, there are some persons who affirm, that there is no specific difference between the land and Water Salamander, but that their variations arise solely from the nature of their situations. During the whole spring and summer, the Water Salamander changes it's skin every fourth or fifth day; and, in the winter season, every fifteen. This operation, which is performed by means of the mouth and claws, seems to be attended with much difficulty and pain. Their cast skins are frequently seen floating on the surface of the water; the animals are also sometimes observed with a part of their old skins sticking to one of their limbs, from which they have not been able to disengage themselves; and thus, in some measure, appearing crippled: this likewise often corrupts, and the leg drops off; but the animal does not seem to feel the want of it, for the loss of a limb to all the lizard kind is but a trifling calamity. They live for several hours after the loss of their heads; even under dissection, all their parts appear to be animated a considerable time, but their tails preserve their motion the longest. Salt, however, seems to be more efficacious in destroying these animals than even the knife; for, on being sprinkled with it, their whole bodies emit a viscous liquor; and the creatures expire in a very few minutes under every symptom of extreme agony.

SALAMANDRINO. An appellation given by some of the Italian ichthyologists to that species of salmon which Salvian denominates *Sal Marinus*.

SALAMGA. A Philippine name for a species of sea-swallow, the nest of which is esteemed as an ingredient in soups.

SALAR. A term by which some ichthyologists express the trout; others, the salmon while very small.

SALAYASIR. An appellation for a Philippine bird of the duck kind, common in these islands.

islands. It frequents the lakes and marshes; its colours are extremely beautiful; and it is one of the smallest of the genus to which it belongs.

SALMON. A genus of abdominales in the Linnæan system. According to Artedi, the distinguishing characters of this genus of fishes are; that the branchiostege membrane on each side contains eleven, twelve, or nineteen bones; the body of the fish is generally variegated with spots; the dorsal fins are placed nearer the head than the ventral ones; and the teeth, which are large, are arranged in the jaws and palate, and on the tongue: to which may be added, from Linnæus, that the posterior dorsal fin is adipose, and that the ventral fins have many rays.

SALMON, COMMON; the *Salmo Salar* of Linnæus. This is a northern fish, being unknown in the Mediterranean, and other warm climates. It is found in France in some of the rivers which empty themselves into the ocean, and as far north as Greenland. In several countries these fish constitute a principal article of commerce, being cured different ways, by salting, pickling, and drying. There are stationary fisheries of them in Iceland, Norway, and the Baltic: but the most considerable are at Coleraine, in Ireland; and at Berwick upon Tweed, in England.

The Salmon was a fish known to the Romans; for Pliny speaks of it as found in the rivers of Aquitaine; and Ausonius enumerates it among those of the Mosel: but the Greeks appear to have been unacquainted with it. According to its different ages, it receives distinct appellations: those which are taken in the Ribble, in Yorkshire, are called Smelts the first year; Sprods, the second; Morts, the third; Fork-tails, the fourth; Half-fish, the fifth; and in the sixth year, when they are supposed to have attained their proper growth, they are deemed worthy of the name of Salmon. In all parts of Europe the size of these fish is nearly the same; the largest weigh from thirty to forty pounds, though some have been caught of the weight of seventy pounds each.

The Salmon is a fish so generally known, that a brief description of its figure and colours is sufficient. The body is longish, and covered with small thin scales; the head is small in proportion to the body; the snout is sharp; and the tail is forked. The back is of a blueish colour; and the other parts are generally white, intermixed with blackish or reddish spots, arranged in a very beautiful manner. The female may be distinguished from the male by having a longer and more hooked snout, as well as duskier scales; and by the body being speckled all over with dark brown spots. The belly is also more depressed; and contains less red. From the lower jaw of the male proceeds a bony gristle, resembling the beak of a hawk, which serves as a defence against such fish as would devour their spawn: this excrescence grows to the length of nearly two inches, and falls off when the fish returns to the sea. The Salmon is likewise more spotted in fresh water than in the sea: the teeth are small in proportion to the body; and the gills are quadruple, with a broad cover full of red spots. The flesh of the Salmon, when fresh killed, is not so red as when boiled or salted: it is tender, luscious, falls into flakes, and is generally preferred to that of almost any other fish. About the time of spawning, it becomes more insipid than at other seasons; and the fish loses much of its beautiful colours.

The Salmon is thus cured. It is split, then rubbed with fine salt; and, after lying in pickle for six weeks, is packed up with layers of coarse brown Spanish salt in casks, six of which make a ton: these are exported to Leghorn and Venice, at the price of twelve or thirteen pounds per ton, though formerly they fetched a much higher price.

Salmon are equally natives of fresh and salt waters; and quit the sea at certain seasons, in order to deposit their spawn in security in the gravelly beds of rivers remote from their mouths. They are often taken in the Rhine as high as Basil: they gain the sources of the Lapland rivers, in spite of their rapid courses; and surpass the perpendicular falls of Leixlip, Kenneth, and Pont Aberglaflyn.

These fish live for several years; and may be kept alive a considerable time separate from the water. The best are well fed, large, of a middling age, tender, short, reddish, and taken in fine clear running waters. As an aliment, the Salmon abounds with volatile salt, and oily and balsamic particles, which render it nutritive, strengthening, and invigorating: it is diuretic, pectoral, and restorative; but, if eaten too profusely, it occasions vomitings and indigestions; and, if too old, it proves dry and hard, and lies heavy on the stomach.

The Salmon-fishery was very early deemed an article of great importance. In the 13th of Edward I. an act was passed to prevent the capture of these fish, from the Nativity of our Lord to St. Martin's Day, in the waters of the Humber, Ouse, Trent, Don, Arre, Derwent, Wharfe, Nid, Yore, Swale, and Tees; and successive monarchs have provided for the security of fish in other rivers.

The Salmon fry, or smelts, leave the Mersey about May or June; and then weigh about two ounces each: they return about August or September, when their weight is from one pound and a half to two pounds.

The Salmon ought to be kept a few days before it is dressed; for which reason it is better when it has reached London than when caught in the Mersey. About the time of spawning, it is less valued; and even the very colours, from their dulness, indicate the fish to be out of season: then it is commonly denominated a Knipper.

The Salmon inhabits the rivers for about six months in the year: it enters the fresh water about December or January; and is sometimes caught in the Mersey in November, February, or March, where it continues till the autumnal season, when it casts its spawn, and soon after returns to the sea. But the very reverse of this is reported of the Salmon peculiar to the river Ex, in Devonshire, and the rivers Usk and Wye, in Monmouthshire, where they are said to be in season during the other six months.

When the time of spawning arrives, the female seeks some proper situation in a gravelly bottom; where she works with her head, tail, belly, and sides, till she has formed a kind of nidus, of the same dimensions with herself; which done, she discharges her spawn, and retires. Then the male, or milter, advances. This is no sooner over, than the female returns to the male; when they jointly endeavour to cover their brood with the gravel, in which they work with their noses in the manner of hogs: after this they return to the deep, in order to recover their strength, which they

they effect in about twenty days. At this time their flesh is of no value: and, to prevent their destruction, the laws of this country inflict a penalty on those who destroy Salmon between the 11th of August and the 22d of November; but, perhaps, it would be better for the community if the restrictions were laid from September to December.

Nothing is more curious, with respect to the history of these fish, than their surprising agility in leaping over every obstacle which opposes their passage, either to or from the sea; for they are frequently seen to throw themselves up cataracts and precipices many yards above the level of the water. They sometimes make several essays before they can accomplish their point; and, when they have effected it, their destruction has often been the consequence, from baskets placed for their reception at the top of the fall. On the river Twy, in Pembroke-shire, there is a remarkable cataract, where the surrounding natives often stand admiring the strength and agility of these creatures while endeavouring to recover the river from the sea; and on this account it is known in those parts by the name of the Salmon-leap. On the river Wear, near the city of Durham, there is another of this kind, supposed to be the best in England. And there is a third in the river Don, at Old Aberdeen, where these fish have been caught in such abundance, as to be deemed the principal trade of the place.

Whenever the passage of Salmon to the sea is intercepted by wiers, or other similar contrivances, they soon grow sickly, lean, and languid; and, if caught in that condition, prove tasteless and insipid: and the second year, unless they find access to the salt-water, pine away and die. It is also observable, that these fish are not only desirous of returning back to the rivers in general, but to that very river where they were spawned; as evidently appears by an experiment made by fishermen and others who have caught them when very small, and run a small ribband, tape, or thread, through the caudal fin; by which mark they have been assured that the identical fish has been retaken at the same place as it returned from the sea; and by this means have also discovered that the growth of the Salmon is more rapid than that of any other fish.

The most celebrated Salmon rivers in England are the Thames, the Severn, the Mersey, the Trent, the Medway, the Dee, the Ex, the Usk, the Wye, the Lon, the Tyne, the Werkington, and the Weaver: however, the London markets are chiefly supplied from the north, where these fish are not only more plentiful, but earlier in season than in the southern rivers.

The Mersey greatly abounds with Salmon, which in spring strive to ascend that arm of the sea, and with difficulty evade the nets of the fishermen before they reach Warrington Bridge, where the river becomes narrower; and the landowners having an exclusive right, each proprietor, by his agents, catches Salmon, amounting annually to upwards of a thousand pounds. By this capture the towns of Warrington, Manchester, and Stockport, are well supplied; and the surplus is either sent to London by the stages, or carried on horseback to Birmingham and other inland towns.

Having given a general history of the Salmon, it will not be amiss to notice the method of

catching it with the angle. And here it may be necessary to premise, that this fish does not continue long in one place, but seems desirous of getting nearer and nearer to the fountain-head. It neither lurks near the bank, nor under the roots of trees, but swims in the deep and broad parts of the water, generally in the middle, and near the bottom. However, the Salmon smelts commonly lie in the rough and upper parts of a gentle stream, pretty near the middle, during the months of April and May; and nearer the side earlier in the spring.

In the Hebrides, a raw cockle taken out of the shell is found to be the most alluring bait for Salmon; and with this the fishers angle at the bottom, using a running bullet. This method is also practised with success in the river Medway, by letting the cockle fall into a shallow, from whence there is a gradual descent into a deep hole. In most of the Salmon rivers on the continent, and particularly in France, they use prawns, or muscles taken out of the shell.

In the month of October, these fishes ascend the small rivers as far as they are able, in order to deposit their spawn; and at that season many get high up in the Mersey, where some few are caught by angling; but the far greatest part of them are destroyed with spears, by poachers, though their flesh is at that time of very little value. Thus considerable damage is done to the breed of Salmon, without any prospect of advantage to the perpetrators of this mischief; a circumstance which inclines us to wish that the laws were more strictly enforced, and private property better ascertained, in order to the preservation of these valuable fish.

In England, the most usual baits for Salmon are lob-worms, small dace, gudgeons, bleaks, minnows, or two well scoured dew-worms, which should be often varied, to gratify the humour of this capricious fish; for what it delights in one day, it often despises the next; and indeed it is sometimes utterly impossible for an angler to find a bait suitable to its taste. However, it generally bites best about three in the afternoon, in May, June, and July, especially if the weather happens to be clear, and there is a small breeze of wind stirring; but there is still a greater prospect of success if the wind and stream happen to set contrary ways.

For the Salmon-fry, called also the Salmon-smelt, the properest baits are ant-flies, brandlings, earth-bobs, gentles, black and dun gnats, small hackles of all colours, and dub'd flies, according to the season: they are also taken with various other sorts of bait, particularly the red-worm. The places where they generally abound are the scours near the deeps, or among woods or weeds. They always leave the Mersey in May or June.

The chief Salmon-fisheries in Europe, are along the coasts of England, Scotland, and Ireland. The fishing usually begins about the first of January, and ends on the eleventh of August. It is performed with nets in those places where the rivers empty themselves into the sea, and along the sea-coasts in the vicinity: because these fish are observed to crowd thither from all parts in search of fresh water. They are also fished for higher up in the rivers, sometimes with nets, and at others with locks or wiers built for that purpose; and so contrived, that the fish, in passing up the rivers, can open them with their heads; but they

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they are no sooner entered, than these openings shut, and prevent their return. Thus the Salmon are enclosed as in a reservoir, where they are easily taken.

Near Flixon, in Lancashire, the inhabitants fish for Salmon in the night-time, by the light of torches, or kindled straw; which the fish mistaking for day-light, make towards, and are struck with spears, or taken in nets, which having been previously disposed where the fire was intended to be kindled, are lifted up with a sudden jerk from the bottom. In some parts of Scotland, men on horse-back enter the rivers; and whenever they discover any Salmon in the shallows, shoot them with fire-arms. It is also a common practice to dart these fish as they attempt to pass the wiers.

The fishing season commences in the Tweed on the 30th of November; but the fishermen make but little progress till after Christmas. It ends on Michaelmas-day; but the corporation of Berwick, who are conservators of that river, indulge the fishermen with some additional days.

There are no less than forty-one considerable fisheries on the Tweed, extending upwards of fourteen miles from its mouth, which are rented for more than five thousand pounds yearly. A misfortune, however, attends this river, which seems to require a parliamentary remedy; namely, that part of the fishery belongs to Scotland, and part to Berwick; and, from an opposition of interests, they seldom unite in the preservation of the fish: so that in some fisheries they continue killing the Salmon during the whole winter, when the death of one fish proves the destruction of thousands. About the month of July, the capture in this river is prodigious: in a good fishery, a boat's load is often taken at a time; upwards of seven hundred fish have been occasionally caught at one haul; and from fifty to a hundred is a very common draught.

All fishermen agree that no food is ever found in the stomachs of these fish. It is probable that, during the time of spawning, they may wholly neglect their aliment, as sea-lions and sea-bears are known to do for months together during their breeding season; and it may be observed that, like those animals, Salmon return to the sea in a lean state, though they left it in very good condition. It is evident that they frequently vary their food, for anglers use both fish and worms with good success; and sometimes a large, gaudy, artificial fly, proves a very tempting bait.

Artedi enumerates ten species of this genus; and Linnæus increases the catalogue to twenty-nine, dividing them into four classes.

SALMON, ALPINE; the *Salmo Alpinus* of Linnæus. See **CHARR**.

SALMON, GREY. See **GREY**.

SALMON PEEL. An appellation given to a fish very common in some of the Welsh rivers; agreeing in the colour of its flesh, and perhaps also in kind, with the common Salmon.

SALMON SEWSE. A name by which the young fry of the salmon is sometimes expressed.

SALMON TROUT; the *Salmo Trutta* of Linnæus. This fish, which is also denominated the *trutta lacustris*, the bull-trout, and scurff, differs from the Salmon in its tail being less bifid; from the grey, in having a shorter and thicker head; and from both, in being smaller, seldom exceeding twenty inches in length. Its flesh is

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white, and less delicate than that of the salmon and the grey.

These fish delight in deep holes, and usually shelter themselves under the roots of trees. When watching for their prey, they generally make choice of that side of the hole which is towards the stream, that they may more readily catch whatever food the current brings down with it. They will rise at artificial flies like salmon; but their most favourite baits are well-scoured brandlings, especially such as are bred in tanners yards.

Salmon Trout continue in season during the whole summer; and may be angled for either in the mornings or evenings. The angler must keep out of sight, and let his line fall into the stream without any lead except one single shot; and then it will be carried gradually into the place where the Trout resides.

This fish sometimes weighs about four pounds. The irides are silvery; the head is thick, smooth, and dusky, with a gloss of blue and green; and the back is of the same colour, except that it becomes fainter towards the lateral line. The sides, as far as the lateral line, are marked with large, distinct, irregular-shaped spots of black; and the sides beneath the line, as well as the belly, are white. The dorsal fin consists of twelve rays, the pectoral of fifteen, the ventral of nine, and the anal of ten.

The descriptions of this fish are frequently very obscure. Its name is variously applied: sometimes it is used to express the young of the salmon; and at others it is given to a kind of pond-trout found in France, which frequently weighs upwards of thirty pounds.

SALPA; the *Sparus Salpa* of Linnæus. A fish caught in the Mediterranean, and commonly seen in the Italian markets. It is usually about a foot in length, and somewhat flattened; the body is considerably thick; and the back is straight. The sides are variegated with a number of fine gold-coloured lines running longitudinally; the intermediate spaces between these, toward the back, being of a blueish green, and white toward the belly. The mouth is extremely small; and the teeth, which are thick and broad below, terminate in a double point. There is only one dorsal fin, the anterior rays of which are prickly, and the hinder ones soft.

These fish generally frequent the shores in large shoals; but their flesh is held in little estimation.

SALPUGA. See **SOLIPUGA**.

SAMLET; the *Salmulus* of Ray. A fish of the truttaceous kind, frequently found in the Wye, where it is called skirling or laspring; in the upper part of the Severn, and those rivers that join it; and in the north of England, in Wales, and in Scotland, where it is called par, brandling, or fingery. It seldom exceeds seven inches in length. Its shape bears a strong resemblance to that of the trout; but differs in the following particulars: the head is narrower, the mouth less, and the body deeper; it has fewer spots, and those of a deader colour; the pectoral fins have generally one large black spot, attended sometimes with a small one; whereas the pectoral fins of the trout are more variously marked. The tail is more bifid; the spurious, or fat fin on the back, is never tipped with red; nor is the edge of the anal fin white: the sides under the lines are yellowish;

lowish; and there are several blueish streaks near the lateral line, though these last are sometimes found in young trouts.

Many have imagined this fish to be the fry of the salmon; but Pennant dissents from this opinion, for these judicious reasons: because the salmon fry never continue in fresh water during the whole year, but disappear after the first vernal flood that happens, which sweeps them into the sea: because the growth of the salmon fry is so rapid, that they soon exceed the bulk of the largest Samlet: because the salmon attains a considerable bulk before it begins to breed, whereas the Samlets are found males and females, of the common size, distinguished by the milt and roe; and because they frequent the fresh waters at all times of the year, and even at seasons when the salmon fry have gained a considerable size.

The Samlets spawn in November and December; at which time those of the Severn push up towards the head of that fair river, quitting the lesser brooks; and, after having accomplished this momentous purpose of their lives, they return again.

SAND-EEL. An appellation by which some authors express the launce, or ammodytes.

SAND-PIPER. A name given by Pennant to the tringa of Linnæus; because most of the species belonging to this genus are found about the shores, and have a whistling or piping note.

SAND-SWALLOW; the *Hirundo Riparia* of Linnæus. A very small bird, which builds in holes and sand-pits; and also in the banks of rivers, penetrating some feet deep, and boring through the soil in a surprising manner with its feet, claws, and bill. It forms its nest of hay, straw, and other materials; and lines it with feathers. It lays five or six white eggs; and brings forth its young the earliest of the swallow tribe.

The head and whole upper part of the body of this bird are mouse-coloured; the throat is white, encircled with a mouse-coloured ring; the belly is also white; and the feet are smooth and black.

SANDERLING; the *Charadrius Caladris* of Linnæus. This bird is a native of some parts of Lancashire; but is by far more numerous in Cornwall, where whole flocks are seen together. It weighs little more than one ounce and a half; its length is eight inches; and the expansion of its wings is fifteen. The body is of a more slender form than others of that genus; the bill is one inch long, weak, and black; the head and hind part of the neck are ash-coloured, marked with oblong black streaks; the back and scapulars are of a brownish grey hue edged with dirty white; the coverts of the wings, and the upper parts of the quill-feathers, are dusky; and the whole under-side of the body is white, but in some slightly clouded with brown. The tail consists of twelve sharp-pointed feathers of a deep ash-colour; and the legs are black.

SANGUINEROLA. An Italian appellation for the phoxinus, or minnow; so called from the blood-red colour which is conspicuous under its belly. Artedi makes it a species of the cyprinus.

SANGUISUGA. A name by which some naturalists express the hirudo, or leech.

SANS PAREILLE. The French term for a particular species of buccinum, the mouth of which opens a contrary way to that of the other buccina. This is a single species among the recent shells of this genus; but, among the fossil

ones, we find several in England with this peculiarity.

SARACHINUS. An appellation given by some ichthyologists to the fish called by the generality of authors thriffa; in English, the shad, or mother of herrings.

Naturalists have given names to the herring kinds according to their different growth and size, and multiplied the species much beyond the truth. Artedi observes, that the agonus and Sarachinus are only herrings of different growth; and that the alausa minor of ichthyologists is synonymous with agonus.

SARACUS. A name by which some writers express a fish of the herring kind; called also agonus, and alausa minor.

SARDA. An appellation sometimes given to the fish more usually known by that of pelamys, or pelamys Sarda; a creature resembling a young tunny, but furnished with longer and larger teeth, and without any scales.

SARDANUS. A fish of the harengiform kind, caught in the Mediterranean, and common in the markets of Rome and Venice. The body is broader than that of the pilchard; the back is green; and the line running along the belly is considerably smoother than in that fish.

It is indeed easy to distinguish this fish from the pilchard; but more arduous to explain in what respect it differs from the common herring, except in size: Willughby therefore seems to think it probable, that it is no distinct species of fish; but that the herring, like the pilchard, is always smaller in the Mediterranean than in the ocean.

SARDELLA. An appellation whereby some writers express the pilchard of the Mediterranean; which they suppose to be different from that of the ocean, though in reality they appear to be the same, except in size; which circumstance originates from their situation.

SARDINA. A name by which some ichthyologists express the small pilchard of the Mediterranean.

SARFE. A term sometimes used to signify the red-eye.

SARGUS. A fish well known to the ancients, and much esteemed for the delicacy of its flesh; still caught in abundance in the Mediterranean and Adriatic.

The shape of the Sargus somewhat resembles that of the sparus; but its nose is longer, and more pointed, turning up a little; and its fore-teeth are shaped like the human. It has no tubercles in the hind part of its jaws, as the sparus has; and its whole body is variegated with brown transverse rings, resembling the variegations of the perch. It has only one dorsal fin, the anterior rays of which are prickly, and the posterior soft.

SARGUS. A river-fish; called also gardon, fardus, and cephalus; and by many supposed to be little different from the common roach. In its general figure, it resembles the chub; but it has a smaller head, and a somewhat broader body. The back is blueish; the neck greenish; and the belly white. Its eyes are yellow; it is destitute of teeth; and it is usually leaner than the chub.

This fish is extremely brisk and lively; and is therefore used as an emblem of health among the French, who, in imitation of our proverb, 'As found as a roach,' say, 'As found as a gardon.' It is common in the rivers of France, Italy, and

Germany; and is esteemed pretty good for the table.

SARIGOY. An appellation by which some naturalists denominate the creature more usually known by the name of the opoffum.

SARIO. A distinctive appellation for the salmon in the middle state of it's growth; when it has passed it's younger state, in which it is properly stiled falar; and not yet arrived at maturity, when it obtains the name of salmo.

SASSOROLLA. A peculiar species of pigeon; called also columba rupicola, or the rock-pigeon. It is shaped like the common pigeon, but smaller; it's legs are red; and it's back is of a variegated grey colour. It appears to be the *livia* of some writers.

SAVAGE, SpheX. A genus of flies described by Hill: the distinctive characters of which are; that the mouth is formed of oblong jaws, without trunk or tongue; that the wings lie smooth, and perfectly even; that the antlers have ten joints; and that the weapon at the tail is simple, sharp, and hollow. No creature can display more provident affection for it's young than this; nor is any so savage as to employ similar means for this purpose. The manner of living is different in the various species, and so is the general form of the body; but the essential qualities appear innate, and inherent in all.

They all agree in being the fiercest of the fly kind; for they will attack insects much larger than themselves. Their strength indeed is great; their jaws are hard and sharp; and their stings are armed with a poison which suddenly proves fatal to their opponents. The Savage seizes boldly on the creature it attacks, giving a stroke with amazing force, and then falling off to rest from the fatigue of the exertion, and to enjoy the victory: however, it keeps a steady eye on the object it has struck till it dies; and then drags it to it's nest, for the use of it's young.

The number of insects which this creature destroys is almost beyond conception; fifty scarcely serve for a single meal; and the mangled remains about the mouth of it's retreat sufficiently betray the sanguinary inhabitant.—The following are the two most curious species.

SAVAGE, COMB-FOOTED; the *Sphex Pectinipes* of Linnæus. The antlers of this species are composed of oval joints; the fore-feet are formed like combs; and the body is closely united to the trunk. The head is of a chestnut colour; the eyes are blue; the antennæ are brown; the trunk is black and rough; and the scutcheon is grey. The body is smooth and shining, of a rusty iron colour, with bands of an orange yellow; the legs are of a blue grey; the wings are of a pale brown; and the sting, when protruded, is of a fine polished brown.

This insect lives in caverns of the earth, in the sides of hills and cliffs, and in the mud walls of houses. It lays it's eggs in it's cavern; and after bringing a sufficient stock of slaughtered insects to the spot for the support of it's young when hatched, leaves them to their fate.

SAVAGE, TURNER; the *Sphex Spirifex* of Linnæus. The body of this insect is united to the trunk by a long small thread; the antlers are composed of ten joints; and the feet are jointed and hairy, each being furnished with two toes. The head is of a chestnut brown colour, with a tinge of blue; the eyes are black and large; the

feelers are blackish; and the antlers are of a ruddy brown hue. The trunk is of the colour of the antlers; the scutcheon is yellow; and the thread which unites the two parts together is likewise of the same hue. The body is ferruginous; the legs are partly brown, and partly yellow; the wings are of a dusky brown hue; and the sting is yellow.

This creature forms a close spiral retreat for itself in some mud wall; at the mouth of which it commonly watches for it's prey. The havoc it makes among insects is really incredible; and part of it's history is strangely replete with horror. It lays it's eggs in the back of a living caterpillar; which hatching, eat that creature up even while itself is feeding.

SAVANNAH BIRD. A small American bird, about four inches long, and seven broad; with a short, thick, sharp bill. The top of the head, together with the upper part of the neck and back, are of a dark brown colour mixed with whitish and ruddy-coloured plumage; the lower part of the neck and the breast are of a lighter brown, tending to the colour of ochre; the belly is white; and the feet are also whitish.

This bird never perches on trees, but sits on the ground like a lark.

SAUEL. A Portuguese appellation for a species of fish frequently caught on the coasts of China, called by the natives *Xiyu*. During the months of April and May, vast numbers of them are taken in the river Kiang, near Nankin; when one of the most honourable of the Emperor's eunuchs takes care to have several vessels laden with them, which being put into the ships alive, are buried as it were in ice provided for that purpose; and in this manner preserved for the summer provision of the court.

SAVELIN. A truttaceous fish of the umbra or umbra kind, caught in the Danube and some other large rivers. The back is black; the sides are marked with yellow spots; the scales are very small; and on the head there is a very remarkable series of spotted lines, running into a singular figure, surrounding the eyes, and afterwards reaching to the angle of the gills.

This fish is commonly about one foot long; sometimes weighs from six to eight pounds; and is much esteemed for it's fine flavour.

SAURUS. An appellation given by some ichthyologists to the lacertus or longer gar-fish; called *aguglia imperiale* by the Italians, and *gir-rock* by English fishermen.

SAURUS is also used by Salvian and some other writers to signify a fish of the cuculus kind, resembling the mackerel both in figure and taste, and more usually stiled the *trachurus*.

SAW-FISH; the *Squalus Pristis* of Linnæus. A fish which receives it's English name from the figure of it's snout, resembling a large toothed saw. According to the Artdian system, it is a species of squalus; and is distinguished from the other species of the same genus by the appellation of the squalus with a long, pointed, and flattened snout, dentated on each side.

From it's prodigious magnitude, this fish has been accounted, though improperly, a species of whale; for it is in reality of the same genus with the *galerus* or hound-fish. The back is ash-coloured; and the belly is white. The head is cordiform, and flattened; the mouth is placed far below the end of the snout, and in the upper part of the

the head, as in the zygæna; and the lips are rough and sharp like a file, which supply the place of teeth. The head is terminated by a long flat bony substance, furnished with jaggs or points on each side, like the deep teeth of a saw; of which there are from twenty to thirty on each side. This substance is sometimes five feet long.

The Saw Fish, which is a native of the Atlantic Ocean, has a round body, gradually lessening towards the tail.

SAW-FLY. A genus of two-winged flies, whose mouth is formed of saws; the wings lie plain; the scutcheon has two small, distant, elevated points, on it's hinder part; and the weapon at the tail, which is short, is formed of two plates jagged like a saw, and hollowed longitudinally in the female, but plain in the male.

SAW-FLY, MOURNING; the *Tenthredo Luctuosa* of Hill. The antlers of this species have seven joints; the head and trunk are red; and the body is black. The eyes are blue; the feelers are short and pale; and the scutcheon is of a deep red colour, the points which appear on it being blue. The legs are grey, and furnished with two claws; the wings are of a pale yellowish brown colour, with little yellow prominences on the ribs, and an edge of deeper yellow; the tail is of a deep brown hue; and the sting or saw, which is flattened and thin, is of a chestnut brown.

This is the *Tenthredo Alni* of Linnæus; a pretty, quiet, melancholy fly, found among alder plantations; and often fatally entangled in the clammy juice that issues from their leaves. It originates from a yellow worm with a black head, and twenty minute feet. During the winter, it lies buried in the earth, where it undergoes it's transformations; and comes abroad in May in it's full perfection and beauty.

SAW-FLY, MOTTLED; the *Tenthredo Variata* of Hill, and *Sylvatica* of Linnæus. This singular and delicate fly frequents damp woods and moors during the months of August and September. The head is of a shining blue colour; the eyes are green; the antlers are amber-coloured, and composed of more than twenty joints; the feelers are short and brown; and the jaws are of a yellow brown hue. The trunk is iron grey, mottled with irregular spots of gold; the scutcheon is entirely raven grey, with black points; the body is of a deep black colour above, and raven grey below; the legs are of a fine vivid yellow, with black claws; the wings are brown, with dusky edges; and the tail is amber-coloured.

This creature generally lives in bushes, feeding on their juices and sap; and when the female lays her eggs, an acid mucilaginous juice flows out with them, which perverts the course of the sap in the plant, and occasions a kind of gall.

SAYACU. A Brazilian bird, about the size of the chaffinch. It's body is entirely of a greyish green colour; it's back and wings are of the most vivid beauty; and it's eyes and beak are black.

SAYAN. An appellation by which some authors express that species of sea-swallow whose nest is so famous as an ingredient in soups.

SCAD; the *Scomber Trachurus* of Linnæus. This fish, called also the horse-mackerel, is about sixteen inches long; the nose is sharp; the eyes are large; the irides are silvery; the lower jaw is somewhat longer than the upper; and the edges of both are rough, but destitute of teeth. A large black spot appears on the covers of the

gills; the scales are large and thin; and the lower half of the body is quadrangular, and marked on each side with a row of thick strong scales extending to the tail. The first dorsal fin consists of eight strong spines; the second, which rises exactly behind it, is composed of thirty-four soft rays, and reaches almost to the tail; the pectoral fins, which are long and narrow, consist of twenty rays; and the ventral contain six branchiostege rays. The vent is situated in the middle of the belly; and the tail is much forked. The head and upper part of the body are varied with blue and green; and the belly is silvery. The flesh, which is firm and well-tasted, has the flavour of mackerel.

SCALLOP. A genus of shell fish, whose animal is a tethys, growing to a large size; and which is dredged up, pickled and barrelled for sale. The shell is bivalve, one of the shutters being concave, the other plane or flat. The hinge is slightly bent from the concave shell, and thence carried over a part of the plain shell; and in the middle, as well as in the intermediate space, it is firmly connected to a cartilage. In the centre of the hinge is placed another short, black, and very strong instrument of a similar kind.

Hence we may perceive to what that remarkable power this animal possesses of opening and shutting it's shell is to be ascribed; and it is very possible that, by the assistance of such a very strong apparatus of tendons or ligaments, it may be enabled to move the plane shell in so swift and regular, and at the same time so forcible a manner, as to forward it's progressive motion; and probably it may supply the place of a wing to beat against the water, as the pinion of a bird against the air. Thus, what the ancients have so frequently said of this creature's moving so rapidly from one place to another, may be literally true; though modern observers have failed to remark this peculiarity in the like full extent with those of antiquity. See **PECTEN**.

SCARABÆUS, the Beetle. An extremely numerous class of insects, belonging to the order of coleoptera in the Linnæan system, distinguished by clavated and fissile antennæ, and by having the fore-legs generally dentated. Linnæus distributes them into such as have a horned thorax; those having an unarmed thorax, and a horned head; and such as have feet without claws, with an unarmed head and thorax. This great naturalist enumerates eighty-seven different species.

In order to give a distinct idea of the difference of the species, Lister arranges them into a kind of method. The first general distinction is into those which live on the land, and such as live in the water; of each of which there is a large number. Those Beetles which inhabit the land, sometimes have their antennæ laminated at the end; others have them sharp-pointed. In some the cases of the wings are perfect; in others, they appear mutilated. Some have the antennæ inserted into a kind of promuscis, and these are called by the ancients gurguliones; in others, there is only one juncture of this member in the middle. In some, there are several near the extremity; others have a sharp-pointed instrument at the head, and are denominated cimices. For a description of the most curious Scarabæi, see **BEEBLE**.

SCARABÆUS is also an appellation by which some ichthyologists express that species of sparus called otherwise the cantharus.

SCARE-CROW.

SCARE-CROW. A bird of the larus or feagull kind; called by ornithologists larus niger, and by Linnæus Sterna Fiffipes. This bird, which is equal in size to the blackbird, has very long wings; the head, neck, breast, and belly, as far as the vent, are black; and, beyond it, white. The male has a white spot under it's chin; the back and wings are of a deep ash-colour; the tail is short and forked; and the legs are short and red. It's flesh is reckoned wholesome food.

These birds frequent fresh waters, breeding on the banks of rivers, and laying three small eggs of a deep olive-colour spotted with black. During the spring and summer they are very numerous in the fens of Lincolnshire, where they make an incessant noise; and birds of this species are also sometimes observed at a considerable distance from land.

SCARLET GRAIN. An appellation by which some authors express the kermes; but more commonly restrained to an animal found in Poland, about the size of a pepper-corn, and of a roundish shape. It's colour is a deep purple, tinged with blue; it sticks to the root of the tree on which it feeds; and, when gathered for use, is found in a rough cup, somewhat resembling that of an acorn.

These grains appear to be excrescences on the root where they produce their young; which at first are evidently real insects, having small longish flattened bodies consisting of several segments, six short slender legs, and two feelers. These are of a lighter purple than the parent from which they spring. When they have acquired their full size, they fix themselves to the root of the plant where they remain. The male is a two-winged fly.

SCARUS. A marine fish, a species of the labrus in the Linnæan system; respecting which several remarkable things have been asserted by the ancients, such as it's possessing the quality of rumination like oxen. This Aristotle, Pliny, Oppian, and others, affirm; but none of them from their own personal knowledge; they seem only to have gathered it from hearsay, or else to have borrowed it from each other.

It has also been alledged, that this is the only fish which feeds on herbs; and it has likewise been thought that this is the only one which ever sleeps. But all these attributes are either exaggerated, or totally destitute of truth; for the Scarus possesses few singularities which are not common to other fish.

The modern ichthyologists have described three species of this fish; the Scarus Onias, the Scarus Varius, and the Scarus Bellonii. The two former were mentioned by Rondeletius; but the latter was noticed by Bellonius, and seems to have been the very fish which the ancients knew by this appellation.

The Scarus Onias is a marine fish, found among rocks, and near the shores: it's scales are large, and very thin; it's back is of a blackish blue colour; it's belly is of a fine white, and an oblong and rounded shape; it's teeth are broad, somewhat resembling the human; it's eyes are large; and it's head over the eyes is of a fine strong and clear blue colour.

The Scarus Varius is of the shape and proportions of the former; but it's eyes and belly are of a purple colour. It's tail is of a fine clear and strong blue; and the rest of the body is of a greenish or blueish black. The scales are spotted and

speckled with dusky spots. The teeth are broad in the upper jaw, and somewhat pointed in the lower; from the head to the tail, along the ridge of the back, runs a row of short spines, connected at their bottoms by a membrane; and in the middle of the belly there are several purple spots.

The Scarus Bellonii differs from both these. It's colour is a mixture of blueish and red; it's scales are broad and thin; and it has two transverse protuberances near the sides of the tail. The body is rounded, and moderately long; the teeth are strong, obtuse, and well adapted for their office, which is that of tearing off the rough feathers from the rocks, and chewing them for food; and the dorsal fin is single and prickly.

This fish is esteemed peculiarly delicate when eaten with the entrails and their contents; but otherwise, it is insipid. The Grecian epicures formed a luxurious dish of the liver and stomach, disregarding the rest of the body.

SCAULEZ. An appellation sometimes given to a Mediterranean fish, called also hepsetus and anguella.

SCAUP DUCK; the Anas Marila of Linnæus. A bird of the duck kind, varying considerably in it's colours; so that, in a flock of forty or fifty, perhaps two exactly similar cannot be found. Willughby informs us, that this species receives it's name from it's feeding on scaup, or broken shell fish. See DUCK.

SCARONE. A term by which Salvian and some others express the picked dog-fish, or hound; the Galeus Spinax of the Latinists. It is a species of squalus, distinguished by the roundness of it's body, and by having no pinna ani.

SCELAZIUS. An appellation given by Dr. Hill to a genus of animalcules with visible legs. These creatures are common in ditch-water; and their motions are considerably slower than those of other animals of the same kind.

SCHÆNICLOS. A bird described by Bellonius, which seems to be the same with the sea-lark or stint.

SCHAFFILT. A name given by some ornithologists to a very small owl, the noctua minor of authors in general; a bird not larger than the thrush, with bright yellow-coloured eyes, large ears, and feet feathered down to the toes. It is a native of the forests of Germany.

SHEAT. An appellation by which some authors express the gentling; a fish of the chub kind, caught in the Danube and other large rivers of Germany; and called by Gesner and Aldrovandus the Capito Cæruleus.

Artedi distinguishes it by the name of the Silurus with four beards at the mouth. This is the essential character in which it differs from the lake, another fish of this kind, with only one beard.

SHELLENT. A species of duck which frequents the sea-coasts; about the size of the common breed; and differing from the capo rosso in being much larger; as also in having yellow irides, though their general colours correspond.

SHELLEY. A provincial appellation for the fish more usually denominated guiniad. It is the lavareto and ferra of some ichthyologists; and is caught in the lakes of Cumberland, and some other places. See GUINIAD.

SCHILUS. A name by which some ichthyologists express the lucioperca, or pike-fish. See PIKE.

SCHOMBURGER;

SCHOMBURGER, the *Oriolus Melancholicus* of Linnæus. This bird, which was first described by Edwards, is a native of the Spanish West Indies. The bill, which is pretty long and thick, is of a dusky flesh-colour; the eyes are hazel; and the sides of the head and throat, for a small space above the bill, are black; which colour extends downwards on each side of the neck almost to the rise of the wings. The top of the head, the upper side of the neck, the back, and coverts of the wings, are brown, spotted with black; and the quill-feathers of the wings and tail are dusky, edged with a bright reddish brown. The whole under-side, from the throat to the coverts beneath the tail, is of a lively light reddish brown colour; the breast and belly are spotted with black, the whole plumage being black in the middle, and brown round the borders. The legs and feet are of a reddish flesh-colour; and the claws are brown, the hind claw being unusually long.

SCHRAITSER. A Danubian fish, bearing a strong resemblance to the ruff, or small gilded perch. It is commonly about three inches long; the tail is bifid; the dorsal fin is composed of thirty rays, eighteen of which are rigid and prickly, the remainder being soft and flexile; the upper jaw has a membrane somewhat like a lip depending from it; and the covertures of the gills terminate in a spine or prickle. The membrane of the back-fin is variegated with black spots. Its general colour is paler than that of the perch; and its flesh is much esteemed.

SCIÆNA. A distinct genus of fishes in the Linnæan distribution, of the general order of thoracici: the characters of which are; that the opercula of the gills are scaly; and that there are six branchiostegous rays, and a groove in the back to receive the dorsal fin. The umbra constitutes one species of this genus.

According to Artedi, the characters of this genus are the following. The whole head and covertures of the gills are scaly; and one of the laminae of these coverings is serrated at the edge. The body is compressed and broad; the back is acute; the teeth are arranged only in the jaws and fauces, the palate and tongue being bare; there is only one fin on the back, but it is bifid, and so deeply divided at the middle, that it seems to form two; the tail is not forked, but even at the extremity; and the appendices of the pylorus are seven or eight in number. Five species of this genus are found in the Mediterranean.

The word *Sciæna* is of Greek origin, and derived from *Skia*, Umbra. The genus receives its name from the dusky, shadowy colour of its body.

SCINCUS, the Skink. A species of lizard, called also the land-crocodile, and well known by the faculty as an ingredient in several compositions. It resembles the smaller species of lizards, being seldom more than six inches in length. The colour is a silvery grey; the body is covered with scales; the tail is rounded; the head is of an oblong figure; the nose is sharp; and the feet appear as if alated, having five toes each, armed with very sharp claws. This creature is common in Egypt and Arabia.

The dried flesh of the *Scincus* is strongly recommended as a substitute for that of vipers, possessing all its virtues in the most exalted degree. It is esteemed diuretic, alexipharmic, and restorative, as well as powerfully provocative. The Egyptians cut the flesh to pieces, and boil it

down to a strong broth or jelly; in which form it may have some efficacy, though its virtues seem to be greatly exaggerated.

SCNIPS. An appellation by which some naturalists express a small species of gnat commonly found on the oak-tree, feeding on the juices of its leaves, which it sucks by the application of its sharp trunk. This insect is supposed to originate from the small oblong white worm which lodges in the oak-apple.

SCOLOPAX. A genus of grallæ in the Linnæan system: the characters of which are; that the beak is roundish, obtuse at the end, and longer than the head; that the nostrils are linear; that the face is covered with feathers; and that the feet are furnished with four toes, the hinder one consisting of several joints.

Linnæus enumerates eighteen species; among which are placed the curlew, whimbrel, snipe, godwit, and woodcock.

SCOLOPAX is also an appellation by which some authors express the trumpet-fish.

SCOLOPENDRA. An insect with a long slender body, very smooth, of a yellowish or reddish colour, furnished with a vast number of legs, and having two long antennæ and a bifid tail.

In the Linnæan system, the *Scolopendra* is a genus of the order of aptera: the characters of which are; that the animal has as many feet on each side as the body contains segments; that the antennæ are setaceous; that it has two articulated palpi; and that the body is depressed. Linnæus enumerates eleven species.

From the Philosophical Transactions we learn that there is a species of this animal which naturally shines in the dark, after the manner of a glow-worm, but with a fainter and more general light. Every part of the body of this insect will emit sparks in the dark, if pressed. It is covered with a soft down, or short fine hair; among which a vast number of long sharp prickles are interspersed, about the same length as the hair, but as stiff as the bristles of a hog, sharp-pointed, and black. The tail, or smaller end, terminates in two bright scales on the back, and in this the anus is situated. It has neither horns, eyes, nor any other organ common to the heads of the insect tribes. The mouth is wide, and situated under the belly part, which is smooth, flat, and irregularly marked with brown spots. The legs are placed in two rows, the whole length of the body; those nearest the mouth are the longest, and the shortest are near the tail. The whole number of legs is seventy-two, thirty-six on each side. A cluster of three or four prickles passes from within the body through the middle of each leg; and these are larger or smaller according to the size of the leg. On each side of the upper, or back part of the animal, there are a number of soft, flat, smooth fins; which face the legs in such a manner, that each foot has its corresponding fin: these assist the creature in swimming, as the legs are adapted for crawling.

On opening the body of this insect, a muscular organization presents itself to view, elegantly contrived for giving play to such a large number of legs and fins. This appears in form of one large and broad red muscular congeries; and from it thirty-six pair of rays are propagated on each side, every pair serving for the motion of one leg and one fin: these are distinctly visible, and represent the spine and ribs in some fish.

SCOLOPENDRA MARINA. A remarkable

able insect of the Scolopendra kind found in the Irish seas, and appearing to be synonymous with the *vermis aureus*, or *erucæ marinæ* species rarior of *Oligerus Jacobæus*.

Peyssonel describes a small marine Scolopendra, of a square figure, whose body and head were composed of eighty rings, and which possessed the singular faculty of occasionally ejecting its intestines. The four sides of this insect were armed with prickles, of which every ring had four fasciculi; and these were sometimes spread out like a fan.

These insects, when placed on the fingers, thrust a vast number of their prickles into the skin, and excite a sharp kind of pain, similar to that occasioned by fire.

SCOLOPENDRA SCUTATA. An animal of the insect kind, about one inch and a half long, and somewhat less than an inch broad; resembling, in many of its parts, the Molucca crab, sometimes called the buckler-crab. When the back is examined, it is found to be covered with a case or shield, remarkably gibbous or prominent, along the middle, with a triangular opening in the shell near the tail. On the head there are two short horns, standing in the common place of the antennæ. When the case or shell is removed, the rings on the body are discovered to be about thirty in number. There are forty-two legs on each side; the first twenty being nearly of the same size, and the rest gradually diminishing. Each of the feet contains five membranaceous claws: these are flat, with a stiff rib in the middle; and are beset in that part with hairs, like the legs of a crab. The whole structure of the legs seems to be better adapted for swimming than walking.

This species was first observed by Klein, in those places of Prussia where cray-fish are caught. It has likewise been found in Kent; where a pond that was dry at Midsummer, having been filled by means of a heavy thunder-shower, was covered in a few days with these insects, notwithstanding there appeared no visible means by which they were or could be produced.

SCOMBER. In the Linnæan system, a distinct genus of the thoracic order of fishes: the characters of which are; that the head is compressed; and that there are seven branchiostegous rays, and several small fins between the dorsal fin and the tail. The species of this genus are, the Scomber, or mackerel; the pelamys, thynnus, cordyla, glaucus, trachurus, hippos, chrysurus, amia, and pelagicus.

According to Artedi, the characters of this genus are: the branchiostege membrane on each side contains seven slender bones, the upper one of which is nearly hid by the coverings of the gills; the tail is very forked, and shaped like a crescent; there are one or more eminences on each side towards the tail; the fins are either only two on the back, or, exclusive of these, several small and short ones running as far as the tail, on the under as well as the upper part of the body; and the appendices to the pylorus are very numerous. The species of this genus are four; the common mackerel, the tunny-fish, the horse-mackerel, and the glaucus primus of Willughby and Rondeletius.

SCORPIOIDES. A fish of the gottorugine kind, but differing in colour, being of a faint green, variegated with black spots; and either

wanting the eye-fins entirely, or having them extremely minute. See **GOTTORUGINE**.

SCORPION. A genus of reptiles of the order of aptera: the characters of which are; that there are eight legs, and a pair of claws at the head; eight eyes, three on each side of the thorax, and two in the back; two claw-like feelers; a long jointed tail, terminated by a bent, pointed weapon; and two pectines or combs between the breast and abdomen. Linnæus enumerates six species.

The Scorpion is one of the largest of the reptile tribes, and not less terrible on account of its size than its malignity. It somewhat resembles the lobster in shape, but is infinitely more hideous. The different species are chiefly distinguished by their colour, size, and local circumstances: some are yellow, brown, and ash-coloured; others ferruginous, green, pale yellow, black, claret-coloured, white, and grey.

In this animal four principal parts are distinguishable; the head, the breast, the belly, and the tail. The head appears as if jointed to the breast; in the middle of which are seen two eyes, and a little farther forward two more eyes, placed in the fore-part of the head: these eyes are so minute, that they are scarcely perceptible; and it is probable that the animal has but little occasion for the faculty of sight. The mouth is furnished with two jaws; the undermost is divided, and the parts are notched into each other, serving instead of teeth to comminute the Scorpion's food; and these it can so withdraw into its mouth, as that no part of them is to be seen. On each side of the head are two arms, each composed of four joints; the last of which is large, with strong muscles, and constructed in the manner of a lobster's claw. Below the breast there are eight articulated legs, each divided into six joints; the two hindmost of which are each provided with two crooked claws, and here and there interspersed with hair. The belly is divided into seven little rings; from the lowest of which a tail rises, composed of six joints, bristly, formed like small globes, and the last armed with a crooked sting. This is that instrument which renders the Scorpion so formidable: it is long, pointed, hard, hollow, and pierced near the base with two small holes, through which, when the animal stings, it ejects a drop of poison, white, caustic, and sometimes fatal. The reservoir wherein this poison is lodged, is a small bladder near the tail, in which the venom is distilled by a peculiar apparatus: if this bladder be gently pressed, the poison will be seen to issue out through the two holes already mentioned; so that it appears that, when the animal stings, the bladder is pressed, and the venom issues through the two apertures into the wound.

Few animals are more formidable, or more truly mischievous, than Scorpions. As they easily find shelter, and generally lurk in houses, they of course frequently assault the inhabitants. In some towns of Italy, France, and the province of Languedoc, they prove one of the greatest pests of mankind. But their malignity in Europe is but trifling when compared to what the natives of Africa and the East are known to experience from them. In Batavia, where they grow to the length of twelve inches, there is no removing any piece of furniture without the utmost danger of being stung by them. Bosman assures us, that along the Gold Coast they are often found as large as lobsters;

lobsters; and that their stings are inevitably fatal. In Europe, however, they are by no means so large, so venomous, or so numerous. The general size of this animal is from two to three inches; and its sting very seldom proves fatal; though its bite, as well as its presence, are highly disagreeable. Maupertuis, who made several experiments on the serpents of Languedoc, found them by no means so invariably dangerous as had till then been represented. He provoked one of them to sting a dog in three places of the belly, where the animal was destitute of hair: in about an hour after, the poor creature became greatly swollen, and very sick; he then vomited plentifully; and for nearly three hours continued throwing up a whitish liquid. The belly was always much dilated when the animal began to vomit; but this operation seemed always to abate the swelling. After the expiration of the above time, the poor dog fell into convulsions, bit the ground, dragged himself along on his fore-feet, and at last died, five hours after being bitten. He was not partially swollen round the wound, as is usual after the sting of a wasp or bee; but his whole body was inflated, and there appeared only one red spot on those parts which had been stung.

Some days afterwards the same experiment was tried on another dog, and even with more aggravated cruelty; yet the creature seemed but little affected by the wounds, only howling as he received them, and afterwards appearing as alert and healthful as before. So far was this animal from being terrified at the experiment, that he cheerfully left his own master's house, to visit that of the philosopher, where he had been more sumptuously entertained. The same trial was made, with fresh Scorpions, on seven other dogs; and likewise on three hens; but not the smallest deadly symptom was found to ensue. From hence it appears, that many unknown circumstances must conspire to give efficacy to the poison of the Scorpion: and whether it's food, long-fasting, the season, the nature of the vessels it wounds, or it's state of maturity, encrease or retard it's malignity, is yet to be ascertained by succeeding experiments.

In the trials made by Maupertuis, he employed Scorpions of both sexes, newly caught, and seemingly active and vigorous. The success of this experiment may serve to shew, that many of those boasted antidotes which are used for the cure of the Scorpion's sting, owe their celebrity rather to the tardiness of the poison than their own efficacy: they only happened to cure when perhaps the sting was no ways dangerous; but, in cases of actual malignity, they might probably have proved ineffectual.

However, the Scorpion of the tropical climates being much larger than the European, is unquestionably much more venomous. Yet Hebigius, who resided some years in the East, assures us, that he was often stung by the Scorpion, and never felt any material inconvenience from the wound: a painful tumour generally ensued; which was always removed by rubbing the part affected with a piece of iron or stone till the flesh became insensible. Seba, Moore, and Bosman, nevertheless, give a very different relation of the Scorpion's malignity; and assert, that unless immediate applications take place, the wound becomes fatal.

Certain it is, that no animals whatever are apparently more irascible in their natures than Scor-

pions: they will even attempt to sting a cudgel when placed near them; and a mouse or a frog, though altogether unoffending, is sure to experience the effects of their vengeance. Maupertuis put three Scorpions and one mouse into a vessel, and they soon stung the little animal in different places. The mouse, thus assaulted, stood for some time on the defensive; and at last killed them all, one after another. This experiment he made in order to know whether the mouse, after it had killed, would eat the Scorpions; but the little quadruped seemed fully satisfied with the victory, and even survived the severity of the wounds it had received.

Wolkamer tried the courage of the Scorpion against that of the large spider, inclosing several of both kinds in glass vessels. The success of this combat was very remarkable: the spider at first used every effort to envelope the Scorpion in it's web; but the latter rescued itself from the impending danger by stinging it's adversary to death. Soon after, it cut off with it's claws all the legs of the spider, and then sucked the internal parts at leisure. Wolkamer, however, is of opinion, that if the Scorpion's skin had not been so very hard, the spider would have obtained the victory; for he had often seen one destroy a toad.

But if the fierce spirit of these reptiles urges them to attack other creatures, it renders them equally dangerous to their own species. Maupertuis put one hundred of them into the same glass; and they scarcely came into contact before they began to exert all their rage in mutual destruction: there was nothing to be seen but universal carnage, without any distinction of age or sex; so that, in a very few days, there remained only fourteen, which had killed and devoured all the rest.

Their unnatural malignity is still more apparent in their cruelty to their offspring. The above philosopher enclosed a female Scorpion, big with young, in a glass vessel; and she was observed to devour them as fast as they were excluded: only one of the number escaped the general destruction, by taking refuge on the back of it's parent; and this soon after revenged the death of it's brethren by killing the old one in it's turn.

Such is the unrelenting nature of this reptile, which neither the bonds of society nor of nature can reclaim. Some even assert that, when driven to extremity, it will often destroy itself. Maupertuis actually tried the subsequent experiment. A Scorpion, immediately after being caught, was placed in a circle of burning charcoal, and thus an egress totally prevented: the animal ran for a short time round the circle, in hopes of escaping; but finding that impracticable, stung itself on the back of the head, and instantly expired.

Fortunately for mankind, these creatures are thus destructive to each other; since otherwise they would multiply in such a degree as to render some countries uninhabitable. The male and female Scorpions are easily distinguished; the male being smaller than the female, and less fetose. The female brings forth her young alive, and perfect in their kind. Redi, having purchased a quantity of serpents, selected the females, which he put into glass vessels, where he kept them for several days without food. In five days time, one of them brought forth thirty-eight young, well shaped, and of a milk-white colour, which changed every day more and more into a dark

dark rusty hue. Another female, in a different vessel, brought forth twenty-seven of the same colour; and the day following, all the young ones seemed fixed to the back and belly of the female. For almost a fortnight, they all continued alive and well; but afterwards, some of them died daily; and, in a month's time, only two of the whole number survived.

These animals may be kept alive with little trouble by such as are curious of contemplating hideous deformity. Their chief food is worms and insects; with a proper supply of which their lives might probably be lengthened to their natural extent: how long that may be, perhaps none have had the patience to ascertain with precision; but, if we may argue from analogy, it cannot be less than seven or eight years; and, with respect to the larger species, peradventure double that period. As their figure is somewhat like that of a lobster, so they resemble that animal in casting their shell, or, more properly, their skin; since it is infinitely softer than the covering of the lobster, and beset with hairs, which proceed from it in great abundance, particularly at the joints. The young lie in the womb of the parent, each covered up in it's own membrane, to the number of forty or fifty; and united to each other by an oblong thread, exhibiting collectively the form of a chaplet.

Such is the manner in which the common Scorpion generates it's young. But there is an American Scorpion, produced from the egg, like the spider kind: these eggs are about the size of a moderate pin's head; and are deposited in a web, which the female spins from her body, and carries about with her till the whole are hatched. As soon as the young are excluded from the shell, they ascend the back of their parent, who turns her tail over, and defends them by means of her sting.

SCORPION FLY. An appellation by which Mouffet and some other naturalists express a kind of fly remarkable for carrying the end of it's tail turned up in the form of a Scorpion's sting. The distinguishing characters of this insect are: it's rostrum or trunk is of a cylindric figure, and a horny structure; and it's tail is furnished with a weapon of the chiliform kind.

There are two beautiful species of this insect. The one has silvery wings, variegated with three transverse streaks of black towards the ends; the head is black; the breast, shoulders, and feet, are whitish; and the rest of the body is black. The tail, which represents a sting, has five joints, three of which are red, the other two black; and the extremity of the tail is forked, and reverted like the sting of a scorpion.

The other species in many respects resembles the preceding; but the end of the tail is thicker, and the forks are more blunt. The head also is dunnish; the mouth is long, and each wing is variegated with six large-sized black spots.

SCORPION, SEA. A name by which some ichthyologists express the *Cottus Scorpius* of Linnæus; in English, the fatherlasher.

SCORPION, WATER. A singular species of water-insect, living among the weeds in stagnant waters, and continually watching for it's prey. It is nearly one inch in length, and about half an inch in breadth. The body is nearly oval, but very flat and thin; and the tail is long and pointed. The head is small; and the feelers

resemble the claws of a scorpion, except in being destitute of sharp points. The eyes are small, but prominent, and very hard and black; the shoulders are broad and flat, wrinkled on the surface, and of a pale brown colour, as is also the head; the body, which is of a bright red lead-colour on the back, and a faint dusky brown on the belly, is composed of six joints, covered with a sort of scales; the exterior wings are hard and firm, and of a dark dull brown hue; and the inner wings are of a dusky white, varied with a red lead-colour. The tail, which is long and straight, consists of two slender bristles of a pale brown hue.

These insects, which are extremely tyrannical and rapacious, destroy twenty times as much as their appetites require. One of them, when put into a basin of water, in which were thirty or forty worms of the libellula kind, each as large as itself, destroyed them all in a few minutes, by mounting on their backs, and piercing their bodies with it's trunk. But though these creatures are formidable to others, they are nevertheless themselves greatly over-run with a kind of small lice, which probably repay the injuries which these tyrants inflict on other insects.

Water-Scorpions live in that element during the day; but ascend into the air at even-tide; and so flying from place to place, often betake themselves to distant waters in search of food.

Until this insect assumes it's wings, it remains in the same place where it was produced; but, when arrived at a state of perfection, it sallies forth in search of a companion of the other sex, and soon begets an useless generation.

SCOTER. A species of duck, the *anas niger* of ornithologists; called also the black diver. This bird is nearly about the size of the common duck; but the body is more round, and entirely of a deep shining and beautiful black colour. It is very common on the shores of Lancashire, and some other counties; lives only in the vicinity of salt waters; and is a very expert diver.

The French give this bird the name of *Macreuse*; and the Church of Rome allows it's flesh to be eaten in Lent.

SCREAMER; the *Palamedea* of Linnæus. A genus of *grallæ*: the characters of which are; that the bill is conic, the upper mandible being hooked; and the feet are cloven, having each four toes. Pennant denominates it the Screamer on account of the violent noise which it makes. There are two species, both natives of South America.

SCROFANELLO. A name by which some authors express a small Mediterranean fish more usually denominated *scorpæna*.

SCULION. An Aristotelian appellation for the fish called by later ichthyologists *catulus*; and *catulus major*: in England, the bounce.

SCURFF. An English name for a species of salmon, more usually denominated the bull-trout. It never grows to any very considerable size; and evidently differs from the common salmon in having it's tail even at the extremity, not bifid; a thick, short head; and flesh much whiter than that of the salmon.

SCURRA. A name given by some of the ancient writers to the *monedula*, or common jack-daw.

SCURVOGEL. An American bird, called also the whender-apoa; and, by the Brazilians, *jabiruguacu*.

jabiruguacu. It seems to be of the crane kind, or at least nearly approaching to that class. Linnæus makes it a distinct genus, under the appellation of mycteria. The beak is large, long, and acute; both the mandibles bend upwards, the upper one being triangular; the nostrils are linear; and the mouth is destitute of a tongue. The feet are furnished with four toes. The top of the head is adorned with a kind of bony crown, of a mixed greyish and whitish colour; the neck is of considerable length; and both that and the head are destitute of feathers, being covered only with a naked, squamose skin.

This bird is about the size of the stork; and its flesh is esteemed very delicate. It has a short black tail; but the rest of the plumage is white, except that the long wing-feathers are blackish, with a purplish gloss.

SCUTUM. A genus of echini marini: the characters of which are; that the shell is of an irregular figure, representing a shield on the lower part; and having the shape of a five-leaved flower on the superficies. The mouth is situated in the middle of the base; and the aperture for the anus at the edge.

Two kinds of echini belong to this genus, the angular and the oval. There are only two known species of those with angular scuta; but of those with oval there are three.

SCYLLÆA. A genus of the mollusca class of worms in the Linnæan system. The characters are these: the body is oblong and compressed; the back longitudinally canaliculated; the mouth is a round opening; and there are three pair of tentacula, like arms, under the body.

There is only one known species, called by some the sea-hare.

SCYMNUS. An appellation used by Ælian, Appian, and some other Greek writers, for the Sculion of Aristotle. Artedi makes this a species of squalus, distinguished by the pinna ani placed in the middle between the anus and the tail. It is also the *catulus vulgaris* and *catulus major* of authors.

SCYTALE. A species of serpent mentioned by the ancients; which they described as long and thin, and of so equal a thickness from the head to the tail, that the latter could not be easily distinguished.

Linnæus mentions two animals under this appellation: one a species of anguis, or snake; and the other a kind of boa.

SEA-BEAR; the *Phoca Ursina* of Linnæus; called also the sea-cat; and by Pennant the urfine seal. An animal pretty common round the isles scattered between Kamtschatka and America, where they retire in order to copulate; but at other times seek the Asiatic and American shores. They lead an indolent gregarious life; and are remarkable for their attachment to their young.

SEA-BREAM. An English appellation for the fish more generally denominated the pagrus and phagrus. According to the Artedian system, it is a species of sparus, distinguished by the name of the red sparus, with the skin carried into a sinus at the roots of the dorsal fins and the pinna ani.

SEA-CALF; the *Phoca Vitulina* of Linnæus. An appellation commonly given to the seal. See **SEAL.**

SEA-COW; the *Trichechus Manatus* of Linnæus. An animal found in various parts of the

world, in high northern latitudes. Some of them are said to measure twenty feet in length, and to weigh eight thousand pounds. It has thick lips; very small eyes; two small orifices instead of ears; a short neck, thicker than the head; and from the shoulders, the thickest part of the body, the animal grows gradually slender towards the tail, which lies horizontally, being broad and thick in the middle, and thinner towards the edges. The feet are placed at the shoulders. Beneath the shins there are bones for five complete toes; and externally there are three or four nails, flat and rounded. Near the base of each foot of the female there is a teat. The skin is very thick and hard, having a few hairs scattered over it; whence the name of *Trichechus*, composed of *Thrix*, Hair; and *Ichthos*, a Fish. See **MANATUS.**

SEA-CROW. A provincial appellation for the bird more usually denominated the pewit.

SEA-DEVIL; the *Rana Piscatrix*, or *Lophius Piscatorius* of Linnæus. A remarkable species of fish, of a middle nature between the cartilaginous and bony kinds. It resembles the tadpole in its shape: the head is extremely bulky, and of a circular figure; the aperture of the mouth is unusually large; the back is flat, and of a blueish green colour mottled with a few white spots; in the upper part of the head, at a small distance from the angle of the upper jaw, there are two bristles; and over the upper jaw, on each side, are placed two sharp thorns. The dorsal fin consists of ten rays; in the under part of the body, exactly below the throat, there are two fins, composed of five rays or fingers; and there are two others on the edge of the body, the tips of which, as well as of the tail, are black.

This fish derives its present name from its hideous appearance. See **ANGLER.**

SEA-DRAGON. See **DRACO MARINUS.**

SEA-EAGLE. A species of the raia, with a smooth body, and long serrated spine on a finny tail.

SEA-EAGLE is also a name by which some authors express the osprey.

SEA-EEL. See **EEL.**

SEA-EGG. An appellation by which some naturalists express the roundish centronia, with crooked spines; a genus of the *echinus marinus*.

SEA-FOX. An English name for a fish of the squalus kind, called also the sea-ape; both which appellations it receives from the extreme length of its tail in proportion to its body,

The old Greek ichthyologists have called this fish *alopœcia*; and later writers, *vulpes marina*, and *simia marina*.

SEA-GUDGEON. An English appellation for the fish called also *gobius niger*, and *gobius marinus*. Artedi forms a genus of *gobii*, of which he considers this as a genuine species. See **GOBY, BLACK.**

SEA-HARE. A species of *scyllæa* in the history of insects. See **SCYLLÆA.**

SEA-HEN. A name by which some ornithologists express the *lommia*, a web-footed fowl common on the British coasts; called also the guillemot and kiddow.

SEA-HORSE. An English appellation for the hippocampus; a species of the acus, according to the ancient ichthyologists, but belonging to the *syngnathi* of Artedi.

Many fabulous stories are reported of this amphibious

phibious animal; such as, it's vomiting fire when enraged, and bleeding itself when distempered. The Romans used to exhibit the Sea-Horse in their shews of wild beasts; and the description Pliny gave of it from this source, was all that the world knew of it for several ages.

Skeletons of these animals are frequently found at great depths in the earth, but seldom in a recent state.

SEA-HORSE is also a name sometimes given to the river-horse, or hippopotamus.

SEA-LEECH. See *HIRUDELLA MARINA*.

SEA-LION; the *Phoca Leonina* of Linnæus. A species of seal inhabiting the seas about New Zealand, Juan Fernandez, and New Georgia.

These animals are gregarious; bring forth two young at a time; and are extremely fierce when on the defensive. One of them will sometimes yield a whole butt of oil; and their flesh, which resembles coarse beef, is said to be wholesome. See *SEAL*, *LEONINE*.

SEA-LOUSE. An appellation by which some authors express the Molucca crab.

SEA-LUNGS. An English appellation for a species of medusa.

SEA MAN. A name sometimes used to express that strange creature more usually denominated merman and mermaid. With respect to the existence of this animal, a variety of opinions have been adduced; some contending for it's reality; and others ridiculing the very idea of it's being. The works of nature are often too intricate for our researches; and though credulity be a proof of a weak mind, scepticism is a quality of a bad one. On such subjects therefore it certainly becomes impartial naturalists to state contending arguments; and to leave the decision to time, the surest test of truth. See *MERMAID*.

SEA-MOUSE. An English appellation for the aphrodita.

SEA-OTTER. See *OTTER*.

SEA-OWL. A name by which some naturalists express the lump-fish, the cyclopterus of Artedi.

SEA-PEARL. See *PEARL*.

SEA-PHEASANT. An appellation by which some ornithologists express a bird of the duck kind; which differs from all others of that genus, in having two long tail-feathers extending a considerable way beyond the rest, and terminating in a point: hence it has also received the name of the pin-tail duck. See *DUCK*, *PIN-TAIL*.

SEA-PYE. See *PICA MARINA*.

SEA-SCORPION. See *FATHERLASHER*.

SEA-SWALLOW. A name sometimes given to a bird of the *larus* kind; called also sterna. It is common on the British coasts.

SEAL. A genus of pinnated quadrupeds, with cutting and two canine teeth in each jaw; five palmated toes on each foot; and a body thick at the shoulders, and tapering towards the tail.

The Seal resembles a quadruped in some respects, and a fish in others. The head is round; and the nose, which is broad, represents that of an otter. It has large whiskers, oblong nostrils, and great black sparkling eyes. The tongue is bifid; and in the upper jaw there are six cutting-teeth, and four in the lower. It has no external ears; but two holes, which answer the same end. The neck is of a moderate length, and well-proportioned. The body is thickest at the junction of the neck, (from whence the animal tapers down to the tail, becoming gradually smaller like a fish) and

is covered with thick bristly shining hair of various colours, sometimes dusky, at others brindled, and sometimes spotted with white or yellow.

In most of the above particulars the Seal resembles the quadruped kind: but it greatly differs from all of them with respect to it's feet; for, though furnished with the same number of bones as in quadrupeds, they are united to the body in such a singular manner, and so covered with a membrane, that they would rather resemble fins than feet, did not the sharp strong claws with which they are pointed shew their proper analogy. The fore feet, or rather hands, are covered with a thick hairy skin, which, like a fin, assists the creature in swimming; and the hind feet are extended on each side of the short tail, and covered also with a skin; both being almost united at the tail.

The usual length of the common Seal now under consideration is about five or six feet, though some have been known to exceed eight: and, with regard to the formation of it's tongue, it differs from every other quadruped, being forked at the extremity like that of a serpent.

These animals are found in almost every quarter of the globe, but in greatest numbers towards the north and south. They swarm near the Arctic circle, and the lower parts of South America, in both oceans. They are met with in the Caspian Sea: and also in the lakes Aral and Baikal, whose waters are fresh; in the last of which they possess the remarkable peculiarity of being covered with silvery hairs.

Seals generally inhabit the water, and feed on whatever fish they can catch. But though they frequently remain under water for several minutes, they cannot, like the finny tribe, continue there any considerable time; for Seals may be drowned as easily as many terrestrial animals. Being awkwardly formed for going on land, they seldom venture at any great distance from the shore, but usually bask on the rocks; and, when disturbed, plunge immediately to the bottom of the water. The hind feet of the Seal being turned backwards, are consequently entirely useless on the land; and, when the creature moves, it drags itself forward like a reptile, apparently with great pain and exertion: for this purpose it uses it's fore-feet, which, though exceedingly short, enable it to move with so much celerity, that for a short space a man cannot easily overtake it; and it constantly makes towards the sea.

On the shores of the north and icy seas, where the inhabitants are few, and marine animals of all kinds numerous, Seals may be seen basking by thousands on the rocks, and suckling their young. Like other gregarious animals, they keep a centinel on the watch; and, on the slightest alarm, instantly plunge into the deep.

It is remarkable that Seals generally forsake the sea during storms and tempests; and that, when all other creatures seek a refuge from the fury of the jarring elements, these appear in vast troops sporting along the shore, and apparently enjoying a savage kind of pleasure from the conflict of winds and waves. But probably the sea is at that time too turbulent for their residence; and they come on shore because unable to endure the shock of their more natural element.

Seals are animals of passage, and perhaps the only four-footed ones which migrate from one part of the world to another. Quadrupeds are in general contented with their native plains and forests; seldom wandering far from those situations

tions where they were produced, unless compelled by necessity or fear: but Seals frequently shift their habitations, and are seen in myriads directing their course from one continent to another. On the northern coasts of Greenland, they are observed to retire in July, probably in pursuit of food, and to return again in September: but in March they make a second voyage, in order to cast their young; and return about the beginning of June, accompanied by their offspring; observing a certain time and track, like birds of passage. When on these expeditions, vast droves of them are seen making towards the north, taking such parts of the sea as are clearest of ice, and sailing forwards into those quarters where the human species cannot follow them. They are very fat when they leave the coasts; but extremely emaciated at their return.

These animals produce two or three young at a time; which, for some short space, are white and woolly. Autumn is their proper season of parturition: and they suckle their progeny for six or seven weeks, generally in cavernous rocks; after which they take to the sea.

The young Seals are remarkably docile: they recognize and are obedient to the voice of their dams amidst the numerous clamours of the flock; and mutually assist each other in cases of danger or distress. Thus early accustomed to subjection, they continue to live in society, hunt, and herd together; and have a variety of cries by which they encourage or pursue, express apprehension or success. Their voices are said sometimes to resemble the bleatings of a flock of sheep, and at others to imitate the shriller notes of cats. Each Seal has it's own peculiar station along the shore, where, when fatigued with fishing, it reposes undisturbed by the rest. However, their social spirit forsakes them whenever they begin to feel the influences of natural desire: then they fight most desperately; and the victorious male always keeps a watchful eye over those females whom his prowess has secured. Their combats on such occasions are managed with much obstinacy, but yet great fairness; each has his antagonist; and all fight an equal battle, till one of them at length proves triumphant.

The chief part of their food being fish, they are extremely expert in their capture; and generally frequent those situations to which herrings resort in shoals, destroying them by thousands: but, when the herrings retire, the Seals are obliged to hunt after larger fishes, and which are more capable of evading their pursuers. In deep water, however, they are extremely swift, diving with great rapidity; and, while the spectator eyes the spot at which they disappear, they are frequently seen to emerge at the distance of above one hundred yards: the smaller and weaker fish therefore have no other way of escaping their devourers but by darting into the shallows.

Nor are these tyrants of the element in which they chiefly reside destitute of courage even on land, except on those shores where the inhabitants are numerous, and from whom they have experienced frequent molestations. Along the desert coasts, where they seldom meet with any interruption from man, they are bold and intrepid, and even make a desperate resistance; but a slight blow on the snout immediately prostrates them, though they will endure a number of wounds elsewhere with apparent indifference. Where

they are seldom disturbed, they usually sleep very soundly; and at such intervals the hunters generally surprize them. Those Europeans who frequent the Greenland seas on the business of the whale-fishery, surround them with nets, and destroy them. But the Greenlander adopts a very different method: he paddles away in his little boat; and whenever he observes one of these animals asleep on the side of a rock, darts his lance with unerring aim, and plunges it into the creature's side. The Seal instantly leaps into the sea, and dives to the bottom; but the lance having a bladder affixed to one end, keeps it buoyant, and resists the animal's descent: it therefore rises frequently to the surface of the water, and as often receives a stroke from the Greenlander's oar, till it is at last dispatched.

The Seals of our climate are more vigilant and fearful, seldom suffering the hunter to approach them. They are frequently seen on the rocks of the Cornish coast, basking in the sun; or on those inaccessible cliffs which are left dry by the ebbing of the tide: there they continue alternately raising their heads, in order to obtain the earliest notice of any approaching danger. The most effectual method therefore of destroying them that can be adopted, is to shoot them: but if they happen to escape, they hasten towards the sea, throwing up stones and dirt behind them as they scramble along, at the same time expressing their fears by the most piteous moans; and should they happen to be overtaken, they then make a most vigorous defence with their feet and teeth.

The flesh of Seals is esteemed wholesome, and voyagers often make a hearty meal from it: but these creatures are generally killed for the sake of their skins; and the oil which is drawn from their fat, one young Seal yielding about eight gallons. Their skins are used for waistcoats, covers for trunks, shot-pouches, and many other conveniences. Those of Lake Baikal are disposed of to the Chinese, by whom they are dyed, and sold to the Mongals for facings to their fur-coats.

These animals constitute the principal wealth of the Greenlanders, and supply them with every necessary of life. Their flesh was formerly considered as a dainty at the tables of the great: for, among other extraordinary rarities at a feast provided by Archbishop Neville for King Edward IV. there were twelve Seals and porpoises.

Seals are indeed common on most of the rocky shores of Great Britain and Ireland, especially on the northern coasts; and they also frequent the coasts of Caernarvonshire and Anglesea in Wales. The subsequent extract from a letter of Dr. Borlase, dated in 1763, will farther elucidate their history.

'Seals,' says this ingenious naturalist, 'are seen in the greatest plenty on the shores of Cornwall, in the months of May, June, and July. They are of different sizes, some as large as a moderate cow, and from that downwards to a small calf.

'They feed on most sorts of fish which they can master; and are seen searching for their prey near shore, where the whistling-fish, wraws, and pollacks, resort.

'They are very swift in their proper depth of water; dive like a shot, and rise in a trice at fifty yards distance; so that weaker fishes cannot avoid their tyranny, except in shallow water. A person of the parish of Sennan saw, not long since, a

Seal

Seal in pursuit of a mullet, that strong and swift fish. The Seal turned it to and fro in deep water, as a greyhound does a hare: the mullet at last found it had no way for escape but by running into shoal water; the Seal pursued; and the former, to get more securely out of danger, threw itself on it's side, by which means it darted into shoaler water than it could have swam in with the depth of it's paunch and fins, and so escaped.'

The Seal brings forth her young about the beginning of autumn: and our fishermen have sometimes seen two sucking their dam at the same time, as the stodd in the sea in a perpendicular position.

In the act of swimming, their heads are always above water, more so than those of dogs. They generally sleep on rocks surrounded by the sea; and, if disturbed, instantly tumble themselves into the water. They are extremely watchful, seldom sleeping above one minute at a time: they then raise their heads; and, if they hear or see nothing more than ordinary, lie down again; and so on, raising their heads a little and reclining them alternately. Nature seems to have endued them with this precaution, as being unprovided with external ears; and consequently neither hearing quickly, nor from any great distance.

SEAL, MEDITERRANEAN. This species, which was first described by Herman, is upwards of eight feet long; and it's greatest circumference is five feet. The head is small; the neck is longer than that of the common Seal; the orifices of the ears are very minute; the hair is short and rude; the colour is dusky, spotted with cinereous; and there is a tawny spot above the navel. The toes on the fore-feet are furnished with nails; but the hind-feet are pinniform, and destitute of nails. When this animal lies on it's back, the skin of it's neck folds like a monk's hood.

This species inhabits the Mediterranean, and has not hitherto been discovered in the ocean.

SEAL, FALKLAND ISLE. This animal is about four feet long; it's nose is short, beset with strong black bristles; and it's auricles are short, narrow, and pointed. The upper cutting-teeth are sulcated transversely; the lower in an opposite direction. On each side of the canine teeth there is a lesser or secondary one; and the grinders are conoid, with a small process on each side near the base. The fore-feet are destitute of claws; but beneath the skin there are evident marks of the bones of five toes. The toes of the hind-legs are furnished with four long straight claws, but the skin extending far beyond, gives them a pinniform appearance; and the hair, which is short, is of a cinereous colour tipped with a dirty white.

It is probable that this species also inhabits the seas about Juan Fernandez; for Don Ulloa mentions a kind of Seal which nearly resembles it in size. Small Seals are found from the Falkland Isles round Cape Horn as far as New Zealand, and farther from shore than any other kinds. They are all extremely sportive, dipping up and down like porpoises: they also go on in a progressive course like those fishes; and, when asleep, one fin generally appears above the water.

SEAL, LEPORINE. This animal inhabits the White Sea during summer, ascending and descending the rivers in quest of prey. It is also found off Iceland, and from Spitzbergen to the Tchutkinofs.

The fur of this Seal is soft, like that of a hare,

and of a dirty white colour; the whiskers are so long and thick, that the animal appears as if bearded; the head is long; the upper lip is thick; above are four cutting-teeth, and the same number below; and both the fore and hind feet are furnished with nails.

The usual length of this creature is six feet and a half; and it's greatest circumference is five feet two inches.

SEAL, GREAT. This species, to which Buffon gives the name of the great Sea-calf, resembles the common Seal, but grows to the enormous length of twelve feet. We meet with a description of one in the Philosophical Transactions, which was seven feet and a half long, though so young as scarcely to have any teeth; whereas the full growth of the common Seal is about six feet.

This animal, which is considered as the largest of the Seal kind; is found on the coasts of Scotland and the south of Greenland; and it's skin, which is very thick, is cut out into thongs by the Greenlanders for their Seal fishery. Perhaps it is the same with the great Kamtschatkan Seal, called by the Russians lacktach, and which weighs about eight hundred pounds.

SEAL, HOODED. This creature has a strong folded skin on it's forehead, which it can at pleasure throw over it's eyes and nose, as a fence from stones and sand in stormy weather; and it's hair is white, with an under-coat of thick black wool, which makes it appear of a fine grey colour. It inhabits the south of Greenland and Newfoundland; and in the last-mentioned country obtains it's present name. It is said that the hunters cannot kill it without first removing the integument on the head.

There is also a variety found in the Greenland seas, having rough bristly hair, intermixed like that of a hog, of a pale brown colour. The natives make garments of it's skin, turning the hairy side inwards.

SEAL, HARP. This animal has a pointed head; and a thick body, of a whitish grey colour, with two black crescents on the sides, the horns pointing towards each other; but it does not attain this mark till the fifth year, and before that period changes colour annually, the Greenlanders distinguishing it by different appellations every year. It inhabits Greenland and Newfoundland; and is the most valuable kind. The skin is the best, as well as thickest; it produces the largest quantity of oil; and grows to the length of nine feet.

A variety of this species is found in the Lake Baikal, with yellow hair; and a large chestnut-coloured mark on the hind part of the back, which covers almost a third part of the body.

SEAL, LITTLE. This is the little Sea-calf of Buffon. The four middle teeth of the upper jaw are bifurcated; and the two in the middle of the lower jaw are trifurcated. It has only the rudiments of an ear. The hair is soft, smooth, and longer than in the common kind; the colour is dusky on the head and back, and brownish beneath; the webs of the feet extend considerably beyond the toes and nails; and the length of the animal is from two to three feet.

These animals inhabit the seas near the island of Juan Fernandez; and Seal-hunters affirm, that they have often observed a small species of about two feet, or two feet and a half in length, on the coast of Newfoundland. Buffon was certainly imposed

imposed on, when informed, that the specimen he saw in the French king's cabinet was imported from India; Dampier, and many modern voyagers to the East Indies, asserting that they never met with any Seals there.

SEAL, URSINE; the *Phoca Marina* of Linnæus. This animal, called also the sea-bear, is usually found as an associate with the manati, and sea-lion, which seem divided between the north-east of Asia and the north-west of America, in the narrow seas between those vast continents. From June to September they inhabit the islands scattered between Kamtschatka and America, for the purpose of generation; and there bring forth their young in perfect security. In September they quit their stations, greatly emaciated; some returning to the Asiatic, and others to the American shores; but, like the sea-otters, are confined to those seas between latitude 50. and 56.

The Ursine Seals, or sea-bears, lead a most indolent life during the three summer months. When they first arrive on those islands, they are extremely fat; but while they remain there, confine themselves for whole weeks to one particular spot, sleeping a great part of the time; eat nothing; and are totally inactive, except that the females suckle their young. They live together in families; each male having a considerable number of females, whom he watches with all the jealousy of an eastern monarch. Though they are assembled by thousands on the shores, each family is separated from the rest. The old male animals, who are either destitute of females, or deserted by them, live apart; and are excessively splanetic, peevish, and quarrelsome. They are remarkably fierce; and so attached to their old haunts, that they will sooner die than relinquish them: and if another animal approaches their station, they are immediately roused from their indolence, and snap at it; when a combat generally ensues. In the conflict, however, they perhaps intrude on another's premises; which instantly exciting his indignation, the discord soon becomes universal.

The more fortunate males are also very easily offended. The principal cause of their disputes is, when another attempts to seduce one of their mistresses, or a young female of the family: this insult infallibly produces a combat; and the conqueror is immediately attended by the whole seraglio, which always deserts the vanquished. Sometimes a quarrel arises from their interfering in the disputes of others; and their battles are generally terrible: the wounds they give and receive are very deep, resembling the cuts of a sabre; and, at the conclusion of a fray, they generally plunge into the sea, in order to wash away the blood.

The male is extremely affectionate towards his young; and if any person endeavours to remove his cub, he stands on the defensive, while the female carries it away in her mouth: but, if she should happen to drop it, the male immediately quits the aggressor in order to chastise her, whom he beats against the stones till she is almost ready to expire. On her recovery, she presents herself before the male in the most suppliant posture, falling down submissively at his feet, and bathing them with her tears; while he continues stalking about in the most insulting manner. But if the cub is carried quite off, the male then exhibits every symptom of the most undisssembled grief:

and as the female usually brings forth but one at a time, and never more than two, he is probably on that account more sensibly affected with his loss.

These animals are extremely nimble in the water, swimming at the rate of seven miles an hour; and, when wounded by their enemies, they will sometimes lay hold of the boat; and dragging it along with vast impetuosity, sink it to the bottom.

The male is considerably larger than the female; and the body of each is of a conic form, being very thick before, and tapering to the tail. The length of a large Seal is about eight feet; the greatest circumference about five; and the weight about eight hundred pounds. The nose projects somewhat like that of a pug-dog; the nostrils are oval; the lips are thick; and the whiskers are long and white. When the mouth is closed, the teeth lock into each other: in the upper jaw there are four cutting-teeth, each having two prongs; and on each side there is a small sharp canine tooth bending inwards, with a larger one near it. The grinders, which resemble canine teeth, are six in number, in each jaw; there are four cutting and two canine teeth in the lower jaw; and the whole number is thirty-six. The tongue is bifid; the eyes, which are large and prominent, the animal can cover at pleasure with a fleshy membrane; and the ears, which are small and sharp-pointed, are hairy without, and smooth within. The fore-legs, which are about two feet long, are furnished with toes, covered with a naked skin, so that externally they seem a shapeless mass, and have only the rudiments of nails to five latent toes. The hind-legs, which are about twenty-two inches long, are affixed to the body quite behind, in some degree like those of common Seals; but this animal is capable of bringing them forward, and even uses them on some occasions: these members are about a foot broad, and divided into five toes, each separated by a large web. The tail is scarcely two inches long.

The hair of these animals is long and rough; beneath which there is a soft bay-coloured down: the general colour is black; but the hair of the old ones is tipped with grey; that of the females is cinereous. The flesh of the old males is excessively nauseous, but that of the females resembles lamb; and the young ones, when roasted, are as delicate as sucking-pigs.

Forster informs us, that the very cubs of the Sea-bear, or Ursine Seal, on the island of New Georgia, were so extremely fierce, that they barked at the sailors as they passed along, and even attempted to snap at their legs.

SEAL, BOTTLE-NOSE; the *Phoca Leonina* of Linnæus. A name given by Pennant to the sea-lion of Buffon, Dampier, and others.

SEAL, LEONINE. An appellation by which Pennant expresses the sea-lion of Cook, Forster, Perneti, and some others. It differs considerably from the *phoca leonina* or sea-lion of Linnæus. The nose is slightly reverted; the head is large; the whiskers are long and thick; and on the neck and shoulders of the male there is a large mane of coarse, long, waving hair: the rest of the body is covered with a very short, smooth, and glossy coat. The colour is wholly a deep brown. Those of the Kamtschatkan seas are reddish; and the females are tawny.

The fore-feet of this animal resemble the Ursine

Seal's; formed of a black coriaceous substance, without the least external appearance of toes, as Perneti very erroneously represents; the hind-feet are broad, and furnished with very small nails, a narrow stripe or membrane extending far beyond each; the tail is very short; and the hind parts are vastly large, swelling out with an immense quantity of fat.

The aged males measure from ten to fourteen feet; their circumference at the shoulders is very considerable; and they weigh from twelve to fifteen hundred pounds. The females are from six to eight feet in length; of a more slender form than the males; and quite smooth.

This species is very numerous in the Penguin and Seal Islands, near Cape Desire, on the coast of Patagonia; and is also found within the Straits of Magellan, and on the Falkland Isles: but it has not as yet been discovered in any other part of the southern hemisphere, or nearer than the sea between Kamtschatka and America.

These animals, like the Urfine and other Seals, are gregarious; occupy the beach nearest the sea; and appear extremely lethargic. Each male retains from twenty to thirty females. They have a very fierce aspect: and the old ones snort and roar like enraged bulls; but, on the approach of any of the human species, fly with the utmost precipitation. The females make a noise like calves; and their young bleat like lambs. The aged males lie apart; and occupy some large stone, which the rest dare not approach without hazarding a combat. The males frequently take the water, compass a large circuit, then land, and caress the females with great affection, joining snout to snout, as if kissing each other: and the females, on seeing their males destroyed, sometimes attempt to carry off their cubs in their mouths, but oftener desert them through excessive fear.

The Leonine subsist on lesser Seals, penguins, and fish. During the breeding season, while ashore, they fast three or four months; but, in order to keep their stomachs distended, generally swallow a number of large stones.

SECRETARY. A bird described by Sonnerat, found in the Philippines, and several parts of Africa. It is about the size of a turkey-cock. The bill and feet resemble those of the gallinaceous tribe; but the legs are destitute of feathers as far as the knees. The upper part of the body, the neck, the belly, and the coverts of the wings, are of a grey blue colour, but brighter below than above. The primaries are black; on each side of the tail there is a long, narrow, cinereous feather; and on the top of the head behind, as far as the neck, at moderate, though unequal distances, rise two parallel plumes, which become longer in proportion as they are situated lower down on the neck: these plumes, which the bird can erect and depress at pleasure, are wholly black, and exhibit a very beautiful and singular appearance.

The Secretary is pretty sociable, and capable of being reclaimed. It feeds on flesh, and consequently may be considered as a predaceous bird. The eyes are surrounded with a naked circle of a deep red colour; and the irides, as well as the bill and feet, are greyish.

SEMILUNARES COCHLEÆ. A genus of marine snails, so called from their having semicircular mouths. Their distinguishing characters are: the shells are univalve, of a compact body, with a flat semicircular, and often dentated

mouth; the columella, or inner lip, running diametrically across it in a straight line. Some of the species have exerted apices, and others depressed. These shells are nearly globose; for the turban is never much produced, but lies flat or level with the bottom.

A variety of distinctive and specific characters appear in the several species of this genus, which include considerable numbers under each. Thus the neritæ, which are of this genus, are some of them umbilicated; while others have teeth, and a sort of gums. The snail kinds, distinctly so called, which fall under this genus, are very different from the neritæ, in that they have neither teeth, gums, nor palate.

Rumphius first introduced the term *Semilunares Cochleæ*, as expressive of the figure of the mouths of these shells, which is semicircular. The *Cochleæ Semilunares* may be arranged under two general divisions, the dentated neritæ, and umbilicated cochleæ. There are eight species of the dentated neritæ; the gum shell, the bloody-tooth nerita, the ox-palate nerita, the striated and punctulated nerita, the canaliculated, the furrowed, the thrush, and the partridge nerita. Of the neritæ without teeth there are ten species; the jasper with a long beak, the jasper with an operculum, the lemon-coloured pea, the yellow pea, the prickly, the reticulated, the variegated with black spots, the red and white fasciated, the slightly striated green, and the undulated nerita.

There are nine species of umbilicated neritæ; the long umbilicated, that with an exerted apex, that with a depressed apex, the testiculated, the hermit, the umbonated, the small nipple, the heavy white, and the orange coloured cochleæ.

SEPIA. A genus of the mollusca worms, in the Linnæan system, comprehending five species. The characters of which are; that it has eight arms placed round the mouth, with small concave disks internally, and frequently two long tentacula; and that the body is fleshy, with a sheath for the breast, and a tube at the base of the breast.

Pennant describes the genus of *Sepia*, or cuttle-fish, under the names of the great, eight-armed, middle, small, and officinal *Sepiæ*. They all emit, when either pursued or alarmed, that black liquor which the ancients supposed darkened the circumambient wave, and thus concealed them. Their flesh was also esteemed a delicacy by the ancients; and is at present eaten by the Italians. Rondeletius has furnished two receipts for dressing it, which are continued to this day; Athenæus has also transmitted the method of making an antique cuttle-fish sausage; and from Aristotle we learn that those creatures are in their highest perfection when pregnant.

SEPS. An animal of the lizard kind, apparently of an intermediate nature between the lizard and the serpent tribes.

This is a small species. The body is rounded; and the back is variegated with longitudinal black lines. The eyes are black; and the ears and tail are extremely minute. The legs are four in number, with feet divided into toes; the first pair are placed very near the head, and the other by the anus. The scales are placed in a reticulated manner, in a longitudinal direction. The belly is white, with a slight cast of blue; and the nostrils are situated near the end of the snout.

Columna took five live ones from the body of a female

a female of this species; some of which were included in membranes, and others loose.

The bite of the Seps is said to occasion an instant putrefaction of the whole frame.

SERASS. A bird, supposed to be of the same genus with the colum, which migrates yearly from Mount Caucasus to Surat in the East Indies. It is distinguished by a plication of the asperia arteria, which is intended to answer similar purposes with that of the colum.

SERINUS. A bird belonging to the fringilla genus, in the Linnæan system; common in Italy and Germany, and called by the Austrians hærngril, or hirngryl. The back is of a reddish brown hue, and the head yellow; the colour being deeper in the male, and lighter in the female. The rump is of a beautiful yellowish green colour, as also the breast; the belly is white; the sides are ornamented with some oblong blackish spots; the tail and long feathers of the wings are black, with a slight tinge of green at their extremities; and the beak is very thick, strong, and short.

This bird is usually caged for the sake of its voice, which is very melodious.

SERPENTS. In the Linnæan system, an order of animals belonging to the class of amphibia, and comprehending six genera: the crotalus, or rattle-snake; the boa, or serpent, including ten species; the coluber, or viper; the anguis, or snake; the amphisbæna, or annulated snake; and the cæcilia, or tentaculated snake, the body and tail of which are wrinkled without scales, and the upper lip is furnished with two feelers; of which there are two species.

The subsequent are the Linnæan characters of the Serpent tribe: they are amphibious; breathe through the mouth by means of lungs only; and are destitute of feet, ears, and fins.

There is scarcely any one country that does not produce this poisonous brood, which seems formed to destroy the pride of mankind, and repress their boasted security. Men have driven the lion, the tiger, and the wolf, from their vicinity; but the snake and the viper still defy their power, and frequently punish their insolence.

Human assiduity, however, has been exerted with success in thinning their numbers; and it is probable that some of the species are now wholly destroyed. In none of the European countries are they sufficiently numerous to be truly formidable: the philosopher can meditate in the fields without danger, and the botanist explore the grass without apprehension of their malignity. In this quarter of the world there are not more than three or four kinds which are noxious; and their poison operates in all after a similar manner: a burning pain in the part, easily removed by early applications, is the worst effect that can be experienced from the bite of the most venomous Serpents of Europe. The drowsy death, the starting of the blood from every pore, the insatiable and scorching thirst, and the dissolution of the solid mass into one heap of putridity; are horrors which we know only from the history of antiquity, or the relations of travellers in very distant regions.

But though we have thus reduced these dangerous creatures, without a possibility of wholly removing them; in other parts of the world they still rage with all their ancient malignity. Nature seems to have placed them as sentinels to deter mankind from a too hasty diffusion, and

searching for new abodes before they have perfectly cultivated those at home. In the warm countries which lie within the tropics, as well as in the hyperborean regions, where the inhabitants are few, Serpents propagate in equal proportions. But, of all countries, those are most pestered with these noxious animals whose fields are prolific, but uncultivated, and where the climate supplies warmth and humidity. Along the swampy banks of the Niger and Oronoko, where the sun darts his most vivifying rays, the forests are thick, and the human race but scanty, Serpents cling to the branches of the trees in infinite numbers, and carry on unceasing hostilities against all other animals in their vicinity. Travellers assure us, that they have often observed large snakes twining round the trunk of a tall tree, encompassing it like a wreath, and thus rising and descending at pleasure: in these countries, therefore, Serpents are too formidable to become objects of curiosity; they excite more violent sensations.

For this reason we must not reject, as wholly fabulous, the accounts transmitted us by the ancients of the terrible devastations occasioned by a single snake. In early ages, when arts were little known, and mankind but thinly dispersed over the face of the earth, it is probable that Serpents grew to an amazing magnitude, and every other tribe of animals retired before them. It might then have happened, that these reptiles continued the tyrants of a whole country for successive centuries. To an animal of this kind, grown by time and rapacity to the enormous length of one hundred feet, the lion, the tiger, and even the elephant, were but feeble opponents. The dreadful monster spread certain desolation around him; every living creature was either devoured by him, or fled from the effects of his fury. The horrid stench which even the most innoxious of the tribe are known to diffuse, might in those larger ones become too powerful for any animal to withstand; and while they preyed without distinction, they might thus also have poisoned the atmosphere around them. In this manner having for ages possessed the obscure and uninhabited forests; and finding, as their appetites increased, the quantity of their food diminished; it is possible that they might venture boldly from their retreats into the more cultivated parts of the country, carrying consternation among mankind, as they had before desolation among the lower ranks of nature. Many histories of antiquity present us with such a picture; and exhibit a whole nation as sinking under the ravages of a single Serpent. At that early period, man had not learned the art of uniting the efforts of many, in order to effect one momentous purpose: opposing multitudes only added new victims to the general calamity, and increased mutual embarrassment and terror; the animal therefore remained to be singly opposed by him who had the greatest strength, the best armour, and the most undaunted courage. In such an encounter hundreds must have fallen; till one more fortunate than the rest, either by a lucky blow, or by attacking the monster during some torpid interval, and surcharged with spoil, might destroy, and thus deliver his country from the tyrant.

Such was the original and most honourable occupation of heroes: and they who first obtained that appellation from their destroying those ravagers

vagers of the earth, gained it much more deservedly than their successors, who acquired their reputation only from their skill and prowess in destroying each other. But, as we descend into more enlightened antiquity, we find these animals less formidable, from their having been attacked in a more successful manner. We are told that, while Regulus led his army along the banks of the Bagrada, in Africa, an enormous Serpent disputed his passage. Pliny, who says that he saw it's skin, assures us that it was one hundred and twenty feet long; and that it destroyed numbers of the army before it was vanquished. At last, however, the battering engines were opposed to the animal; which assailing at a distance, soon destroyed it. It's spoils were carried to Rome, and the general was decreed an ovation on account of his success.

Few historical events are perhaps better ascertained than the above. An ovation was a remarkable honour, and the reward only of some very singular exploit, inferior to the honour of a triumph; and it is certain no historian would have presumed to invent that part of the story at least, because it would have subjected him to the most shameful detection. At present, indeed, such resistance from Serpents is hardly known in any part of the world; though in Africa and America, some of them are powerful enough to brave the attacks of the human species to this very day. Fortunately for us, we are situated at such a distance from this baneful tribe of animals, as to take a view of them, without fearing for our safety: to us, their slender form, their undulating motion, their vivid colouring, their horrid stench, their forked tongues, and their envenomed fangs, are totally harmless; and, in this island, their uses even serve to counterbalance the mischiefs they sometimes occasion.

If we take a general survey of Serpents, we shall find sufficient marks to distinguish them from all the rest of animated nature. They possess the length and pliancy of eels, but want fins to swim with; they have the scaly coverings and pointed tails of lizards, but are destitute of legs; they have the crawling motion of worms; but, unlike those animals, they are furnished with lungs: like all the reptile kind, they are resentful when offended; and nature has supplied them with the most terrible arms, to revenge every insult.

Though the malignity of these reptiles is very different in it's degrees, they are all formidable to man, and have a strong similitude to each other. With respect to their conformation, all Serpents have very wide mouths in proportion to the size of their heads: and, what is very extraordinary, they can swallow the head of another animal thrice as big as their own. To illustrate this, it must be observed that the jaws of the Serpent are held together at the roots by a stretching muscular skin; by which means they open as wide as the animal inclines, and admit a substance much thicker than it's own body: the throat, like elastic gum, dilates, in order to admit the morsel; the stomach receives it in part; and the rest remains in the gullet, till putrefaction and the juices of the reptile's body unite to dissolve it. As to the teeth, it is remarkable that some Serpents have fangs, or canine teeth; and that others are wholly destitute of them: in all, however, they are crooked and hollow; and, by a peculiar contrivance, capable of being erected or depressed at pleasure.

The eyes of all Serpents are small when com-

pared with the length of their bodies: though differently coloured in distinct kinds, the appearance of all is malignant and heavy; and, from their known qualities, they strike the imagination with the idea of a mischievous nature. - In some, the upper eye-lid is wanting, and the Serpent winks only with that below; in others, the animal has a nictitating membrane or skin, resembling that found in birds, by which the eye is guarded, and the sight preserved. In all, the substance of the eye is hard and corneous; the chrystalline humour occupying a great part of the globe.

The auditory ducts are very perceptible in the Serpent kind; but they have no conduits for smelling; though it is probable that some species enjoy that sense in tolerable perfection.

In all these animals, the tongue is long and forked; is composed of two long fleshy substances; is very pliable; terminates in sharp points; and at the root is very strongly connected to the neck by two tendons, which give it a variety of motion. Some of the viper kind have tongues a fifth part of the length of their bodies; which they are continually darting out, to the great terror of such persons as are ignorant of the true situation of their poison.

If from the jaws we proceed to the gullet, we shall find it very wide for the animal's size, and capable of vast distension. At the bottom of the throat lies the stomach, which is less capacious, and receives only a part of the food, while the rest continues in the gullet for digestion: and after the substance in the stomach is chylified, it passes into the intestines; from thence it goes either to nourishment, or to be excluded by the vent.

Like most other animals, Serpents are furnished with lungs, which probably assist them in breathing, notwithstanding the manner by which that operation is performed is difficult to be traced: for though these creatures are observed apparently to draw in their breath, there is not the smallest visible sign of their ever respiring it again. Their lungs, however, are long and large, and doubtless contribute to accelerate their languid circulation. The heart is formed as in the tortoise, the frog, and the lizard kinds, so as to exert it's powers without the assistance of the lungs: it is single, the greatest part of the blood flowing from the large vein to the great artery by the shortest course. Hence it may be inferred, that snakes are amphibious, being equally capable of living on land as in the water; and that they are also torpid during the winter, like the bat, the lizard, and other animals formed in a similar manner.

In these reptiles, the vent serves for the emission of the urine and the fæces, as well as for the purposes of generation. The instrument of propagation in the male is double, being forked like the tongue: the ovaries in the female are also double; and the aperture is very wide, in order to admit the double instrument of the male. They copulate in their retreats; and in this situation, if we may credit the ancients, they exhibit the appearance of one Serpent with two heads.

As the body of the Serpent is long, slender, and capable of extreme flexibility, the vertebræ are numerous beyond what might naturally be imagined. In the generality of quadrupeds they amount to no more than thirty or forty; but in the Serpent tribe, they rise to one hundred and forty-five from the head to the vent, and twenty-five more from that to the tail. The number of these joints

joints must undoubtedly give the back-bone a surprising degree of pliancy; but this is still farther increased by the manner in which each one of these joints is locked into another. With respect to men and quadrupeds, the flat surfaces of the bones are laid against each other, and closely bound by sinews; but, as to Serpents, the bones play one within the other like ball and socket, so that they have full motion on each other in every direction.

But though the number of joints in the back-bone of the Snake is so very considerable, that of the ribs is still more so; for from the head to the vent there are two ribs to every joint, which in all amount to two hundred and ninety: these ribs are furnished with four muscles, which being inserted into the head, run along to the end of the tail, and give the animal great strength and agility in all its motions. The skin also contributes to the same purpose; being composed of a number of scales, united to each other by a transparent membrane, which becomes harder as it grows older, till the animal changes it, which is generally twice in the year. This covering then bursts near the head; and the Serpent creeps from it, by an undulatory kind of motion, in a new skin of more vivid beauty than the former: and if the exuviae be then viewed, every scale will be distinctly seen, like a piece of net-work, larger or smaller according to the proportion of that space which they covered.

The scales of the Serpent are disposed with a great degree of geometrical neatness, for assisting it in its sinous motion. As the edges of the foremost scales lie over the extremities of the succeeding; so those edges, when the scales are erected, (which the animal possesses the faculty of elevating in some measure) catch in the ground, like the nails in the wheel of a carriage, and so promote and facilitate the Serpent's progressive motion. The scales are erected by means of a multitude of distinct muscles wherewith each is supplied, and one end of which is united in each to the middle of the preceding.

In some of the Serpent kind, there is the most exact symmetry in these scales; while in others they are more irregularly disposed: in some, there are larger scales on the belly, often answering to the number of ribs; and in others there are no scales whatever. On this slight difference Linnaeus has founded his distinctions of the various classes of the Serpent tribe; though nature seems to indicate a different arrangement, namely, into large and small, venomous and innoxious.

If we compare Serpents with each other, their differences are remarkable. Nothing can be more remotely separated than the great Liboya of Surinam, which grows to the length of thirty-six feet; and the little Serpents of the Cape of Good Hope, which, though under three inches, are so very numerous as to cover whole deserts. This tribe, like that of fishes, seem to have no bounds prescribed to their growth. Their bones are in a great measure cartilaginous, and consequently capable of great extension: the older, therefore, Serpents become, the larger they grow; and as they are remarkable for longevity, sometimes arrive at an enormous size.

We are informed that there are Serpents in the island of Java which measure fifty feet in length; Carl mentions their growing to upwards of forty feet; and there is a skin of one in the British Museum that measures thirty-two feet. A gentle-

man of veracity, who had considerable possessions in America, assured Dr. Goldsmith, that these creatures grow to an enormous length in some parts of that country: in confirmation of which assertion, he related the following incident. He one day sent forth a soldier, accompanied by an Indian, to kill wild-fowl for his table. In pursuing their game, the Indian, who generally went foremost, beginning to tire, stopped in order to rest himself on the fallen trunk of a tree, as he supposed: but just as he was about to sit down, the fancied trunk began to move; and the poor savage perceiving that he had approached a liboya, the largest of all the Serpent kind, instantly fell to the ground through fear. The soldier, who had discovered the cause, levelled his piece at the Serpent's head; and, by a lucky aim, shot it dead: however, he continued to fire till he was convinced that the animal was really killed; and then going up to his companion, who lay motionless by its side, to his unspeakable astonishment, found him dead likewise, his death having been occasioned by the sudden fright. On his return home, he related what had happened; and the animal, being stripped of its skin, measured no less than thirty-six feet.

In the East Indies also these Serpents grow to an enormous size; particularly in Java, where we are assured one of them will seize and devour a buffalo. But fortunate is it for mankind that the rapacity of these hideous creatures often proves their punishment; for whenever any of the Serpent kind have gorged themselves, they then become torpid, and may be approached and destroyed with safety. Patient of hunger to a surprising degree, whenever they have swallowed their prey, they seem, like surfeited gluttons, unwieldy, stupid, helpless, and sleepy. At such times they search out some retreat, where they lurk for several days together, and digest their meal unmolested: the weakest effort would then destroy them; for they can hardly make any resistance, and are equally unfit for flight. The naked Indian himself is not then afraid to attack them. But, whenever this sleepy interval of indigestion is ended, they issue from their retreats with famished appetites and accumulated terrors; while every creature flies before them.

Other animals have some kind of choice in their provision; but Serpents indiscriminately prey on all; the buffalo, the tiger, and the garelle, are equally acceptable. It might be imagined that the quills of the porcupine would be sufficient to protect it; but whatever possesses life serves to appease the hunger of these voracious creatures: porcupines, with all their quills, have frequently been found in their stomachs when opened; and they have even sometimes been known to devour each other.

A life of savage hostility in the forest presents to the imagination one of the most tremendous pictures in nature. In those parched countries where the heat of the sun dries up every brook for hundreds of miles in continuity; and what has the appearance of a considerable river during the rainy season, becomes in summer one dreary bed of sand: in such regions, a lake which never dries, and a perennial brook, are by animals in general esteemed the greatest blessings in nature. With respect to food, the luxuriant landscape supplies that in sufficient abundance: it is the want of water they principally wish to obviate; and, in-

wardly parched by the heat of the climate, traverse whole deserts in quest of a spring; which when they have discovered, no dangers can deter them from attempting to slake their thirst. Thus the vicinity of some rivulet is generally the rendezvous of all the hostile tribes of nature. On the banks of this little envied spot thousands of animals of various kinds are observed, either endeavouring to quench their thirst, or preparing to seize their prey: elephants are arranged in a spacious line, marching from the darker parts of the forest; buffaloes are also there, trusting to their numbers for security; garelles, relying solely on their fleetness; and lions and tigers, waiting a fit opportunity of seizing the unwary. But chiefly the larger kinds of Serpents are stationed here, defending each access to the water. Not an hour passes without some dreadful encounter. But the Serpents, defended by their scales, and naturally capable of sustaining a multitude of wounds, are of all others the most formidable: they are also the most wakeful; for the whole tribe sleep with their eyes open, and consequently are always on the watch; so that, till their rapacity is satisfied, few other animals will venture to come near them.

But though Serpents are of all other animals the most voracious; and though the morsels they swallow without mastication, are larger than what any other creatures, either by land or water, are capable of absorbing; yet none can endure abstinence for so long a time: a single meal, with many of the snake kind, seems to be the adventure of a season; a luxury they have sometimes been whole months in patient expectation of. When they have seized their prey, their industry is entirely discontinued for weeks together; and the fortunate capture of one hour often satisfies them for the remaining period of their annual activity. As their blood is colder than that of most terrestrial animals, and circulates but slowly through their bodies; so their powers of digestion are but feeble. Their prey continues for a long time, partly in their stomachs, partly in their gullets; and a portion of it is often seen hanging from their mouths. In this manner it digests by degrees; and in proportion as the part below is dissolved, the portion above is taken in. It is not therefore till this tedious operation is entirely performed, that the Serpent renews its appetite and activity: but should any accident prevent it from issuing once more from its cell, it can still continue to endure famine, for weeks, months, and even years together. Vipers are often kept in boxes for six or eight months without any food whatever; and small Serpents are sometimes imported into Europe from Grand Cairo, that live in phials for several years, without any apparent aliment. Thus the Serpent tribe unite in themselves two very opposite qualities, extreme abstinence, and yet incredible rapacity.

If we compare Serpents with respect to their voices, some are found silent, and others have a peculiar kind of cry; but a sort of hiss is the general expression either of invitation or defiance. In those countries where they abound, they are generally silent during the middle of the day, when they are obliged to shelter themselves from the ardour of the climate: but, as the cool of the evening approaches, they issue from their cells with continued hissings; and such is the variety of their notes, that some authors affirm they induce a pretty good idea of the harmony of an English

grove. Such notes, however, can afford but little delight, when we recollect the malignity of the minstrels. If considered, indeed, as they answer the animals particular occasions, they will be found well adapted to their nature, and fully answering the purposes of terrifying such as would adventure to offend them.

With reference to motion, some Serpents, particularly those of the viper kind, move but slowly; while others, such as the ammodytes, dart with amazing swiftness. The motion in all is similar; but the strength of the body, in some, exhibits a very different appearance. The viper, which is but a slow, feeble-bodied animal, proceeds in a heavy, undulating manner; advancing its head, then drawing up its tail behind, and bending its body into a bow; afterwards, from the spot where the head and tail were united, advancing the head forward as before: this, which is the motion of all Serpents, is very different from that of either the earth-worm or the naked snail. The Serpent, as previously observed, has a back-bone, with numerous joints; and this bone the animal possesses the power of bending in every direction, but without being able to shorten or lengthen it at pleasure: the earth-worm, on the contrary, has no back-bone; but its body is composed of rings, which it can lengthen or shorten at discretion. The earth-worm, therefore, in order to move forward, lengthens its body; then by the fore-part clings to the ground where it has reached; and afterwards contracts and brings up its rear; when the body is thus shortened, the fore-part is lengthened again for another progression; and so on: but the Serpent, instead of shortening its body, bends it into an arch. This is the principal difference between serpentine and vermicular progression.

Many Serpents, however, dart with such amazing swiftness, that they appear rather to leap than crawl; though it is probable that no snakes can dart farther than their own length, on even ground, at a single effort: our fears, indeed, may increase the force of their speed, which is sometimes found so fatal. The *Jaculus* is the swiftest Serpent in nature; and its manner of progression is by instantly coiling itself on its tail, and darting from thence to its full extent; then carrying its tail quick as lightning to its head; coiling and darting again; and by this means proceeding with extreme rapidity, without ever quitting the ground.

Though all Serpents are amphibious, some are much more attached to the water than others; and, though destitute of fins or gills, remain at the bottom, or swim along the surface with great ease. From their internal structure, we may discern how well adapted they are for either element; and how capable their blood is of circulating at the bottom, as freely as that of the frog or the tortoise: salt water, however, is baneful to the whole tribe. The largest Serpents are frequently found in fresh-water, either choosing it as their favourite element, or finding their prey there in the greatest abundance. But the experiment of Rhedi evidently demonstrates that all are capable of existing and swimming in liquids: this curious naturalist put a Serpent into a large glass vessel filled with wine, where it continued swimming about for six hours, without any sensible injury; though, when immersed by force, and confined under the liquor, it died in one hour and a half. He placed another in common water, where it lived three days;

days; but, when plunged under the water, it expired in the space of twelve hours. In the liquid element, however, the motion of Serpents is perfectly the reverse of what it is on land; for, in order to support themselves on an element lighter than their own bodies, they are obliged to increase their surface in a very artificial manner. On earth, they wind perpendicular to the surface; in water, parallel to it: in other words, the waving of the hand up and down will give a clear idea of the progress of these animals on land; and the waving it from right to left, will represent their progress on the water.

So horrible a fætor exhales from some Serpents, that it is alone capable of intimidating their assailants. This effluvia proceeds from two glands near the vent, like those in several of the weasel kind; and, like those animals, in proportion as they are excited by rage or fear, the scent becomes stronger. It appears, however, that such Serpents as are most numerous, are the least offensive in this particular; for the rattle-snake and the viper are perfectly free from any disagreeable odour: and, if we may give credit to travellers, there are some noxious Serpents in the East Indies, which are so far from being disagreeable to the smell, that their very excrements are sought after, and preserved as the most grateful perfume.

Some Serpents are viviparous, as the viper; but others are oviparous, as the common black snake, and the majority of the Serpent tribe: however, proficient in anatomy need not be informed, that these animals are internally formed alike, in whatever manner they produce their young; the variety in parturition being rather a slight than a real discrimination. The only difference is, that the viper hatches her eggs, and brings them to maturity within her body; whereas the snake is more premature in her productions, and brings forth her eggs some time before the young are capable of quitting the shell. Thus, if either be opened at the proper season, the eggs will be found in the womb, covered with their membranous shells, and adhering to each other like large beads on a string. The young ones will be found inclosed in the eggs of both, though at different stages of maturity: those of the viper will crawl and bite the instant they are liberated from the shell; while those of the snake will be found imperfect in their natural formation.

Labat caused a Serpent of the viperine kind, measuring nine feet, to be opened in his presence. He then saw the manner in which the eggs of those animals lie in the womb. In this creature there were six eggs, as large as those of a goose, but longer, sharper at the extremities, and covered with a membranous skin, by which also they were united to each other. Thirteen or fourteen young were contained in each of these eggs, about six inches in length, and the thickness of a goose-quill. The parent was spotted; but the young ones had a variety of colours, very different from her's; which induced this gentleman to conjecture that the colour composed no characteristic mark among Serpents. These little animals were no sooner emancipated from confinement, than they crept about; and put themselves into a threatening posture, by coiling themselves up, and clinging to the stick with which he was destroying them.

The last, but most material distinction, among Serpents, is, that some are venomous, and others inoffensive. The poison of these reptiles has been

for ages one of the greatest objects of human consideration. In Europe indeed, where the vengeful wound is seldom inflicted, it is regarded merely as a subject of curiosity; but to those who are placed amidst the Serpent tribe, and are daily exposed to some new disaster, it becomes a matter of the most serious import. The physicians of the East consider their skill in furnishing antidotes against this calamity as the highest perfection of the healing art. In all countries, however, the poison of the Serpent is sufficiently formidable to excite our attention to it's nature and effects: a description therefore of it's seat in the animal, and of the instrument by which it is communicated, cannot fail of proving both amusing and instructive.

In all the venomous class of reptiles, whether the viper, the rattle-snake, or the cobra di capello, there are two large teeth or fangs; issuing from the upper jaw, and projecting beyond the lower. The innoxious class is destitute of them; and it is most probable, that wherever these fangs are wanting, the animal is harmless: on the contrary, wherever they are found, it is to be avoided as the most deadly foe. These instruments seem to constitute the true distinction between animals of the Serpent kind: the wounds which these fangs inflict produce the most dangerous symptoms; but those made by the teeth only are attended with nothing more than the common consequences arising from the bite of any other animal. If a snake has fang-teeth, it is to be ranked among the venomous class; if it has not, it may be considered as inoffensive. Many Serpents indeed are said to be poisonous, whose jaws are destitute of fangs: but it seems extremely probable that our fears alone have furnished these animals with poison; for, of all the tribe which want this apparatus, not one is found to have a bag for holding poison, nor a conduit for injecting it into the wound. The black snake, the liboya, and numerous others, have their teeth of an equal size, fixed in their jaws; and are no more capable of inflicting dangerous wounds than dogs or lizards. But it is far otherwise with respect to the venomous tribe: these are well furnished, not only with a laboratory wherein the poison is concocted, but with a canal by which it is conducted to the jaw, a bag under the fang for containing it, and also an aperture in the fang itself for injecting it into the wound. The glands which supply this venomous fluid are situated on each side of the head behind the eyes, and have canals leading from thence to the bottom of the fangs in the upper jaw, where they empty themselves into a kind of bladder, from which the fangs on each side proceed. The venom contained in this bladder is a yellowish, thick, insipid liquor; which, when injected into the blood, proves fatal; yet may be swallowed without any danger.

Those fangs which inflict the wound, are large in proportion to the animal that bears them. They are crooked; but yet sufficiently sharp to penetrate most substances. They grow one on each side, and sometimes two, from as many moveable bones in the upper jaw; which, by sliding backward or forward, possess a power of erecting or depressing the teeth at pleasure. A number of teeth are also arranged along these bones, which serve only to seize and hold the animal's prey. Besides this apt disposition of the fangs, they have an internal cavity; and an opening to-
wards

wards the point, through which, when the fang is pressed down on the bladder, a part of the venom is immediately seen to issue. To illustrate this operation: when the Serpent is irritated to inflict a venomous wound, it opens it's jaws to their widest extent; the moveable bones of the upper jaw slide forward; the fangs, which before lay reclining, are thus erected; they are then struck with force into the flesh of the obnoxious person; and, by meeting resistance at the points, they press on the bladders of venom from whence they grow: the poison issues up through the hollow of the tooth; and is pressed out through it's slit into the wound which the fang has already made in the skin. Thus, from a slight puncture, and the infusion of a very minute drop of poison, the part is quickly inflamed; and, without a proper antidote, the whole frame is contaminated.

The appearances which this venom induces are different, according to the degree of malignity in the Serpent, the part affected, the warmth of the season or climate, and the strength of the animal that gives the wound. However, the various calamities which the poison of Serpents is capable of producing, are not only inflicted by the creatures themselves, but by men more mischievous even than Serpents, who prepare their venom purposely to destroy each other. With this poison the savages imbue their arms, and also prepare their revengeful potions. The ancients used to preserve it for the purposes of suicide; and, even among semibarbarous nations at this day, the venom of Serpents is employed as a philter. But though this poison be justly terrible to mankind, it is bestowed by Providence for the reptile's own proper support and defence. Without it, Serpents would, of all other animals, be the most exposed and insecure: without feet for escaping a pursuit; without teeth capable of inflicting a dangerous wound; without strength for resistance; incapable, from their size, of finding security in very small retreats, like earth-worms; and highly disgusting because of their deformity; what else must have been the consequence but a speedy extirpation? But, furnished as they are with powerful poison, all ranks of animals approach them with dread, and never seize them but at an advantage.

Nor is this all the protection they derive from their poison: the malignity of a few serves for the security of all. Though not one tenth part of their number is actually venomous, the similitude they bear to each other excites a general terror of the whole tribe; and the uncertainty of their enemies in which individual the poison chiefly resides, makes even the most harmless Serpents formidable. Thus Providence seems to have acted with a double precaution: it has imparted poison to some of them for the general defence of a tribe naturally feeble; but it has also thinned the numbers of those which are absolutely venomous, lest they should prove too potent for the rest of animated nature.

Considering these noxious and disgusting qualities in the Serpent tribe, it is not at all surprising, that not only man, but also beasts and birds, carry on incessant hostilities against them. The ichneumon of the Indians, and the peccary of the Americans, destroy them in prodigious numbers: these animals possess the art of seizing them near their heads; and it is likewise said that they can slay them with great dexterity. The vulture and the eagle likewise prey on them in great abund-

ance; and often darting on huge Serpents from the clouds, snatch them up struggling and writhing into the air. Dogs also assist in exterminating the species. Father Feuillée informs us, that he was attacked in the woods of Martinico by a large Serpent; when his dog instantly coming to his relief, seized the assailant with great courage. The snake entwined and pressed him with such violence, that the blood gushed from his mouth; nevertheless, the dog never quitted the reptile till he had torn it to pieces. During the conflict, the dog seemed insensible of his wounds; but, soon after, his head swelled prodigiously, and he lay on the ground as if dead. His master, however, having luckily discovered a banana-tree, applied it's juice, mixed with treacle, to the wounds; which recovered the dog, and speedily healed the parts affected.

But man is the most formidable enemy which these venomous creatures have to encounter. The Pnylli of old are said to have been famous for charming and destroying Serpents. Some moderns have also pretended to the same art; and Casaubon informs us, that he knew a man who could at any time summon a hundred Serpents together, and draw them into the fire. Philostratus has given us a particular description of the manner in which the Indians charm these reptiles. 'They take,' says he, 'a scarlet robe embroidered with gold letters, and spread it before their holes: these letters possess a kind of fascinating power; and by looking stedfastly on them, the eyes of these animals are overcome, and themselves laid asleep.'

These, with many other devices, have often been practised on Serpents by artful men, who had first prepared the reptiles for their exercise, and then exhibited them as if adventitiously assembled at their call. Nothing is more common in India than dancing Serpents, which are carried about in broad flat vessels, somewhat resembling sieves. They erect and put themselves into different attitudes at the word of command. When the owner sings a slow tune, they seem, by the vibration of their heads, to keep time with his voice; and when he sings one of a quicker measure, they appear to move with more briskness and vivacity. From this deception, artfully practised before the vulgar, probably have arisen all the boasted pretensions which some have made to the incantation of Serpents; an art to which the native Americans still lay claim. A pupil of the celebrated Linnæus is said to have purchased the secret from an Indian, and then disclosed it to his teacher; but, like all others of the kind, it consisted of only a few unmeaning words of no particular efficacy.

Notwithstanding the horror with which mankind generally regard this tremendous race of animals, there have been various nations in remote antiquity, and there are some even at present, who regard them with a kind of veneration. The adoration paid by the ancient Egyptians to a Serpent is well known; and many nations now inhabiting the western coast of Africa retain the same ridiculous superstition. In traversing the Gold and Slave Coasts, a stranger is often surprised to see swarms of Serpents clinging to the roofs of cottages which the simple natives have reared, neither molesting nor molested: but his astonishment is increased, when, proceeding farther southward to the kingdom of Whidah, he finds that a Serpent is worshipped as the deity

of the country. This animal, which travellers describe as enormously large, has its habitation, its temple, and its priests: these last impress the vulgar with an opinion of its virtues; and multitudes daily become the dupes of their artifice. The deluded populace not only offer their goods, their provisions, and their prayers, at the shrine of this hideous god; but also their wives and daughters: these the priests readily accept; and, after some days of penance, return the females to their suppliants, much benefited by the Serpent's supposed embraces. Such a complicated picture of ignorance and imposture give us a very mean idea of the rationality of the natives: but, in defence of human nature, it should be remarked, that the most uncultivated and barbarous of mankind alone pay their veneration to such a despicable divinity.

SERPENT-EATER. Edwards, who first described and figured a bird of this kind, considers it as a distinct genus; in its general shape approaching to the crane, but in the conformation of its feet and bill differing considerably from that tribe. The bill is aquiline; and the talons are small, and but ill adapted for a bird of prey. The eyes, which are dark, are situated in spaces covered with a bare orange-coloured skin; the head is adorned with a beautiful crest, composed of many long party-coloured feathers, tipped with black, and hanging backwards; the beak, head, neck, back, breast, and upper coverts of the wings, are of a blueish ash-colour, somewhat lighter on the breast than the back; the belly, thighs, greater wing-feathers, and tail, are black, the latter tipped with white; the legs and feet are of a reddish flesh-colour; and the claws are black.

The Dutch at the Cape of Good Hope give this bird the appellation of slang-eater, from the avidity with which it devours snakes. Three species of this genus have been imported into Europe; the largest of which measured three feet from the extremity of the tail to the crown of the head.

This singular bird is said to be held in the highest veneration in the interior parts of Africa. Some assert that it is the ibis of antiquity: and Josephus tells us, that Moses preserved his army from a multitude of destroying serpents by means of the ibis, of which he collected numbers during his travels.

SERPENT FISH, RED; the *Serpens Rubescens* of some ichthyologists. A fish properly belonging to the *tænia* genus; resembling the common snake in figure; of a strong red colour; and marked down the sides with oblique lines, exclusive of a long line on each side reaching from the gills to the tail. The mouth is small; and the teeth are sharp and serrated. Over the back there are a number of fine capillaments at intervals, which extend to the tail; and the same are likewise perceptible on the belly.

SERPULA. A genus of shells of a tubular shape, found adhering to other bodies. The inclosed animal is a terebella. Pennant enumerates the spiral, angular, complicated, twined, and worm *Serpulæ*; all which are natives of the British coasts.

SERRA PISCIS. An appellation by which many authors express the prittis, or saw-fish.

SERRA is also a name given by Pliny to the balistes, more generally denominated scolopax. Artdi distinguishes it by that of the balistes with

two spines in the place of the ventral fins, and one behind the anus. See **TRUMPET-FISH.**

SERRATE FLIES. A term by which some naturalists express a class of flies, distinguished from all other kinds by their having a weapon, resembling a double saw, at the extremity of their bodies; which assists them in making repositories for their eggs in the branches of trees. Of this kind is the rose-fly. See **ROSE-FLY.**

SERVAL; the *Catus Pardus* of naturalists in general. This animal is of the feline kind, and a native of Malabar. It resembles the panther in its spots; but the lynx in its size, the robustness of its make, and the shortness of its tail.

SERULA. A marine bird of the mergus kind, very common in the neighbourhood of Venice. Ray calls it the mergus cirratus fuscus, the brown-crested, or lesser-toothed diver; and supposes it synonymous with the *anas longirostra*, or long-beaked duck of Gesner; while Pennant gives it the name of the red-breasted merganser. See **MERGANSER, RED-BREASTED.**

SESERINUS. An appellation whereby Rondeletius, and some other ichthyologists, have expressed an Italian sea-fish of a broad, short figure; apparently the same with the lampuga of the Italian fishermen, and most commonly known by the name of fromateus.

SETACEUS VERMIS. A name by which Lister expresses that very long slender water-worm, the *amphisbæna aquatica* of naturalists in general. These worms, which the vulgar suppose to be animated hairs, are a peculiar sort of insects, bred and nourished within the bodies of other insects, as the worms of the ichneumon flies are in the bodies of caterpillars.

SETICAUDÆ. A term by which naturalists denote such flies as have one or more hairs issuing from their tails. A great number of species fall under this definition.

SEWIN. A provincial appellation for the fish more usually denominated the grey. See **GREY.**

SHAD; the *Clupea Alofa* of Linnæus. A sea-fish of the herrings kind; called also the mother of herrings: by some ichthyologists, clupea and triffa; and by the ancients, as is generally supposed, trichis or trichias.

The Shad bears a strong resemblance to the herring in its general conformation; but it is more depressed, and broader. The head slopes down considerably from the back, which at the rise is very convex, or rather sharp; and the body gradually diminishes from thence to the tail. The under jaw is somewhat longer than the upper; the teeth are very minute; the dorsal fin is small, with the middle rays longest, and placed very near the centre; the tail is much forked; and the belly is extremely sharp, and strongly serrated. The back is of a dusky blue colour; above the gills a line of dark spots commences, marking the upper part of the back on each side; the number of the spots differing in different fish, but being usually from four to ten.

Shads are very common in many seas; and also in some of our large rivers, especially near their mouths: these they ascend in prodigious numbers, at a season when they are very fat; but afterwards becoming lean, they revisit the sea, and generally herd in large shoals.

The Severn affords the finest Shads in Great Britain: in warm seasons, they make their appearance in that river about the end of April, but

more usually in May; and continue about two months. The Shad, at its first appearance, particularly in the vicinity of Gloucester, is esteemed a most delicate fish, fetching a higher price than the salmon; and the London fishmongers distinguish it from that of the Thames by the French name, *alose*.

It remains as yet undetermined whether or not Shads spawn in the Severn: certain it is; their fry has neither been ascertained in that river, nor the Wye. The old fish quit the sea in full roe; and many fishermen erroneously suppose, that the bleaks which appear in myriads near Gloucester in July and August, are the fry of the Shad: many of them are taken in those months only; but none of the emaciated Shads are ever caught on their return.

The Shad of the Thames does not frequent that river till the month of July; and is esteemed a very insipid, coarse fish. About the same time, the twaite, a variety of the Shad, is taken in prodigious numbers in the Severn, near Gloucester; but is as little valued as the Shad of the Thames.

The real Shad weighs from four to eight pounds; the twaite, on the contrary, weighs from half a pound to two pounds, which it never exceeds. The twaite differs from a small Shad only in having one or more round black spots on the sides: if only one, it is always near the gill; but commonly three or four are arranged one under the other.

Agreeable to act of parliament, no Shads must be taken in the Thames or Medway, except from the 10th of May to the 30th of June.

SHAG; the *Pelecanus Graculus* of Linnæus. An aquatic fowl very common on the northern coasts: denominated by Ray *Corvus Aquaticus Minor*, or the lesser cormorant; being properly a bird of the cormorant kind.

The Shag is frequently twenty-seven inches in length; three feet six inches in breadth; and nearly four pounds in weight. The bill, which is straight and slender, is of a roundish figure, four inches long, and hooked at the extremity; the opening of the mouth is large; the eyes are small; and the head is adorned with a crest, two inches long, and pendulous backward. The whole plumage of the upper part is of a fine glossy green hue, the edges of the feathers being of a purplish black; but the lower part of the back, head, and neck, are wholly green. The belly is dusky; and the legs are black.

This bird builds in trees, like the common cormorant. It swims with its head erect: and is shot with extreme difficulty; for it no sooner perceives the flash of a gun, than it dives under water, and rises again at a considerable distance.

SHARK. A species of *squalus* in the Linnæan distribution; but considered by Pennant as a distinct genus. The characters are these: the body is slender, decreasing towards the tail; it has two dorsal fins, a rough skin, and five apertures on the sides of the neck; the mouth is generally situated far beneath the extremity of the nose; and the upper part of the tail is longer than the lower. There are several species.

Sharks are the fiercest and most voracious of all the inhabitants of the deep. The smallest of this tribe are not less dreaded by larger fish than many which to all appearance seem more formidable: nor do any of them decline the combat with animals far above their own size; and some of them are from twenty to thirty feet in length.

No fish whatever can swim with such velocity as the Shark; nor is any so constantly engaged in that exercise: he outstrips the swiftest ships, plays round them, darts out before them, returns, and seems to gaze at the mariners without exhibiting the smallest symptom of strong exertion or uneasy apprehension. Such amazing powers, joined with such ravenous appetites, would speedily depopulate even the ocean itself, did not the upper jaw of the Shark project so far above the lower, that he is obliged to turn on one side (not on his back, as generally supposed) before he can seize his prey. As this act requires some time, the animal pursued avails itself of the delay, and frequently effects an escape. Still, however, the depredations he commits are frequent and formidable. He is the terror of sailors in all hot climates, where he generally attends the ships, in expectation of spoil; and should any person happen to fall overboard on such an occasion, he would certainly perish without instant relief.

A sailor bathing in the Mediterranean, near Antibes, in 1744, about the distance of forty yards from the ship, perceived a monstrous fish making towards him, and surveying him on every side. Struck with terror, the hapless mariner called out to his companions in the vessel to afford him immediate assistance: they accordingly threw out a rope with the greatest expedition; and were drawing him up by the ship's side, when the Shark instantly darting after him from the water, snapped off his leg.

Pennant likewise informs us, that the master of a Guinea ship finding a rage for suicide prevail among his slaves, from a notion the wretched creatures entertained that after death they should be restored again to their country, family, and friends; in order to convince them that some disgrace should attend them even here, he ordered one of their dead bodies to be suspended by the heels, and so let down into the sea; and though the corpse was drawn up again with all possible expedition, during that very short space the Sharks had devoured the whole of it except the feet.

Another Guinea captain, by stress of weather, was driven into the harbour of Belfast, with a lading of very sickly slaves; who, in the manner previously mentioned, and from the same prepossessions, embraced every opportunity of throwing themselves overboard when brought on deck for the benefit of fresh air. The captain perceiving, among others, a woman slave attempting to destroy herself, pitched on her as a proper example to the rest: supposing that they had a very imperfect idea of the terrors of death, he ordered a rope to be tied under her arm-pits, and her body to be thus let down into the water. The poor slave was no sooner plunged about half way down, than she was heard to utter a terrible shriek, which at first was ascribed to her dread of drowning: but soon after the water appearing of a red hue around her, she was drawn up; and, to their great surprise, found that a Shark, which had followed the track of the ship, had bit off one half of her body from the middle downwards.

A gentleman, now living, and a member of the British legislature, had also the misfortune to lose one of his legs by the bite of one of these terrible creatures, while bathing in the West Indies: and, were we to enumerate the many accidents occasioned by Sharks, which have been transmitted by the most unquestionable authorities, they would far exceed the limits prescribed to a work of this nature.

nature. Indeed, such is the tremendous rapacity of these creatures, that nothing animated is rejected by them. But towards mankind they seem to harbour a peculiar aversion; and, when they have once tasted human flesh, they never desist from haunting those situations where they hope for a return of their prey. It is even asserted that, along the African coast, where these animals are very numerous, the negroes, who are obliged to frequent the water, are often seized and devoured by them. The natives of these coasts are firmly persuaded, that the Shark prefers the black man's flesh to that of the white man; so that whenever men of different colours present themselves, he always makes choice of the former.

Certain it is, that people of all colours and all countries are equally afraid of this animal; and have contrived different methods to destroy him. In general, they derive their success from the Shark's own rapacity. The usual way in which our sailors catch him, is by baiting a large hook with a piece of beef or pork; which is thrown into the sea, fastened to a strong cord, strengthened near the hook by an iron chain: for, without this precaution, the Shark would instantly bite the cord in two, and liberate himself. It is no unpleasing diversion to observe this voracious animal surveying the bait, particularly when hunger does not render him very eager: he approaches it, examines the substance, swims round it, and seems for a short space to turn away from it; then he appears again, and prepares to swallow the lure, but once more quits it. When the sailors have sufficiently diverted themselves with his different evolutions, they make a shew of removing the bait, by drawing the rope towards them. The rapacious animal, no longer able to resist the impulse of appetite, darts at the meat, and swallows it downright: sometimes, however, he does not so entirely gorge it, but that he once more regains his liberty; but even then, though wounded and bleeding with the hook, he again pursues the bait till captured. When he finds the hook lodged in his maw, his utmost efforts are then exerted in order to get free: he attempts to break the chain with his teeth; pulls with all his strength to break the line; and makes the most violent efforts to disgorge the hook. In this manner he struggles till quite spent; when he suffers his head to be drawn above water; and the sailors confining his tail by a noose, speedily draw him on board, and dispatch him. This is effected by beating him on the head till he dies: yet even that business is attended with difficulty and danger; the enormous creature, terrible in the agonies of death, still struggles with his destroyers; nor is there any animal more tenacious of life. Even when cut in pieces, the muscles preserve their motion, and vibrate for some time after they are separated from the body.

Another method of taking the Shark consists in striking a barbed instrument, called a fizegig, into his body, as he brushes along by the side of the ship: and as soon as he is taken up, his tail is cut off with the greatest expedition, to prevent his flouncing, which often proves dangerous to by-standers.

Such are the modes by which Europeans destroy the Shark. But some negroes along the African coast adopt a bolder as well as more dangerous method of combating this formidable enemy: armed only with a knife, the negro plunges into the water, where observing the Shark

watching for his prey, he boldly swims forward to assail him. Though the huge animal does not always provoke the combat, he in no respect avoids it, and suffers the negro to approach him: but, just as he turns on his side in order to seize the aggressor, the negro plunges his knife into the belly of the Shark, and pursues his blows with such address, that he generally lays the ravenous tyrant dead at the bottom. The victor, however, soon returns; fixes the animal's head in a noose; and, with the assistance of his companions, drags him ashore, where he yields a sumptuous feast to the adjacent villagers.

Nor is man the only successful opponent of the Shark: the remora, or sucking-fish, is probably a still more fortunate one, pursuing him with unceasing animosity. This fish possessing the faculty of adhering to whatever substance it chuses, clings to the Shark, and drains away his moisture. The seamen, however, entertain a different opinion: they suppose that the remora attends the Shark for more amicable purposes, namely, to warn him of his danger, and point out his prey; and on this account it has been called that animal's pilot.

The Shark breathes with it's gills and lungs; it's bones are cartilaginous; and it brings forth several young alive. Bellonius assures us, that he knew a female Shark produce eleven young at a time. Pennant is of opinion that the females, in all this tribe, are larger than the males; which circumstance, if confirmed by experience, would form a striking analogy between them and birds of prey.

The flesh of the Shark is scarcely digestible by any but negroes, who are excessively fond of it; it's liver affords a few quarts of oil; it's skin is with great labour polished into that substance called shagreen; and some imaginary virtues have been ascribed to it's brain.

SHARK, ANGEL; the *Squalus Squatinus* of Linnæus. See ANGEL.

SHARK, PICKED, PICKED DOG, OR HOUND-FISH; the *Squalus Spinax* of Linnæus. This species receives it's name from a strong sharp spine placed just before each of the back fins, which is it's distinguishing characteristic. It swarms on the coasts of Scotland, where it is split, dried, and eaten by the poorer class of people. The nose is long, extending considerably beyond the mouth, but blunt at the extremity; and the teeth are disposed in a double row. The first dorsal fin is placed nearer the head than the tail; and the other is situated very near the latter. The tail is finned for a considerable space beneath; the back is of a brownish ash-colour; and the belly is white. Some of this species weigh twenty pounds.

SHARK, LONG-TAILED; called also the Sea-Fox, or Ape; the *Squalus cauda longiore quam ipsum corpus* of Artedi. This fish is remarkable for the extreme length of it's tail: the body is round and short; the nose is also short, but sharp-pointed; the eyes, which are large, are immediately over the angles of the mouth; and the teeth are triangular, and placed in three rows. The back is ash-coloured; the belly is white; and the skin is wholly smooth.

The ancients denominated this fish alopex, and vulpes, from it's supposed cunning; believing that when it happened to swallow the bait, it continued to take in the cord till it could bite it through, and so escaped. It is sometimes caught

in the British Seas. A specimen examined by Pennant was thirteen feet in length.

SHARK, SPOTTED; the *Squalus Canicula* of Linnæus. This species, called also the spotted dog-fish, is about four feet in length; the nose is short and blunt; the eyes are oblong, a large orifice opening behind each to the inside of the mouth; the teeth are small, sharp, and disposed in four rows; both the dorsal fins are placed much behind; and the tail is finned, extending below into a sharp angle. The whole upper part of the body and fins are brown, marked with numerous large distinct spots. Some parts of the skin are tinged with red; and the belly is white.

Pennant mentions a variety which he calls the lesser spotted Shark or dog-fish. It scarcely weighs two pounds; and is little more than two feet in length. The colours are nearly the same.

SHARK, SMOOTH; the *Squalus Mustelus* of Linnæus; called also the smooth hound. The nose of this species extends far beyond the mouth, and its extremity is blunt. The first dorsal fin is placed midway above the pectoral and ventral fins; the tail is forked; and the teeth, which resemble those of a ray, are rough and sharp. The back and sides are ash-coloured, destitute of spots; and the belly is silvery.

SHARK, BEAUMARIS. This species was first observed by a gentleman of Beaumaris, from which place it has obtained its distinctive appellation. Its length is seven feet; and its greatest circumference is four feet eight inches. The nose is obtuse; and the mouth is armed with three rows of slender teeth, fixed to the jaws by certain muscles capable of erection or depression at pleasure. The first dorsal fin is of a triangular figure; the pectoral fins are large and strong; and the ventral and anal are small. The tail is semilunar; but the horns are of unequal lengths. The whole body is of a lead colour; and the skin much less rough than is usual in this genus.

SHARK, BASKING; the *Squalus Maximus* of Linnæus. A species long known to the inhabitants of the south and west coasts of Ireland and Scotland, and some parts of Wales. It quits the bays of Wales about Michaelmas; and the Frith of Clyde, and the Hebrides, about the end of July.

These animals possess nothing of the fierce and voracious nature of the Shark kind; but are so tame as to suffer themselves to be stroked; lying motionless on the surface of the water, as if fond of sunning themselves; from which circumstance they have obtained the appellation of Basking Sharks. Their food seems to consist entirely of marine plants; though Linnæus says that they subsist on medusæ. At certain times they are seen sporting on the waves, and leaping with surprising agility; though in general they swim deliberately, and with the dorsal fins above water.

Some of these fishes measure upwards of twelve yards. Their form is slender; the upper jaw is much longer than the lower, and blunt at the extremity; the mouth is placed beneath; and each jaw is furnished with numbers of small teeth. On the sides of the neck are five large transverse apertures to the gills. There are two fins on the back: the first, which is very large, is placed nearer the head than the middle; and the other is small, and situated near the tail. On the lower part of the body there are five other fins, two pectoral, two ventral, and one small anal fin; near

these the male has two genitals, as is usual in Sharks; and between these fins the pudendum of the female is situated. The tail is very large, having the upper part much longer than the lower. The colour of the upper part of the body is a deep lead; the belly is white; the skin is rough like shagreen, but less so on the belly than on the back; and within the mouth, near the throat, there is a short kind of whalebone. The liver is prodigiously large; and, when melted, yields a pure sweet oil, fit for lamps, and sometimes used for medicinal purposes.

When these animals are struck by harpoons, and wounded, they fling up their tails, and plunge headlong to the bottom, coiling the ropes round them, and attempting to disengage themselves from the harpoons by rolling on the ground. They swim with such rapidity and force, that instances have occurred of vessels of sixty or seventy tons burden being towed away by them against a fresh gale; and they will sometimes occupy the fishermen a whole day before they are completely vanquished. A large fish yields about eight barrels of oil.

SHARK, WHITE; the *Squalus Carcharias* of Linnæus. This species, sometimes simply denominated the Shark, as being the most formidable of all others, is distinguished by Artedi under the appellation of the squalus with a flat back, and numerous teeth serrated at the edges.

These Sharks are by far the largest as well as most terrible of the genus: some of them have weighed four thousand pounds; with throats wide enough to admit a full-sized man. For this reason some are of opinion that the prophet Jonah was swallowed by a fish of this kind, and not by a whale. Swimmers have frequently perished by their means; sometimes losing an arm or a leg; at others, being bit quite asunder: and indeed the entire bodies of men have been found in some of them when opened.

The teeth of this creature, which are very sharp and terrible, are disposed in six rows, all triangular, and serrated on their edges: these, in the whole, amount to one hundred and forty-four; and are placed in various directions. When the fish is in a state of repose, they lie quite flat in the mouth; but when he seizes his prey, they are erected by a set of muscles which unite them to the jaw. The mouth is placed far beneath; for which reason these Sharks, as well as the rest of their kind, are obliged to turn on their sides in order to seize their prey. The back is short and round. The tail is of a semilunar form, composed of two long fins: this member has surprising strength, and with it the animal strikes with great violence. The pectoral fins are large, and well adapted for rapid motion in the water. The whole body and fins are of a light ash-colour; the skin is rough; and the eyes are large and round.

The ancients were acquainted with this fish; and Oppian gives a circumstantial and entertaining account of its capture. Its flesh is sometimes eaten; but it is esteemed rank and coarse.

SHARK, BLUE; the *Squalus Glaucus* of Linnæus. Artedi distinguishes this species by the name of the squalus with a triangular dent or sulcus in the extremity of the back, and without any foramina about the eyes. The back is of a fine deep blue colour, and the belly of a bright silvery white; the skin is moderately smooth; the nose is long, pointed, and somewhat depressed, extending

tending far beyond the mouth; the nostrils, which are long, are placed transversely; and the tail is bifid, one part of it being considerably longer than the other.

This creature, which is extremely voracious of human flesh, is sometimes caught on the British coasts, particularly in Cornwall, during the pilchard season.

Ælian informs us, that this animal will permit the small brood, when in danger, to swim down it's throat, and take shelter in it's belly; and the fact has been confirmed by Rondeletius. Pennant, however, seems to think the care of their young is not peculiar to the Blue Shark, but common to the whole genus.

SHARK, TOPE; the *Squalus Galeus* of Linnæus. See **TOPE**.

SHARPLING. An English appellation for the gasterosteus. See **STICKLEBACK**.

SHEAR WATER; the *Porcellaria Puffinus* of Linnæus. This bird, called also by some naturalists the *Avis Diomedis*, is about fifteen inches long, and thirty-one broad. The bill is one inch and three-quarters long; and the nostrils are tubular. The head, the whole upper part of the body, the wings, tail, and thighs, are of a sooty blackness; the under-side from chin to tail, as well as the inner coverts of the wings, are white; and the legs are slender, compressed sideways, dusky behind, and whitish before.

These birds frequent the Calf of Man in February, take possession of the rabbit-burrows, and then disappear till April. The young ones, which are fit to be taken about the beginning of August, or the end of July, are killed in great numbers, salted, and barrelled; and, when boiled, eaten with potatoes. They quit the isle the latter end of August or beginning of September; and from many circumstances it may be conjectured that they are dispersed over the whole Atlantic Ocean, like the storm-finch. In the Orkney Isles, this species is denominated the lyre; and there both it's flesh and feathers are extremely valued.

SHEAT-FISH. This fish, which is a species of *silurus*, sometimes weighs upwards of one hundred and fifty pounds. In the *Vistula*, which falls into the Baltic, some have been caught measuring sixteen feet in length, and twenty-seven inches in breadth. The back is dusky, like that of an eel; and the belly and sides are variegated with white and black spaces or large spots. The body is slippery, being covered with slime, without any visible scales; the head is very broad and flat; the mouth extremely wide; the body is thick and roundish to the vent; but the lower part of the belly is flat. In the upper jaw, before the eyes, there are two very long and hard barbs; and four more depend from the lower lip, but more slender and short. The mouth is destitute of teeth, properly so called; but the lips both above and below, as well as the palate, are rough like a file, and answer the purposes of teeth. There is only one very small dorsal fin, consisting of no more than three nerves; and a long fin runs from the vent to the tail, which joins to each gill-fin.

This fish is found in several lakes and rivers of Germany, usually keeping close to the bottom; and is extremely voracious, making dreadful havoc among the inferior fry. It is held in pretty high estimation; and is dressed after the same manner as the eel.

SHEEP. In the Linnæan distribution of na-

ture, a distinct genus of the order of *pecora*. The distinguishing characters are: the horns are hollow, bent backwards, wreathed, crooked, and scabrous externally; there are eight cutting-teeth in the lower jaw, but none in the upper; and no canine teeth.

Linnæus enumerates three species; the *ovis aries*, or ram Sheep; the *ovis Guinensis*, or Guinea Sheep; and the *ovis Sterpiceros*, or Cretan Sheep. However, though the varieties are extremely numerous, they may all be deduced from the *ovis aries*.

Sheep, in their present domestic state, are of all animals the most innocent and defenceless. Destitute of every quality necessary to self-preservation, they endeavour to fly without swiftness, and to oppose without strength. These feeble efforts serve only to excite the insults of their enemies. The dog pursues the flock with greater delight on seeing them fly, and attacks them with more ferocity from their unsupported attempts at resistance; while they keep together rather with the hopes of avoiding their single danger in the crowd, than of uniting to repress the attack by dint of numbers. Were the Sheep therefore exposed in it's present state to struggle with it's natural enemies of the forest, it would soon be extirpated. Loaded with a heavy fleece, deprived of the defence of horns, and rendered slow, heavy, and feeble, it finds no other safety than what it derives from man; and must now rely solely on that art for protection to which it originally owed it's degradation.

But nature is not to be blamed for the production of an animal so utterly incapable of defending itself. The moufflon, which is the Sheep in a savage state, is a bold and fleet animal; it can escape by it's swiftness from the most powerful of it's enemies; and to the weaker it can oppose the arms with which it is provided by nature. Human art alone has rendered the Sheep that tardy, defenceless creature, we now find it. Every race of quadrupeds might easily be corrupted by the same allurements with which the Sheep has been thus debilitated and depressed. While undisturbed, and properly supplied, none of them know any bounds to their appetites: they all pursue their food while able, and continue to graze till they often die of disorders arising from obesity. But, in a state of nature, it is far otherwise: they are then surrounded with dangers in the forest, and alarmed with unceasing hostilities; they are daily pursued from one tract of country to another; and spend a considerable part of their time in attempting to avoid their foes. By this exercise, and a continual practice of the arts of defence and escape, they preserve their lives and native independence, as well as their fleetness and activity.

In it's servile state, the Sheep appears to be the most stupid of all animals. Every other quadruped has a peculiar turn of countenance, which generally marks it's nature: but the Sheep seems to have none of those traits which indicate either courage or cunning; it appears a large mass of flesh, supported on four small straight legs, ill-adapted for supporting such a burden; it is awkward in it's motions, easily fatigued, and frequently sinks under the weight of it's own corpulency. Such Sheep as feed on the most luxuriant pastures, are duller and heavier than others, becoming entirely feeble; those without horns are also more sluggish than the rest; and such as have the longest and finest fleeces, are subject to the greatest num-

ber of disorders. In short, all the changes which have been wrought in this animal by human industry, are calculated for the benefit of mankind, and not for that of the creature itself.

The goat, to which the Sheep bears such a striking resemblance, is greatly it's superior. The former has it's particular attachments; and, being apprehensive of danger, endeavours to avoid it: whereas the latter 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 it's keepers: it then becomes mischievous; butts with it's head; and thus evidences it's unworthiness of being singled out from the flock.

It is indeed very evident that Sheep are better adapted for the necessities than the amusements of mankind: and only one single instance of their testifying any attachment to their keepers has yet come to our knowledge. 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 wolves; and at sun-set the shepherd returns homeward, with his Sheep following him, seemingly delighted with the sound of the pipe, which is blown with a reed. Thus the Arcadian life is still preserved, in all it's ancient purity, in those countries where opulence has not effaced the traces of nature; but where a greater inequality of condition prevails, the shepherd is generally some mercenary wretch, who for a paltry pittance only guards those flocks in which he has no personal interest.

If we consult early writers, it will appear that the breed of these animals was not cultivated among the Britons. The inhabitants of the interior parts of this island appeared either entirely naked, or were only covered with skins. Those who lived on the sea-coasts, and were first remarked for some degree of civilization, affected the manners of the Gauls; and, like them, wore a sort of garments fabricated of coarse wool: these were probably manufactured by the Gauls; as, in the histories of those times, there is not the smallest vestige of any manufactures among the Britons. Nor need this negligence be deemed matter of surprize, if we reflect that they were an uncivilized nation, with but few wants, and those easily satisfied. But it must be allowed an unaccountable circumstance, that after the breed had been long cultivated, and their fleeces confessedly superior to those of other countries, no efforts were made to promote a woollen manufacture at home: that valuable branch of business lay a considerable time in foreign hands; and we were obliged to import the very cloth manufactured from our own materials. After many unavailing efforts of our sovereigns to introduce and preserve the manufacture at home, King Henry II. granted a patent to the London weavers; wherein he directed, that if any cloth was discovered to be composed of a mixture of Spanish wool, it should be burned by the mayor. Notwithstanding this injunction, the weaving business advanced so slowly, that Edward III. was obliged to permit the importation of foreign cloth at 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 use of foreign cloth.

Many salutary edicts, promulgated at succeeding intervals, operated by degrees towards the establishment of this valuable trade among us. But the full dawn of it's 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 an asylum, who well repaid the protection they received by founding that immense manufacture we at present carry on. However, it is the opinion of many judicious persons, that our woollen manufacture is now on the decline; and that the cloth now made is inferior, both in fineness and durability, to what it formerly was.

But no country on earth is so well supplied with every sort of materials necessary in the cloathing business as Britain; and though the Sheep of this island afford fleeces of very different qualities, they are all serviceable in some particular branches of it. The counties of Hereford and Devon, and the Colswold Downs, are celebrated for producing fleeces of an excellent quality. Lincolnshire and Warwickshire breed very large Sheep, whose fleeces excel both in quantity and value. Lincolnshire indeed yields the largest Sheep in Great Britain; and in that county it is not uncommon to pay down fifty guineas for a ram, in order to improve the breed. The fleeces of the northern parts of this kingdom, are inferior to those of the south. The Yorkshire hills furnish the looms of that county with great quantities of wool; and that taken from the neck and shoulders is mixed with Spanish wool, and used in some of their finest cloths.

Wales produces a coarse wool, but more extensively beneficial than the finest fleeces of Spain; being manufactured into flannel, the utility and general consumption of which are too obvious to be insisted on.

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

Scotland yields a small breed, with coarse fleeces. Boethius mentions a singular species, with blue fleeces; and also two other kinds: but this credulous author is the only one of antiquity who relates such a circumstance.

Few parts of the Sheep are useless in human œconomy. The value of the fleece is well known; the flesh is delicate and wholesome; gloves and different parts of our apparel are made from the skin, as well as parchment and the covers of books; the entrails are formed into strings for various musical instruments; the milk is thicker than that of the cow, and consequently yields a larger quantity of butter and cheese; and the dung proves so rich a manure, that the folding of Sheep is become too valuable a consideration in agriculture to be overlooked by the farmer.

Whether we consider the advantages which result from those creatures to individuals in particular, or to kingdoms in general, we may with Columella regard animals of the Sheep kind as deserving the first rank with respect to utility; for they principally defend our bodies from the rigours of the cold, and furnish our tables with various agreeable repasts. No country, however, produces such Sheep as England, either with larger fleeces, or better adapted for the cloathing manufactory.

manufactory. Spanish fleeces are 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 one of Lincolnshire or Warwickshire.

Like all other ruminant animals, Sheep are destitute of upper fore-teeth; but they have eight in the lower jaw: two of these teeth drop, and are replaced at the age of two years; four of them at that of three years; and the mouth is full at the age of four years. Some Sheep, however, there are in England, to which shepherds give the appellation of leather-mouthed cattle, because they never change their teeth; and they are generally supposed to grow old sooner than the rest.

Sheep produce one or two lambs at a time; and sometimes three or four. The first lamb of an ewe is generally less valuable than those of a second or third production; and the third is always deemed the best. The time of gestation is five months; and, if housed, they will bring forth at any season of the year.

The woolly Sheep, such as those of this kingdom, are found only in Europe, and some of the temperate Asiatic provinces. When transported into warmer countries, their wool degenerates into hair, and their flesh assumes a different flavour. In extreme cold countries, they seem equally helpless and strange; and though they subsist both in Guinea and Greenland, they do not appear to be indigenous to either.

Rams sometimes live fifteen years, and begin to procreate at the age of one year. When two of these animals meet, they sometimes engage very fiercely, butting each other with their heads and horns. When castrated, they are called weathers; and then they become larger and fatter, at the same time that their flesh acquires an additional flavour.

Ewes are said to live ten years; but they seldom attain that age; and it is remarkable that every ewe knows her own lamb in the largest flocks, where a spectator could not distinguish one from another.

Sheep will thrive on almost any pasturage; and for that reason they are by many preferred to the larger cattle.

The farmer should always purchase his Sheep from a soil inferior to his own; and the marks by which their goodness may be known, consist in the largeness of their bones; as well as the length, oiliness, and close twist of their wool: these Sheep always bear the finest fleeces, and are the most saleable in the markets.

Rich fat pastures breed straight, tall Sheep; barren hills and downs, square short ones; woods and mountains, tall and slender Sheep; but new ploughed land and dry grounds breed the very best. On the contrary, all wet and moist lands are improper for Sheep; especially such as are subject to be overflowed, and to be covered with sand and dirt. Salt marshes, however, are an exception to this general rule; for their saltiness amply counterbalances the ill effects of their moisture; and they are generally considered as the most desirable of all others for the breeding of these animals.

Feeding Sheep with turnips is one of the most beneficial plans adopted by farmers: independent of the manure they leave on the ground, these roots fatten them with the greatest expedition;

and therefore the most approved methods of using them cannot fail of proving acceptable to the reader.

The common way of turning a flock of Sheep into a field of turnips, in some places, is very disadvantageous; for they will thus destroy as many in a fortnight as would have supported them for a whole winter. But each of the three subsequent methods has its peculiar advantages.

The first consists in dividing the land by hurdles, and allowing the Sheep to over-run such a portion only at a time as they can eat in one day; and so advancing the hurdles farther into the ground daily till the whole is consumed. This mode is infinitely better than allowing them the range of the whole field at once; though even in this way they never eat the turnips clean; but, scooping out their middles, leave the bottoms and outsides in the ground: these remains are to be pulled up with iron hooks, and laid again before the Sheep; but they are generally so covered with dirt, that only a very small portion of them will be eaten.

The second method directs the enclosing the Sheep in hurdles, as in the former; but, in this, as many turnips are daily pulled up as the Sheep can eat in one day; and the hurdles are daily removed over the ground whence the roots have been pulled up: by this means there is no waste, and less expence; for one person may in two hours pull up as many turnips as the remnants alone would employ a labourer for a whole day.

The third method consists in pulling up the turnips, and removing them to some other situation where manure is wanted, spreading them on a fresh place every day; and by that means the Sheep will eat up both roots and leaves without any waste. This plan is sometimes the most advantageous of any: but in such matters the discretion and experience of the farmer will perhaps be the safest directory.

‘To compose a flock,’ says Buffon, ‘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 hundred. In leading them out to pasture, he should go before them, and accustom them to know his voice; to follow him without stopping, or straying among the corn, woods, or 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, especially if the herbage abound in wild thyme, and other odorous plants, the mutton is of a much finer quality than that which is fed in moist valleys and low plains; unless those valleys are sandy, and near the sea; the herbage then being sprinkled with salt, the Sheep fed in such situations are superior to all others. The ewes also fed in them, yield more milk, and of a better flavour.

‘Sheep are remarkably fond of salt, and nothing is more salutary for them when given in moderation; and in some places it is customary to put into the Sheep-cot a bag of salt, or a saline stone, which they all eagerly lick one after another.

‘Every year, those which begin to grow old should be separated from the flock, for the purpose of fattening, because then a different management

nagement is necessary. If in summer, they should be conducted to the field before sun-rising, that they may feed on grafs moistened with dew. Nothing contributes more to the fattening of weathers than water taken in large quantities; and nothing retards it more than the heat of the sun. For this reason, they should be put into the fold or shade about eight or nine o'clock in the morning, before the heat becomes too violent; and they ought to have a little salt to encrease their appetite for drink. They should be led out a second time, about four o'clock in the afternoon, to fresh and moist pastures. By this treatment they acquire, in two or three months, all the appearances of being fat and fleshy. But this fat, which originates from the great quantity of water drank by the animals, is only a kind of purfy swelling, and would soon occasion the rot, if not prevented by killing them immediately after they acquire this fallacious appearance. Even their flesh, instead of being firm and juicy, is frequently very loose and insipid. To produce good mutton, besides the treatment already recommended, the animals should have richer nourishment than grafs. In winter, and indeed in all seasons, they may be fattened by keeping them in stables, and feeding them with the flour of barley, oats, wheat, beans, and other grain, mixed with salt, to encrease their appetite for water. But whatever mode be followed, it should be executed as quickly as possible; for they cannot always be fattened twice, many that have been once in good condition dying of diseases in the liver.

Every year the whole flock, weathers, ewes, and lambs, are sheared. In hot countries, where the creatures may without danger be laid quite bare, they do not shear the wool, but tear it off; and this operation is performed twice a year. But in France, and in colder climates, the fleece is shorn only once a year; and a part of it is allowed to remain, in order to protect the animal from the inclemency of the weather. The operation is performed in the month of May, after washing the Sheep, to render the wool as clean as possible. The month of April is generally too cold; and if delayed till the end of June or the beginning of July, the wool does not grow sufficiently long to protect the animal from the cold of winter. Weathers have generally more wool than ewes, and it is also of a superior quality: that on the neck, and the top of the back, is the prime; that of the thighs, tail, belly, and throat, is inferior. White wool is also preferred to brown and black, as it will admit of any dye. Straight wool is better than curled; and it is even alledged, that weathers whose wool is too much curled, are not in such a sound state of health as the rest.

A considerable advantage may also be derived from Sheep by folding them; that is, by leaving them for a proper 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 summer. By this means the dung, urine, and heat of the body of these creatures, will in a short time bring the ground into heart, whether exhausted, or naturally cold and barren. An hundred Sheep will in one summer fertilize eight acres of land for six years.

The flavour of the flesh, the fineness of the wool, the quantity of the suet, and even the size of these animals, differ very widely in different countries. In France, they chiefly abound in the

Duchy of Berry; those in the vicinity of Beauvais, and some other parts of Normandy, are the largest, and fullest of suet. In Burgundy, they are excellent, 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 Poictou, Provence, the neighbourhood of Bayonne, and some other parts of France, there are Sheep which seem to be of a foreign breed; they are stronger, larger, and produce a great deal more wool than the common sort. These Sheep are also more prolific than the other; it being nothing extraordinary for them to produce two lambs at a time, and to year twice a year. The rams of this breed, engendering with the common ewes, produce an intermediate breed, partaking of the two from which it proceeds. In Italy and Spain, the number and variety in the breeds of Sheep [and he might have added, in England too] is still greater; but all must be considered as forming one and the same species with our Sheep; though this species, so numerous and so diversified, hardly extends beyond Europe. Those long and broad-tailed creatures, so common in Africa and Asia, and by travellers called Barbary Sheep, seem different from ours, as well as the American Vigonia and Llama.

A few of the most remarkable varieties in this useful tribe, which is so widely disseminated over the globe, and so largely contributes to the happiness and accommodation of mankind, now claim a description.

SHEEP, MANY HORNED; the *Ovis Polycerata* of Linnæus. This variety, which is found in Iceland, Muscovy, and the coldest climates of the north, certainly derives its origin from the domestic kind. It resembles our breed in the shape of its body and tail; but differs considerably in the number of its horns: these are generally four; though there are sometimes eight, proceeding from different parts of the forehead.

This animal is large and formidable; and nature seems to have adapted it for a state of war: nevertheless, it partakes of the nature of its kind, being gentle, mild, and timid. The wool, which is long, smooth, hairy, and very different from that of the common Sheep, is of a dark brown colour; and under its exterior coat there is an internal covering, fine, short, and soft, rather resembling fur than wool.

There is a variety from Spain having two upright and two lateral horns; the body covered with wool; and yellowish hairs, fourteen inches long, growing in the fore-part of the neck. A Sheep of this kind was a few years ago exhibited in London.

SHEEP, BROAD-TAILED; the *Ovis Laticauda* of Linnæus. The Broad-tailed Sheep is very common in Tartary, Arabia, Persia, Barbary, Syria, and Egypt. This animal is principally remarkable for its large, heavy tail, which often weighs from twenty to thirty pounds; and, according to Pennant, now and then fifty pounds: it is sometimes a foot broad; and usually supported by a small board, which runs on wheels; whence arose the fiction of these animals having carts to carry their tails. The upper part of the tail is covered with wool; but it is bare underneath: the natives, who reckon it a great delicacy, carefully preserve it from injury; and being of a substance between fat and marrow, they eat it with the lean of the mutton.

In the temperate climates, the fleeces of these Sheep are soft and woolly; but hairy in the warmer latitudes. In Aleppo and Syria, they are usually kept in yards, purposely to prevent their tails being damaged.

Broad-tailed Sheep are also found in the kingdom of Thibet; where their fleeces, with respect to fineness, beauty, and length, equal the so much celebrated ones of Caramania. The Cachemirians engross the whole trade; and employ factors in all parts of Thibet to buy up their wool, which is manufactured into shawls, superior to those woven from the fleeces of their own country.

Both the Broad-tailed and Long-tailed varieties were known to the ancients.

SHEEP, FAT-RUMPED, TAILLESS. This variety abounds in all the deserts of Tartary, from the Wolga to the Irtis, and the Altaic Chain. They have arched noses, wattles, pendulous ears, and horns like the domestic kind. Their wool is long, coarse, and in flocks; generally white; but sometimes black, reddish, and often spotted. The legs are slender; the head is black; and the ears are of the same colour, with a bed of white in the middle. The buttocks, which appear like two hemispheres, quite naked and smooth, are composed of fuet only, whence Pallas properly styles this variety *Ovis Steatopyges*: and their voices, which are short and deep, rather resemble those of calves than Sheep.

SHEEP, CRÆTAN; the *Ovis Sterpsiceros* of Linnæus. These Sheep, which are found in Crete and other islands of the Archipelago, differ from the domestic breed only in having straight spiral horns, surrounded with a winding furrow. Buffon has figured this variety, which Linnæus makes a distinct species, under the appellation of the Wallachian Sheep.

SHEEP, AFRICAN; the *Ovis Guineensis* of Linnæus. This variety, which Linnæus considers as one of his three distinct species, is commonly called the Guinea Sheep; and is a native of all the tropical climates, both of Africa and the East. It is large, with a rough hairy skin, short horns, and long pendulous ears. Under its chin there is a kind of dewlap; and it has a long mane, which reaches below the neck. Its shape indeed is so different from the rest, that it might be considered as a different breed, did it not generate with the common Sheep.

Of all the domestic kinds, the African Sheep seem to make the nearest approaches to a state of nature. They are stronger, larger, and fleet, than the common breed, and therefore better adapted to a precarious forest-life. Like the rest, however, they seem to rely on man for their support, being wholly of a domestic nature, and subsisting only in the warmer climates. Their flesh is very indifferent food.

SHEEP, WILD; the *Capra Ammon* of Linnæus. See **MOUFFLON**.

SHEEP, BEARDED. See **TRAGELAPHUS**.

SHEEP NOSE-WORMS. A species of fly-worm found in the noses of Sheep, goats, and stags; generated there from the egg of a large two-winged fly. This creature, after it has attained its most perfect state, leads a very indolent life, neither delighting to use its legs nor its wings.

It lives about two months, after it is first produced, without receiving any kind of nourishment; and possibly may be of the same nature with the butterflies, which never take any food during their continuance in that state.

The frontal sinuses above the nose, in sheep and other animals, are the places where these Worms lodge, and attain their full growth. These sinuses are always replete with a kind of matter, which furnishes them with their proper nourishment; and having reached the destined size in which they are fit to undergo their transformations for the fly state, they quit their former habitation, fall on the earth, and there bury themselves. When hatched into flies, the female, after being impregnated by the male, from a natural instinct, seeks the nose of a sheep, or other animal, as a place of security in which she may deposit her eggs, in order to their acquiring maturity.

SHEEP-TICK. A well-known insect, extremely common in pasture-grounds about the commencement of summer. The body, which is very compressed and smooth, is covered with a tough skin; and the shape is somewhat quadrangular. The colour is a shining black, or a blackish brown. When this insect fixes its head in the skin of any animal, and particularly the sheep, it extracts the blood; and in a short time swells, and becomes very large and round. Sometimes also it sucks the blood of the human species, adhering to the skin with great tenacity.

Mouffet informs us, that some have mistaken this creature for the sheep-louse, from which it differs very considerably; for the sheep-louse has a longer snout; and the body is never so much swelled with blood as that of the Sheep-Tick, continuing always flat: besides, the feet are of a dark reddish colour; the back is cinereous, marked with three very minute blackish points; and the shape of the body is cordiform. The sheep-louse will sometimes live in a fleece for a whole year after it has been separated from the body; an evident proof that blood is not essential to its existence, though it seems to suck out the blood by fits when an opportunity offers.

SHELL. A hard, calcareous crust, serving to cover and inclose a kind of animals, which have thence received the appellation of testaceous.

In order to give a distinct idea of the manner in which Shells in general are formed, we must have recourse to an animal with the formation of whose covering we are best acquainted: this is the garden-snail, whose history Swammerdam has so minutely described. As the manner of the formation of this creature's Shell extends to that of all other testaceous creatures, whether they live on land or in the water, it may not be unentertaining to set it in as clear a light as possible, beginning with the animal in its earliest state, and tracing the progress of its Shell from the time it first appears.

The instant the young snail quits the egg, it carries its Shell on its back; and does not leave the egg till it is arrived at a certain growth, when its little habitation is sufficiently hardened. This beginning of the Shell is not much larger than the head of a pin; but grows in a very rapid manner, having at first but two circumvolutions. In proportion as the animal grows larger, the circumvolutions of the Shell increase also; till the number of these volutes amounts to five, which is the full number.

The mouth is the part whereat the animal enlarges its shell: to this it adds in proportion as it finds itself straitened beneath; and, when about to extend its habitation, it may be seen biting and clearing away the scaly skin that adheres to the

edges with it's little teeth. It sometimes devours those fragments; at others, it only cleans away the margin when covered with films, and then adds another rim to it's abode.

The manufacture of the Shell is natural to the snail, and without it the inclosed animal could not long exist. For this purpose, it's whole body is furnished with glands, from the orifices of which exsudes a kind of slimy fluid, like the threads of small spiders, which unite in one common crust or surface, and in time condense, and acquire a stony hardness. It is this slimy humour that grows into a membrane, and afterwards a stony skin: nor can the glistening substance the snail leaves behind it have escaped the observation of the most incurious; this being in reality the matter with which the animal either augments it's Shell or repairs it's defects.

To explain the method in which the Shell is formed in a still more satisfactory manner. The snail bursts from it's egg with it's Shell on it's back: this Shell, though very simple, is the centre round which every succeeding convolution is formed, by new circles added to the former. As the body of the snail can be extended only towards the aperture, the mouth of the Shell alone can receive augmentation. The substance of which the Shell is composed is chiefly supplied by the animal itself; and is no more than a slimy fluid which gradually indurates. This fluid passes through an infinite number of minute glands, till at length it arrives at the pores of the skin; but there it is impeded by the Shell which covers the part below, and therefore is protruded towards the mouth, where alone it is necessary: there the first layer of slime soon hardens; and then another is added, which indurates also; till in time the Shell receives an adequate degree of strength for the preservation of the animal. Thus every Shell may be considered as a composition of layers of slime, originally proceeding from the creature's own body.

But though the formation of Shells is generally accounted for in the foregoing manner, it has been supposed by some, and with apparent reason, that there are other substances besides the animal's own slime which assist the fabric of the Shell, or at least add to it's external coat, which is always different from the internal one: these are accidental concretions of earthy or saline particles, which adhere to the slimy matter on it's first emission. By adopting this theory, we can more satisfactorily account for the various colours of the Shell, which cannot be supposed to derive it's tincture from the animal's body, as is the vulgar opinion; for all the internal parts of the Shell are of one uniform white colour; and it is only the outermost layer that is so beautifully varied, and so richly tintured with the most vivid colours. If, as Argenville asserts, the external coat be scaled off, all the inner substance will be found of one simple colouring; consequently, the animal's own juices can afford only one colour; whereas we frequently see Shells stained with an infinite variety.

If we examine the cabinets of the curious, we shall find the Shells in general furnished with a white ground, tintured with red, yellow, brown, green, and several other shades and pleasing mixtures, but never blue. Indeed, Shells are of almost every tinge but blue; the reason of which is obvious, that being the only colour which sea-water annihilates. A piece of silk, or a feather of

this colour, on being put into an infusion of salt, urine, or nitre, loses it's tint entirely. And may not this furnish us with an idea of the operations of Nature in the colouring of her Shells? that, in order to produce colour, the animal not only furnishes it's juices, but the sea or the earth that commixture of substance which is to unite with them. Neither the animal slime alone, nor the external earthy or saline substances individually, could produce colours; but both united yield an effect which neither singly possessed. Thus Shells assume every colour but blue; and that, as previously remarked, is destroyed by sea-water. Hence therefore it appears that the animal alone does not tincture it's Shell; but that external causes co-operate in contributing to it's beauty. It is probable that, from the nature of it's food, or other unknown circumstances, the external layers of it's slime may be of different consistences, so as to assume various and beautiful hues when united with the particles of earth or salt accidentally incorporated with them from without. But the internal layers, which receive no adscititious admixture, still preserve the natural colour of the animal, and continue white without any variation.

Thus far we may discover that the animal is not the sole agent in the beauty and colour of it's Shell. But it seems otherwise with regard to it's convolutions, it's prominences, and general form: these entirely depend on the art of the animal; or rather on it's instincts, which, in the same kinds, nature has rendered invariable. The Shell generally bears some rude resemblance to the body on which it has been moulded. Thus it is observable in all marine Shells, that if the creature has any tumour or excrescence on it's body, it occasions a prominence likewise in that part of the incrustation to which it corresponds. When the animal begins to alter it's position, and to make new additions to it's apartments, the same protuberance which had raised the Shell before in one part, swells it again at some little distance; by which means we perceive the same inequality, in a spiral line, all round the Shell. Sometimes these tumours in the creature are so large, or pointed, that those which rise over them in the incrustation appear like horns: after this, the animal disengages itself from it's first cavities; and then, by fresh evacuations, assumes a new set of horns; and so increases the number in proportion to it's growth. If, on the other hand, the body happens to be channelled, the Shell that covers it will be channelled likewise; and if there be any protuberances in the body, which wind about it in a spiral manner, the Shell will likewise have it's tumours and cavities winding round to the extremity.

In this manner the Shells are as various in their figures as the inclosed animals are different. Indeed, the diversity is so great, and the figures and colours are so very striking, that several persons have made the arrangement of them the study and business of their lives. Those who consult their beauty only, take care to polish them, and to have their external crust or periosteum scoured off by means of spirits of salt. But others, with more learned affectation, keep them exactly in that state in which they were found, with their precious crust still untouched. The expence which some persons have been at in making such collections is unbounded; and some Shells are no less valuable

valuable for their rarity than pearls for their beauty. Indeed, it is their scarcity, and not their beauty, that determines the value of all natural curiosities. Such Shells as present nothing attractive to the ignorant, are often the most precious; and those which an unlearned spectator would consider with admiration, an adept in conchology would probably pass over with disdain. These collections, however, have their uses; not only by exhibiting the vast variety of nature's operations, but also by exciting our curiosity to the consideration of those animals that form them. The mind which can find innocent entertainment in those humble contemplations, is not ill employed: for what can be more gratifying, says Pliny, than to view Nature in all her irregularities, and sporting in all her variety of Shells! Such a difference of colour do they exhibit; such a distinction of figure; flat, concave, long, lunated, circular, the orbit divided: some are seen with a rising on the back, some smooth, some wrinkled, toothed, streaked, the point variously intorted, the mouth pointed like a dagger, folded back, and bent inwards: all these variations, and many more, at once furnish novelty, elegance, and speculation.

With respect to the figure of Shells, Aristotle has very judiciously divided them into three kinds; and his method is, of all others, the most consonant to nature. These are, first, the univalve, or turbinated, consisting of one piece only; secondly, the bivalve, consisting of two pieces, united by a hinge, like an oyster; and, thirdly, the multivalve, composed of more than two pieces, as the acorn Shell. All these are found in the sea at different depths; and are valuable in proportion to their scarcity and beauty.

From the variety of the colours and figures of Shells, we pass on to that of their places or situations. Some are found in the sea; others in fresh-water rivers; some alive on land; and a still greater quantity dead in the bowels of the earth. But wherever Shells are found, they are universally known to be composed of one and the same substance: they are formed of an animal or calcareous earth, that ferments with vinegar and other acids, burns into lime, and will not easily melt into glass.

Sea-Shells are either found in the depths of the ocean, or, being forsaken of their inhabitants, are by the tide cast on the shores. Those which are fished up from the deep are commonly denominated pelagii; and such as are cast on the shores are termed littorales. Many of the pelagii are never seen on shore; but they remain in the depths where they were first produced, and their capture is altogether fortuitous: these, therefore, are the scarcest, and consequently the most valuable Shells. The littorales are more common; and such as are of the same genus with the pelagii are less beautiful. As they are often found evacuated, they frequently lose the whiteness and brilliancy of their colouring. They are also often perforated, either by worms, or by each other; and are thus rendered less valuable: but their estimation is farther decreased, when they are scaled, either by lying too long empty at the bottom of the sea, or exposed on the shore. However, sea Shells exceed either land or fossil Shells in beauty; as they receive the highest polish, and exhibit the most brilliant and variegated tints.

Fresh-water Shells are neither so numerous, so various, or so beautiful, as those which belong to the ocean: they are destitute of that solidity which

the latter possess; their clavicles are neither so prominent nor so strong; and being deprived of a saline impregnation to tinge their surfaces, their colours are very obscure. There are only two kinds found in fresh-water, the bivalved and the turbinated.

Living land Shells are more beautiful; though less various, than those which inhabit fresh waters; and some are not inferior in elegance to sea Shells. However, they are but of one kind, viz. the turbinated; and of that only four or five varieties are celebrated for their beauty.

Though fossil Shells do not properly fall within the limits of this work, a short account of them, as being connected with recent ones, may nevertheless be extremely apposite. This class contains as many genera as the sea itself; the univalve, the bivalve, and the multivalve kinds; and of each of these, many varieties not to be found in a recent state. Indeed, the number is so great, and the varieties are so many, that naturalists long entertained an opinion that they were the capricious productions of nature, and had never been the retreats of animals whose habitations they resembled. They were found not only of various kinds, but in different states of preservation: some had the Shell entire, composed, as in its primitive state, of a white calcareous earth, and filled with earth, or even empty; others were discovered with the Shell entire, but replete with a substance which was petrified by time; some, and these in great numbers, were found with the Shell entirely mouldered away, but the petrified substance that filled it still exhibiting the figure and impression of the Shell; others, which had been lodged near earth or stone, impressed their print on these substances, and left the mark, though they themselves were decayed; and, lastly, some Shells were found half mouldered away, their parts scaling off from each other in the same manner they were originally formed. However, these different stages of the Shell, and even their fermenting with acids, were at first insufficient to convince those who had assigned them to a different origin: they were still considered as accidental and sportive formations; deposited in the various situations where they were discovered, but unconnected with any part of animated nature. Succeeding enquirers, more accurate in their researches, on digging up petrified Shells or teeth, soon found that they could discover the petrified remains of some other durable parts of the body. They perceived that the Shells taken from the earth exhibited the usual defects and disasters which the same kinds are known to receive at sea: they were not only tinged with a salt-water crust, but pierced in a peculiar manner by the sea-worms, which eagerly devour the Shells of fishes. These proofs at last prevailed over the erroneous opinions of former ages; and the false hypotheses which had been systematized, speedily died away.

Wherever Shells are found, they are now considered as the spoils of some animals that once found shelter in them. By what means they have wandered from the sea, is not necessary to be explained; they all exhibit unquestionable marks of their origin. From their number and situation, however, we are led to conjecture that the sea once reached those spots where they are found; from their varieties, we learn how little we know of all the sea at present contains; and it is most probable that thousands of different shapes, entirely unknown, still remain at the bottom.

A variety of authors have made the history of Shells their study; and, with indefatigable pains, they have systematized them into different classes, families, genera, and species. Different distinctions have been adopted by different conchologists; but the general divisions of Aristotle have always been retained by the judicious, whatever alterations they have chose to make in the subordinate parts. It is impossible to specify all the systems of ingenious men; but that of Da Costa being at once one of the most recent and most satisfactory, we shall subjoin a general view of his method, and leave the curious in Shells to perfect their knowledge by consulting the original.

This accurate conchologist begins with ascertaining some essential characters by which Shells may be divided into families or classes, genera and species. These characters must be formed from the principal parts of the Shell, the variations of which in size, shape, or situation, will enable us to establish the several subdivisions. Thus, univalves have the five subsequent essential characters for the classes or families; simple, or not turbinated, with a single continued cavity, turbinated and chambered, or with many cavities, the total shape, and the aperture or mouth of the Shell. The subordinate characters for the genera and species of univalves are also five; the number of spires or wreaths, operculated or not operculated, the nature of the shelly substance, whether opaque, corneous, or pearly, the epidermis and the head, and extremity or tip.

Da Costa adheres to the Aristotelian distribution; and all those bodies which coincide in one essential character, he refers to the same class; whilst the affinities or differences of these bodies to each other, in such parts as are not deemed principal, constitute the subordinate genera and species. Accordingly, he fixes on the aperture or mouth of the Shell as the distinguishing characteristic of the turbinated univalve; on the hinges for the bivalves; and the number of valves for the multivalves. The simple figure, the chambered structure, or the latent convolutions of the revolved Shells, which are those univalves uncharacterized by the mouth, as the limpets, ammonia, and cowries, are made the distinguishing characters of these families. The figure or shape, the turban or clavicle, the colour, consistence, and streaks on the Shell, are considered as the secondary characters of genera or species.

Univalves of the first class comprehend four general subdivisions or orders. The simple univalves, or those which are not turbinated, and very slightly spiral. This part contains four families; the limpets or patellæ; the aures marinæ, which are slightly spiral; the vermiculi, or worm Shells; and the dentalia.

The first family of the limpets is again subdivided into three genera; the whole or entire, without a perforation at the top; the chambered; and the pierced, or perforated, with a hole in the top quite through the Shell. The first genus is very numerous; the second has also many species; but the third has few. Europe affords but a small number of species; the finest and largest are natives of the East Indies; America has many of the chambered and smaller kinds; and some large and beautiful limpets have recently been imported from the Straits of Magellan and the South Seas. Limpets in a fossil state are by no means common.

The second family is the halioles, aures marinæ, or sea-ears, called also ear shells. There are very few species of this family; and of those which have been proposed as distinct species by several conchologists, some are certainly no more than varieties. Da Costa says he never knew one instance of an haliotis being found fossil.

The third family is the vermiculi, or worm Shells. These are subdivided into vermiculi, or tubular worm Shells, which have no fixed or determinate form; and penicilli, or those worm Shells which in the whole, or any especial or particular part, have a determinate regular shape or structure. There are but few species of either kind.

The fourth family is the dentalia. These are simple tubular Shells, of a regular, determinate, curved, conical shape, open at both extremities. This family contains very few species; nor are there many fossil ones discovered recent.

The second subdivision of univalves consists of such as are concamerated or chambered, having many regular and nearly equidistant cells or chambers; and a pipe, or siphunculus, which opens into and communicates from chamber to chamber. This second part, which constitutes the fifth family, contains six genera; one genus of which, the orthoceratites, is of a simple figure: four genera, as the lituitæ, or crossier, turbines polythalamia, ammonia, and ammonoidæ, are all turbinated; and the other genus, or nautilus, is revolved. There are only two of these six genera that are known recent, the lituitæ and nautilus; and therefore the others belong to the fossil kingdom. The lituitæ exactly resemble a bishop's crossier in shape, having a long cylindrical stem, one end of which turns in a spiral manner; but the spires are few, separated, and receding from each other. This genus was first discovered by Breynius, and is seldom found in a fossil state.

The other recent genus, or nautili, are revolved Shells, or those whose spires never appear externally, but are very latent within the fabric of the Shell. They are of a chambered structure, the partitions of the cells or chambers being concavo convex roundish plates. The paper nautilus, says Da Costa, though classed by most authors as a nautilus, is a distinct genus from this, being devoid of a chambered structure, which is the essential character. The species of nautili are few. Conchologists make two species of the Indian or pearly kind; the umbilicated and non-umbilicated. The inclosed animal is said to inhabit only the uppermost or open chamber, which is much larger than the others: the rest remain empty, except that the pipe or siphunculus, which communicates from chamber to chamber, is filled with an appendage or tail of the animal, resembling a gut or string. This siphunculus is a dilatable tube, under the direction of the animal: when depressed, like the swimming bladder of a fish, it renders the nautilus buoyant; when it is contracted, the fish and Shell sink, and to such a depth as the present occasions of the creature require.

The third subdivision or order of univalves comprehends revolved Shells, or those whose spires are latent within the body; and are never externally visible, being entirely destitute of a clavicle or turban. This third part, which is the sixth family, contains three genera; the nuces, or bullæ; the semi-porcellanæ; and cyprea, or porcellanæ.

The nuces or bullæ, commonly called the pewit's eggs, or dipping-snails, the dippers and sea-nuts, are generally of an oval shape, and umbilicated at the bottom; the mouth is very wide, especially at the top, and narrowing to a great degree downwards; the lip is thin, sharp, and naked, or without any border, and with a small facing or lip on the upper part of the mouth.

The semi-porcellanæ, or second genus, are Shells resembling the cypreæ, or cowries, in their appearance; but their aperture is more open; neither are the lips dentated. Linnæus makes a genus of these, which he calls bulla, including under the same appellation the preceding genus of nuces. Davila makes them a genus of cowries; and others rank them as cowries. The species of this genus are not very numerous; some of them, however, such as the weaver's shuttle, and the poached egg, are esteemed rare and valuable.

The third genus is the cypræa, or porcellana, called also the cowry. Shells of this genus are generally semi-oval, with their mouths in the flat part. The spires of the cowries make their revolutions within the body of the Shell; their aperture is on the flat side, being a narrow opening of the Shell; the lips, which nearly approach each other, are broad, turning inwards, and toothed; the two ends or extremes on the upper part are prominent; at one extreme there is a wry gutter or opening; the other extreme has also a gutter, but it is straight or perpendicular; and on its side, in some species, there is another protuberance, like a small rude clavicle or turban. The distinguishing characteristic of this genus is the deep indentions on the interior edges of the lips, which divides it from the semi-porcellanæ. Linnæus adheres to this essential character; but some other conchologists, not regarding it, have confounded them all together.

The cowries are extremely numerous; and, both in colour and polish, are beautiful beyond description: and, what renders them still more admirable, they bring this fine polish with them from the sea; so that, were they less numerous, they would perhaps be esteemed as valuable as the most curious volutes. They seem to be littoral Shells; and are found on the coasts of the Molucca isles, the Maldives, Madagascar, and the West Indies. This genus is rarely found fossil.

The fourth subdivision or order includes the turbinated or spiral univalves; which are Shells whose spires are external, shewing themselves on the exterior surface of the Shell, in that part called the clavicle or turban, which is either produced short or flat, according to the several genera or species.

The seventh family under this class is the cymbum or paper nautilus. The Shells of this family, in their external conformation, resemble a ship or boat, whose upper part or head is narrow, turns spirally, and is similar to the stern; the rest of it widens to the other end, is quite hollow, forms an horizontal aperture, and lies lower than the stern or spiral end. There are only three or four known species; and those are brownish or whitish, almost as thin as paper, and hence they have obtained the appellation of the paper nautili. Linnæus forms a distinct genus of these, under the denomination of argonauta. This family is the real sailor; the nautilus and pompilus of the Greeks and Latins; to which our celebrated English poet refers—

'Learn of the little nautilus to sail:'

for it never has been satisfactorily proved, that the other kind, or pearly nautilus, ever sails, or navigates his Shell.

These Shells are natives of many parts of the Mediterranean, and also of the Oriental coasts. The inclosed animal is of the polypus kind; and, according to Argenville, the head is of a moderate size, with two large eyes. It has eight arms or legs, of a soft fleshy substance, thickest towards the body, connected by a slight membrane; and these are of a silvery colour, set with suckers or knobs on the sides, flattened like oars, and adapted for swimming. They supply the place of oars when the animal is desirous of rowing his vessel. The six foremost are short; and he balances himself, and extends them as he swims: the two hinder ones are longer than the others; and these he plunges in the sea by way of rudder; at the same time that they support the skin or membrane, which he uses as a sail to ply the wind. Thus equipped, he navigates in calm and serene weather; but, when apprehensive of danger, he retires within the Shell, which by that means admits the water, and sinks to the bottom. He frequently, however, pumps out the water; and often quits the Shell, which floating about in a state of inanity, is by the waves generally dashed to pieces against the rocks.

The ear-snails, or auris-cochlea, called also the Venus-ear, constitutes the eighth family. These Shells so much resemble the sea-ears in shape, that most authors have ranked them in that family, and called them non-perforated sea-ears. Lister and Gualtieri rank them as cochleæ; and Linnæus assigns them to a genus which he calls helix. Da Costa defines them to be Shells so open as to resemble sea-ears, but not perforated with a row of holes. They have a broad ledge along one side, projecting over the cavity, and turbinating into one single flat spire, quite level with the bottom of the Shell: this spire is also pretty wide, and extends to near the middle of the bottom or under part. There are but few Shells of this family.

The ninth family is the cylindri, cylinders, or olives. These Shells are ranked by Linnæus, in his genus of voluta, under the appellation of cylindroidæ. Da Costa separates the family into two genera; the cylindri emarginati, or such whose edge is quite even and sharp; and the cylindri marginati, or such whose edge has a very thick border, which turns over into a very prominent ledge on the back, like to the helmets. The species of Shells belonging to this family are very numerous and beautiful.

The voluta, or volutes, constitute the tenth family of the univalves. Linnæus transposes the name of voluta to the mitres, Persian crowns, cylinders, and other univalves, with the pillar platted or wreathed. The volutes are beautiful Shells.

The eleventh family is called globosæ, or tuns; and the Shells of this family are defined to be generally of a globose shape, the body being much swelled or rounded, whence they derive their name: they have short turbans; the mouth is extremely wide, and very large; and the upper part of it terminates in a wry channel, which is very short, and turns backward. None have a pillar or columella lip; though in some, as the Persian crowns and melons, the columella or pillar itself is wrinkled or plaited. The Shells comprehended under this family are the tuns, partridges, figs, harps, Persian crowns, and melons. Though not

very numerous, this family contains some very beautiful and curious Shells.

The cassides or helmets, constitute the twelfth family. These are defined to be semi-globose Shells, with the back very convex and round, and the under or mouth part flat. They have also flat, or at least very short clavicles or turbans; the mouth is long, narrowish, and terminates at the top in a gutter, which turns very large, strong, and wry on the back. The lip is always strongly and thickly toothed, and rises into a high thick border or ledge on the upper part or back; and the pillar is generally strongly toothed and ridged, or set with small asperities. Lister and Linnæus rank these Shells among the buccina. They are not very numerous; but some of them are extremely large and weighty.

The thirteenth family is the trochi, or tops, which are Shells of a conic or pyramidal shape, the top being broad and flattish, and gradually tapering thence to a very sharp point. The aperture or mouth is generally angular, low, and narrow. It is a very numerous family, and abounds in curious and elegant Shells.

The fourteenth family is the cochleæ, or snails; the character of which is, a round, or nearly round mouth, perfectly bordered, and circumscribed. Da Costa divides this family into five genera; the nerites, or snails, with semicircular mouths; helices, or round-mouthed snails, whose spires lie horizontally, or between two levels, of which genus there are many curious species; snails with a short or flat turban, to which belong the common land-snails, and many others; snails with a lengthened clavicle or turban, which may be denominated turbo; and the cochleæ strombiformes, or snails whose turbans are extremely long and slender, of which genus the species are few.

The buccina, or whelks, constitute the fifteenth family. These are Shells whose mouth is an oblong and very lengthened oval, the upper part whereof is produced into a gutter or slight beak. Accordingly Da Costa divides this family into six genera. The buccina canaliculata, or guttered whelks, the upper part of whose mouth ends in an almost straight and somewhat prolonged gutter; and the inner, or columella lip, is always extremely smooth. The species of this genus are very numerous. The buccina recurvirostra, or wry-mouthed whelks, whose mouth appears as if cut short at the top; for the gutter or beak does not extend straight forward from the upper part of the mouth, but bends or falls on the back in a wry manner, exactly like the mouth of a flat fish. There are many species belonging to this genus. The buccina rostrata, or longirostra, or beaked whelks: these have a very lengthened beak, such as the purpuræ, tower of Babel, crane, and many other rare and curious species. The buccina umbilicata, or umbilicated whelks, which have a perpendicular hollow or navel by the side of the columella or pillar lip, on the first or body whirl. There are but few species of this genus. The buccina columella dentata, or plicata, or whelks with a wrinkled or plaited pillar. And, lastly, the strombi, or needles, which are Shells with a very long and taper clavicle or turban, and a wry mouth turning on the back, in some species of such a length that it resembles a spur. The genus of strombi is pretty numerous.

The sixteenth family is the murices, whose distinguishing characteristic is an oblong and equally

narrow mouth longitudinally, which runs into a short gutter or top; and they are always thorny, spiked, or rough, over the entire surface, like the spikes or asperities of rugged rocks, whence the Latin appellation murex, the English rocks, and the French rochers.

Da Costa divides this family into four genera. The murex, rocks, or those Shells that have a long and equally narrow mouth; and are generally very rugged, with a clavicle or turban usually short, and almost flat, and the pillar wrinkled or plaited; of which there are many species. The rhombi, or Shells whose subordinate character is, that they have always a rhombic shape or contour; of which the species are not very numerous, but some are large and heavy. The alatae, or winged Shells, whose lip is expanded outwards like a flap or wing; and which are ranked by Linnæus under the genus of strombus: of this genus there are many fine and beautiful species. And the aporrhoidæ, or winged Shells, whose edges are beset with strong spikes or processes, like fingers, as the spiders, devil's claws, and others. The species are few; but the general beauty of them amply compensates for the numbers.

The second grand division or class of Shells comprehends the bivalves, or such Shells as are composed of two pieces or parts; which being connected by hinges, play on each other, so as to shut, open, and perform all the functions necessary to the œconomy of the inclosed animals.

Da Costa distributes bivalves, of which there are no land, and few fresh-water Shells, into three orders. The first includes those Shells that have unequal valves, and shut close; of which there are four families.

The first family is the pectens, or escallops; the essential character of which is a trigonal sinus, and an elastic cartilage for it's hinge in the centre of the top of the Shell: the subordinate distinctions are their being eared; and that the top runs into a perfectly straight line, gradually widening thence into a round bottom. Linnæus makes the pecten a genus of oysters. Gualtieri divides them into different genera, with equal and unequal valves; calling the former pecten, and the latter concha pectinata; and the escallops with unequal or single ears, he denominates pectunculi. The species are numerous; some of which are very beautiful and curious, as the ducal mantle, the compass or sole, the duck's foot or coral, and the escallop.

The spondyli constitute the second family. These Shells are generally eared with unequal valves, partaking of the ruggedness of the oyster, with somewhat of the escallop form, so as to seem a medium between the two families. However, the spondyles, like the escallops, have some species with equal valves, and without ears. The chief character is the hinge, which in the upper Shell consists of a triangular hollow and cartilage, like the escallop, in the very centre; on each side of which there is a large thick and prominent tooth or joint lying on each side of the cavity. This family is not very numerous in it's species.

The third family is the ostreum or oyster; the hinge of which is destitute of teeth; but there are processes of a large inarticulate gutter running along the length of the top of the Shell, in both valves alike, covered and filled with a strong cartilage.

The species of this family are very numerous:
some

some very curious and beautiful, which bear a large price; as the hammer oyster and the cockscombs. Linnæus ranks the escallops with the oyster; Argenville and others reduce the spondyles to this family; while Lister ranks the hammer oyster and some others as escallops.

The fourth family is the anomia, consisting of several fossile species, but not more than three or four recent ones. Columna denominates them *conchæ rariroes anomia*. Woodward first arranged the anomia from the fossile Shells; Gualtieri makes a particular genus of them, under the appellation of *terebratula*; and Linnæus considers them as a distinct genus, under the name of *anomia*, mixing the recent with the fossile kinds, and defining them to be Shells with unequal valves, one valve being flattish, the other convex, the beak perforated, and the hinge inarticulate or toothless. Davila considers them as a genus of oysters; and defines them as Shells whose beak or top of the under valve is perforated, and rises curved on the upper valve. Da Costa describes the anomia as bivalves, with unequal valves, and never eared. The beak of the largest or inferior valve is greatly produced, and rises or moves over the beak of the smaller or upper valve, and is perforated like a tube. The valves in some species are connected by an inarticulate or toothless, and in others by a multarticulate, or many-toothed hinge, constituting two genera: the former are those in which the hinge of the under valve is a large sinus or cavity, the angles whereof form two prominences or joints; and the upper valve is indented into it by a corresponding prominence to its cavity, and by two small hollows, coinciding with the two joints: the latter are those whose hinge lies on a long straight line, and is full of teeth, exactly like the Noah's ark Shells. This gentleman is of opinion that the animals inhabiting these Shells seldom open them, as most others do, to admit their food; but receive their nourishment through the tube or perforated beak only.

The second order of bivalves comprehends those Shells that have equal valves, and shut close; such as the cockles, tellens, and muscles. Da Costa distributes this order into three sections; the multarticulate, articulate, and inarticulate. The first section includes the *lepto-polyginglymi*, or multarticulate Shells, with a great number of teeth on the hinges, of which we meet with three families.

The *pectinoidea*, or Shells with equal valves, form the fifth family of bivalves. These are generally flat; the hinge lies on a straight line like the escallop, but is set with several parallel and straight ridges or intermediate furrows; and the sides are dissimilar. There are but few species of this family.

The sixth family is the *pectunculi lepto-polyginglymi*, or multarticulate cockles. The Shells of this family resemble the cockle in every respect, except the hinge, which in these is furnished with a great number of teeth; and in those with few, Linnæus places them in his genus of *arca*. The species are not very numerous.

The seventh family is composed of the *arca*, arks, or boats, which have their hinges on a straight line, and are of a somewhat quadrangular or oblong figure, as the Noah's arks and square cockles. Argenville places them in his fourth family of heart-cockles; Davila makes them a

distinct genus of his fourth family, and calls them arks; Gualtieri forms them into a genus under the appellation of *concha rhomboidalis*; and Linnæus ranks them as a distinct genus, which he denominates *arca*. This family does not consist of many species.

The second section comprehends all bivalves with equal valves, which are not eared, and have few teeth on their hinge. Of this division there are three families.

The eighth family of *pectunculi* or cockles is characterised by a curved or semilunar hinge, set with several strong teeth, from two to four in number; and may be divided into three genera.

The *pectunculi* or cockles; the *chamæ* of some modern authors; which are convex or flattish Shells of a circular shape, and with similar or dissimilar sides, whose beaks are not very prominent, and run much upwards towards the hinge. Argenville, Davila, and some other conchologists, call them *comes*; Gualtieri denominates them *chamæ*; and Linnæus disperses them into several of his genera. The genus is very numerous.

The second genus is the *cordiformes*, or heart-cockles; whose beaks are very prominent, and revert considerably towards the hinge, by which means they represent a heart. Gualtieri places them among his *conchæ cordiformes*; and Linnæus ranks them in his *cardium* genus. This genus is pretty numerous.

The third genus is composed of the *truncati*, or flat-sided cockles, which is by no means numerous.

The ninth family is the *tellinæ*. These Shells are considerably broader than they are long; somewhat depressed; and the hinge has two teeth set close together. The species are but few.

The *placentæ* compose the tenth family. These are Shells with equal valves, whose hinge lies entirely within the Shell; and one valve consists of two straight linear ridges, pretty prominent, and raised obliquely to each other, so as to meet at one end in a very acute angle; and the other valve has two correspondent furrows. Da Costa forms two species of this family; the Chinese glass, or pellucid oyster; and the Polish saddle.

The third section includes the inarticulate bivalves, or those which are destitute of teeth on their hinge; of which there are two families.

The *margaritiferæ*, or pearl oysters, compose the eleventh family. These are eared Shells with equal valves, whose hinge is merely a gutter or slight furrow, without a single tooth. The species are few; but among them are the pearl oyster, or mother-of-pearl; and the swallow. Rumphius, Davila, and some other conchologists, rank these as oysters; Woodward forms them into a genus which he calls *margaritiferæ*; and Gualtieri places the pearl Shells in one genus, under the appellation of *inæquilateræ*; and the swallow in another, called *conchæ aliformes*.

The twelfth family is the *muscles*; which are generally very convex; of a long and narrow shape; and the hinge is a mere slight furrow without any tooth; and situated, not at the top of the Shell, but a short way down one of the sides. The species are not very numerous.

The third order of bivalves comprehends the *conchæ hiantes*; whose Shells never shut close, but are always open or gaping in some part. This division constitutes the thirteenth family, and consists of four genera, as follow.

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The *bridanæ*, or *bason conchs*, which are Shells of equal valves and dissimilar sides, resembling the heart creakles in hinge and appearance; but on the longest side, from the back to nearly the extreme margin, the two Shells do not close, but have a large heart-like opening, the lips whereof are broad, and turn up on the edges. The species of this genus are but few; nevertheless, they make up in weight what they want in number, being the largest and heaviest of all bivalves, some weighing from three hundred and a half to six or seven hundred weight.

The *chamæ*, or *gapers*, which have a broad, thick, and large tooth for their hinge; and are, as it were, abruptly cut off on one side; which side is always open or gaping, as the valves cannot shut close at that part. There are few species of this genus.

The *solenes*, *sneaths*, or *razor Shells*, which are very broad, but extremely short; open at both ends; and the hinge is furnished with teeth placed quite at one extremity.

The *pinnæ*, *sea-wings*, or *hams*; Shells of a somewhat triangular shape, widening from a pointed or narrow top to a very broad end, which is always open: the hinge is inarticulate, and placed on one side. The species are but few.

The third general division, or class of Shells, comprehends the multivalves, or those composed of more than two valves or pieces.

In this division there are the three following families.

The first family of multivalves, and the fourteenth of Shells in general, is the *pholas*, or *pid-docks*; the Shells of which are trivalves, having two large valves, with a small valve placed between them near the hinge, which turns on the exterior part of the Shell; and under it, internally, there is a long curved tooth or spur. The species of this family are very few; nor are they at all remarkable for beauty.

The next, or fifteenth family, is the *anatifera*, or *barnacles*, which are quinquivalve Shells, and made up of two large valves, with two small ones beneath them; and a long narrow spur-like valve, running longitudinally, which connects them. There are but few species of this family.

The third, or sixteenth family of Shells, is the *balani*, or *acorns*, which are composed of many valves lying parallel to each other, and in a perpendicular position, contrary to that of all other valves, which lie horizontally. The top is open; and the fish performs its necessary functions by that aperture; for the valves never open or separate, being destitute of hinges.

The *balani* are always found fixed by their under part to Shells, stones, and other solid bodies. The species of this genus are few; nor are they beautiful. Indeed, if we except a few bivalves, we shall in vain look for elegance beyond the first class of Shells, the splendid univalves, which are not more distinguished by their superior beauty than for their numbers.

For a description of the particular genera, and the most curious species, see their respective names.

SHELL, APPLE. An English appellation for the *loxia*, or *cross-bill*; so called from its dexterity in splitting an apple, and feeding on the kernels, leaving the Shell of the pulp untouched.

SHELL-FISH. These Shells are of various kinds; but they generally agree in the quality of

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being oviparous, very few instances having occurred of such as are viviparous. Among the oviparous kinds, anatomists have discovered, that some species are of different sexes, in the different individuals of the same species; but others are hermaphrodites, each being in itself both male and female: in both cases, their increase is numerous, and scarcely inferior to that of plants, or of the most prolific of the insect class.

Their eggs are very small, and strung together in a sort of clusters by means of a glutinous humour which always surrounds them, of the nature of frog's spawn jelly. This fluid not only serves to confine them together, but also to unite them to the rocks, shells, or other solid substances; by which means they are preserved from being driven on shore by the waves, and left where they cannot arrive at perfection.

SHELL-GALL-INSECT. An insect of the gall-insect class, so called from the resemblance it bears to a muscle-shell. It is very small, and may easily be mistaken for the minute case which some small insect has deserted; or, in another state, for the nest in which some small insect had deposited its eggs: but, by the assistance of a microscope, its true nature will immediately be discovered. Without this help it is not easily seen, even at its full growth; being very minute, and generally of the same colour with the bark of the tree on which it resides. Reaumur first discovered and described this minute insect.

SHIRLEY; the *Tanagra Militaris* of Linnæus. A bird first figured and described by Edwards. The bill is blackish; the head, the upper side of the neck, the back, the rump, the upper side of the wings, and the tail, are of a dark or dusky brown hue; and all the wing-feathers, except the greater quills, are transversely marked with dusky lines. The tail is composed of twelve feathers, barred across with dusky; the under-side of the tail, the lower belly, the thighs, and the coverts, are dusky; and the throat and breast, to the middle of the belly, as well as the ridge round the upper part of the wing, are of a fine full red or scarlet colour. The legs, feet, and claws, are dusky; and the outer and middle toes are connected by a membrane. Edwards has given this bird the appellation likewise of the greater bullfinch.

SHOVELER; the *Anas Clypeata* of Linnæus. A species of duck, somewhat resembling the common wild duck. See **DUCK, BROAD-BEAKED**.

SHOVELER is also an appellation by which some authors express the spoon-bill. See **SPOON-BILL**.

SHREW, OR SHREW-MOUSE; the *Sorex Araneus* of Linnæus, and the *Mus Araneus* of other naturalists. An animal of a mixed brown and reddish tawny colour, with a white belly, and a short tail. The body is about two inches and a half long; the eyes are very small and black; the nose is long and slender; the ears are short and rounded; and the teeth, which are very small, and differ in their shape and situation from those of every other creature in the world, appear as if nature had intended that in this respect the creature should partake both of the mouse and snake kind.

This animal is very common in many parts of the world; and particularly in this country, where it frequents dry grounds, old walls, and holes in the earth. It subsists on corn, insects, and any sort of

of filth; and produces four or five young at a time. Cats frequently kill it; but they carefully abstain from eating it's flesh. Indeed, it's whole body emits a foetid and offensive smell; and, from it's natural disagreeableness and deformity, several injurious qualities have been ascribed to it which it does not really seem to possess.

The most cursory observer may easily distinguish it from the common mouse: it is smaller in size; it's nose is much longer; it has five toes on the hinder as well as on the fore-feet; it's eyes are extremely small; it's claws are long and whitish; and it's feet are short.

SHREW-MOUSE, WATER; the *Sorex Fodiens* of Pallas. This animal is much larger than the common Shrew. The upper part of the body and the head are black; the throat, breast, and belly, are of a light ash-colour; and beneath the tail there is a triangular dusky spot.

This species inhabits Europe and Siberia; but was lost in England till 1768, when it was discovered in the Lincolnshire fens. It burrows in the banks near the water, and is said to swim under the liquid element. It chirrup like the grasshopper; and, on account of the smallness of it's eyes, has sometimes received the appellation of the blind mouse.

SHRIKE. An English appellation for the *Lanius Excubitor* of Linnæus. See **BUTCHER-BIRD.**

SHRIKE, RED-BACKED; the *Lanius Collurio* of Linnæus. See **FLUSHER.**

SHRIMP; the *Cancer Grangon* of Linnæus. An animal of the genus of cancer, though sometimes classed under that of squilla. It has long slender feelers, and between them two projecting laminae; the claws have a single hooked moveable fang; it has three pair of legs; and seven joints in the tail. The middle caudal fin is subulated; and the four others are rounded and fringed, with a spine on the exterior side of each of the extremes.

This shell-fish inhabits the sandy shores of Britain in vast abundance; and is reckoned the most delicious of all the genus.

SHRIMP, WHITE; the *Cancer Squilla* of Linnæus. This species has a snout like the prawn, but deeper and thinner; it's feelers are longer in proportion to it's bulk; and the sub-caudal under-fins are somewhat larger. It inhabits the Kentish coasts.

By act of parliament, Shrimps are only to be caught in the Medway and Thames from Bartholomew-day to Good Friday; and red Shrimps in the river Medway only from the 25th of April to the 1st of July.

SHRIMP, FRESH-WATER. See **SQUILLA.**

SHRITE. An appellation by which some authors express the missel-bird.

SICUB, OR SICAB. A name by which the inhabitants of the Philippine islands express a species of hawk, about the size of the common hawk. This bird is beautifully variegated with yellow, white, and black feathers.

SICUS. An appellation by which some ichthyologists express that species of the coregonus more generally denominated the albula nobilis. In the Linnæan system, it is a species of salmo.

SICYANA. See **GOURD-WORM.**

SILK-WORM. A species of the phalæna genus, consisting of eleven rings, and each of these of a great number of smaller ones united together;

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and the head, which terminates these rings, is furnished with two jaws, which work and cut the food, not by a perpendicular but lateral motion.

Though silk was anciently imported into Rome in small quantities, yet it was so very scarce as to be sold for it's weight in gold; and was considered as such a luxurious refinement in dress, that it was deemed infamous for a man to appear in apparel of which silk constituted but half the composition. It was most probably introduced at this period from the remotest parts of the East, since it was then scarcely known even in Persia.

Nothing can be more distant from truth than the manner in which ancient historians describe the animal from which silk is produced. Pausanias informs us, that silk came from the country of the Seres, a people of Asiatic Scythia; in which region an insect as large as the beetle, but in every other respect resembling a spider, was bred up for that purpose. 'They take great care,' says he, 'to feed it, and to defend it from the weather, as well during the summer's heat as the winter's rigour. This insect,' continues he 'makes it's web with it's feet, of which it has eight. It is fed for the space of four years on a kind of paste prepared for it. At the beginning of the fifth, it is supplied with the leaves of the green willow, for which it shews a particular predilection: it then feeds till it bursts with fat; after which they take out it's bowels, which are spun into the beautiful manufacture so very scarce and costly.'

Such are the dreams of remote antiquity. Indeed, it appears that this animal was unknown among the Romans till the time of Justinian: and it is supposed that Silk-Worms were not imported into Europe till the beginning of the twelfth century; when Roger of Sicily brought workmen in this manufacture from Asia Minor, after his return from his expedition to the Holy Land, and settled them in Sicily and Calabria. From these the other European nations learned this manufacture; and it is now become one of the most lucrative carried on in the southern provinces of Europe.

The Silk-Worm is now well known to be a large caterpillar of a whitish colour, with twelve feet; and to produce a butterfly of the moth kind. The cone on which it spins is adapted for covering it while in the aurelia state; and several of these, properly wound off, and united together, form those strong and beautiful threads which are woven into silk. The feeding of the Worms, the gathering, the winding, the twisting, and the weaving of their silk, is one of the principal manufactures of Europe; and as luxury seems daily to increase, it's consumption is become amazingly great.

Two methods have been adopted for breeding Silk-Worms: for they may be left to grow, and remain at liberty on the trees where they are hatched; or they may be kept in a place built for that purpose, and fed every day with fresh leaves. The former mode is used in China, Tonquin, and other hot climates; the latter in those places where the animal has been artificially propagated, and still continues exotic. In the warm regions, the Silk-Worm proceeds from an egg, which has been glewed by the parent moth on a proper part of the mulberry-tree, and which remains in that situation during winter. The manner in which these eggs are situated and fixed to the tree, keeps them uninjured by the severity of

the season; so that those frosts whose influence is strong enough to kill the tree, can seldom hurt the Silk-Worm.

These insects never proceed from the eggs till nature has provided them a proper supply; and till the budding leaves are furnished in ample abundance for their support. When the leaves are expanded, the Worms seem to feel the general invitation; and bursting from their little eggs, crawl on the leaves, where they feed with a most voracious appetite. Thus they become larger by degrees; and, after some months feeding, they deposit, on every leaf, small bundles or cones of silk, which appear like so many golden apples painted on a fine green ground.

Such is the method of breeding them in the East; and it is unquestionably most agreeable to the nature of the Worms, as well as least troublesome to their proprietors. But it is far otherwise in our colder European climates: the frequent changes of the weather, the heavy dews of our evenings, and a variety of other consequences resulting from situation, render the keeping them all night exposed, subject to so many inconveniencies, as to admit of no remedy. It is true that, by the assistance of nets, they may be preserved from the depredations of birds; but the severe cold weather which frequently succeeds the first heats of summer, as well as the rain and high winds, would utterly extirpate them: and therefore, to breed them in Europe, they must be carefully sheltered and protected from external injury. In order to effect this, a room should be selected with a south aspect; and the windows glazed with the utmost exactness, that every breath of air may be kept out: the walls also should be well built; and the planks of the floor laid so extremely close, that not an insect can make it's way into the place destined for the reception of the Silk-Worms. In the middle of the room four posts should be erected, so arranged as to form a square of pretty considerable extent: between these different stories should be made with osier hurdles; and under each hurdle a floor, with an upright border round; and these hurdles and floors should hang on pulleys, so as to be placed or taken down at pleasure.

When the Worms are hatched, some tender mulberry-leaves should be laid in the cloth or paper box wherein the eggs are deposited, and which are sufficiently capacious to contain a considerable number. When they have acquired some strength, they must be distributed on beds of mulberry-leaves, in the different stories of the square in the centre of the room, round which there should be sufficient space for a person to pass with freedom: on these leaves they will fix themselves; and afterwards on the sticks of the hurdles, when the leaves are devoured. They have then a thread, by which they can occasionally suspend themselves, to prevent any shock by a fall: this, however, is by no means to be considered as any portion of the silk which they afterwards spin in such abundance. Care must be taken to supply them with fresh leaves every morning, which must be strewed very gently and equally over them; when the Silk-Worms will forsake the fragments of the old leaves, which must be carefully removed, and the whole kept in a state of the most perfect neatness, nothing being more injurious to these insects than moisture and nastiness. For this reason, their leaves must be collected during

dry weather, and kept in a like situation, should it be necessary to lay in a store.

As these animals enjoy but a very limited existence, they husband every moment; and are almost continually engaged in spinning, except at those intervals when they change their skins. Should there be any difficulty in obtaining mulberry-leaves, they may be fed with those of lettuce or holy-oak: but they do not thrive so well on this strange diet; neither will their silk be so copious or so beautiful.

A judicious choice and attentive management of their diet is absolutely necessary. But this is not all: there is another precaution of equal importance, which is to give them air, by opening the windows of their apartment at such seasons as the rays of the sun are most powerful. These matters carefully observed, together with a due attention to cleanliness, will wonderfully contribute to their health and increase.

At the time the Worm bursts it's shell, it is extremely small, and of a black colour; but the head is of a more shining black than the rest of the body. Some days after, it begins to turn whitish, or of an ash-coloured grey; and the skin beginning to grow too rigid, or the animal being stunted in it, throws it off, and appears clothed anew. It then becomes larger, and much whiter, though it still has a greenish cast; and, after some days, which are determined by the heat of the climate or the quantity and quality of it's food, it leaves off eating, and seems to enjoy a state of perfect repose for two days together. After this it begins to stir, and put itself into violent motions, till the skin falls off a second time, and is thrown aside by the animal's feet. All these transformations are undergone in the space of three weeks or a month; which being ended, the insect begins to feed once more in it's caterpillar state, but considerably different from what it was before it changed. In a few days time, it seems to sleep again; and, when it awakes, again changes it's covering, and continues feeding as before. When it has thus obtained a sufficiency of food, and it's parts are disposed for assuming the aurelia form, the animal, for the last time, forsakes all food and society, and provides a retreat, to protect itself from external injuries while apparently deprived of life and motion. This retreat is no other than it's cone or bag of silk, which nature has taught it to compose with surprising art; and within which it buries itself till it assumes it's winged form. This cone or ball is spun from two little longish kind of bags, lying above the intestines, and filled with a gummy fluid of a bright yellow colour: from this substance the threads are formed; and the little animal is furnished with a surprising apparatus for spinning it to the requisite degree of fineness which it's exigencies require. The instrument with which this operation is performed in some measure resembles a wire-drawer's machine, in which gold or silver threads are extended to any degree of minuteness; and through this the animal draws it's thread with great assiduity. As every thread proceeds from two gum bags, it is probable that each supplies it's own; which, however, are united as they proceed from the animal's body. If the thread be microscopically examined, it will be found flatted on one side, and grooved along it's length: from hence we may infer, that it is doubled immediately on leaving the body; and that the

the two threads adhere to each other by that gummy quality of which they are possessed.

The Silk-Worm, previous to spinning its web, explores some convenient situation for erecting its cells without obstruction: and, when it has found a chink or leaf adapted to its purpose, begins to wreath its head in every direction; and fastens its thread on every side to the verges of its retreat. Though all its first essays seem abundantly confused, they are not altogether destitute of design: there appears, indeed, no order or contrivance in the disposal of its first threads; and they are by no means artificially arranged, but thrown out at random, to serve as an external shelter against rain; for nature having ordained the animal to work on trees in the open air, its habits remain, though it be sheltered in a warm apartment.

Malpighi pretends to have observed six different layers in a single cone of silk. But, what may easily be observed, is, that it is externally composed of a rough cotton-like substance, called floss: within, the thread is more distinct and even; and, next the body of the aurelia, the apartment seems to be lined with a substance of the hardness of paper, but of a much stronger consistence. It must not be supposed that the thread which constitutes the cone is rolled round, after the manner of what is called a bottom: on the contrary, it lies on it in a very irregular manner; and winds off, sometimes from one side, and sometimes from the other. The whole thread will measure about three hundred yards in length; and such is its fineness, that eight or ten of them are generally rolled into one by the manufacturers. The cone, when completed, resembles a pigeon's egg, more pointed at one end than the other: at the smaller end the head of the aurelia is generally found; and this is the place that the insect, when converted into a moth, is generally observed to perforate.

The aurelia is commonly a fortnight or three weeks in changing to a moth; but no sooner is the winged insect completely formed, than having divested itself of its aurelia skin, it prepares to burst through its cone or external prison: for this purpose it extends its head towards the point of the cone; butts with its eyes, which are rough, against the lining of the cell; gradually wears it away; and at last pushes forward through a passage, small at first, but which enlarges as the animal perseveres in its efforts for emancipation; while the tattered remnants of its aurelia skin lie confusedly within the cone.

The animal, thus liberated from its double confinement, appears as if exhausted through fatigue; and seems to have undergone all this toil and labour solely for the purpose of transmitting a future brood. It neither receives food, nor makes use of its wings: the male only seeks the female, whose eggs he impregnates; and their union continues for four days without interruption. Immediately on the male being separated from his mate, he finishes his course; and the female survives him no longer than till she has laid her eggs, which lie dormant till the ensuing spring.

But though this be the natural progress of the Silk-Worm, few of these animals are suffered to arrive at a state of maturity; for, as their bursting through the cone destroys the silk, the manufacturers take care to kill the aurelia, by exposing it to the sun, before the moth comes to perfection.

This done, they remove the floss, or external coat; and then throw the cones into warm water, stirring them about till the first thread presents a clue for winding all off. Eight of these filken threads are generally taken together, the cones being still kept under water till a proper quantity of the silk is wound off: however, some part is left at the bottom, on account of its inferiority in substance and colour. As to the paper-like substance which remains at last, some stain it with a variety of colours, to make artificial flowers; and others suffer it to lie in the water till the glutinous matter which cements it is entirely dissolved: it is then carded like wool, spun with a wheel, and converted to several useful and profitable purposes.

SILK-SPIDER. The quality of spinning silk was first discovered to be inherent in the Spider tribe by M. Bon, in 1710. This gentleman observes, that Spiders are distinguished, either with regard to their colours, as into black, brown, yellow, white; or with regard to the number and arrangement of their eyes; some having six, some eight, and some ten. But, with regard to Silk-Spiders, M. Bon reduces them all into two kinds; those with long legs, and those with short; which last furnish the finest raw silk.

The Silk-Spider spins from the anus, around which there are five papillæ or small nipples, and behind these two others; all muscous, and furnished with sphincters: these nipples serve to form and mould a viscous liquor, which, after being dried in the air, becomes silk. Each of these nipples, Reaumur observes, consists of a number of very minute ones; but the threads are too fine to be counted with exactitude, though the above-mentioned gentleman concludes that each larger nipple may send forth a great many.

The Spider-bags are of a grey colour when new, but turn blackish on being much exposed to the air: they are always lodged in some situation remote from wind and rain, such as hollow trees, the corners of windows, or under the eaves of houses. By collecting a quantity of these bags, (if we may credit Bon) a new silk is made, in no respect inferior to the common kind. It takes all dyes; and may be manufactured into all kinds of stuffs. That gentleman had stockings and gloves made of it, which he presented to the French Academy, as well as to the Royal Society of London.

Reaumur, however, whose judgment and penetration as a naturalist have seldom been exceeded, denies the practicability of collecting a sufficient number of these webs to answer any beneficial purposes; and maintains that the Spiders are too untractable to endure confinement; that they destroy each other; and that their silk is neither furnished in such quantities, nor of such a quality, as to render their breeding and preservation worth attention.

SILPHA. In the Linnæan distribution, a genus of the coleoptera order of insects: the distinguishing characters of which are; that the antennæ become thicker towards the extremity; the elytra are marginated; the head is prominent; and the thorax is flattish and marginated. Linnæus enumerates thirty-five species.

SILVER FISH. This Fish, which is caught near the Cape of Good Hope, is of the shape of a small carp, and not very different in taste. It is of a whitish colour; and adorned with silver shining stripes, running transversely from the back to

the sides, whence it appears as if covered with leaf silver.

SILURUS. In the Linnæan system, a genus of the order of abdominales. Its characters are; that the body is naked; that the mouth is furnished with several cirri, somewhat filiform; that the bronchial membrane consists of a number of rays, from four to fourteen; and that the first ray of the dorsal and pectoral fins is spinose, and dentated backwards. Linnæus enumerates twenty-one species.

However, the name Silurus is most commonly appropriated to a fish called in English the sheat-fish, which is caught in the Vistula, and other large rivers. It grows to an immense size, some having been taken upwards of sixteen feet in length, and one hundred pounds in weight. It resembles the eel in its colour; but the belly is variegated with black, white, and dusky spots; the body is destitute of scales, and covered with a mucous substance; the head is flat, short, and broad; the aperture of the mouth is extremely large; the body, down to the anus, is thick and cylindrical; but the bottom of the belly is flat, and from the anus to the tail it is broader and more flat. The eyes are large, and furnished with two antennæ; four beards depend from the lower jaw; the gills are four on a side; there is only one small dorsal fin; and the tail is even. Its flesh is held in the highest estimation.

Gesner mentions two species of this fish; one flattened towards the tail; the other of a mixed green and yellow colour, having two beards on the upper jaw, and three on the under.

The term Silurus, which is of Greek extraction, is derived from Sein, to Move or Shake; and Oura, a Tail; indicating the remarkable quality this fish possesses of almost continually moving its tail in the water.

SILURUS is also applied by some ichthyologists to the sturgeon; called also the accipenser, but more generally sturio.

SIMIA; the Ape, or Monkey. In the Linnæan system, a distinct genus of animals belonging to the order of primates, and class of mammalia. The distinguishing characters are; that they have four cutting-teeth in each jaw, near each other; that the canine teeth are longer, single, and separate; and that the grinders are obtuse. Linnæus enumerates thirty-three species.

According to Pennant's distribution, this genus belongs to the section of anthropomorphous digitated quadrupeds; of which he gives the subsequent characters: they have four cutting and two canine teeth in each jaw; each of the feet is formed like hands, generally with flat nails; and, except in one instance, they are furnished with four fingers and a thumb; and there are eye-brows both above and below.

This race of animals, which is very numerous, is almost confined to the torrid zone: they fill the woods of Africa, from Senegal to the Cape of Good Hope, and from thence to Ethiopia; and a single species is found beyond that line, in the province of Barbary. They are natives of all parts of India and its islands, Cochin China, China, and Japan; one kind is met with in Arabia; and they swarm in the forests of South America, from the Isthmus of Darien as far as Paraguay.

Ray first distributed animals of this genus into three classes; namely, the Simiæ, or apes, without

tails; the papiones, or baboons, with short tails; and the cercopetheci, or monkies, with long tails. Succeeding naturalists have in general adopted his distinctions, which seem founded in nature, and confirmed by experience. See APE, BABOON, and MONKEY.

SIMIA MARINA. An appellation used by Bellonius, and some other ichthyologists, to express the vulpes marina of authors in general; a kind of shark remarkable for its long tail, from whence it has likewise received the name of the sea-fox.

SIMON. A name sometimes applied to the dolphin; by which when addressed, as some authors gravely tell us, it will readily answer.

SIMUS. An appellation by which some naturalists express the nasus, a fish common in the large rivers of Germany, somewhat resembling our chubb, and in other respects the common rudd.

SIPTACE. A beautiful bird described by the ancients; supposed by some to be synonymous with our gold-finch; while others, with a stronger shew of probability, imagine it to be the parrot.

SIPUNCULUS. A genus of the intestina class of worms in the Linnæan system. Its distinguishing characters are; that the body is round and elongated; that the mouth is attenuated and cylindrical; and that the lateral aperture of the body is rugged. There are two species; one is found under stones in the European, and the other in the Indian Ocean.

SIREN. An appellation given by Artedi to a sea-monster frequently described by naturalists; but either not existing at all, or less resembling man than it has been defined.

Artedi supposes the Siren to constitute a peculiar genus of the plagiuri, or ceraceous fishes. His characters of it are these: it has no pinnated tail; the head, neck, and breast, down to the navel, represent those of the human species; and there are only two fins on the whole body, which are situated on the breast. See MERMAID.

SIREN is also a genus of the meantes, in the class of amphibia. The distinguishing characters are: the body is biped, naked, and furnished with a tail; and the feet are brachiated with claws.

This animal, which was discovered in Carolina by Dr. Garden, is found in swampy and muddy situations, by the sides of pools, under the trunks of old trees. Linnæus established a new order for this uncommon creature, called meantes, or gliders; the animals belonging to which are amphibious, breathing by means of gills and lungs, and furnished with arms and claws.

SIREN is likewise an appellation given by Mousset to a species of bee; of which he distinguishes two kinds, a larger and a smaller: these differ greatly from the common bee, in that they lead a solitary life, and never unite in swarms, build nests, or frame combs.

SIREX. A genus of the hymenoptera class of insects, in the Linnæan system. The characters are: the mouth has two strong jaws; it has two truncated palpi, or feelers; filiform antennæ; an exerted, stiff, serrated sting; a sessile, mucronated abdomen; and lanceolated wings. There are seven species.

SISKIN. A provincial appellation for the aberdavine. See ABERDAVINE.

SITTA. A distinct genus of birds of the order

der of picæ, in the Linnæan system. The characters of this genus are: the bill is subulated, tapering, straight, extended, and entire, with the upper-mandible somewhat longer than the lower, and a compressed apex; the tongue is jagged; the nostrils are covered with feathers; and the feet are formed for walking, having three toes forward, and one backward.

Linnæus enumerates three species; of which the picus cinerius, or grey wood-pecker, or *Sitta Europea*, in English denominated the nut-hatch, is one. See NUT-HATCH.

One of the other two species is found in Canada; and the other in Jamaica.

SIYAH GHUSH. An animal of the feline kind, found in Persia, India, and Barbary. Buffon gives it the appellation of the Caracal; Pennant, of the Persian cat; and Charlton names it the Siyah Ghush, or black ear. It has a long face, and a small head; very long, slender, black ears; a white nose; and small eyes. The upper part of the body is of a pale reddish brown hue; the tail is somewhat darker; the belly and breast are whitish; the hind part of each limb is marked with black; and the tail is about half the length of the body.

This animal is frequently domesticated, and used in the chase of lesser quadrupeds; as also of the larger sort of birds, such as cranes, pelicans, and peacocks, which it surprises with vast address. Having seized its prey, it holds it with its teeth, lying for a short space entirely motionless. It is also said to attend the lion, and to feed on the remains of what prey is relinquished by that superior tyrant of the forest. When provoked, it is very fierce: and Dr. Charlton informs us, that he saw one attack a hound, which it killed and tore to pieces almost instantaneously, notwithstanding the dog made all the resistance in his power.

SKATE; the *Raia Batis* of Linnæus. Artedi distinguishes it by the appellation of the variegated ray-fish, having the middle of the back smooth, and only one row of spines in the tail.

The Skate, in proportion to its bulk, is the thinnest of any of the genus; as well as the largest, some weighing near two hundred pounds. The nose, though not long, is sharp-pointed; and above the eyes there is a set of short spines. The whole upper part is of a pale brown colour, in some species streaked with black; the lower part is white, marked with many small black spots; and the jaws are covered with small granulated, but sharp-pointed teeth. The tail is of a moderate length, with two fins near its extremity; along the top of it there is one row of spines; and on the edges a few more are irregularly dispersed. In the males of this species, the fins are full of spines.

Skates generate in March and April; when they swim near the surface of the water, several males generally pursuing one female. The females begin to cast their purses (as fishermen term those bags in which the young are inclosed) in May, and continue producing till September. In October they are very poor and thin; but begin to improve in November, and grow gradually better till May, when they are in the highest perfection. The males are sooner out of season than the females.

SKIMMER. An English appellation for a bird termed *rynchops* in Latin. See RYNCHOPS.

SKOUT. A provincial appellation for the lemming.

SKRABBA. A name by which some authors express the *scorpius marinus*, or *scorpena*. See FATHER-LASHER.

SKUA. A bird of the gull kind; more usually denominated *cataracta*. It inhabits Norway, the Ferro Isles, Shetland, and the famous rock Foula; and is also found in the South Sea. It is the most formidable of the gull tribe, preying indiscriminately on fish, fowls, and even young lambs. It defends its young with all the intrepidity of the eagle; and when any inhabitant of the Ferro islands visits its nest, it attacks him with such courage, that he is obliged to hold a knife in an erect posture over his head, on which the Skua usually transfixes itself in its fall on the invader. In Foula, it is a privileged bird, because of its defending the flocks from eagles; and a fine is imposed on every person who destroys any of them.

SKUNK; the Chincke of Buffon. An animal of the weasel kind, having short round ears, black cheeks, and a white stripe extending from the nose to the back. The upper part of the neck and the whole back are white, divided at the bottom by a black line, commencing at the tail, and passing a little way up the back. The belly and legs are black; the tail is very full of long coarse hair, generally black, sometimes tipped with white; and the nails on the feet are long, like those on the fore-feet of the badger.

This animal inhabits Peru, and North America, as far as Canada. Its smell, like that of the genus in general, is highly offensive; and its manners are nearly similar.

SLEEPERS. A term by which some naturalists express such animals as sleep during the winter; of which kind are bears, marmottes, dormice, bats, and hedge-hogs. These, and many others, neither feed in winter, nor have any sensible evacuations: they likewise breathe very little, if any; and most of the viscera cease from their functions.

SLOATH, OR SLOTH. An animal remarkable for the slowness of its motion: of which we meet with two varieties, distinguished from each other by their claws; the one having only two claws on each foot, and being destitute of a tail; the other having a tail, and three claws on each foot. The former, in its native country, obtains the name of *Unan*; and the latter, of *Ai*. The snout of the *unan* is longer than that of the *ai*, the ears are more apparent, and the fur is different. In the number of ribs too they greatly differ; the *unan* having forty-six, and the *ai* but twenty-eight. But, notwithstanding these differences are so very perceptible, they have been but little regarded in the description of two animals which bear so strong a resemblance to each other in the general outlines of their figure, in their appetites, their nature, and their helpless formation. One general description will therefore suffice, since the two varieties chiefly differ in the respects already specified.

SLOATH, THREE-TOED, OR AI; the *Bradypus Tridactylus* of Linnæus. This animal is about the size of a badger: its fur is coarse and irregular, in some degree resembling dried grass; its tail is so very short, as to exhibit little more than a stump; and its mouth extends from ear to ear. It has a blunt black nose; very small external ears; and small heavy black eyes. The legs are thick, and awkwardly placed. The colour of the face and throat is a dirty white; the body and limbs

limbs are covered with a lightish brown-coloured hair; and the feet proceed from the body in such an oblique direction, that the soles seldom touch the ground: when the animal, therefore, is obliged to step forward, it scrapes on the back of the nails along the surface, and then wheeling the limbs circularly about, it at length places its foot in a progressive position: the other three limbs are brought about with equal difficulty; and then it travels at the rate of about three yards in an hour. The poor creature, indeed, seldom changes its place, unless by constraint, and when strongly impelled by hunger.

The Sloth inhabits many parts of the eastern coast of South America. It is the meanest, most sluggish, and ill-formed, of all existences. It subsists entirely on vegetable food, particularly the leaves and fruit of trees; and often feeds on the very bark when nothing else remains on the tree for its sustenance. It is a ruminant animal; and, like those of the kind, has four stomachs, which consequently require a large portion of food to supply them. In less than a fortnight, it generally strips a large tree of all its verdure: while any thing remains that can satisfy its hunger, it is very unwilling to descend; but, when totally destitute of provisions above, it crawls slowly from branch to branch in quest of somewhat to pacify the cravings of its appetite; and at last is obliged to risk the dangers that await it below.

The utmost exertions are requisite in order to this animal's ascending a tree: but being utterly unable to descend in a similar manner, it rolls itself into a ball, and thus drops from the branches; and as it can by no means break the violence of its descent, it falls to the ground like a heavy, unanimated mass: there it remains for some time without apparent sensation, or at least totally inactive. Having recovered from the effects of its fall, it now prepares for a journey to some neighbouring tree. This is the most tedious and painful expedition that can possibly be conceived: the travelling to a tree at the distance of one hundred yards, proves the toilsome labour of a whole week. Its motions are almost imperceptible, and it frequently baits on the road. At every effort to move, it utters a most plaintive and melancholy cry, at once productive of pity and disgust; and this lamentable sound appears to be its chief defence, as every beast of prey is so affected by it as to quit the Sloth with horror. Being arrived at the destined tree, it ascends the same with greater ease than it moved on the plain; and no sooner has it gained its ascent, than it falls to with a most voracious appetite; and by greedily devouring both the leaves and the bark, destroys the very source of its sustenance.

The very aspect of the Sloth is so deplorable, as to excite compassion; and its cry is generally accompanied with a kind of tears which dissuade every animal from injuring such a wretched creature. Its abstinence from food, notwithstanding the eagerness of its appetite, is so very remarkable, that one of the kind has been known to subsist forty days without any nourishment whatever. The strength of its feet is so extraordinary, that whatever it seizes on can by no means escape from its claws: and Kircher informs us, that a Sloth seized a dog with its feet, and held him four days in that situation, at the end of which the poor animal perished through hunger.

Were we to judge of the happiness of this ani-

mal by our own sensations, it is certain that nothing can be more miserable; but it may probably have some store of comfort with which we are unacquainted, and which may place it on a level with various other ranks of the creation. If it is sometimes fatigued with labour, distress, or pain, it is compensated by a larger proportion of plenty, indolence, and security. Sloths are, however, very differently formed from all other quadrupeds, and doubtless have different enjoyments. Like birds, they have but one common vent for the purposes of propagation, and their natural evacuations: and, like tortoises, which they resemble in the slowness of their motion, they are possessed of the vivacious principle for a considerable time after their nobler parts are taken away.

But, insignificant as this creature certainly is, we may discover abundant traces of a kind Providence in its formation and preservation. Though not designed for motion, its feet are nevertheless furnished with claws, which enable it to maintain that station which its necessities call for. Helpless as it is, and liable to a thousand mischances, its voice and appearance are generally sufficient to protect it from more powerful animals; and as it would be impossible for a creature of such imperfect formation to procure water after the manner of most other animals, Nature has indulgently taken care that it should experience no inconvenience from the want of it.

SLOATH, TWO-TOED, OR UNAN; the *Bradypus Didactylus* of Linnæus. The variations of this animal from the preceding having been already noticed, we need only observe, that it inhabits South America and the isle of Ceylon; though Buffon has fixed the residence of the kind to America alone. Seba expressly says, that his specimen was imported from Ceylon; and Pennant assures us, that he was informed by a gentleman distinguished in the literary world, and long resident in India, that he had seen this animal brought from the Paliacat mountains, which lie in sight of Madras. Hence it is evident that it is common to both continents.

Barbot and Bosman describe an animal by the name of potto, that is a native of Guinea; and, from every circumstance of their description, we may conclude it to be at least a variety of the Sloth genus: for those naturalists were too observant of the Guinea animals to mistake one whose characters were so strongly marked as those of the Sloth.

SLOE-WORM. An insect found on the leaves of the sloe, or black thorn; and sometimes on those of the garden-plum. It belongs to that class of insects called by French naturalists *fausses chenilles*, or bastard caterpillars.

All the animals of this class are very remarkable for the different figure they exhibit after the last change of their skins; but this is more obvious in none than in the Sloe-insect, which is of a greyish hue, with long spines of a deep brown colour: these give the animal a very remarkable figure, and are cast off with the several skins, while the new coverings have others in their place; but in the last transformation preceding that into the nymph state, the change made in the creature is such, that nothing but ocular demonstration could convince a person that it was the same.

After this transformation, the insect becomes perfectly smooth, and of a dirty yellowish colour, without the least appearance of spines, or the slightest

lightest variegation. Thus it remains till it goes into the nymph state; and from that, after an interval of about sixteen days, it appears in the shape of a four-winged fly.

SLOTH. See **SLOATH.**

SLOW-WORM. An English appellation for the *Cæcilia*, or *Anguis Fragilis* of Linnæus; called also the blind-worm; and by some authors the deaf-adder. In the Linnæan system it is a species of the anguis, or snake; the term *Cæcilia* being appropriated to a distinct genus of serpents.

The Slow-Worm is distinguished from all other snakes of this country by its smallness; and the shape of its tail, which runs out a great way beyond the anus, and yet is blunted, and pretty thick at the extremity. The back is cinereous, marked with small lines composed of minute black specks. The sides are of a reddish cast; and the belly is dusky; both marked like the back. The tongue is broad and forked; the teeth are numerous, but minute; and the scales are small. It is slow in its motion; and perfectly inoffensive in its nature.

These creatures lie torpid during the winter; and are sometimes found in vast numbers twined together. The female brings forth her young alive, like the viper.

SLUG. See **LIMAX.**

SMARIS. A small Mediterranean fish; a species of the sparus in the Linnæan system. It is seldom more than four inches long. The back and sides are of a dusky blackish green colour, without any variegations; but on each side, near the middle of the body, there is a large black spot. The gill-fins and tail are of a faint red hue; the irides are of a brownish white; and the tail is bifid.

SMATCH. A provincial appellation for the common cenanthe.

SMEAR-DAB. A species of the Dab sometimes caught in Cornwall. It is about eighteen inches long, and twelve broad between fin and fin on the widest part. The head is small; the dorsal fin rises near the mouth, and extends to the tail; the eyes are placed pretty near each other; and the mouth is replete with small teeth. The lateral line is much incurvated for the two first inches from its origin, and then continues straight to the tail. The back is covered with small smooth scales, of a light brown colour, obscurely spotted with yellow; and the belly is white, and marked with five large dusky spots. The flesh is reckoned as delicate as that of the common Dab.

SMELT; the *Salmo Eperlaus* of Linnæus. This fish has been generally referred by ichthyologists to the truttaceous tribe; and it is universally allowed to have a general external resemblance to the salmon. According to Pennant, it inhabits the seas of the northern parts of Europe: and he apprehends it is never found so far south as the Mediterranean; though, if we may depend on the observations of navigators, it has sometimes been caught in the Straits of Magellan, where it usually measures twenty inches in length, and eight in circumference.

These fish frequent such seas as wash the British isles the whole year; never migrating far from the shore, except when they ascend the rivers. It is remarkable, that in certain rivers they appear a long time before they spawn; being caught in great abundance, during the months of No-

vember, December, and Jantiary, in the Thames and Dee; but in others, not till February: and in March and April they spawn; after which they revisit the salt water, where they continue till the time of their annual migration.

Smelts vary much in size; but the largest which have come to our knowledge weighed half a pound. They have a particular scent; from whence their English appellation, Smelt (i. e. Smell it) seems to be derived. However, different nations are much divided in their opinion as to the flavour of this fish: some assert that it smells of the violet; and the Germans, for a very different reason, distinguish it by the degrading title of the stinckfish.

The head of the Smelt is of a very beautiful shape and colour; so extremely transparent, and the skin in general so thin, that, with the assistance of a good microscope, the blood may be observed to circulate. The irides are silvery; and the pupil is of a full black colour. The under jaw is the longest: the front of the upper jaw is armed with four large teeth, those in the sides of both being small. In the roof of the mouth there are two rows of teeth; and on the tongue are two more rows of pretty large teeth. The first dorsal fin has eleven rays; the pectoral fins have the same number; the ventral eight; and the anal fourteen. The scales are small, and easily deciduous. The tail, which is bifid, consists of nineteen rays. The back is of a whitish colour with a cast of green, beneath which it is varied with blue; and to this succeeds a beautiful gloss of a silvery hue.

Smelts are frequently sold in the streets of London split and dried. They sometimes receive the appellation of sparlings in this state; and are recommended as excellent in the morning, accompanied with a glass of wine.

SMELT is also a name by which the fishermen of Yorkshire, and some other counties, denominate the salmon in its first year.

SMEW. An English appellation for the common mergus; usually known among naturalists by the names *albellus*, and *mergus cirratus*.

This bird weighs about thirty-four ounces; its length is eighteen inches; and the expansion of its wings is twenty-six. The bill is near two inches long, and of a lead colour; the head is adorned with a long crest, white above, and black beneath; and a large oval spot, glossed with green, extends from a little beyond the eye to the bill. The head, neck, and whole under-side of the body, are of a pure white colour; and on the lower part of the neck there are two femilunar lines, pointing forward. The inner scapulars, the back, the coverts on the ridge of the wing, and the greater quill-feathers, are black; the middle rows of coverts are white, the next being black, tipped with white; the lesser quill-feathers are the same; the scapulars next the wings are white; the tail is of a deep ash-colour; and the legs are of a blueish grey.

The female is less than the male. The marks on the wings are the same in both sexes: the back, scapulars, and tail, are dusky; the head, together with the hind part of the neck, are ferruginous; the chin, and the fore-part of the neck, are white; the breast is clouded with grey; the belly is white; and the legs are dusky.

SMOOTH-SHAN. A provincial appellation for the smooth blenny; the *Blennius Pholis* of Linnæus. See **BLENNY.**

SMYRUS. A name by which Pliny has expressed the *Muræna Myrus* of Linnæus. Artedi makes this fish a species of *muræna*; and distinguishes it from the rest of that genus by the appellation of the *muræna* with a sharp snout, variegated with white spots, and with the edge of the dorsal fin black.

SNAIL. A genus of the testacea order of worms: the characters of which are; that the animal is a slug; the shell univalve, spiral, sub-pellucid, and brittle; and that it has a semilunar aperture.

The first striking peculiarity of the Snail tribe that presents itself to a spectator, is, that its eyes are situated on the points of its longest horns. When the Snail is in motion, four horns are distinctly seen: but the two uppermost and longest deserve peculiar consideration, both on account of the various motions with which they are endued, and their having eyes fixed at their extremities. These appear like two blackish points: when taken out of the body, they exhibit a bulbous figure; they have only one coat; and the three humours which are common in the eyes of other animals, the vitreous, the aqueous, and the chryselline, are in these very distinctly seen. The animal can direct these eyes to different objects at pleasure, by a regular motion of the body; and sometimes it hides them, by a very swift contraction into the belly. The animal's mouth is placed under the small horns; and though it may appear too soft a substance to be furnished with teeth, yet it has no less than eight of them, with which it devours leaves, and other substances seemingly harder than itself; and sometimes bites off pieces of its own shell.

But the most singular circumstances in the conformation of this animal, are the parts that serve for generation. Every Snail is at once male and female; and while it impregnates another, is itself impregnated in its turn. The vessels which supply the fluid for this purpose, are chiefly situated in the fore-part of the neck, and extend themselves over the body; but the male and female organs of generation are always found united, and growing together. There is a large opening on the right side of the neck, which serves for very different purposes: as an anus, it gives a passage to the excrements; as a mouth, it serves for an expiratory duct; and also, as an organ of generation, it dilates when the desire of propagation commences. Within this opening each animal has those parts, or something similar to them, which continue the kind.

Some days before coition, the Snails assemble together; and lying quiet near each other, eat very little; but they settle the body in such a posture, that the neck and head are placed erect. In the mean time, the apertures on the side of the neck being greatly dilated, two organs, resembling intestines, issue from them, which some have apprehended to be the instruments of propagation. Besides the protrusion of these, each animal is possessed of another peculiarity; for, from the same aperture, they protrude a kind of dart, which is pretty hard, barbed, and terminates in a very sharp point: this they apply to each other when the apertures approach, each weapon being received by the other, though it sometimes falls to the ground. Some minutes afterwards, the Snail which received the weapon darts one of its own at its antagonist, which is received in a simi-

lar manner. They then softly approach still nearer, and apply their bodies to each other, as closely as the palms and fingers of the hands when grasped together: at that time the horns are seen moving in all directions; and this sometimes for three days together. The coupling of these animals is generally thrice repeated, at intervals of fifteen days each; and at every time a new dart is mutually ejected.

Eighteen days being expired, the Snails produce their eggs by the apertures of their necks, and bury them in the ground with the greatest care and industry. These eggs are very numerous, round, white, and covered with soft shells: they are also united to each other by an imperceptible slime, like a bunch of grapes, of about the size of a small pea.

When the Snail leaves the egg, it is observed with a very small shell on its back, having only one convolution: but, in proportion as it grows, the shell increases in the number of its spiral turns. The addition is always at the mouth, the first centre still remaining; the animal sending forth from its body that slime which hardens into a stony substance, and is still fashioned into similar convolutions. The Garden-Snail has seldom more than four rounds and a half; but some of the Sea-Snails acquire ten.

Thus fitted with its covering, which is light and firm, the Snail finds itself defended in a very ample manner from all external injury; and, whenever invaded, it is only retiring into this fortress, and waiting patiently till the danger is over. Nor does it only possess a power of retreating into its shell, but also of mending it when broken.

Sometimes the shells of these animals are crushed to pieces, and, to all external appearance, utterly destroyed; still, however, they set themselves to work, and in a few days repair their numerous breaches. The same substance of which the shell is originally fabricated, serves for the re-establishment of the ruined habitation: but all the junctures are easily seen, having a fresher colour than the rest; so that, after this operation, the whole shell resembles a patched coat. Sometimes they are seen with eight or ten of these patches; so that the damage must have been apparently irreparable: still, however, though the animal is possessed of the power of mending its shell, it cannot, when arrived at its full growth, make a new one. Swammerdam tried the experiment. He divested a Snail of its shell, without injuring any of the blood-vessels, retaining that part of the shell where the muscles were inserted; but the creature died in three days after being stripped of its covering: not, however, without making some efforts to build a new shell; for, before its death, it pressed out a certain membrane round the whole surface of its body: this membrane was entirely of the shelly nature; and seemed intended by the animal as a supply towards a new one.

The Snail being furnished with all the organs of life and sensation, it is no wonder that we find it extremely voracious. It chiefly subsists on the leaves of plants and trees, but is extremely delicate in its choice. When in quest of food, it moves forward by means of that broad muscular skin which is sometimes seen projecting round the mouth of the shell: this is expanded before, and then contracted with a kind of undulating motion, like a person attempting to move himself forward

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by the help of one arm when lying on his belly. But the Snail has another advantage, by which it not only smoothes it's way, but also ascends in the most perpendicular direction. This is effected by means of that slimy substance with which it is so copiously furnished, and which it emits whenever it moves. On this slime, as on a kind of carpet, it proceeds slowly along, without any danger of lacerating it's tender body on the asperities which lie in it's way: by the assistance of this glutinous matter it ascends trees for the purpose of feeding; and also descends by the same aid, without danger of falling, and breaking it's shell by the shock.

These animals are extremely injurious to gardeners; and therefore every method of destruction is practised for their extirpation. Salt or foot will prove their bane; but a tortoise, turned loose in a garden, is said to banish them most effectually.

At the approach of winter, the Snail buries itself in the earth, or retires to some hole, where it continues in a torpid state during the severity of the season. It is sometimes found singly in it's retreat, but more frequently in company. For the purposes of greater warmth and security, it forms a kind of cover for the mouth of it's shell; which stopping it up entirely, protects it from every external injury: it is composed of a whitish substance somewhat resembling plaister, pretty hard and solid, but at the same time porous and thin, for the admission of air, without which the creature cannot exist. When this cover happens to be too thick, the Snail makes a small hole in it, which corrects the defect of that closeness originally proceeding from extreme caution. In this manner, sheltered in it's hole from the weather, and defended in it's shell by a cover, it sometimes lies torpid for six or seven months, till the genial warmth of the returning spring awakens it to a state of activity.

The Snail generally recovers it's dormant faculties the first fine days in April; breaks open it's cell, and comes forth in quest of nourishment. It is not at all surprising that so long a fast should have much reduced this animal, and rendered it very voracious. At first, therefore, it is not very nice in the choice of it's food; almost every vegetable that is green seems to be acceptable: but the succulent plants of the garden are peculiarly grateful; and the various kinds of pulse are, at some seasons, almost wholly destroyed by these creatures. So great is the multiplication of Snails at times, that some gardeners have entertained the weak idea of their having burst from the earth. A rainy season generally contributes much to their increase; for they seem incapable of existing either in very dry situations or seasons, as their slime, without which they cannot live, is then consumed in too great abundance.

Such are the most striking particulars in the general history of the Snail; and may serve as the outlines of the whole tribe, which is pretty numerous. Naturalists, indeed, have enumerated fifteen species of the Sea-Snail; eight of the Fresh-water Snail; and five of the Land-Snail: these all bear a strong resemblance to the Garden-Snail in the formation of their shells, in their hermaphrodite nature, in the slimy substance with which they are covered, in the formation of their intestines, and the disposition and use of the aperture on the right side of the neck, which serves at once for the discharge of the fæces, for lodging the instruments of generation, and for respiration, when

the animal is under the necessity of admitting a fresh supply.

Nevertheless, no two kinds of animals in nature, however much they may resemble each other in figure and conformation, are the same both as to manners and dispositions. Though the common Garden-Snail bears a strong similitude to that of fresh-water, as well as that of the sea, yet there are distinctions to be found, and such too as are pretty considerable.

If we compare Land-Snails with those of fresh-waters, one or two remarkable variations will be obvious. First, the Fresh-water Snail, like most other animals destined for an aquatic life, is peculiarly endued by Nature with the faculty of either rising to the surface, or sinking to the bottom; and the manner in which this is performed, is by opening and shutting the orifice on the right side of the neck, which is provided with muscles for that purpose. The Snail sometimes collects this aperture into an oblong tube, and stretches it above the surface of the water, in order to draw in or expel the air, as occasion requires. This is not only perceptible to the eye, but may be judged by the ear, from the noise which the creature makes in moving the water: by the dilatation of this, it rises to the surface; and, by it's compression, it sinks to the bottom.

But there is a circumstance which renders Snails far more worthy of notice, namely, their viviparous nature; their young being not only produced alive, but also with their shells on their backs. However incredible this may appear, it is nevertheless incontestably true: the young arrive at some degree of perfection in the womb of the parent; there they receive their stony coat; and from thence are excluded with all the necessary apparatus for their subsistence.

'On the twelfth of March,' says Swammerdam, 'I began my observations on this Snail; and collected a great number of the kind, which I put into a large basin filled with rain-water, and fed for a considerable time with potter's earth dissolved in the surrounding water. On the thirtieth of the same month, I opened one of these Snails, when I found nine living young in it's belly, the largest of which were placed foremost, as the first candidates for exclusion. I put them into fresh-water, and they lived to the eighteenth of the same month, moving and swimming like Snails full grown: nay, their manner of swimming was much more beautiful.' Thus, at whatever season of the year these Snails are opened, they are found pregnant with eggs, or with living Snails, or with both together.

This striking difference between Fresh-water and Garden-Snails obtains also in some of the sea kind; among which some are found to be viviparous, and others oviparous. In general, however, the Sea-Snails bring forth eggs; from whence the animal bursts, at a proper state of maturity, completely equipped with a house, which the fluidity of the element where it resides does not prevent it from enlarging. How the soft slime of the Snail hardens, at the bottom of the sea, into the stony substance of a shell, is not easily conceived: the only reasonable conjecture seems to be, that this slime must possess some unknown petrifying quality.

All animals of the Snail kind, as previously remarked, are hermaphrodites, each containing the instruments of generation double. But some of

the sea kinds copulate in a different manner from those of the garden: the one impregnates the other; but, from the position of the parts, is incapable of being impregnated by the same in it's turn. For this reason, it is necessary for a third to be admitted as a partner in this operation; so that, while one impregnates that before it, another performs the same office by this, which is itself impregnated by a fourth. After this manner, Mr. Adanson has observed vast numbers of Sea-Snails, united together in a chain, impregnating each other. The bulin and coret perform the offices of male and female at the same time: the orifices in these two both separate from each other; the opening by which the animal performs the office of the male being at the origin of the horns; that by which it is passive, as the female, being farther down at the neck. It may also be observed as a general rule, that all animals with this orifice, or verge, as some call it, on the right side, have their shells turned from the right to the left; on the contrary, those which have it on the left side, have their shells turned from left to right, in a contrary direction to the former.

But this is not the only difference between Land and Sea-Snails. Many of the latter entirely want horns; and none of them have more than two. Indeed, if the horns of Snails be furnished with eyes; and if, as some are inclined to believe, the length of the horn, like the tube of a telescope, assists vision; these animals, which chiefly reside in the gloomy bottom of the deep, can have no great occasion for them. Eyes would be useless to creatures whose food is usually concealed in the darkest situations; and who, being possessed of very little motion, are obliged to grope about for the articles necessary to their subsistence.

Sea-Snails are much larger than land ones. The sea indeed seems to possess a property of enlarging the magnitude of all it's inhabitants; and the same proportion that a trout bears to a shark, is often seen to obtain between a shell bred on the land and one produced in the ocean.

Linnæus divides Snails into three kinds, viz. the Earth, the Marsh, and the Sea-Snails. There are eleven species of the Earth-Snails; sixteen of the Marsh, or Fresh-water Snails; and six of the Sea-Snails; according to this great naturalist's distribution.

Pennant enumerates the following species as natives of the British isles: the rock, the grey, the flat, the whirl, the dwarf, the horny, the mottled, the exotic, the garden, the shrub, the variegated, the viviparous, the zoned, the pellucid, the eight-spined, the lake, the mud, the ear, the smoothed, and the olive Snail.

SNAIL, NAKED. There are several varieties of this kind; of which the subsequent are the most remarkable.

SNAIL, BLACK. This creature is somewhat of a subcylindric shape, perforated on the side. It has four feelers, on two of which it's eyes are situated. The length is about three inches; the diameter is half an inch; and the head and tail are smaller than the middle. The back is convex; the belly is flat; and the whole body is furrowed and wrinkled very considerably. The whole upper part is entirely black; but the belly is greyish. The feelers are protruded or pulled in at the pleasure of the animal; and the body is covered with a sort of slime resembling that of the eel. It is of both sexes; and possesses the fa-

culty of impregnating and being impregnated at the same time.

This species is extremely common in woods, under hedges; and almost in every damp situation, particularly in moist weather.

SNAIL, REDDISH. This animal is about two inches long, and smaller in proportion than the black Snail. The body is covered with a great number of furrows or wrinkles; and the whole upper part is of a dusky red hue, except the belly, which is grey.

SNAIL, SPOTTED, YELLOW. This variety, when full grown, is about one inch and a half long; the back is prominent; the body is somewhat hollowed; and the head is small. The entire surface is slightly furrowed or wrinkled, and covered with a slimy juice; and the colour is a glossy yellow, with a brownish cast, variegated with greyish spots. It is seldom seen in this island; and has never been discovered in the southern parts of England.

Besides the above, we meet with the large grey Snail, spotted with dusky brown; the little short, grey Snail, without dusky spots; the reddish brown Snail; the small dusky brown furrowed Snail; and the deep chocolate-coloured Snail. All these are naked, or destitute of shells.

SNAKE. In the Linnæan system, a genus of serpents, having abdominal and subcaudal scales. Here it must be observed, that Linnæus has distinguished the small scales with which the back and sides of the animals belonging to the class of serpents are covered, by the appellation of squamæ; and the oblong, narrow, transverse plates, with which the bellies of some of them are covered, by the name of scuta: those which are furnished both with squamæ and scuta, he distributes under the genus of coluber; those that have only squamæ, under the denomination of anguis. In conformity to this distinction, he has ranked the common Snake, as well as the viper, under the genus of coluber; and classed sixteen different species, of which the common flow-worm is one, under that of anguis.

SNAKE, ANNULATED. See AMPHISBOENA.

SNAKE, COMMON, OR RINGED; the Coluber Natrix of Linnæus. This is the largest of English serpents, sometimes exceeding four feet in length. The neck is slender; the middle of the body is thickest; the back and sides are covered with small scales; and the belly with oblong, narrow, transverse plates. The colour of the back and sides is dusky or brown; the middle of the back is marked with two rows of small black spots, running from head to tail; and from them proceed multitudes of lines of spots crossing the sides. The plates on the belly are dusky; and the scales on the sides are of a blueish white colour. On each side of the neck there is a spot of pale yellow; and the base of each is a triangular black spot, one angle of which points toward the tail. The teeth, which are small and serrated, are placed on each side of the jaw in a double row.

This animal, which is perfectly innoxious, feeds on frogs, insects, worms, and mice; and lodges among bushes in moist situations. It lays it's eggs in dunghills and hot-beds, whose heat, aided by that of the sun, promotes the exclusion of it's young; and, during winter, continues torpid in the banks of hedges, and under old trees.

SNAKE, HORNED. See CERASTES.

SNAKE, OAK. See DRYINUS.

SNAKE,

SNAKE, RATTLE. A terrible kind of serpents, of which Linnæus enumerates five species, all natives of the New World, and highly venomous. The characters of the genus are; that they have abdominal scuta or shields, and subcaudal scuta and squamæ, or scales; and that their tails terminate in corneous rattles. See RATTLE-SNAKE.

SNAKE, SAND. An English appellation for a species of Libyan serpent, more usually denominated ammodytes. See AMMODYTES.

SNAKE, SEA. A name by which some ichthyologists express a fish of the eel kind, the cylindrical muræna, having the tail naked and acute, commonly five or six feet long; with a furrowed body, of an equal thickness till near the tail. This fish is a native of the Mediterranean; and its flesh is esteemed agreeable food.

Pontoppidan, in his History of Norway, mentions another marine animal, which he calls a Sea-Snake, of the most prodigious dimensions; and of whose existence we should be disposed to doubt, did not the veracity of the author, and the testimonies he has adduced, remove every kind of suspicion.

These animals, some of which are said to be no less than six hundred feet long, are very dangerous to navigators, throwing themselves over vessels of some hundred tons burden, and sinking them at once. Castor, however, is esteemed a certain preservative against their approach; the smell of that drug being said to keep them at a distance. Pontoppidan supposes these creatures to be the leviathans of Holy Writ.

SNAKE, SLEEP. See HYPNOTICUS SERPENS.

SNAKE, SPECTACLE. An appellation sometimes given to that terrible creature the cobras de capello.

SNIEGULKA. A Polish name for a migratory bird in that country, which visits it only during the colder months of the year.

The name imports the snow-bird; and hence Rzaczynski, in his History of Poland, calls it *nivalis avis*. The natives, from the time of its appearance, presage the mildness or severity of the ensuing winter.

SNIFE; the *Scolopax Gallinago* of Linnæus. A well known bird; which, though generally one of passage, sometimes remains in this country during the whole year, where it builds and breeds. Its young, indeed, are so often seen in England, that Pennant questions whether it ever quits this island. Certain it is, that the Snipe breeds in the northern counties of Scotland. It frequents marshy places; builds an artificial nest among reeds or rushes; and lays four or five eggs of a dirty olive colour, marked with dusky spots.

When these birds are alarmed, particularly during the season of incubation, they soar to a great height, making a peculiar bleating noise; and in their descent darting with vast rapidity. The cock is observed, while his mate sits on the eggs, to poise himself on his wings nearly over the spot, sometimes making a whistling, and sometimes a drumming, noise. Their food seems to be of the same nature with that of woodcocks; and they are natives of all climates, and each quarter of the globe. The breast and belly of the Snipe are of a dull white colour; the back is covered with long plumage, variegated with black and reddish brown; the tail is short, and hid by the wings when folded; a line of reddish white runs along the middle of the head; and the beak is about

two inches and a half long, black at the extremity, and beset with several rough tubercles.

Snipes are easily taken, by means of lime-twigs, in the following manner: Take fifty or sixty birchen twigs; lime them all well together; and place them in situations frequented by these birds, about a yard distant from each other. These twigs are not to be placed perpendicularly in the ground, but sloping, some one way, and some another. This done, the sportsman is to retire to some distance, and wait the arrival of his game. When the birds fly near the twigs, they naturally take a sweep round the earth; and, by this means, some of them will infallibly be entangled. When the first Snipe is taken, the sportsman must not run up to secure it; for it will sometimes feed quietly, with the twig under its wing; and the sight of one frequently allures others to the same place. When three or four are entangled, they may be taken, leaving one as a decoy; and thus the sport may be continued as long as there are any Snipes in the vicinity.

SNIFE, GREAT. This species, which is rarely seen in England, weighs eight ounces: the head is longitudinally divided by a testaceous line, bounded on each side by another of black; and above and beneath each eye there are similar lines. The neck and breast are of a yellowish white hue, beautifully marked with semicircular black lines; the belly is adorned with cordated spots; and the sides are undulated with black. The back, the coverts of the wings, and the scapulars, are testaceous, spotted with black, and edged with white; the primaries are dusky; the tail is rust-coloured, barred with black; and the legs are black.

SNIFE, JACK. An appellation by which ornithologists sometimes express a Snipe common in Britain, about half the size of the common Snipe, or *scolopax gallinago*. See JACK SNIFE.

SNIFE, MIRE. A provincial name for the bittern; called also the mire drum. See BITTERN.

SNOW-BIRD; the *Emberiza Nivalis* of Linnæus. This bird, which is a native of Hudson's Bay, has a brown-coloured bill, with a black point; the lower mandible has an angle on each side, which is received into corresponding cavities on the side of the upper mandible; and in the roof of the mouth there is a protuberance, as in the bunting and yellow hammer. The head, neck, and whole under side of the bird, are white, except a small black spot on the hinder part of the head. The back, and feathers immediately covering the tail, are black; and the rump between them is white. A few of the quills next the back are black, the succeeding ones being white; and the longest or extreme ones are black at their tips, and white at their bottoms. All the coverts of the wings are white, except a few falling over the black quills near the back. The tail is composed of twelve feathers, the six middlemost of which are black, and the three extreme ones on each side white, with a small dash of black down their shafts at the tips; and the legs, feet, and claws, are black.

It seems probable that this bird assumes its white colours at the approach of winter only: at other seasons of the year, its plumage is different.

SOCO. A Brazilian bird of the ardea kind; the *Ardea Brasiliensis* of Linnæus. It is singularly remarkable for the extreme length of its neck; it is smaller than the common heron; its beak is strong, straight, and sharp; its tail is short;

short; it's head and neck are brown, variegated with black; and it's body is of the same colours in different variegations; but it's wings have an admixture of white.

SOFFIETTA. A name by which some authors express the bellows-fish; called also the scolopax. It is a native of the Mediterranean sea; and is commonly exposed to sale in the markets of Rome and Venice.

SOLAND GOOSE. See **GOOSE.**

SOLDIER CRAB. See **CRAB.**

SOLE; the *Pleuronectes Solea* of Linnæus. A fish common on every part of the British coasts; but the Soles of the western shores are much larger than those of the northern. On the western coasts they frequently weigh six or seven pounds each; but, towards Scarborough, they rarely exceed one pound; and, when they reach two, are considered as curiosities. They are usually taken with the hawl-net. They keep much at the bottom, where they feed on small shell-fish.

The irides of the Sole are yellow; the pupils are of a bright sapphirine colour; the scales are small, and very rough; the upper part of the body is of a deep brown hue; the tip of one of the pectoral fins is black; the under part of the body is white; the lateral line is straight; and the tail is rounded at the extremity.

This fish is in high estimation for it's extreme delicacy; but the small-sized Sole is much preferable to the large; and, from it's excellent flavour, it has sometimes been denominated the queen of the sea. The chief fishery for Soles is at Brixham, in Torbay.

SOLE, SMOOTH. This fish, according to Ray's description, is extremely thin, pellucid, and white; and covered with such minute scales, and those instantly deciduous, as to merit the epithet Smooth. It is a rare species: sometimes, however, caught in Cornwall, where, from it's transparency, it is called the lantern-fish.

SOLEIL DE MER. A French appellation for a peculiar species of star-fish, of a small size; the legs of which bear a strong resemblance to the tails of lizards, and are very brittle.

SOLEN; the Razor-shell-fish. A genus of shell-fish: the characters of which are; that they have bivalve shells, with oblong bodies; and are open at both ends; usually straight, but in some species crooked. The enclosed animal is an ascidia.

The name *Solen* is derived from the Greek: in which language that word expresses a pipe or tube; this fish, when the shells are closed, very aptly resembling a tube. Latin authors have given it the denomination of *unguis*, from it's resemblance in colour and consistence to the human nail.

Rondeletius observes, that there are, among the Solens of the same species males and females, which are easily distinguishable from each other; and that the females are larger, have no variegations on the shells, and are much better tasted than the males.

Pennant enumerates the following species as natives of the British shores: the pod, the sheath, scymetar, pellucid, suboval, and kidney.

The Solen lives in the sand within flood-mark, where it often buries itself one foot and a half, or two feet deep: the length of the shell is at this time nearly in a vertical position; and the fish possesses a power of raising itself at pleasure to the

surface, and sinking down again; the shell remaining all the while buried in it's place.

Almost all other animals have an horizontal motion; and the marine shell-fish crawl along under water, as the common land creatures do on dry land: but this animal's progressive motion is only vertical, and that confined to a very narrow compass; all that it is able to effect being only to raise itself higher or lower, within the narrow compass of two feet at the utmost, as proceeding beyond that would certainly prove fatal. Where these shell-fish are buried in the sand, there is an open communication from their residence to the surface, by means of which the water has free admission. These holes are generally pretty numerous in the vicinity of each other, and easily distinguished when the tide has left the shore uncovered: they are of an oblong shape; and somewhat resemble the key-hole of a lock, except that they have a roundness at each extremity.

When the Solen has occasion to ascend out of it's hole, nothing farther is necessary than thrusting out the end of it's leg, swelling it, and afterwards extending itself to the length of that leg; then retracting it into the shell again, and thrusting out and inflating it's extremity for a second movement of the same kind. These motions may be all perceived in the creature when out of the sand, particularly that by which it buries itself; for, if held up between the fingers, it protrudes the leg, and performs all the motions, as if lodged in the sand; making a natural but ineffectual attempt for it's preservation.

SOLITARY WORM; *Solium*, *Tanium*, and *Lumbricus Latus*. A species of Worm sometimes found in the intestines, and which is always single, as commencing from the pylorus, and extending thence the whole length of the intestines, so that there is no room for any other. See **TÆNIA** and **LUMBRICUS LATUS**.

SOLIPUGA, OR SOLIFUGA. An appellation by which the Romans express a small venomous insect of the spider kind; called by the Greeks *Heliocentros*; both words denoting an animal whose effects are chiefly felt in those climates and seasons where and when the sun is most ardent. Solinus describes this insect as peculiar to Sardinia: it is, however, a native of several other parts of Europe, as well as of Africa.

This venomous little creature lies concealed under the sand, in expectation of seizing other small insects which incautiously intrude on it's retreat; and if it happens to come in contact with any part of the human frame that is uncovered, it bites with great resolution. The wound is excessively painful and envenomed: and, indeed, some assert that the bite will prove mortal; but such assertion is not supported by any sufficient authority.

SOREX, Shrew. A genus of the order of feræ and class of mammalia, in the Linnæan system. It's distinguishing characters are; that it has two fore-teeth above, which are bifid; four below; and several canine teeth on both sides. There are five species; the crested *Sorex* of Pennsylvania; the minute of Siberia, weighing a dram, supposed by Linnæus to be the smallest of all quadrupeds, though Pallas reckons the pigmy, which weighs about half a dram, the smallest; the water-shrew; the murine, of Java; and the fœtid, or common. See **SHREW-MOUSE**.

SOURDON. An appellation by which the French

French conchologists express a kind of bivalve shell-fish, found on the coast of Poitou, and in some other places. It is about one inch in length, and three-quarters of an inch in breadth: both the shells are considerably convex; the outer surface is deeply furrowed, but the inside is perfectly smooth.

This fish buries itself slightly in the sand; and has a pipe of communication, which it raises to the surface. The Sourdon is capable of a progressive motion by means of a limb, somewhat resembling that of the *chamæ*, to which it seems properly to belong.

SOW. The female of the hog kind. See *Hoc*.

SPANIEL; the *Canis Avicularius* of *Linnaeus*: a variety of the *canis familiaris*; a species of dog used in fowling.

There are two varieties of this kind: the first, formerly used in hawking to spring the game, the same with our starters; the other applied only for the net, and formerly denominated *index*, or *fetter*.

Britain has been famous for producing dogs of this sort, particular care having been taken to preserve the breed in its utmost purity; so that, notwithstanding the name *Spaniel* is supposed to be derived from Spain, it is more than probable that the race is indigenous. The pointer, a dog of foreign extraction, was unknown to our ancestors. The aquaticus, or *finder*, was the same with our *Water-Spaniel*, and used to find or recover the game that was lost.

SPANIEL, GENTLE. An appellation by which some express the lap-dog. See *LAP-DOG*.

SPANISH FLIES. See *CANTHARIDES*.

SPARGUS. A name by which *Gaza* expresses the common *Sparus*; called also *fluta*.

Arredi distinguishes it by the appellation of the plain yellow *sparus*, with an annular spot near the tail.

SPARLING. A name by which the dried smelt is commonly known in London.

SPARLING FOWL. An appellation sometimes given to the female *merganser*, more usually denominated the *dun-diver*.

SPARROW. A large order of birds; for the distinguishing characters of which, see *PASSERES*.

As birds of the Sparrow kind are the favourites of mankind, they are chiefly seen in the vicinity of their habitations. All the great birds dread to approach the human race; and retire to the impenetrable shades of the forest, or the brow of the most craggy precipice: but these seldom resort to the thicker parts of the wood; they generally keep near its edges, in the neighbourhood of cultivated fields; in the hedge-rows of farm grounds; and even in yards, where they mingle with the domestic fowl.

This partiality of Sparrows to the vicinage of men, does not, however, originate from any social affection on their part, as they approach inhabited grounds merely because their chief subsistence is found in such situations. In the depth of the desert, or the gloom of the forest, no grain is to be met with; none of those tender buds which are so grateful to their appetites: and insects themselves, which constitute such a large proportion of their food, are not found there in abundance. As we penetrate deeper into woods, the silence becomes more profound; every thing wears the look of awful stillness; there are none of those warblings, none of those murmurs, that awaken

pleasing attention, as near the habitations of men; there is nothing of that indescribable buzz, formed by the united, though distant voices of quadrupeds and birds; but all is profound and solemn silence. If any sound is heard in these situations, it is such as must excite horror rather than pleasure: wild beasts roar; serpents hiss; and Nature puts on her most uninviting aspect.

Besides the natural desire of food, which is only to be found in the vicinity of man, these birds have another very strong inducement to seek his society. The greater birds, like robbers, chuse the most dreary deserts for their retreats; and, if they do not find, they create a solitude around them. The small birds fly from their tyranny; and seek protection where they know their most inveterate enemies will not dare to pursue them.

All birds, even those of passage, seem content with a certain district to provide food, and breed in. The red-breast and the wren seldom quit the field where they have been brought up, or where their young have been reared: even though persecuted, they fly along the hedges, and seem pertinaciously attached to the place where their fondest affections centre. The truth is, all these small birds prescribe limits to themselves, which they permit none of their own species to reside in; they guard their dominions with the most vigilant resentment; and two male tenants are seldom seen together in the same hedge. Thus, though Nature seems to have fitted these little animals for a life of unrestrained liberty and extensive excursion, they are satisfied with narrow limits, nor seek happiness in an enlarged sphere of action. Food and safety appear to be the only motives which interrupt their repose; and, when these are enjoyed, they seem contented: but as the former seldom continues throughout the whole year, almost every bird is then constrained to change its abode. Some receive the appellation of birds of passage from their being obliged to undertake long journeys for this purpose; but, strictly speaking, almost every species is a bird of passage, though their migrations may be confined to places less remote. At some particular seasons of the year, all small birds migrate from one country to another, or from the more interior provinces towards the sea-coast.

Singing well nigh compleatly belongs to the Sparrow kind; and this delightful quality is almost universally the prerogative of the males. With birds it is the reverse of what occurs in the human kind. Among the feathered tribe, the most weighty concerns of life fall to the lot of the female: her's is the fatigue of incubation; and on her devolves the principal care of nursing the helpless brood. To alleviate these fatigues, and support her under them, Nature has assigned song to the male: this serves as a note of blandishment at first to attract her affections, as well as to delight her during the time of her incubation; but it serves still farther as a note of security, assuring her that nothing is at hand to molest her. The male, while his mate is hatching, perches on some neighbouring tree, continuing at once to watch and to sing. While the female hears his voice, she rests in confident security; but if any danger presents itself, the male, who till that moment was so loud and sportive, stops all of a sudden; and this is a sure signal to his mate instantly to provide for her own safety.

The nests of little birds seem of more elegant workmanship than those of the larger kinds. As the volume of their bodies is smaller, the materials of which their nests are composed are generally warmer, in order to maintain and preserve the necessary heat. But it sometimes happens that the little architects are disturbed in their operations; and then they are obliged to form their nests, not according to their inclinations, but their urgent occasions. The bird whose nest has been repeatedly robbed, constructs her last in a very slovenly manner; conscious that, from the near approach of winter, she must not spend her time in private accommodation and extrinsic ornament. When the nest is finished, nothing can exceed the cunning which the male and female employ in order to conceal it. If built in a bush, the pliant branches are so disposed as to conceal it entirely from the view; and, if among moss, nothing is externally visible that may indicate a habitation: it is always fixed near those places where food is to be procured with most facility; and the greatest care is taken to hide it's situation by quitting it while any plunderer is in sight.

The first food of all birds of the Sparrow kind consists of worms and insects. Even the Sparrow and the goldfinch, which, when adult, feed only on grain, have both subsisted on insects in their tender state. The young ones, for some time after their exclusion from the shell, require no food; but the parent soon discovers, by their chirping and opening their mouths, that they begin to feel the approach of hunger; and sedulously sets about providing them with a plentiful supply.

Such is the manner in which these birds bring forth and hatch their young: but it yet remains to usher them from the nest into life, and this they very assiduously perform. When fully fledged, and fit for short flights, the old ones, in favourable weather, conduct them a few yards from the nest, and then compel them to return. For two or three days successively they are led forth in the same manner, but each day to more distant adventures: and, whenever the parents perceive their ability to fly and provide for themselves, they bid them a perpetual adieu, and pay no more attention to them than to the rest of the flock.

In general, when birds set about pairing in the spring, they associate with those of their own age and place of abode. Their strength or courage is generally proportionate to their age; the oldest females first feel the access of desire; and the senior males are the most intrepid in driving off the junior pretenders. Those next in courage and desire set up their pretensions, till they are all accommodated in their turn. The youngest come last, as being the latest in their inclinations. But still there are several, both males and females, which remain unprovided for; either not happening to meet with each other, or at least not during the genial interval. Whether these mix with small birds of a different species, is a question which naturalists have not as yet been able fully to resolve. The larger birds are generally allowed to be chaste in their manners; but, among the smaller tribes, it requires very little trouble to form a species between two; as a goldfinch and a canary-bird, a linnet and a lark. They frequently breed together; and produce a race, not like mules among quadrupeds, incapable of breeding again; for this motley mixture is as prolific

as the parents. What is so easily effected by art, very probably often happens in a state of nature; and accordingly, when a male cannot find a mate of his own species, he flies to one of another, that, like himself, has been neglected in pairing. According to some naturalists, this is the source of that great variety of small birds we usually see: some uncommon mixture might first have formed a new species; and this might have been continued by birds of this species chusing to breed together. For the authenticity of this opinion we will not vouch; but of this we are certain, that many of the Sparrow tribe bear a strong resemblance to each other in their figures, manners, and appetites.

The following are the most curious species, which retain the appropriate appellation of Sparrows.

SPARROW, COMMON, OR HOUSE; the *Fringilla Domestica* of Linnæus. The male has a black bill; the crown of the head is grey; under each eye there is a black spot; and above the angle of each appears a broad bright bay mark, surrounding the hind-part of the head. The cheeks are white; the chin and under-side of the neck are black; the belly is of a dirty white hue; and the lesser coverts of the wings are a bright bay, the two last rows being black tipped with white. The great coverts are black, outwardly edged with red; the quill-feathers are of the same colour; the back is spotted with red and black; and the tail is dusky.

With regard to the female, the lower mandible of the bill is white; beyond each eye there is a line of white; the head, and the whole upper part, are brown, except a few black spots on the back; the black and white marks on the wings are obscure; and the lower side of the body is of a dirty white hue.

Sparrows are falacious to a proverb. They breed early in the spring; make their nests under the eaves of houses; in holes of walls; and frequently in the nests of martins, after expelling the owners. Linnæus, on the authority of Albertus Magnus, informs us, that this insult does not pass unrevenged: the injured martin assembles it's companions, who unite in plastering up the entrance with dirt; then fly away, twittering in triumph, and leave the invader to a miserable fate. Sparrows also build in plumb and apple-trees, in the old nests of rooks, and in the forks of boughs beneath them.

SPARROW, TREE; the *Fringilla Montana* of Linnæus. This bird is smaller than the common Sparrow: the bill is thick and black; the crown of the head, the hind part of the neck, and the lesser coverts of the wings, are of a bright bay colour, the two first being plain, and the last spotted with black. The chin is black; the cheeks and sides of the head are white, marked with a large black spot beneath each ear; and the breast and belly are of a dirty white hue. Just above the greater coverts there is a row of black feathers edged with white; the greater quills are black, bordered with rust-colour; the quill-feathers are dusky, edged with pale red; the lower part of the back is of an olive brown hue; the tail is brown; and the legs are straw-coloured.

These birds are common in Lincolnshire, among trees; where they collect in large flocks, like the common kind.

SPARROW, HEDGE; the *Motacilla Modularis* of

of Linnæus. This bird is about the size of the red-breast, or tit-lark: the beak is longish, slender, and black; the head is of a deep brown hue mixed with ash colour; and the cheeks are marked with oblong spots of dirty white. The back and coverts of the wings are dusky, edged with reddish brown; the quill-feathers and the tail are also dusky; the rump is brown, tinged with green; the throat and breast are of a dull ash-colour; the belly is of a dirty white; the sides, thighs, and vent-feathers, are of a pale tawny brown; and the legs are of a dull flesh-colour.

This bird frequents low hedges, particularly those of gardens; making its nest in some small bush, where it lays four or five eggs of a fine pale blue colour; and, during the season of incubation, it has a remarkable flirt with its wings. The male utters a short, but very sweet plaintive note, which it begins about the commencement of the first frosty mornings, and continues till the melody of the returning spring drowns its voice.

The bird which Linnæus describes under the appellation of *motacilla curruca*, and supposes to be synonymous with our Hedge-Sparrow, differs from this both in colour and plumage.

SPARROW, REED; the *Emberiza Schoeniculus* of Linnæus. This Sparrow generally frequents reedy and marshy places; and is sometimes denominated junco. Its nest is curiously contrived, being fastened to four reeds, and suspended by them, like a hammock, about three feet above the water. It lays four or five eggs of a blueish white colour, irregularly marked with purplish veins.

This bird is much admired for its song; and, like the nightingale, pipes in the night-time. The head, chin, and throat of the male, are black; the tongue is livid; and at each angle of the mouth a white ring commences, which encircles the head. At the approach of winter, the head changes to hoary; but, on the return of spring, resumes its jetty colour. The whole under-side of the body is white; the back, coverts of the wings, and scapulars, are black, deeply bordered with red; the two middle feathers of the tail are of the same colour; the three succeeding ones are black; the exterior web, and part of the exterior of the extreme feather, are white. The head of the female is rust-coloured, spotted with black: she wants the white ring round the neck; but, in other respects, almost entirely resembles the male.

SPARROW, LESSER REED, WILLOW-LARK, OR SEDGE-BIRD; the *Motacilla Salicaria* of Linnæus. This bird is of a slender, elegant figure: the head is brown, marked with dusky streaks; over each eye there is a line of pure white; and above that another of black. The cheeks are brown; the throat, breast, and belly, are white, the two last tinged with yellow; the hind part of the neck and the back are of a reddish brown hue; the back is spotted with black; the coverts of the tail are tawny, those of the wings dusky, edged with pale brown; the quill-feathers are dusky; the tail is brown, and cuneiform, making a circle when spread; and the legs are dusky.

This bird frequents low wet grounds; sits on the top of some spray, with its wings dishevelled; while it emits a loud, querulous, and harsh song, consisting of no more than two notes.

SPARROW, WATER; the *Passer Aquaticus*. A bird described by Nieremberg; which, according to that author, sings the whole day without inter-

mission, but with no very pleasing note: it is; however, much valued for the delicacy of its flesh. It lives amongst sedges and bushes. In size and shape, it resembles the swallow; but its colours are very different. The bill is black; the legs are yellow; the breast and belly are white; and the back is of a brownish yellow colour, variegated with black and white spots.

SPARROW OF PARADISE; the *Loxia Erythrocephala* of Linnæus. This bird has a thick and strong bill, like the rest of the loxia kind; its colour is whitish; and the nostrils are hid in the plumage of the forehead. The eyes are of a dark colour; and the whole head is covered with scarlet feathers. The upper side of the neck, back, and rump, and the upper sides of the wings and tail, are of a darkish blue ash-colour. The quills, and the first and second rows of the coverts of the wings, the tail-feathers, and its coverts, are all tipped with white, or light ash colour. The breast and belly are variegated with black and white, not unlike the scales of a fish, but more broken and confused. The sides of the belly are interspersed with a tincture of reddish brown; and the thighs, lower belly, and coverts under the tail, are white; but the legs, feet, and claws, are flesh-coloured.

This curious bird is a native of Angola, on the coast of Africa.

SPARROW, HEDGE, AMERICAN. This bird, which inhabits Jamaica, is about five inches in length. It has a pretty strong bill, sharp-pointed, incurvated, and black. The head and neck are ash-coloured, a little inclining to green; and the back, wings, and tail, are brown. The breast, belly, and thighs, are white; clouded with dusky; and the legs are brown.

SPARROW, SOLITARY; the *Turdus Cyantus* of Linnæus. This beautiful bird is a native of the southern parts of Europe. In size, shape, and proportion, it resembles the blackbird: the bill is straight, the upper mandible bending a little downwards at the point, and of a black colour both above and beneath; the eyes are of a dark hazel colour; and the eye-lids are yellowish. The plumage of the whole bird, except the quills and tail, are of a full blue colour, darker on the back, and lighter on the breast; the feathers on the breast and belly being transversely barred with a lighter colour. The quills and tail-feathers are of a dusky brown hue, except that there is a small portion of blue on their exterior webs. The legs, feet, and claws, are black.

SPARROW, CHINESE, COCK; the *Loxia Malacca* of Linnæus. This bird is somewhat less than the common House-Sparrow; and has a short, thick, ash-coloured neck. The head, neck, breast, and belly of the cock, are quite black; but the rest of the body, wings, and tail, are of a rusty brown colour. The upper parts of the body of the hen are more brown and dusky; the lower part of the breast inclines to a hare colour, with beautiful regular black and white spots on the sides of the belly and under the wings; and the legs and feet are of the same bright colour, inclining to yellow.

SPARROW, INDIAN, YELLOW-HEADED; the *Loxia Bengalensis*. The bill is of a light or whitish colour, and of a thick and strong make; the top of the head is of a yellow or golden colour; the neck, back, wings, and tail, are of a dark brown or dusky colour, the plumage being bordered

bordered with a lightish brown. From the sides of the neck, across the breast, extends a bar of the same brownish colour as on its upper side; the sides of the head beneath the eyes and throat are white; as far as the collar, of dusky feathers; and under the collar, the belly, and thighs, are again of a yellowish white colour; the sides of the belly are marked with longish spots of a faint dusky colour; and the legs and feet are flesh-coloured. This bird is a native of the province of Bengal.

SPARROW, INDIAN, WHITE-BREADED; the *Loxia Malacca* of Linnæus. The bill of this bird is of a blueish ash-colour; the eyes are dark; the whole head and neck, thighs, middle of the belly, and covert-feathers beneath the tail, are of a deep black colour; the back, rump, tail, and wings on their upper sides, are of a dark cinnamon colour; the lower part of the breast, the sides under the wings, and the inner covert-feathers of the wings, are white; and the legs and feet are ash-coloured.

This bird appears to be a variety of the Chinese Sparrow; and accordingly Linnæus considers them as synonymous.

SPARROW, LITTLE. This bird, which is a native of America, has a dusky brown or black bill; the top of the head, the upper side of the neck, the back, rump, and upper sides of the wings and tail, are of a dark brown colour; the edges of the quills, and the exterior feathers of the tail, are of a bright reddish brown hue; and the tail consists of twelve feathers. Above the eye passes a whitish line; the under side, from the throat to the under coverts of the tail inclusive, is covered with whitish feathers, shaded with light brown, and marked with oblong dusky spots, tending downwards from the bill to the middle of the belly; and the legs and feet are of a brownish ash-colour.

SPARROW-HAWK; the *Falco Nifus* of Linnæus. The difference of size between the male and female Sparrow-Hawk is very disproportionate; the former usually weighing about five ounces, the latter nine. The length of the male is generally about twelve inches, and the expansion of the wings twenty-three: the length of the female is fifteen inches, and the expansion of the wings twenty-six.

Like other birds of the Hawk kind, these vary greatly in their colours: in some, the back, head, coverts of the wings, and tail, are of a deep blueish grey; in others, of a deep brown, edged with a rusty red. The quill-feathers are dusky, barred with black on their exterior webs, and spotted with white on the lower part of their interior webs. On the tail, which is of a deep ash-colour, there are fine broad black bars, and the tip is white. The breast and belly are of a cream-colour, adorned with transverse waved bars, of a deep brown in some, and orange-colour in others; and the skin at the base of the bill, the irides, and the legs, are yellow.

The colours of the female are different from those of the male: the head is of a deep brown; the back and coverts of the wings are brownish mixed with dove-colour; the tail is of a brighter dove-colour; the waved lines on the breast are more numerous than those on the breast of the male; and the breast contains a greater portion of white.

This is the most pernicious Hawk which inhabits Britain, making great depredations among pigeons and partridges. It builds in high rocks, large ruinous buildings, and hollow trees; and

lays four eggs, of a white colour, encircled with red specks near the larger end.

Willughby places the Sparrow-Hawk among the short-winged species, or such whose wings do not reach the end of the tail when closed.

The Sparrow-Hawk was formerly held in great veneration among the ancient Egyptians, because it represented their god Osiris; and if any person killed one of them, whether by accident or design, death was the certain consequence of the supposed heinous offence. Among the Greeks, it was consecrated to Apollo; and likewise served as a prognosticator.

SPARUS. In the Linnæan system, a genus of fishes of the general order of thoracici; the characters of which are these: the opercula of the gills are scaly; the mouth is furnished with strong cutting-teeth; the grinders are obtuse, close set, and covered with lips; the branchiostege membrane consists of five rays; the body is compressed; the lateral line is curved behind; and the pectoral fins are rounded. There are twenty-six species of this genus; among which are the gilt-head, the pagrus, the melanurus, the smaris, and the cantharus.

The term Sparus is of Greek derivation, from *Spairein*, to Palpitate or Tremble; and was applied to this fish from its remarkable quality of trembling or palpitating all over the body as soon as taken out of the water.

SPATAGOIDES. A name by which some naturalists express a genus of the echini marini; the characters of which are: they have the aperture of the anus on one side of the upper superficies; the back is remarkably sulcated, which makes them of a cordated form; but there are no furrows on the vertex, only four or five smooth rays, composed of a number of slight transverse striæ.

SPATANGI. A genus of echini marini, including all those which are cordiform, and have the aperture for the anus on one of the sides of the upper superficies. They have all a remarkable furrow on the back; their base is nearly flat; and they have several furrows on the vertex. By these characters they are distinguished from the briffi, with which they have in common the rudiments of two lips to their mouths, and are destitute of teeth which belong to the other genera.

SPAX. An appellation by which some authors express the common tænia; a small fish of the anguilliform kind, frequent on the shores of Italy.

SPECTRE. A name by which French conchologists express a species of *voluta*; on which are several reddish broad bands, composed of loose and irregular figures, on a fine white ground.

SPECULATION SHELL. An appellation sometimes given to the Guinea-shell, a very beautiful species of the *voluta*.

SPERVERIUS. A name by which Bellonius, and some other ornithologists, have expressed the sparrow-hawk; more commonly denominated *nifus*, and *accipiter fringillarius*.

SPHEX. A genus of the hymenoptera order of insects in the Linnæan system. Its distinguishing characters are; that the mouth is furnished with mandibles without a tongue; that the antennæ have ten joints; that the wings are plano-incumbent, and not folded; and that the sting is concealed. Linnæus enumerates thirty-eight species.

SPHINX. In the Linnæan system of nature, a genus

a genus of the lepidoptera order of insects. Its characters are: the antennæ are subprismatic, or thicker in the middle, and attenuated towards each end; the wings decline towards the sides; and they are apparently heavier and slower in their flight in the morning and evening. Linnæus enumerates forty-seven species.

SPHINX is also a term by which Reaumur expresses a very singular species of caterpillar, with a hollow horn or tube on the hinder part of the body.

SPHONDYLLUS. An appellation given by Pliny to a peculiar species of the syngnathus, or acus Aristotelis. Artedi calls it the syngnathus corpore medio hexagono cauda pinnata; and Bellonius and Gesner, typhle marina.

SPHYRÆNA. A name sometimes given to the fudis, or lucius marinus, the sea-pike.

SPHYRÆNA ALTERA. An appellation by which Appian, and some others of the ancient Greek writers, express the esox, or common pike.

SPIDER. A genus of the aptera order of insects; the characters of which are: they have eight feet and eight eyes; the mouth is furnished with two claws; the two palpi are articulated; and the anus is provided with papillæ, or nipples, for weaving. Linnæus enumerates forty-eight species.

The Spider being formed for a life of rapacity, and incapable of living on any other than insect food, all its habits are calculated to deceive and surprize: it spreads toils to entangle its prey; it is endued with patience to expect its approach; and possesses arms and strength sufficient to destroy it when fallen into the snare.

In this country, where all the insect tribes are kept under by human assiduity, Spiders are but small and harmless. We are acquainted with few except the House-Spider, which weaves its web in neglected rooms; the Garden-Spider, that spreads its toils from tree to tree, and rests in the centre; the Wandering-Spider, that has no fixed abode; and the Field-Spider, that is sometimes seen mounting, web and all, into the clouds. These are the chief of our native Spiders; which, though reputed venomous, have never been fairly proved to possess any noxious qualities. But in Africa and America they compose a much more formidable tribe: in those regions, where all the insect species attain their utmost growth, where the butterfly is seen to expand a wing as broad as our sparrow, and the ant to build a habitation as tall as a man; it is not at all surprising that the Spider should exhibit a proportionable magnitude. In fact, the bottom of the Martinico Spider's body is as large as a hen's egg, and entirely covered with hair; its web is strong; and its bite is dangerous.

Every Spider has two divisions in its body. The fore-part, containing the head and breast, is separated from the hinder part or belly by a very slender thread, through which, however, there is a communication from one part to the other. The fore-part is covered with a hard shell, as well as the legs, which adhere to the breast. The hinder-part is clothed with a supple skin, entirely beset with hair. There are several brilliant and acute eyes arranged round the head, sometimes eight in number, and sometimes six. Like all other insects, the eyes of Spiders are immovable, and they are destitute of lids; but this organ is fortified with a transparent horny substance,

which at once secures and assists their vision. As the animal procures its subsistence by the most vigilant attention, so large a number of eyes appears necessary, in order to give it the earliest intimation of the approach of its prey. On the fore-part of the head there are two pincers, rough, with strong points, toothed like a saw, and terminating in claws resembling those of the feline tribe. A little below the point of the claw there is a small hole, through which the animal emits a poison, which, though innocent with regard to mankind, is sufficiently deleterious to destroy its prey. This is the most powerful weapon which these insects possess. These pincers they can extend or open as occasion requires; but, when undisturbed, they suffer them to lie one on the other, never opening them but when there is a necessity for their exertion.

All Spiders have eight legs, jointed like those of lobsters: and similar also in another respect; for, if a leg be torn away, or a joint cut off, a new one will quickly succeed, and the animal will find itself fitted for combat as before. At the end of each leg there are three crooked moveable claws; namely, a small one, placed higher up like a cock's spur, by the assistance of which it adheres to the threads of its web. There are two others larger, meeting together like a lobster's claw, by which they are enabled to catch hold of the smallest depressions, walking up or down the very polished substances, where they can discover inequalities imperceptible to our grosser sight: but when they find it necessary to procure footing on such bodies as are perfectly smooth, they squeeze a little sponge, growing near the extremity of their claws, and thus diffusing a glutinous substance, adhere to the surface till they make a second step. Besides the eight members commonly denominated legs, these animals have two others, which may properly be called arms, as they do not assist motion, but are only serviceable in holding and mastering their prey.

But, though thus formidably equipped, the Spider would seldom prove successful in the capture, were it not equally furnished with other instruments to assist its depredations. As it subsists wholly on flies, and is destitute of wings for the pursuit, it would seem they must constantly escape such an impotent adversary; but the Spider is a most experienced hunter, and spreads its snares to catch those animals it is unable to overtake. The Spider's web is generally suspended in those places where flies are most apt to seek for shelter; in the corners of rooms, round the edges of windows, and in the open air among the branches of trees: there the little animal remains for days, nay weeks together, in patient expectation, seldom changing its situation though ever so unsuccessful.

For the purpose of constructing its web, Nature has supplied the Spider with a large quantity of glutinous matter within its body, and with five dugs or teats for spinning it into thread. This substance is contained in a little bag; and, at first sight, resembles soft glue; but, when more accurately examined, is found twisted into many coils of an agate colour; and, on breaking it, the contents may be easily extended into threads, from the tenacity of the substance, not from those threads being already formed.

The machine by which wire is artificially spun will furnish us with some idea of the manner in

which this creature forms the threads of its little net; the orifices of the five teats, through which the thread is drawn, contracting or dilating at pleasure. The threads which we see, and which appear so fine, are, notwithstanding, composed of five joined together; and these are repeatedly doubled when the web is in formation.

When a house or common Spider is about to form a web, it first selects some commodious spot where there is an appearance of plenty and security. The animal then distils a small drop of its glutinous liquor, which is very tenacious; and then creeping up the wall, and joining its thread as it proceeds, darts itself in a very surprising manner to the opposite station where the other end of the web is to be fastened. The first thread thus spun, drawn tight, and fixed at each end, the Spider runs on it, backward and forward, still assiduously employed in doubling and strengthening it, as on its force depends the strength and stability of the whole. The scaffolding being completed, the Spider draws a number of threads parallel to the first, in the same manner; and then crosses them with others; the clammy substance of which they are formed serving to bind them together when newly spun.

After this operation, the insect doubles and trebles the thread that borders its web, by opening all its teats at once; and so secures the edges as to prevent the wind from displacing the work. The edges being thus fortified, the retreat is next to be attended to; and this is formed like a funnel at the bottom of the web, where the little creature lies concealed. To this there are two passages or outlets, one above, and the other below, very artfully contrived, to allow the animal an opportunity of making excursions at proper seasons, of examining every corner, and cleaning those parts which appear soiled or encumbered. Still attentive to its web, the Spider from time to time removes the dirt that gathers round it, which might otherwise clog and incommode it: to effect this, it gives the whole a shake with its paws; still, however, proportioning the shock to the substance and strength of the fabric. It often happens also, that from the main web there are several threads extended at some distance on each side: these may be considered as the outworks of the fortification; which, whenever touched from without, the Spider prepares for attack or self-defence: If the insect impinging happens to be a fly, it springs forward with great agility; but if, on the contrary, some enemy stronger than itself, it then keeps within its fortrefs, and never ventures out till the danger is past.

Another advantage which the Spider reaps from this contrivance of a cell behind the web, consists in its serving as a retreat where the creature can feast on its game with safety, and conceal the fragments of those carcases which it has picked, without exposing to public view the least trace of barbarity that might put other prey on its guard. However, it is not very uncommon for a blast of wind, or some other accidental violence, to destroy in one minute the labours of a Spider's life. In this calamity, the hapless insect is obliged to remain a patient spectator of the universal ruin; and, when the danger is over, to set about repairing the devastation. For this purpose it is provided with a large store of that glutinous substance of which the web is composed; and with this it either makes a new web, or re-

pairs the old one. In general, however, the Spider is more solicitous to mend than make; as it is originally furnished with only a certain quantity of glutinous matter, which, when exhausted, nothing can renew; and it is then abandoned to all the chances of irremediable necessity. An old Spider is thus frequently reduced to the greatest extremity; its web is destroyed, and itself wholly unprovided with materials for constructing a new one. But as these animals are habituated to a life of shift, it hunts about for the web of another creature of its own species, younger and feebler than itself, with which it hazards a battle: the invader generally comes off successful; the young one is driven out to make a new web for itself; and the old one remains in quiet possession. If, however, the Spider is unable to dispossess any other of its web, it then endeavours to subsist on accidental depredations, but in a very short time infallibly dies through hunger.

The Garden-Spider seems to work in a different manner. It spins a large quantity of thread, which floating in the air in various directions, happens, from its glutinous quality, at last to adhere to some object near it, a lofty plant, or the branch of a tree. The Spider is anxious to have one end of the line fixed, that it may be enabled to secure and tighten the other: it accordingly draws the line when thus fixed; and then, by passing and repassing on it, strengthens the thread in such a manner as to answer all its intentions. The first cord being thus stretched, the Spider walks along a part of it, and there fastens another; and dropping from thence, affixes the thread to some solid body below; then climbs up again, and begins a third, which it fastens by a similar contrivance. When three threads are thus fixed, it forms a figure somewhat resembling a square; and in this the animal is generally found to reside. It often happens, however, when the young Spider begins spinning, that its web becomes too buoyant; and not only the thread floats in the air, but the spinster also.

The Spider's web being completed, and fixed in a proper place, its next care is to seize and secure whatever insects happen to be caught in the toil. With this view it sometimes remains on the watch for weeks, and even months, without ever catching a single fly; for the Spider, like most other insects, is surprisingly patient of hunger. It sometimes happens that too strong a fly strikes against the web; and thus, instead of being caught, tears it to pieces. But in general the butterfly, or the hornet, when they touch the web, fly off again; and the Spider seems no ways disposed to interrupt their retreat. The large blue-bottle fly, the ichneumon fly, and the common meat-fly, seem to be its favourite game: when one of these strikes into the toils, the Spider is instantly seen at the mouth of his hole, carefully observing whether the fly be completely immersed; and if so, he advances quietly forward, seizes his prey, and presently kills it by infusing a venomous fluid into the wound he inflicts. But if the fly be not wholly entangled, the Spider waits patiently, without appearing in sight, till it is tired out with ineffectual attempts to regain its liberty; for if the ravager should appear in all his terrors while the fly is but half involved, one desperate effort would probably enable it to get free. If the Spider is stimulated by hunger, he drags the fly immediately into his cell, and devours it; but if there has been
plenty

plenty of game, and the tyrant be no way pressed with the calls of appetite, he gives the fly two or three turns in his web, so as compleatly to entangle it; and there leaves it till he is hungry.

Some philosophers have advanced an opinion, that the Spider in itself is both male and female; but Lister has been able to distinguish the sexes, and to perceive that the males are considerably less than the females. Nor is this the chief peculiarity; for, different from all other animals, except the fish called the ray, it has the instruments of generation in the fore-arms, which have been already mentioned. When these insects copulate, they for some time teaze each other with their legs and arms; then appear the instruments of generation in the male, as if bursting out from the extremities of it's fore-feet; and these are inserted into the receptacle beneath the body of the female.

The female generally lays from nine hundred to a thousand eggs in a season; which are of a blueish colour, speckled with black, and separated from each other by a glutinous substance, not much unlike that which surrounds the spawn of frogs. These eggs are small or large in proportion to the size of the animal that produces them. In some, they are as large as a grain of mustard-seed; but, in others, they are too minute to be distinctly visible. The female never begins to lay till she is two years old at least; and her first brood is never so numerous as when she arrives at full maturity.

When the number of eggs which the Spider has produced have continued to dry for an hour or two after exclusion, the little animal then prepares a bag for their reception, where they are to be hatched till they leave the shell. For this purpose, she spins a web four or five times stronger than that intended for the catching of flies; and, besides, lines it internally with down plucked from her own breast. This bag, when completed, is as thick as paper, smooth on the inside, but somewhat rough without: in this the eggs are deposited; and it is almost incredible what concern and industry the creature shews in the preservation of it: it is stuck, by means of her glutinous fluid, to the extremity of her body; so that, when thus loaded, she appears as if double. If the bag should happen by any accident to be separated from her, all her assiduity is employed to stick it again in it's former situation; and this precious treasure she seldom abandons but with her life.

When the young are excluded from their shells within the bag, they remain for some time in their confinement; till the female, instinctively knowing their maturity, bites open their prison, and sets them at liberty. But her parental care does not terminate with their exclusion: she receives them on her back from time to time; till having acquired sufficient strength to provide for themselves, they leave her to return no more, and each commences a separate manufactory of it's own. The young ones begin to spin when they are scarcely large enough to be discerned; and discover their propensity to a life of plunder before Nature has conferred on them strength for the conquest. Indeed, no other insects possess such various powers of assault and defence; for they are capable of destroying animals ten times as large as themselves. Even after a severe defeat, they quickly recover of their wounds; and as for

their legs, they consider their loss but a very trifling misfortune, as they speedily arrive at their former magnitude.

There are scarcely any insects to which Spiders are not inimical; and they are even extremely hostile towards each other. Reaumur, who delighted in making experiments on insects, tried to turn the labours of Spiders to human advantage, and actually had a pair of gloves made from their webs. To procure this curious manufacture, he collected a large number of these animals together; and took care to have them constantly supplied with flies; and also the ends of young feathers, fresh picked from chickens and pigeons, which being replete with blood, are very agreeable food to Spiders. But, notwithstanding all his sollicitude, he was soon convinced that it was impracticable to rear them, since they were of such a malignant nature, that they could never be brought to live in society: for, instead of subsisting on the food with which he plentifully supplied them, they soon began to devour one another. Indeed, were it possible to reconcile them to each other, too much attendance and expence would be requisite to breed a sufficient number to answer any beneficial purposes. Their thread is four, if not five times finer than that of the silkworm; so that, on the most moderate calculation, there must be sixty thousand Spiders to spin one pound of silk. That which Reaumur used, was only the web wherein they deposited their eggs, which is five times stronger than their ordinary manufacture. See SILK-SPIDER.

There are various species of Spiders, differing from each other considerably in size, but little in nature, habits, or conformation. The Bermudas and Martinico Spiders are extremely large. In the East Indies, and at the Cape of Good Hope, there are several species; some remarkable for their size, and others for their venom. The tarantula, an insect common in Apulia, of which so many fables have been propagated, is of the Spider kind. See TARANTULA.

SPIDER, WATER. This insect resembles the common Spider in it's appearance, except that it's hinder-part is rather conical than globular. It differs also in being able to live as well on the land as in the water; and in being capable of spinning as well in the one element as the other.

The appearance of these insects under water is very remarkable; for though they inhabit the bottom, they are defended from the element in which they reside by a bubble of air which surrounds them on every side: this bubble appears at the bottom like quicksilver; and within it they perform their several functions of eating, spinning, and sleeping, without it's ever bursting, or in the least disturbing their operations. Sometimes this bubble is observed to be divided into three distinct apartments: and in the spring the male enters one of them in order to impregnate the female; while the bubble in which he was contained unites with the other like two drops of water in the act of closing with each other.

It is most probable that these Spiders subsist on such small insects as are peculiar to both the land and the water.

SPIDER, RED. A genus of insects of the aptera order, in the Linnæan system. It's characters are: it has two eyes placed on the sides of the head, remote from each other; it's mouth, or proboscis, is formed by a small pointed rostrum inclosed

closed in a sheath; its antennæ are shorter than the proboscis; its head is uniform in size, and united to the thorax; and its feet, which are eight in number, are formed for running. There are many species of this genus: some live on other animals, others in the water, and some on trees and plants. See ACARUS.

These insects, which are frequently very injurious to plants, particularly in hot-houses, may be effectually destroyed by a mixture of soft green soap, turpentine, and flowers of sulphur, dissolved in a proportionable quantity of warm water, and sprinkled over the plants.

SPIDER-SHELL. An appellation whereby some naturalists express a species of the murex.

SPIGOLA. A name by which Paulus Jovius denominates that species of perch more generally called lupus marinus. It is a genuine perch; and is distinguished from the others by Artedi, under the name of the perch with thirteen rays in the second dorsal fin, and fourteen in the pinna ani.

SPINACHIA. An appellation by which some ichthyologists express the common stickle-back; the *Gasterosteus Spinachia* of Linnæus.

SPINARELLA. A name by which Bellonius, and some other writers, express the lesser stickle-back; which, in the Linnæan system, constitutes a distinct species of the *gasterosteus*.

SPINOLETTA; the *Alauda Spinoletta* of Linnæus. A small bird of the lark kind. The head, neck, shoulders, and back, are of a greyish colour, with an admixture of green; the breast and belly are white; and the throat is spotted. The female differs from the male in having a yellow belly. The wing-feathers are of a dusky brown hue, with whitish or yellowish edges; the tail is moderately long; and part of the feathers are snow-white, the rest being brown or blackish.

The length of the Spinoletta's heel distinguishes it from all other birds except those of the lark-kind; and it differs from all other species of larks in the colour of its beak and legs, which are black. It is common in Italy.

SPINOSA. An Italian appellation for the porcupine.

SPINOSI PISCES. A term by which ichthyologists denominate such fishes whose dorsal fins run out into thorns and prickles; of which kind is the perch.

SPINUS. A species of sparus, having a bifid tail, and the dorsal fin recumbent. It is a native of the Oriental seas.

SPINUS; the *Fringilla Spinus* of Linnæus. An appellation by which some ornithologists express the fiskin, or aberdavine. This bird is common both in England and Germany; the former of which it visits at uncertain seasons. In Suffex it is called the barley-bird, because of its arriving in that county about barley-feed time.

For a particular description of the Spinus, which is in some estimation on account of its voice, see ABERDAVINE.

SPIPOLA. A small bird of the lark kind; of which, according to Aldrovandus, there are three species: Ray, however, suspects them to be only varieties of the spinoletta, or tordino of the Venetians.

Linnæus constitutes two distinct species of these, under the appellations of *alauda trivialis*, and *alauda pratensis*: the last of which is synonymous with our tit-lark. See LARK.

SPIZA. An appellation by which some of

the ancient naturalists denominated the chaffinch.

SPONDYLUS. The name by which Da Costa distinguishes the second family of bivalve shells, with unequal valves shut close. The principal character is the hinge, which in the upper shell consists of a triangular hollow and cartilage in the centre, on each side of which is a large deep cavity; and a very thick, large, and prominent tooth or joint, lies on each side of the cavity: the summit and beak of the under valve, which is also extremely thick and strong, extends from the hinge outwards into a broad triangular slope or flat. Some of the Spondyli are thickly and curiously set with long thorns or spikes, and hence are denominated thorny oysters: these, when perfect, are held in high estimation.

The species belonging to this family are not very numerous. Conchologists in general refer them to the oyster tribe.

SPOON-BILL; the *Platalea Leucorodia* of Linnæus. This bird belongs to the order of grallæ; but its bill is differently formed from that of any other bird whatever. It feeds among waters: its toes are divided; and it seems to possess the natural instincts of the crane. The whole bill is of a fine shining black hue, except a bright orange-coloured spot just above the point of the upper mandible, which is a little bent downwards at its extremity: at the angles of the bill, on each cheek, there is also a spot of the same colour; the upper surface of the bill is waved with dotted protuberances; a depressed line, extending from the nostrils, is continued round it near its edge; and its substance appears like whale-bone, being thin, light, and elastic. The tongue is short, and heart-shaped: when drawn back, it serves as a valve to close the entrance of the throat; but when pulled forward, it has the appearance of a triangular button. The ears are large, and placed an inch behind the angles of the mouth. The plumage of the whole body, wings, and tail, is white; and on the back-part of the head there is a beautiful crest of white feathers depending backward. The legs are black; as are also the thighs, which are naked half their length.—Such is the description of the European Spoon-Bill.

The American Spoon-Bill is either of a beautiful rose-colour, or a delightful crimson. Beauty of plumage indeed seems to be imparted to all the birds of that continent; and we here see the most splendid tints bestowed on a bird whose general conformation is the very reverse of elegance.

This species is diffused over various parts of Europe, Asia, Africa, and America. Its very singular bill appears admirably adapted to the nature of its food; being chiefly the frog, a nimble and cunning animal, which will frequently evade the stroke of a sharp beak darted down at it; and will sometimes elude the heron, even when seized. The Spoon-Bill, therefore, opening its beak wide, places it near the ground, in those situations to which frogs usually resort; and, when any come in its way, closes its beak on them. For this purpose, the beak of the Spoon-Bill is not only sufficiently broad to hold its prey in a large grasp at once, but is also toothed and notched all the way round; so that an escape is utterly impracticable: and with this the Spoon-Bill crushes the frog, and then swallows it.

The Spoon-Bill, or shoveller, as it is sometimes called, lays from three to five eggs, white, and powdered

powdered with a few sanguine or pale spots. In Europe, it builds in high trees, in company with the heron, and in a nest formed of the same materials.

Sonnerat, in his Voyage to New Guinea, mentions a beautiful variety of the Spoon-Bill. A flock of these birds migrated into the marshes, near Yarmouth, in Norfolk, in April 1774.

SPOT. An appellation by which some authors express a particular species of pigeon, called by Moore *Columba Maculata*. It is a native of Holland; and receives its name from a spot on its head, just above its beak. The tail-feathers are always of the same colour with this spot; but the rest of the body is entirely white. The spot and tail are black in some, red in others, and not unfrequently yellow.

SPOTTED FISH. This fish, which ichthyologists have very imperfectly described, is a native of the Oriental seas. It is of a light colour, spotted with brown: the head is short and conical; and on its top there is a sharp fin which bends backwards. The tail is broad; on the back, near the tail, there is a very broad fin; and under the belly there is a small one, which corresponds with it.

SPRAT; the *Clupea Sprattus* of Linnæus. This is a species of the clupea, with the lower jaw longer than the upper, the belly very acute, and the dorsal fin consisting of thirteen rays. It has generally, though erroneously, been supposed a herring not arrived at full growth, its usual length being only four or five inches. Its body, however, is much deeper than that of a young herring of equal magnitude; and its back fin is placed more remote from its nose. But a still more remarkable distinction between this fish, the herring, and the pilchard, appears in the belly; that of the two first being quite smooth, while that of the last is very strongly serrated. There is also another distinctive character: the herring has fifty-six vertebræ; but this only forty-eight.

Independent of these discriminations, Sprats visit our coasts, and continue with us in large shoals; when the others, in general, have returned to the hyperborean deeps. They generally arrive in the river Thames about the beginning of November, and quit it in the month of March. At Gravesend and Yarmouth they are cured after the manner of red herrings. They are sometimes pickled, and in flavour little inferior to anchovies; but their bones will not dissolve so readily as those of anchovies.

SPRINGER. An appellation sometimes used for the grampus.

SPURRÉ. A name by which some ornithologists express the sea-swallow.

SQUACCO. A large, bold, and fierce bird, of the ardea kind. The head and neck are variegated with black, white, and yellow; and on the back part of the head there is a crest of the same hue. The back is of a ferruginous yellow colour; the breast and belly are white; as are also the wings and tail; and the legs and feet are green.

SQUAIOTTA. A bird of the ardea kind, with a yellow beak and green legs. The head is variegated with grey and black; and the back is very elegantly marked with white and red. It seems to have received its name from its note, which it repeats very often when flying.

SQUALUS. A distinct genus of fish of the

order of nantes, and class of amphibia. The characters of this genus are; that it has five bronchial apertures on the sides of the neck, an oblong roundish body, and the mouth in the anterior part of the head.

Linnæus enumerates fifteen species: four of which have a prickly back, and no pinna ani; the *squalus acanthias*, or *galeus acanthias*; the *squalus centrina*, or *centrine*; the *squalus spinax*, with the nostrils at the extremity of the snout; and the *squalus squatina*, or *monk fish*. Eight species have no prickles on their backs, with sharp teeth, and a pinna ani; namely, the *squalus zygena*, or *hammer-headed shark*; the *squalus tiburo*; the *squalus galeus*; the *canis galeus*, or *tope*; the *squalus canicula*, or *catulus major*; the *squalus stellaris*, with the ventral fins separate, and the dorsal fins near the tail; the *squalus catulus*, with a variegated back, and the ventral fins growing together, sometimes called the *morgray*; the *squalus maximus*, or *basking-shark*; and the *squalus carcharias*, or *white shark*. And three with granulated teeth, viz. the *squalus mustellus*, or *galeus lævis*, the *squalus glaucus*, or *blue shark*; and the *squalus pristis*, or *saw-fish*.

SQUALUS is also a name by which some of the ancient ichthyologists have expressed that species of the cyprinus distinguished by Artedi under the appellation of the oblong cyprinus with long scales, and the pinna ani containing eleven rays. This fish is commonly known in England by the appellation of the chub, or chevin.

SQUAMIS. A name used by some naturalists for the monk, or angel-fish; more commonly called *squatina*; and by the ancient Greek writers, *rhine*.

SQUARTIA. A species of fish caught in the Oriental seas, the skin of which is manufactured into shagreen.

SQUATAROLA. An appellation by which the Venetians express the grey plover, or *pluvialis cinerea*.

SQUATINATORIA. A name given by some ichthyologists to the *rhinobatos*; a sea-fish of a middle nature between the monk-fish, the angel-fish, and the ray.

SQUATINA. An appellation sometimes given to a species of the *squalus*, the angel, or monk-fish.

SQUATUS. An ancient Roman name for the rhine of the Greeks.

SQUILACHI. An appellation given by the modern Greeks to the jackall, or *canis aureus*.

SQUILLA, OR SQUILL. A large genus of animals comprehending the shrimp, or *Squilla*, properly so called, the cray-fish, the crab, and the lobster; all which, according to Hill, constitute only one genus of insects, of the podaria kind. The characteristics of this genus are; that they have ten legs, the foremost pair cheliform, and made for pinching; that they have only two eyes; and that the tail is foliated.

The Squillæ, agreeable to the foregoing authority, may be conveniently arranged under three subdivisions; namely, the smaller long-tailed Squillæ, commonly called shrimps; the larger long-tailed Squillæ, or the lobster and cray-fish kind; and the short-tailed kind, called also *canceres*, or crabs. See SHRIMP, LOBSTER, and CRAB.

The following species belong to those properly denominated shrimps: the long-tailed Squilla,

with the snout ferrated above, and tridentated below, or the common shrimp; the long-tailed Squilla with a smooth snout, called the smooth-nosed shrimp; the long-tailed Squilla, with a soft tail, and the right claw largest, commonly called the hermit; the larger long-snouted Sea-Squilla; the smaller narrow-snouted Sea-Squilla; and the fresh-water small Squilla.

Of the second order of Squillæ, more usually denominated lobsters, or cray-fish, we have the subsequent species: the common lobster; the thick-horned, slender-bodied lobster; the short and broad-bodied lobster; the very long-bodied lobster; the small-bodied lobster; the great sea cray-fish; and the cray-fish with the snout ferrated above, and a single denticulation at the base; which last, though only three inches and a half in length, greatly approaches to the figure of the common lobster.

Of the Squillæ, more properly called cancers or crabs, there are the following species: the common large crab; the wart crab; the spider-crab, or long-legged, short-tailed Squilla; the king, or Molucca crab, called the Squilla clypeata; the rough-bodied, smooth-clawed Squilla, called cancer mæas; the smooth and long-clawed crab; the little squall crab; the little woolly crab; the thick-bodied duck crab; the very long armed duck crab; the very small-bodied, rough, long-armed crab; the lunar crab; the florid crab; the prickly and hairy long-armed crab; the great prickly long-armed crab; the short-bodied reticulated crab; the elliptic bodied crab; and the smooth long-legged crab.

SQUIRREL. A distinct genus of animals of the order of glires, and class of mammalia; the distinguishing characters of which are, that they have two cutting-teeth in each jaw, the upper in the form of a wedge, and the lower compressed: to which may be added, that they have four toes on the fore-feet, and five on the hinder; and long tails clothed with long hairs.

Linnæus has enumerated eleven species; the vulgaris, niger, cinereus, flavus, palmarum, getulus, striatus, glis, æstuans, volans, and sagitta.

The English word Squirrel is derived from Skia, Shade; and Oura, a Tail; because this animal carries it's tail in such a manner as to form an umbrella.

SQUIRREL, COMMON; the Sciurus Vulgaris of Linnæus. This animal is so well known as to require little description: but if any person was entirely unacquainted with it, some idea of it's figure might be conveyed to his senses by comparing it to a rabbit with short ears, and a very long tail. The ears are terminated by long tufts of hair; the colour of the head, body, tail, and legs, is a bright reddish brown; the belly and breast are white; the eyes are large, black, and lively; the fore-feet are strong, sharp, and well adapted to hold it's food; the legs are short and muscular; the toes are long, and divided to their origin; and the nails are sharp and strong.

This animal is compleatly formed for climbing, or clinging to the smallest boughs. The tail of the Squirrel is alone sufficient to distinguish it from every other animal, being extremely long, beautiful, and bushy, spreading like a fan; and, when thrown up behind, serves as a covering to the whole body. When erected, it answers the purpose of an umbrella in defending the little animal from the annoyances of heat and cold; and, when extended, is extremely service-

able in assisting it to take those prodigious leaps from tree to tree which afford so much amusement to spectators. It also answers another purpose: for we are assured by Kleim, Scheffar, and Linnæus, that when the Squirrel is disposed to cross a river, a piece of bark serves for it's boat, and it's tail instead of a sail.

The Squirrel is a beautiful little animal, that may be said to be only half savage; and which, on account of it's docility and innocence, merits our protection. It is neither carnivorous nor destructive. It's usual food consists of fruits, nuts, and acorns. It is cleanly, nimble, active, and industrious. It's eyes are sparkling; and it's whole physiognomy is marked with meaning. Like the hare and rabbit, it generally sits on it's hinder legs, using it's fore-paws as hands. It seldom descends to the ground, except during a storm; but continues leaping from one branch of a tree to another. It never leaves it's food to chance; but in summer secures in the hollow of some tree a vast magazine of nuts for winter provision, providently looking forward to that dreary season which shall strip the trees of the forest both of their fruits and foliage.

It's nest is generally formed among the large branches of some great tree, where they begin to fork off into small ones. After selecting a situation where the timber begins to decay, and a hollow may the more easily be made, the Squirrel begins by making a kind of level between the forks; and then bringing moss, twigs, and dry leaves, it interweaves them with so much art, that they are capable of resisting the most violent storm. This is covered up on all sides; and has only a single opening at top, just large enough to admit the little animal; and this opening itself is defended from the weather by a kind of canopy, fashioned like a cone.

The nest thus formed, with a very little opening above, is nevertheless very commodious and roomy below; soft, well-knit, and in every respect warm and comfortable. In this retreat the little animal brings forth it's young, shelters itself from the scorching heat of the sun, and from the inclemency of the winter, which it is still less capable of supporting than heat. It's store of nuts and acorns is seldom deposited in it's nest, but in some hollow of the tree, carefully piled up, and never touched but in cases of necessity. Thus a single tree serves both for a retreat and a storehouse; and, without quitting it during the winter, the Squirrel possesses all those enjoyments which it's nature is capable of receiving.

But it sometimes happens that the little mansion of the Squirrel is attacked by a potent and implacable foe: the martin searches out it's retreat, in order to secure it for her young; and after destroying the tenant, takes possession of his habitation, thus adding cruelty to injustice. However, this is a calamity which seldom happens: and, of all other creatures, the Squirrel leads the most frolicsome and playful life, being surrounded with abundance, and having but few enemies to dread.

These animals feel the natural desire early in the spring; when, as Pennant observes, it is very diverting to see a female feigning an escape from the pursuit of two or three males; and to observe the various proofs which they give of their agility, which is then exerted in full force. Nature seems to have been particular in her formation of these creatures for propagation: however, they seldom bring forth above four or five young at a time,
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and that only once a year. The period of their gestation is about six weeks; they are pregnant in the beginning of April, and bring forth about the middle of May.

The Squirrel never appears in the open fields, nor in the coppices or underwoods; but always keeps among the tallest trees, and avoids as much as possible the habitations of men. It is so extremely vigilant, that if the tree in which it resides be only touched at the bottom, it instantly takes the alarm, quits its nest, and flies off to another tree; and thus travels with the greatest ease along the tops of the forest, till it finds itself perfectly beyond the reach of danger: it then returns to its nest by paths utterly impassable by any other quadruped. It usually moves by bounds or leaps; passes with great facility from one tree to another at the distance of forty feet; and, when compelled to descend, runs up the side of another tree with amazing agility. It usually expresses its sense of pain by a sharp piercing note; but it has another note, not much unlike the purring of a cat, by which it testifies its pleasure or satisfaction.

Having already hinted at the Squirrel's mode of sailing, it may not be improper to give a more particular account of this singular exertion. When, in their progress, these animals meet with broad rivers or extensive lakes, which in Lapland are very numerous, they return into the neighbouring forest, as if by common consent, each in quest of a piece of bark, which, instead of so many boats, serves to waft them over. When all equipped, they boldly commit their little fleet to the mercy of the waves; every Squirrel being seated on its own piece of bark, and fanning the air with its tail. In this manner they frequently cross lakes several miles in breadth. But the little mariners are not always aware of the danger of their navigation; for though the water may be calm near the margin, it is generally more turbulent towards the centre: an additional gust of wind sometimes overtakes the whole navy, and a shipwreck of three or four thousand sail ensues. This dreadful catastrophe is considered as a lucky accident by the Laplanders on shore, who collect the dead bodies which are landed by the waves, feed on the flesh, and sell the skins at a good price.

The Squirrel is easily tamed, and becomes a very familiar animal. It delights in warmth; and will creep into a man's pocket, his sleeve, or his bosom. It is usually kept in a box, and fed with nuts; and amply compensates for the expence of its support by the agreeableness of its manner.

The common Squirrel inhabits Europe, North America, and the northern and temperate parts of Asia. A variety of it is found as far south as the isle of Ceylon. In Sweden and Lapland the colour changes to grey in the winter season. Black Squirrels are sometimes found in Russia and Lapland; and in many parts of England there is a beautiful variety with a milk-white tail.

SQUIRREL, CEYLON; the *Sciurus Zeylanicus* of Ray. This animal, which is about thrice the size of the common Squirrel, is not included in the Linnæan arrangement: however, Ray and Pennant are both very particular in its description; and therefore its existence is unquestionable. Its ears are tufted with black; its nose is flesh-coloured; its cheeks, legs, and belly, are of a pale yellow hue; its forehead, back, sides, and haunches, are black; and its tail is of a light grey

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colour, bushy, and twice the length of the body. In Ceylon, of which island it is a native, it receives the appellation of Dandoelana; and also Roekea, from the noise which it makes.

SQUIRREL, ABYSSINIA. This species, which was first described by Thevenot in his voyage to the East Indies, appears to be a variety of the Ceylonese Squirrel. It has a round flesh-coloured nose; the hair on the upper part of the body is of a rusty black hue; the tail is a foot and half long; the belly and fore-feet are grey; and the soles of the feet are flesh-coloured. Its size is three times as large as that of the common European species.

There seems also to be another variety of the Ceylonese Squirrel, rather than a distinct species, found in the island of Java, where it was discovered by Sparman.

SQUIRREL, BOMBAY. The ears of this species are tufted; the head, back, and sides, are of a dull purple-colour; the belly, and the lower part of the legs and thighs, are yellow; and the tip of the tail is orange-coloured. The length of the body, from the nose to the tail, is about sixteen inches; and the tail seventeen.

This animal, which is a native of Bombay, was originally described from a stuffed skin in the cabinet of Dr. Hunter.

SQUIRREL, RUDDY; the *Sciurus Erythræus* of Pallas. This species, which inhabits India, is somewhat larger than the common kind. The ears are slightly tufted; the colour above is yellow, mixed with dusky; and below, of a blood-colour inclining to tawny. The tail is slender, of the same colour, and marked longitudinally with a black stripe.

SQUIRREL, GREY; the *Sciurus Cinereus* of Linnæus. The hair of this animal is of a dull grey colour, mixed with black, and sometimes tinged with yellow; the belly and insides of the legs are white; the ears are plain; and the tail is long, bushy, and grey, with black stripes. It is about the size of a small rabbit; inhabits the sylvan parts of Northern Asia, North America, Peru, and Chili; and is extremely common in North America, where it does incredible damage to the plantations of maize, by running up the stalks and devouring the young ears. A reward of three-pence a head is allowed by the provinces for every one that is killed; and Pennsylvania alone is said to have paid in rewards the enormous sum of eight thousand pounds currency for those destroyed in one year.

These animals make their nests in hollow trees, and line them with moss, straw, and wool. They feed on maize, pine cones, acorns, and mast of all kinds. They dig holes in the ground, in which they deposit a large stock of provisions against the winter season. When in want of food, they descend from the trees, in order to visit their magazines; and, during the severity of winter, confine themselves to those subterraneous retreats for several days successively. They run up and down the trunks of trees, but seldom bound from branch to branch. In many particulars they imitate the manners of the common Squirrel; and are very easily tamed.

Buffon gives this animal the appellation of *Le Petit Gris*; and its furs, which are imported under the name of petit gris, are very valuable. Its flesh is also esteemed very delicate.

SQUIRREL, BLACK; the *Sciurus Niger* of Linnæus.

næus. This animal is sometimes entirely black; but generally marked with white on the nose, the neck, or the tip of the tail. It has plain ears; its tail is shorter than that of the grey Squirrel, but its body is nearly of an equal length. It is found in Asia, North America, and Mexico. Like the grey Squirrel, it makes great havock among the maize; and, like that animal, forms its nest in a hollow tree, and lays up a store of provisions against the winter season.

There is an obscure variety of this species found in Virginia, a specimen of which is preserved in the Leverian Museum.

SQUIRREL, HUDSON'S BAY. This species, which Pennant describes from a specimen in the Leverian Museum, inhabits the pine-forests of Hudson's Bay, and Terra Le Labrador. It has plain ears; and is marked along the middle of the back with a ferruginous line from head to tail. The sides are paler; and the belly is of a pale ash-colour, mottled with black. The tail, which is neither so long nor so bushy as that of the common kind, is of a ferruginous colour, barred with black; and, towards the tip, has a broad belt of the same colour. It is somewhat less than the European Squirrel in size.

SQUIRREL, VARIED; the *Sciurus Striatus* of some naturalists; and the *Coquallin* of Buffon. The nose and feet of this animal are of a pale red colour; the eyes are full; and the ears are plain. The ridge of the back is marked with a black streak; and each side with a pale yellow stripe, bounded above and below with a line of black. The head, body, and tail, are of a reddish brown hue; and the breast and belly are white.

These Squirrels inhabit the north of Asia, and are very numerous in the forests of North America. They never ascend trees, except when pursued, and have no other means of escape. They burrow under ground; and form their habitations with two avenues, that they may have access to the one should the other happen to be stopped up. These retreats are ingeniously contrived, in the form of a large gallery, with two branches on each side; and at the end of each branch a large chamber, which serves as a magazine for their winter provision. In one they deposit acorns; maize in another; hickory nuts in a third; and chestnuts, their most favourite food, in a fourth. If their stores hold out, they seldom stir from their apartments during the winter season; but if they are exhausted, they dig into cellars where apples are kept, or barns where maize is stored, and do incredible mischief. However, cats destroy them in prodigious numbers, and diminish the ill effects of their depredatory qualities.

These animals bite severely; and are so extremely wild, that it is hardly possible to tame them. Their skins are of very little value; but they are sometimes used for the linings of cloaks.

SQUIRREL, FAIR; the *Sciurus Flavus* of Linnæus. This animal is a native of the woods near Amadabat, the capital of Guzarat; and, according to Linnæus, is also found in South America. The body and tail are of a flaxen colour; the ears are rounded and plain; and the tail is also rounded. This species is much less than the common one.

SQUIRREL, BRAZILIAN; the *Sciurus Æstivans* of Linnæus. This creature inhabits Brazil and Guiana. Its ears are plain; and its tail is rounded. The head, body, and sides, are covered with soft dusky hairs, tipped with yellow; the throat

is cinereous; the inside of the legs and belly is yellow; and the belly itself is longitudinally divided with a white line, which commencing at the breast, is interrupted for a small space at the middle, and then continued to the tail. The length, from the nose to the tail, is eight inches and a quarter; and the tail is ten inches.

SQUIRREL, MEXICAN; the *Halmototli* of Fernandes; and the *Sciurus Rarissimus* of Seba. This species, which inhabits New Spain, is of a mouse-colour. The male is marked on the back with seven white lines, extending along the tail; and the female with only five. The tail of the male is divided into four parts at the extremity, though we are rather inclined to believe this to be an accidental quality; and the scrotum is pendulous, like that of a goat.

SQUIRREL, PALM; the *Sciurus Palmarum* of Linnæus. This species has plain ears; an obscure pale yellow stripe on the middle of the back; another on each side; and a third on each side of the belly. The rest of the hair on the sides, back, and head, is black and red, very closely mixed; that on the thighs and legs is more red; the belly is a pale yellow; the hair on the tail does not lie flat, but encircles it, and is of a dirty yellow colour barred with black.

According to Ray and Clusius, this species does not erect its tail, like other Squirrels; but has the faculty of expanding it sideways.

SQUIRREL, BARBARY; the *Sciurus Getulus* of Linnæus. This creature is a native of Barbary and other warm countries, where it lives in trees, especially palms. It has full black eyes, with white orbits; the head, feet, body, and tail, are cinereous, inclining to red; the sides are longitudinally marked with two white stripes; the belly is white; and the tail is bushy, regularly marked with shades of black, one beneath the other. It is equal to the common Squirrel in size.

SQUIRREL, PLANTANE. This species, which is found in Java, nearly resembles the common kind, except that it is lighter-coloured, and has a yellow line extending along the sides from leg to leg. It generally lives on plantane trees, and hence has received its appellation.

SQUIRREL, WHITE-NOSED. This animal is somewhat larger than the grey Squirrel. It is a native of the Floridas; and is principally distinguished from others of the same genus by having a white nose. Its eyes are of a chestnut-colour; and its ears are white, their extremities being terminated by long hairs. The back, breast, belly, thighs, and legs, are of a velvet black hue; the feet are white, intermixed with dusky brown hairs; and the tail is very bushy and black, with a white tip.

SQUIRREL, SAILING; the *Sciurus Sagitta* of Linnæus. This animal has a small round head; small blunt ears; a short neck; a cloven upper lip; and two small warts at the exterior angle of each eye, with hairs proceeding therefrom. It has four toes on the fore-feet; and, instead of a thumb, a slender bone, two inches and a half long, lodged under the lateral membrane, which serves to expand it. From thence to the hind legs extends the membrane, which is broad, and a continuation of the skin of the sides and belly. It has five toes on the hind feet, with a sharp claw on each. The tail is covered with long hair, horizontally disposed. The colour of the head, body, and tail, is a bright bay, inclining to orange

in some parts; and the breast and belly are of a yellowish white. The length, from the nose to the tail, is about eighteen inches; and the tail is fifteen.

This species inhabits Java, and some other Indian islands; leaps from tree to tree with amazing velocity; and catches hold of the boughs with its tail.

These animals vary much in size. Linnæus describes one about the magnitude of the common Squirrel; and Sir Edward Michelbourne killed one, in an Oriental isle, that was larger than a hare. Nieuhoff describes this creature under the appellation of the flying-cat.

A variety of this kind is found near Severn River, in the southern parts of Hudson's Bay.

SQUIRREL, FLYING; the *Sciurus Volans* of Linnæus. This little animal, which is frequently imported into England, is considerably less than the common Squirrel. Its skin, which is very soft, is elegantly adorned with a dark fur in some parts of the body, and a light grey in others. It has round naked ears; large prominent sparkling eyes; and very sharp teeth, with which it gnaws any substance very expeditiously. It has a lateral membrane, extending from the fore to the hind legs; and its tail is covered with long hair, horizontally disposed. When it does not leap, its tail lies close on its back; but when it is inclined to exert its powers, its tail moves backwards and forwards from side to side.

This animal will dart twenty yards from one tree to another, at a single bound: but it sinks considerably before it can reach the place it aims at; and, apparently sensible of this, it mounts the higher in proportion to the distance it intends to reach. It is assisted in this spring by a very peculiar formation of the skin or membrane which extends from the fore feet to the hinder; so that, when it stretches its fore legs forward, and its hind legs backward, this skin is extended between them, somewhat after the manner of the bat. Thus the little animal keeps buoyant in the air till the force of its first impulse is spent; but, as it is incapable of renewing it, a speedy descent is inevitable. The Flying Squirrel, however, does not move like a bird, by repeated strokes of its wings; but rather in the manner of a paper-kite, supported by the expansion of the surface of its body, which renders it specifically lighter than it otherwise would be.

This animal inhabits North America and New Spain. A variety, differing chiefly in colour, is also found in Lapland, Finland, Poland, and Russia. Like the common Squirrel, it is usually seen on the tops of high trees; but, though better calculated for leaping, it is of a more torpid disposition, and seldom exerts its powers: it therefore frequently becomes the prey of the martin and pole-cat. It does not appear fond of almonds and nuts, like most other Squirrels; but its favourite food consists of the sprouts of the birch, and the cones of the pine. Though easily tamed, it embraces the first opportunity of deserting. When domesticated, it is fed with bread and fruits; and generally sleeps by day, though more sprightly and agile by night.

These creatures usually produce three or four young at a time.

SQUIRREL, HOODED; the *Mus Volans* of Linnæus. This species is a native of Virginia; and, according to Seba, has the lateral membrane beginning at the chin and ears, and extending, as in

the Flying Squirrel, from the fore to the hind legs. It is of a reddish colour above; cinereous, and tinged with yellow, beneath. Its ears are large and oval.

STAG, OR RED DEER, OR HART; the *Cervus Elaphus* of Linnæus. A species of deer, with long upright horns, much branched; and slender, sharp brow-antlers.

The Stag is generally of a reddish brown-colour, with some black about the face; and a black list down the hind part of the neck, and between the shoulders. It is common to Europe, Barbary, the north of Asia, and North America. It proves furious and dangerous in rutting-time, which is in the month of August. The flesh is rank and coarse; the skin is adapted for many useful purposes; and the horns yield hartshorn.

STAG-BEETLE; the *Lucanus Cervus* of Linnæus. *Lucanus*, according to this great naturalist's distribution, is a genus of the coleoptera order of insects: the characters of which are; that the antennæ are elevated; and the maxillæ extended, exerted, and dentated. It comprehends seven species; one of which is the Stag-Beetle; or *cervus volans*.

STAG-WORMS. A species of Worms discovered by Reaumur, which originate from the eggs of a fly, and are lodged behind and under the palate of the deer's mouth. These Worms are always found in considerable numbers together; contained in fleshy bags, placed as the almonds of the ears in the human species. Huntsmen are well acquainted with their existence; and are of opinion that they occasion the falling off of the creature's horns; but this is a vulgar error.

Reaumur has sufficiently proved that these Worms remain where they are first found, till they arrive at a state to change into flies; to whose eggs they owe their origin, and whose forms they at last assume.

STANNEL. An English appellation for a species of hawk; more commonly called the kestrel.

STAPHYLINUS. A genus of the coleoptera order of insects. The characters of which are: the antennæ are slender and filiform; the elytra are dimidiated; the alæ are covered; and the tail is simple, projecting two oblong vesicles.

Linnæus enumerates twenty-six species, distinguished from each other by the colour of the several parts of the body.

STAR-FISH, ASTERIAS, OR STELLA MARINA. A genus of naked insects, in form of a radiated star. The mouth is situated in the centre, on the under part; and the anus in the centre, on the upper part. The tentacula are extremely numerous, and in a manner cover either the whole upper surface of the body, or the extremities of the ramifications.

This genus contains a great variety of species, which are distinguished according to the number of their rays. Their sizes are also extremely different: for the largest, or great Magellanic Star-Fish, forms a circle of three feet in diameter when its rays are fully extended; while there are some less than one inch in diameter.

According to the Linnæan distribution, the Star-Fish, Sea-star, or *Asterias*, is a genus of the mollusca order of worms: the characters of which are; that the body is depressed, covered with a coriaceous coat, and furnished with tentacula; and that the mouth is in the centre, and has five valves.

Linnæus has enumerated sixteen species of this genus:

genus: one of which, or the moon *Asterias*, is entire; nine are stellated; and six are radiated.

The common Star-Fish, the *Asterias Glacialis* of Linnæus, with five heptagonal rays, and prickly angles, is frequent in the British seas, where it feeds on oysters, and is sometimes very destructive to the beds.

The arborescent Star-Fish, or *Stella Arborescens*, the *Caput Medusæ* of Linnæus, is a very singular curiosity. It is described as being upwards of a foot in diameter, and having its mouth in the middle. The figure of the trunk is pentangular; and from the five angles arise as many branches, which subdivide into several others, and those again into other lesser ones, till the last are scarcely thicker than horse-hairs, and amount to upwards of a thousand in number. In swimming, this animal spreads all its branches, like a net, to their full length; and whenever it perceives any prey inclosed, draws them in again, and seizes it with all the dexterity of a fisherman.

For a description of some of the most curious *Asteriæ*, see *ASTERIAS*.

STAR-GAZER. An English appellation for the *uranoscopus*, a fish frequently caught in the Mediterranean seas. It is about nine inches in length; and has a large head, of a quadrangular figure, rough and bony. The body is roundish; the upper part is of an ash colour; and the belly is white. The scales are small; and the lateral lines behind the fin approach each other, and descend to the middle caudal fin. The face is flat; and the eyes (which look upwards, and from whence the fish derives its name) are near each other, small, protuberant, and encircled with golden irides. The mouth is pretty large; and the chin somewhat resembles the human. The jaws and palate are armed with teeth; and the lower lip is fringed with barbs. The whole face, and the covers of the gills, are very rough, being beset with warts and prickly tubercles.

STARLING, OR STARE. A distinct genus of birds of the order of *passeres*: the characters of which are; that the beak is subulated, depressed, and obtuse; that the upper mandible is entire, with spreading margins; that the nostrils are guarded above by a prominent rim; and that the tongue is sharp. Linnæus enumerates five species.

STARLING, COMMON; the *Sturnus Vulgaris* of Linnæus. This bird is about the size of the black-bird; the weight of the male being about three ounces, that of the female somewhat less. The bill, in old birds, is yellow; the whole plumage is black, very resplendent, with changeable blue, purple, and copper; each feather being marked with a pale yellow spot. The lesser coverts are edged with yellow, and slightly glossed with green; the quill-feathers and tail are dusky, the former edged with yellow in the exterior side, the last with dirty white; and the legs are of a reddish brown hue.

These birds breed in hollow trees, eaves of houses; towers, cliffs, and high rocks impending over the sea. They lay four or five eggs of a pale greenish ash-colour; they feed on worms and insects; and it is said that they will enter pigeon-houses, and suck the eggs. In the winter season they assemble in large flocks. Their flesh is extremely bitter, and unpalatable; but, from the facility with which they are tamed, and even taught to speak, they prove entertaining domestics.

STARLING, INDIAN, YELLOW; the *Oriolus* of Linnæus. A bird described by Edwards, and brought from Bengal in the East Indies. The bill resembles that of the common Starling; the irides are hazel-coloured, encircled with yellow; and the pupils are black. The forehead, from the bill to the eyes, is of a bright yellow colour; and round the eyes the feathers are dusky. The top, the hinder part, and the sides of the head under the eyes, are black. The throat, just below the bill, is whitish; and the breast is of a light yellow colour; but the belly, thighs, and coverts, are of a deeper yellow; and the throat and breast have long, black, or dusky spots, down the shafts of the feathers. The upper side of the neck, the back, rump, and coverts on the upper side of the tail, are of a full bright yellow colour; but the greater quills of the wings are dusky, with yellow edges on their exterior webs; and all the coverts on the upper sides are yellow, with dusky spots in their centres. The middle feathers of the tail are dusky, with a yellow cast, and yellow tips; and the legs and feet are also dusky.

STARLING, INDIAN, BLACK AND WHITE; the *Sturnus Contra* of Linnæus. This species is a native of the East Indies, particularly of the province of Bengal. It has a sharp-pointed bill, pretty thick at the base, a little incurvated downwards, and of a yellowish orange colour. The forehead, next the base of the bill above, is white; which colour extends from the base of the upper chap all round the eyes, forming a white plat round the eye, from which a narrow white line passes from eye to eye round the back part of the head; but the top of the head, the throat, and the neck, are black, with a greenish gloss. The back, rump, wings above, and tail, are blackish; the ridge of the wing next the breast is whitish; and the exterior edges of the great quills are of a lighter brown hue than the other parts. The row of covert-feathers next above the quills have white tips; and the breast, belly, thighs, and coverts beneath the tail, are white. A brownish white line runs on the sides of the upper part of the breast, forming a ring round the lower parts of the neck behind; and the legs and feet are of a reddish brown colour.

STARLING, SILKY. This beautiful bird is a native of China. It is about the size of the common Starling: the bill is of a deep orange colour; the head is of a yellowish white; and the body is entirely of a fine pale grey colour, of a glossy and silky appearance. The wings are black, with a single bar of white; the tail is also black; and the legs are of a reddish yellow hue.

STARLING, RED-WINGED. This species, which is a native of North America, weighs between three and four ounces. It is entirely of a dark grey colour, almost blackish, except that part of the wings next the neck, on which there is a large roundish space of red, reaching to the very edges; but below there is a broad yellow stripe. The hen has a lightish mixture of grey; and the red on her wings is less bright.

These birds form their nests among the reeds, the tops of which they artfully interweave, and fill their nests under the web, safe from the water below and the wet above. They destroy prodigious quantities of corn, in proportion to their size; but they are capable of being tamed, and taught to speak.

STARLING, INDIAN; the *Sturnus Indicus* of Ray and

and Bontius. This beautiful bird is about the size of our common Starling. It is variegated with a deep blue, a lead colour, and a pale grey; and its head is adorned with a beautiful yellow crest. It learns to imitate the human voice; and even talks, with more distinct articulation than the parrot.

STEINBIZA. An appellation by which some ichthyologists express that small species of the cobitis, more usually denominated cobitis aculeata, and tænia cornuta. Artedi calls it the cobitis with a forked spine under each eye.

STEINHUN. A name given by the German ornithologists to a bird of the lagopus kind, more commonly known by the appellation of otomo. It differs very little from the lagopus in any thing but colour; and as that bird is known to vary its plumage in the summer months, it is probably the same.

STELLA CRINITA. A Linnæan appellation for a genus of star-fish: the characters of which are; that they have more than five rays; and from these proceed several other lateral processes, which are covered with a fine down or hair.

STELLA MARINA. A name by which some express the asterias, or star-fish.

STELLA ARBORESCENS. A curious species of star-fish. See **ASTERIAS ARBORESCENS.**

STELLA SCOLOPENDROIDES. An appellation by which Linkius and some others express a species of star-fish, with an undivided body, and five rays, resembling the bodies of the scolopendræ; as those of the more usual kinds, called stella lumbricalis, do the bodies of common earth-worms.

STELLA VERMIFORMIS. A name sometimes used for the common star-fish, with five rays parting from the body, each resembling a large common worm.

STELLIO. A term whereby the creature otherwise called a swift, or spotted lizard, is frequently expressed. The spots, however, which distinguish this kind, are not stellated, as might naturally be inferred from the name, but round; some small, and irregularly scattered over the body; and others larger, and disposed in thirteen zones, or semicircles. The spots on the back are much more distinct than those on the belly.

This animal is common in Syria, and some other countries. Its bite is said to inspissate the humours, and stupify the senses: to remedy which, Venice treacle and volatile salts are recommended. The flesh is said to excite sweat, and resist poison. See **EFT.**

STERCORARIUS PISCIS, the Dung-Fish. An Oriental fish, so called from its frequenting necessary houses erected over the water, and other places where ordure is to be found. The nature of its food has raised unfavourable opinions of the salubrity of its flesh; however, it is really well-tasted and wholesome.

This fish is broad and thin; about six or seven inches in length, and as many in breadth. Its back is variegated with spots of deep brown; and its belly is blueish.

STERNA. A genus of the order of anseres in the Linnæan system. Its characters are; that the bill is toothless, subulated, straight, acute, and a little compressed on the sides; the nostrils are linear, and situated at the base of the bill: to which may be added, that the tongue is slender and

sharp; the wings are very long; the tail is forked; and there is a small back toe. Linnæus enumerates seven species, some of which are referred by other naturalists to the genus of gull.

STICKLEBACK. An English appellation for the small fish denominated by different authors spinachia, spinax, pungitius piscis, pisciculus asper, and pisciculus aculeatus; and by Artedi called by the more expressive name of Gasterosteus, denoting the great singularity which appears in the bony structure of its belly. There are several species.

STICKLEBACK, COMMON, OR THREE SPINED; the Gasterosteus Aculeatus of Linnæus. This fish is properly distinguished by having three spines on its back, in which character it differs from the other species of this genus. It is a very common fish, abounding particularly in new dug ditches, where its origin cannot easily be traced. Hence the vulgar opinion, that it breeds there equivocally and of itself, without the assistance of parents of its own kind, and that from it all other fishes originate.

This creature seldom grows to the length of two inches. The eyes are large; the belly is prominent; the body near the tail is square; and the sides are covered with large bony plates, placed transversely. On the back there are three sharp spines, capable of elevation or depression at pleasure; the dorsal fin is placed near the tail; the pectoral fins are broad; the ventral fins consist each of one spine or plate, of unequal lengths; between both there is a flat bony plate, reaching almost to the vent; and beneath the vent there is a short spine, and then succeeds the anal fin. The tail consists of twelve rays, and is even at the end. The colour of the back and sides is an olive green; the belly is white; but, in some, the lower jaw and belly are of a bright crimson.

These fishes are extremely plentiful in the fens of Lincolnshire, and some of the rivers rising from them. Once in seven or eight years, amazing shoals of them appear in the Welland, near Spalding, ascending the river in the shape of a column. These are supposed to be the multitudes which have been washed out of the fens by the floods of several years, and collected in some subterraneous retreat, till, overcharged with numbers, they are compelled periodically to seek a change of place. The quantity of Sticklebacks is so immense on these occasions, that they are used in manuring the land; and experiments have been made to get oil from them.

STICKLEBACK, LESSER, OR TEN SPINED; the Gasterosteus Pungitius of Linnæus. This fish is much smaller than the common kind, and of a more slender make. The back is armed with ten short sharp spines, crossing each other; the sides are smooth, not plated, like those of the common kind, which in other respects it resembles; the colour of the back is olive; and the belly is silvery.

STICKLEBACK, FIFTEEN SPINED; the Gasterosteus Spinachia of Linnæus. This species is about six inches long; the nose is long and slender; the mouth is tubular; and the teeth are small. The fore part of the body is covered on each side with a row of bony plates, forming a ridge; the body afterwards becomes very slender, and quadrangular; between the head and dorsal fins there are fifteen small spines; the dorsal is placed opposite the anal fin; the ventral fins are wanting; the tail is even at the extremity; the colour of the upper

upper part is a deep brown; and the belly is white.

This species inhabits the sea, and is never found in fresh waters.

STINT; the *Tringa Cinclus* of Linnæus. A small bird which frequents the sea-shores of many parts of England; apparently the same with the *Cinclus Prior* of Aldrovandus, and the *Alouette de Mer*, or sea-lark, of the French, called by Pennant the *Purre*.

This bird is somewhat smaller than the common lark, and in shape resembles the smaller snipe. The beak is black, slender, and straight; the legs are of a dusky green colour; the head, and the hind part of the neck, are ash-coloured, marked with dusky lines; a white stroke divides the bill and eyes; the chin is white; the under side of the neck is mottled with brown; and the back is of a brownish ash-colour. The breast and belly are white; the coverts of the wings and tail are dark brown, edged with light ash-colour or white; the greater coverts are dusky tipped with white; the upper parts of the quill-feathers are dusky, the lower white; the two middle feathers of the tail are dusky; and the rest of a pale ash-colour, fringed with white.

These birds resort to our coasts in prodigious flocks during the winter season, and in their flight perform a number of evolutions with great regularity. They leave our shores in the spring, and retire to some unknown place, for the purpose of breeding. They were formerly much esteemed at the tables of the voluptuous.

STIP VISCH. A Dutch appellation for an East Indian fish with two dorsal fins, the anterior of which is prickly. Its skin is spotted; and its flesh is very delicate and well-tasted.

STOAT. A name by which some naturalists express the ermine, the *Mustela Erminea* of Linnæus. See **ERMINE**.

STOCK-DOVE. See **PIGEON**.

STOCKER. A German appellation for the saurus of the ancient, and the trachurus of modern naturalists. It is a species of scomber, well known in England by the name of the horse-mackerel. See **MACKEREL**.

STOMATIA. A genus of shell-fish, frequently confounded with the haliotis, or ear-shell.

The shell of the *Stomatia* is formed of one piece; and is of a depressed flat figure, without any perforations in any part of its surface. Its mouth is the most patent of all the univalve shells, the limpet only excepted.

There are several species of this genus, which are borrowed from Hill's distribution.

STOMPNEUSEN. An African fish, caught near the Cape of Good Hope; so called from the fore part of the head being flat. The scales are large, and of a purple colour; the eyes are full; and the teeth are round and sharp.

STONE-CHATTER; the *Motacilla Rubicola* of Linnæus; called also the *Rubetra* and *Muscicapia*; and in some places the *Stone-Smich*, and *Moor-Titling*.

This bird is common on heaths and gorsy grounds in summer; and during winter takes up its residence in marshes, and other damp places; but never quits the island. It is a restless and noisy creature, frequently perching on some bush, and chattering incessantly. The head, neck, and throat, are black, but on both sides of the latter there is a white bar; the plumage on the back is edged with tawny; the lower part of the back,

just above the rump, is white; the end and exterior side of the two outmost feathers of the tail are of a pale rust-colour, and the rest are black. The breast is of a deep reddish yellow colour; the belly is of a lighter hue; the quill-feathers are dusky, edged with pale red; those next the body are marked with a white spot near their bottoms; and the coverts of the wings are adorned with another. The head of the female is ferruginous, spotted with black; and the colours in general are less vivid. In both sexes, the legs are black.

STONE CURLEW. An English appellation for the *Charadrius Œdicnemus* of Linnæus; the *Thick-Kneed* of Pennant. See **THICK-KNEED**.

STONE-SMICH. A provincial appellation for that species of the *œnanthe* more usually denominated the *Stone-Chatter*. See **STONE-CHATTER**.

STONE-SUCKER. See **PETROMYZON**.

STOPPAROLD. A bird of the *alauda* kind, described by Aldrovandus; and supposed by Ray to be the same with the *Spipoletta*, or *Tordino*, of the Venetians. It is synonymous with the *Muscicapâ Grifola* of Linnæus. See **FLY-CATCHER**.

STORK. A bird of the heron kind; of which there are several species, or rather varieties, as the principal difference is in colour.

STORK, COMMON; the *Ardea Ciconia* of Linnæus. This bird is larger than the common heron, but its neck is shorter and thicker. Its head, neck, breast, and belly, are white; its eyelids are naked; its rump, and the exterior feathers of its wings, are black; its tail is white; its beak is long, and reddish; and its legs are of the same colour.

On a transient view, the Stork might be confounded with the crane. It is of the same size; and has the same conformation as to the bill, neck, legs, and body; but it is rather more corpulent. The Stork, however, possesses distinctions in its manners by which it is easily discriminated from the crane. The latter has a loud piercing voice; the former is silent, and makes no other noise than what is produced from the clacking of its under chap against the upper. The crane feeds chiefly on vegetables and grain; the Stork preys entirely on frogs, fishes, birds, and serpents. The crane carefully avoids cities, towns, and other populous places; the Stork lives always either in or near them. And, lastly, the crane lays but two eggs; whereas the Stork generally lays four.

Storks are birds of passage; but it is difficult to determine whence they come, or whither they go. When about to leave Europe, they assemble together on some particular day, and never leave one of their company behind them. They take their flight during the night; which is probably the reason why their course has never been ascertained. They generally return to Europe about the middle of March, and make their nests on the tops of chimnies and houses, as well as in high trees. They are a whole month in hatching; and, when their young are excluded, they shew a particular concern for their safety.

As the food of these birds consists in a great measure of frogs and serpents, it need not appear surprising that different nations have paid them a species of veneration. The Dutch are very solicitous for the preservation of the Stork, in every part of their republic. This bird seems to have taken refuge among their towns. It builds on the tops of their houses without the least molestation;

tion; and is seen resting familiarly in their streets, where it is protected as well by the laws as the prejudices of that people. They have even adopted the idea that it will live only in a republic; and the story of it's filial piety, first propagated of the crane, though without foundation, has in part been ascribed to the Stork. But it is not in republics alone that the Stork is known to reside, as there are few towns on the Continent in low, marshy situations, that have not this bird as an inmate among them.

The Stork appears to be a general favourite among the moderns; but the ancient Egyptians carried their regard to it even to adoration. This enlightened people, who worshipped the Deity in his creatures, paid divine honours to the ibis, as is universally known; and it has been usually supposed that the ancient ibis was the same with that which at present goes by the same name, a bird of the Stork kind, about the size of the curlew, entirely black, with a strong bill, terminating in a sharp point, for the better seizing it's prey, namely, locusts, serpents, and caterpillars.

But however beneficial the modern ibis may have been in ridding Egypt of the vermin and venomous animals with which it is infested, it is questionable whether this be the same ibis to which the ancients paid their adoration. Maillet, the French consul at Cairo, observes, that it is very difficult to determine with certainty what bird the ancient ibis was, because there are cranes, Storks, hawks, kites, and falcons, which are all equally inimical to serpents. He adds, that in the month of May, when the winds begin to blow from the internal parts of Africa, several sorts of birds descend from Upper Egypt, from whence they are driven by the heavy rains in search of more commodious habitations; and that then they render this country such signal services.

Nor does the figure of this bird, hieroglyphically represented by the Egyptians in their sculptures, sufficiently mark it to make the distinction obvious. Besides, the modern ibis is not peculiar to Egypt, as it is to be seen there only at particular seasons; whereas Pliny informs us that this bird never migrated to any other part of the world. It is therefore conjectured, with most appearance of probability, that the true ibis is a bird of the vulture kind, called by some the Capon of Pharaoh.

The white Stork is sometimes seen on the English coasts; but it never breeds in this island.

STORK, BLACK; the *Ardea Niger* of Linnæus. This is the modern ibis of Egypt. It is somewhat smaller than the white Stork: the head, neck, back, and wings, are black, with a greenish cast; the eye-lids are naked; the breast, belly, and sides, are white; and the beak and legs are green.

STORK, AMERICAN. This bird is of the shape and size of the common Stork, and partly of the same colour. The feet are red; and the tail is short and white. The head, neck, and whole body, are covered with a snow-white plumage, as are also the wings at their beginnings; but near the back they are black, with a shining greenish gloss. The bill, from the base to the middle part, is of a greenish yellow hue; but the remainder is of a blueish ash. It snaps with it's bill like the common Stork.

STORM FINK, OR LITTLE PETREL; the *Porcellaria Pelagica* of Linnæus. This bird is somewhat larger than the common sparrow; and

entirely black, except the coverts of the tail and the vent-feathers, which are white. The bill is hooked at the extremity; the nostrils are tubular; and the legs are long and slender. It possesses the same faculty of spouting oil from it's bill as the other species of Petrels; and skims along the surface of the water with remarkable rapidity.

When large flocks of these birds make their appearance, the mariners prepare against a storm, which they know by experience is never far off.

STRAPAZINO. An Italian appellation for a bird of the wheat-ear kind, with a white rump and tail, and a brownish yellow head and back. It's wings are variegated with black and yellow; it's beak is of a brownish yellow colour; and it's throat, breast, and belly, are of a yellowish white.

STREPSICEROS. An appellation given by Ray to the Cretan sheep. See **SHEEP**.

STRILLOZZO. A name by which the Italians express the *emberiza alba*, or bunting. However, some are of opinion that the Strillozzo specifically differs from our bunting.

STRIVALE. An appellation given by some ichthyologists to the aper, or boar-fish.

STRIX. A classical name for the screech-owl. See **OWL**.

STROMBUS. A genus of shells nearly allied to the *buccina*, and called turbo by the generality of conchologists.

In the Linnæan system, the Strombus is a genus of the testacea order of worms: the characters of which are; the inclosed animal is a slug; the shell is univalve and spiral; the opening is much dilated; and the lip expanded, and terminating in a groove. Linnæus enumerates twenty-three species.

Pennant mentions only one species, viz. the *pes pelicani*, or cormorant's foot, found on the British shores.

STROMLINGUS. An appellation given by some ichthyologists to the aras of the Greeks, which appears to be synonymous with our common herring.

STRUNTJAGGER. A name by which some ornithologists express the Arctic-bird, or *Larus Parasiticus* of Linnæus. It is a species of gull abounding in the Hebrides and Orkneys, with a dusky hooked bill, and narrow nostrils. In the male, the crown of the head is black; the back, wings, and tail, are dusky; the hind part of the neck and the lower side of the body are white; the tail is composed of twelve feathers; and the legs are black, small, and scaly. The female is entirely brown.

These birds pursue the lesser gulls till they mute through fear; when darting after their excrements, they catch them before they reach the water; and hence are sometimes called dung-hunters.

STRUTHIO. See **OSTRICH**.

STRUTHIOPTERI. A term by which some writers on the insect class express a series of flies, which never feed on flesh, but are always found on flowers and the leaves of plants. There are several species of this kind; and in general they are early flies, appearing in the vernal season.

STURGEON; the *Accipenser Sturio* of Linnæus. This fish belongs to that class which some ichthyologists term *anadromi*, from it's spending part of it's time in the sea, and part in rivers. It grows sometimes to the prodigious size of eighteen feet, and to the weight of five hundred pounds; but seldom attains that magnitude in our

rivers. The nose is long, slender, and pointed; the eyes are small; the nostrils are placed near them; and there are four cirri in the lower part of the nose. The mouth, which is placed far beneath, is small, destitute of teeth, and unsupported with maxillæ; so that the mouth of a dead fish is always open, but when alive opened or closed at pleasure by means of certain muscles. The body is long, pentagonal, and covered with five rows of large bony tubercles; the whole under-side of the fish is flat; on the back, near the tail, there is a single fin; and there are also two pectoral, two ventral, and one anal fin. The tail is bifurcated, the upper part being much longer than the under. The upper part of the body is of a dirty olive-colour; the lower part is silvery; and the middle of the tubercles are white.

Sturgeons visit every country of Europe at different seasons. They annually ascend the largest rivers, in order to spawn; and propagate in amazing numbers. The inhabitants along the banks of the Po, the Danube, and the Wolga, make great profits of their yearly incursions up these respective streams, and have their nets prepared for their reception. Sturgeons are also daily exposed to sale in the markets of Rome and Venice; and are known to abound in the Mediterranean sea. Yet those fish which keep entirely either in salt or fresh water, are comparatively small. When the Sturgeon enjoys the vicissitude of fresh and salt water, it is then that it acquires an immense magnitude.

These much-esteemed fish frequently visit England. They are often accidentally taken in our rivers in salmon-nets; and particularly in such situations as are not very remote from the sea. The largest one perhaps ever caught in Great Britain, was taken in the Eske, (where they are frequently found) which weighed four hundred and sixty pounds.

North America also abounds with Sturgeons. During the months of May, June, and July, the rivers of that continent supply them in great abundance. They are then seen sporting in the water, and leaping to a considerable height above its surface. When they fall again on their sides, the concussion is so violent, that the noise, during serene weather, is heard at the distance of several miles.

But Sturgeons are by far the most plentiful in the lakes of Frischehoff and Curischaff, near the city of Pillau. In those rivers also that empty themselves into the Euxine Sea, these fish are caught in great numbers, particularly at the mouth of the Don. At each of these places the fishermen regularly expect their arrival from the sea, and have their nets and salt in readiness for their reception.

As the Sturgeon possesses no voracious qualities, it is never caught by a bait in the ordinary way of fishing, but always by means of the net. From the description already given of its mouth, it is not to be supposed that it would swallow any hook capable of detaining so large a bulk, and such an excellent swimmer. In fact, it never attempts to seize any of the finny tribe, but finds its subsistence at the bottom of the ocean, consisting principally of insects and marine plants. From this circumstance of grovelling at the bottom, its name seems to be derived; the German word *Stoeren* signifying, to wallow in the mud. That it feeds on no large animals, is sufficiently

obvious to those who have dissected it: for, on cutting it open, nothing is found in its stomach but a slimy substance; whence some have been induced to believe that it subsists entirely on air and water.

Nor is the Sturgeon more temperate in its appetites than timid in its nature. It would be almost impossible to catch it, did not its natural desire of propagation induce it to incur a variety of dangers. The smallest fish is sufficient to terrify a shoal of Sturgeons; for, being unprovided with any weapons of defence, they rely solely on their swiftness and circumspection. Like all other animals of harmless dispositions, they are gregarious; assembling rather for the purposes of pleasure than from any hope of mutual protection. Gesner asserts, that they are even delighted with sounds of various kinds; and that he has seen them shoal together at the sound of a trumpet.

The usual time (as already observed) for the Sturgeon to ascend rivers, in order to deposit its spawn, is about the beginning of summer, when the fishermen of most large rivers make a regular preparation for its reception. At Pillau in particular, the shores are formed into districts, and allotted to companies of fishermen; some of which are rented for about three hundred pounds sterling a year. The net in which the Sturgeon is caught is constructed with small cord, and placed across the mouth of the river; but in such a direction, that whether the tide ebbs or flows, the pouch of the net goes with the stream. The Sturgeon thus caught, while in the water, is one of the most powerful of the finny tribe, and often tears the net to pieces that encloses it; but, the instant its head is raised above water, all its activity and strength ceases; it then proves a lifeless, spiritless lump; and tamely suffers itself to be dragged on shore. It has, however, been judged expedient to draw this fish gently to land; for, when stimulated by any unnecessary violence, the legs of the fishermen are sometimes broken by a single flounce of its tail. The most expert fishers, therefore, when they have dragged it to the brink, keep its head still elevated, which prevents it from doing any mischief with the hinder part of its body: others, by a noose, fasten the head and tail together; and thus, without immediately dispatching it, carry it to market, should one happen to be at no great distance; or keep it till their number is completed for exportation.

The flesh of the Sturgeon, when pickled, forms a well-known delicacy at the tables of the great throughout Europe; and in England it is more prized than in those countries where it is oftener caught. Fishermen have two different methods of preparing it. The one is by cutting it longitudinally into slips; which being salted, are suspended in the sun, in order to dry: the fish, thus prepared, is sold in all the countries of the Levant, and supplies the want of better provision. The other method, which is usually practised in Holland, and along the shores of the Baltic, is that of cutting the Sturgeon transversely into short pieces, and pickling them in small barrels. This is the sort usually sold in England; and of which great quantities came from the North, till the importation of it from North America was encouraged.

The roes of these fish form a very lucrative branch of trade, under the name of caviar. This valued composition is formed of the roes of all kinds

kinds of Sturgeon, and in most European countries is extremely admired. In England, indeed, it is now seldom seen at the tables of the polite or the luxurious; but, among the Turks, the Greeks, and the Venetians, it is still a considerable merchandize.

Caviar sometimes resembles soft soap in consistence; but it is of a brown uniform colour; and is eaten, as cheese, with bread. It is made in the subsequent manner—The spawn is taken out of the fish; and the small connecting membrane being separated from it, they wash it in vinegar, and afterward spread it on a table to dry. They then put it into a vessel with salt, breaking the spawn with their hands, not with a pestle. This done, they put it into a canvas bag, permitting the liquor to drain from it. Lastly, they rub it in a tub that has holes in its bottom, so that every drop of moisture may be evacuated; and afterwards press it down, and cover it up close for use.

It is evident that the Sturgeon was known to the ancients; for the *Oniskos* of Dorion, as quoted by Athenæus, entirely agrees with this fish: but whether the *Accipenser* of Pliny and Ovid is synonymous with the Sturgeon, is a matter not easily determined. Both these writers represent it as a foreign fish; though it is well known to be found in the Mediterranean, and even in the mouth of the Tiber, at certain seasons.

The manner of the Sturgeon's breeding is an exception among cartilaginous fishes; being, like the bony fish, ovivorous, and spawning in winter.

STURNUS. See **STARLING.**

SUBBUTEO. A term by which some ornithologists express that species of hawk commonly denominated the ring-tail; the male of which has been supposed to be the hen-harrier. It is also called *pygargus accipiter*.

SUCKER. An appellation sometimes given to the remora.

SUCKER. A name for the cyclopterus, of which there are several varieties. The distinguishing characters of this kind are; that the body is thick, and the back arched; that the ventral fins are united; and that there are four branchiostegous rays.

SUCKER, COMMON, OR LUMP-FISH; the *Cyclopterus Lumpus* of Linnæus. This curious fish is about seven pounds weight, and nineteen inches long. The shape of the body resembles that of the bream, being deep, and very thick; the back is sharp and elevated; and the belly is depressed. The irides are of a red colour; the lips, mouth, and tongue, are of a deeper red; the jaws are lined with innumerable minute teeth; and the tongue is very thick. A row of large bony tubercles extends along the ridge of the back; from above the eye to within a small space of the tail, there is another row; beneath that a third, commencing at the gills; and on each side of the belly there is a fourth row, consisting of five tubercles like the other. The whole skin is beset with small tubercles. On the upper part of the back there is a thick ridge, which has improperly been called a fin, being destitute of spines; beneath that is placed the dorsal fin, of a brownish hue, reaching nearly to the tail; and on the belly, exactly opposite, there is another of the same form. The belly is of a bright crimson colour; the pectoral fins are large and broad, almost uniting at

their bases; and beneath these is the member by which it adheres to the rocks. This consists of an oval aperture, surrounded with a fleshy muscular and obtuse soft substance, edged with small threaded appendages, which concur as so many clasps. By means of this apparatus the animal adheres with amazing power to whatever it pleases. As a proof of its tenacity, a fish of this species, just caught, and thrown into a pail of water, has been known to fix itself so firmly to the bottom, as not to be disengaged from its hold, though lifted by the tail, together with the vessel and water over it.

These fish are very plentiful, during the spring quarter, on the coast of Sutherland, near the Ord of Caithness. The seals, which swarm at the bottom, prey greatly on them, leaving their skins pretty entire, numbers of which float ashore every season. It is easy to distinguish those situations where seals are devouring Suckers, or any other unctuous fishes, by the smoothness of the water immediately over the spot, occasioned by the great quantity of oil discharged from their bodies.

During the months of April and May, prodigious numbers of these fish are seen in the Greenland seas, to which they resort in order to spawn. Their roes are remarkably large; and on these the Greenlanders, after boiling them to a pulp, make a hearty meal. Their flesh likewise is extremely fat; which proves a powerful recommendation to the natives, who admire all oily food.

The Sucker is sometimes eaten in England, when stewed like carp; but it is neither firm nor well-tasted.

SUCKER, UNCTUOUS; the *Cyclopterus Liparis* of Linnæus. This fish is also called the sea-snail, from the soft and unctuous texture of its body, resembling that of the land-snail. It is almost transparent, and easily dissolves and melts away. It is generally found near the mouths of large rivers. The length is five inches; and the shape of the body is round, but compressed sideways near the tail. The colour, when fresh taken, is a pale brown, sometimes finely streaked with a darker hue. The belly is white, and very protuberant; the head is large, thick, and round; and the mouth is destitute of teeth, but the roughness of the jaws supplies their place. The orifice of the gills is very small; and the eyes are likewise small. The branchiostegous rays are six in number; and the pectoral fins, which are broad, thin, and transparent, almost unite under the throat. The first ray next the throat is very long, extending far beyond the rest; and is as fine as a hair. Over the base of each there is a sort of operculum, or lid, terminating in a point, which is capable of being raised or depressed at pleasure. Behind the head rises the dorsal fin, extending quite to the end of the tail; and the ventral fin begins at the anus, and unites with the other at the tail.

Beneath the throat of this fish there is a round depression of a whitish colour, like the mark of a seal, surrounded with twelve small pale yellow tubercles; by means of which it is probable the Unctuous Sucker adheres to stones, like the other species.

SUCKER, JURA. This species is sometimes found on the Cornish coast, but more frequently near the isle of Jura. Its length is about four inches. The skin is without scales, slippery, and of a dusky colour; the body is taper; the nose
grows

grows more slender from the head, and is rounded at the extremity. The ventral fins have four rays; and are joined by an intervening membrane with a similar depression, by means of which apparatus it adheres to stones and rocks.

SUCKER, BIMACULATED. This is a new species, which was discovered near Weymouth, and described by Pennant. The head is flat and tumid on each side; the body is taper; and the pectoral fins are placed unusually high. It has only one dorsal fin, placed near the tail; and the tail itself is even at the extremity. The colour of the head and body is a fine pink; that of the fins is whitish; and on each side of the belly there is a round black spot.

SUCKER, STONE. The English appellation for a genus of fish, more usually denominated *Petromyzon*. See *PETROMYZON*.

SUCKER, GOAT. A genus of the order of *passeres* in the Linnæan system. Its characters are these: the beak is slightly hooked, very small, subulated, and fluted at the base; the mouth is very wide, with several stiff bristles on the edge of the upper part; and the tongue is acute and entire. Linnæus enumerates two species, the European and American. In some of its characters, this genus bears a strong affinity to the swallow tribe; and hence Klein has ranked the common Goat-Sucker among swallows, calling it the swallow with an undivided tail. See *CHURN OWL*.

SUDIS; the *Eloz Sphyræna* of Linnæus. A name by which many ichthyologists express the sea-pike, or *lucius marinus*. This fish in some degree resembles the common river-pike, except that it is thinner in proportion to its length, approaching in that particular to the acus, or tobacco-pipe fish. The scales are small; the nose is long and conical; and the under jaw, which projects a considerable way beyond the upper, terminates in a sharp point. The tongue is large, narrow, and armed with small sharp teeth; each of the jaws is furnished with a single row of large and sharp teeth; in the middle of the lower jaw there is one tooth longer than the rest, which falls into a hollow in the upper jaw; and there are two dorsal fins, both deeply forked.

This fish usually measures about ten or twelve inches in length; and its flesh is much admired. It is generally found in the Mediterranean, where it swims in large shoals.

SUETA. An appellation by which Bellonius and some other ichthyologists express the *nafus*; a species of *cyprinus*, according to the Linnæan and Artedean systems; and distinguished by the name of the *cyprinus nafus*, with the snout standing prominent, in form of a human nose, and with fourteen rays in the pinna ani.

SUKOTYRO. An obscure Chinese animal, with very large horns, appearing to be the same with the carnivorous bull of Pliny and the ancients. It is said to be about the size of a large ox; its head is shaped like that of a hog; its ears are long and hairy; and its tail is bushy. On one side of the head, near the eyes, it has a large horn, resembling the ivory tusk of the elephant, but not quite so thick. Nieuhoff, who gives this account, adds, that it is rarely caught; and that it feeds on grass; but this observation may possibly have been made without foundation.

However, all that we know of this animal is gathered from a pair of horns, of an enormous size, formerly in the possession of Sir Hans Sloane,

and of which he transmitted an account to the Academy of Sciences at Paris.

The captain of an East India ship, on seeing these horns, assured Sir Hans, that they belonged to a large species of bull in the East, which he had seen, and which, by his account, seemed to be the same with the creature just mentioned, as described by the ancients; but as none of the modern naturalists have seen it, they in general consider it as a doubtful animal.

SULA. An appellation given by some ornithologists to a distinct species of the web-footed aquatic fowl, appearing to be synonymous with the Soland goose, or *anser bafanus*.

SUMMER FLY. This insect has a prominent palate; with two feelers on each side, twice as long as the body; and blueish black wings. The body is oblong, and of a dusky brown hue; but the legs are of a dusky greyish black. While in the worm state, it may frequently be seen at the bottom of clear brooks, hid in a case of straw; and, when transformed into a Fly, it quits the water, and flutters about its original place. Muffet mentions one species with four wings, of a brown colour; its body oblong; its tail forked; and its feelers short. However, there are a variety of species belonging to this kind; which leaves sufficient room for curious enquirers to increase the catalogue.

SUMMER TEAL. An appellation by which some authors express the smallest of all the duck kind; called *Anas Circias* by Gesner.

SUN-FISH. The *Tetraodon Mola* of Linnæus. In the Artedean system, this is a species of *ostracion*; and in all respects is a very singular creature. Its body is broad and short; and its hinder extremity is terminated by a circular fin, which serves it for a tail; so that it appears like the head of a large fish separated from its body. It is frequently two feet in length; and sometimes much exceeds that size, growing even to two hundred weight. It is destitute of scales; but is covered with a hard, harsh, rough skin. Its back is black; its belly is white; its sides are of an intermediate colour between both; and its back and belly terminate in a narrow edge. The mouth of this fish is very small in proportion to its size; and, when open, exhibits a circular appearance. The jaws are hard, and edged like a knife within: externally, they are very rough, as if beset with several rows of small teeth. The head does not in the least project from the rest of the body; the eyes are very small; and the gills consist of only two elliptic holes, covered with their proper membranes.

The flesh of this animal is very soft; all its bones are gristly and tender; and the skin, which adheres very firmly to the flesh, is separated with difficulty. It is caught in the Mediterranean, and sometimes in the British seas.

Pennant has described the Sun-Fish of Mount Bay, in Cornwall, under the appellation of the oblong drodon. In form, he says, it resembles the bream, or some deep fish cut off in the middle: the mouth, which is very minute, contains in each jaw two broad teeth with sharp edges; the eyes are small, having before each a semilunar aperture; the pectoral fins are also very small, and placed behind them; the dorsal and anal fins are situated at the extremity of the body; and the tail, which is narrow, occupies all that abrupt space between those two fins. The colour of the back

back is dusky and dappled; the belly is silvery; and between the eyes and the pectoral fins there are streaks pointing downwards. The skin is destitute of scales; and the flesh is uncommonly rank.

Care, says Pennant, must be taken not to confound this with the Sun-Fish of the Irish, which in all respects differs from it. The former, or Tetraodon Mola of Linnæus, which this ingenious naturalist calls the short drodon, differs from the other in being shorter and deeper; the back and anal fins are higher; and the aperture of the gills is not semilunar, but oval.

One of these fish, which weighed five hundred pounds, was taken, about fifty years ago, near Plymouth; and, on boiling a piece of it, in order to try how it would taste, it was found to be entirely converted, in the space of a few minutes, into a perfect jelly. This jelly, in colour and consistence, resembled boiled starch when cold, and had very little of a fishy flavour, but rather an agreeable taste: it stuck firmly to the lips and fingers, appearing remarkably glutinous; and as it is certain the ancients had no other glue than that made from fish, this jelly was tried, as to its sticking quality, both on leather and paper, and was found to answer as well as common paste; but, by some oversight, its adhesive qualities were not tried on wood.

It is probable, however, that a true ichthyocolla might be prepared by boiling down this jelly; and, when an opportunity occurred, which is by no means frequent in this country, it would certainly be worth while to make the experiment.

SURMULLET; the *Mullus Cirris Geminis* of Linnæus. This fish was highly valued by the Roman epicures, as may be sufficiently gathered from both Horace and Juvenal, who inveigh against the luxury and extravagance of the age in which they respectively lived. It resembles the *mullus barbatus* in many respects; but differs from it in being twice as big, and often caught of the length of twelve or fourteen inches. The fins are yellowish, having a slight blush of red mixed with that colour; the scales are large, broad, thick, and very firmly united to the flesh; and it has also three or four straight yellow lines, running down its sides, parallel with each other. It is caught in the Mediterranean and British seas, especially on the Cornish coasts; and is every where esteemed a great delicacy.

Pennant gives this fish the appellation of the Striped Surmullet; but expresses a doubt whether it is not a variety, as Gronovius apprehends, of the red Surmullet, or *mullus barbatus*.

SURO. An appellation by which some authors express the *trachurus*; a fish of the *cuculus* kind, bearing a strong resemblance to the mackerel in taste and shape.

SUS. See **HOG**.

SUS AGRESTIS. See **WILD BOAR**.

SUS PISCIS. An appellation by which some of the ancient Latinists express the capricus, or goat-fish of the moderns.

SWALLOW. A distinct genus of birds of the order of *passeres*. The characteristics are: that the beak is extremely small, a little bending, pointed, and depressed at the base; and that the opening of the mouth is extremely large. Ray gives the subsequent characters: the head is very large; the beak is very short; the mouth is very wide, and adapted for swallowing large insects,

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which are its proper food; the tail is long and forked; the eggs are white; and it is a bird of passage. Linnæus enumerates twelve species: of which four are natives of England; the *hirundo domestica*, or house-swallow; the *hirundo agrestis*, or martin; the *hirundo sparvia*, or sand-martin; and the *hirundo apus*, called the black martin, or swift.

The Swallow tribe may be all easily distinguished by the wideness of their mouths, which are always open when flying. They are equally remarkable for their short, slender feet, and the immoderate length of their wings.

The peculiar conformation of this tribe seems attended with a similar peculiarity of manners. Insects constitute their food, which they always pursue flying: in fine weather, therefore, when these animalcules are most likely to be abroad, Swallows are continually on the wing, pursuing their prey with amazing swiftness and agility. The smaller animals in general find their safety in winding and turning when they endeavour to avoid the greater: thus the lark eludes the hawk, and man the crocodile. Insects on the wing endeavour, in this manner, to avoid the Swallow. But Nature has admirably fitted this bird to pursue them through the shortest turnings: for, besides the uncommon length of its wings, it is provided with a long tail, which, like a rudder, instantly turns it in its most rapid motions.

When Spring begins to rouse the insect tribe from their annual state of torpidity; when the gnat and the beetle put off their earthly robes, and become denizens of the sky; the Swallow returns from its long migration beyond the ocean. At first, it seldom makes its appearance; and flies heavily and feebly; but, as the weather grows warmer, and the number of insects increases, it acquires additional activity and strength. A rainy season, indeed, by repelling the insects, stints the Swallow in its food; it is then observed to skim slowly along the surface of the ground, and frequently to rest after a flight of a few minutes: in general, however, it keeps on the wing, moving with extreme rapidity. When fair weather commences, the insect tribes feel the genial influence, and make bolder flights: the Swallows pursue them in their aerial journies, and often rise to imperceptible heights in the pursuit. Of the approach of foul weather, however, insects seem to have immediate intelligence; and, from the Swallows pursuing them near the earth, man is generally apprized of the change that will speedily ensue.

Among naturalists, three opinions have been formed and defended by their respective adherents with regard to the manner in which the Swallow tribes dispose of themselves after they have forsaken those countries which afforded them a residence in summer. Herodotus mentions one species which resides in Egypt the whole year; Prosper Alpinus, in his History of Egypt, asserts the same; and Mr. Loten, late governor of Ceylon, affirms that those of Java never migrate. These excepted, every other kind we have heard of observes a periodical migration or retreat. The Swallows of Norway, North America, Kamtschatka, the temperate parts of Europe, of Aleppo, and Jamaica, all agree in this one particular; of which natural historians furnish us with the most unquestionable proofs.

A defect of insect food on the approach of winter,

ter, in cold climates, appears to be a sufficient reason for the Swallow tribes quitting them: but since it is probable that the same cause does not subsist in warm countries, recourse should be had to some other plausible reason for their disappearing. Of the three opinions propagated by naturalists, the first seems to carry the greatest degree of probability along with it; namely, that they remove nearer the sun, where they can procure a continual supply of their natural food, and a temperature of air adapted to their constitutions. Mr. Adanson has proved beyond contradiction, that this is the case with respect to some species of American Swallows: they are often seen assembled in flocks innumerable, on churches, rocks, and trees, previous to their departure thence. And Mr. Collinson proves their return here in equal numbers, by two curious experiments of undubitable credit; the one communicated to him by Mr. Wright, master of a ship; the other by Sir Charles Wager; who both described what happened to each during their respective voyages. Their accounts being virtually the same, we shall only adduce that of Sir Charles Wager. 'Returning,' says he, 'in the spring of the year, as I came into soundings in our channel, a great flock of Swallows came and settled on all my rigging; every rope was covered; they hung on one another, like a swarm of bees; the decks and carvings were filled with them. They seemed almost famished and spent, and were only feathers and bones; but being recruited with a night's rest, took their flight in the morning.' This vast fatigue is an absolute proof that their journey must have been very long, considering the amazing swiftness of these birds: it is therefore probable they had crossed the Atlantic Ocean, and were returning from the shores of Senegal, or some other parts of Africa.

A gentleman named White, whose veracity appears unquestionable, in the year 1768 had an ocular proof of what may be reasonably supposed to amount to an actual migration of Swallows. Travelling very early, on the morning of Michaelmas-day, near the sea-coast; at the beginning of his journey he was surrounded by a thick fog; but, on a large wild heath, the mist began to break, and discovered to him numberless clusters of Swallows perched on the standing bushes, as if they had roosted there. As soon as the sun burst out, they were instantly on the wing; and, with an easy and placid flight, directed their course towards the sea; after which only a few stragglers were to be seen.

This rendezvous of Swallows, about the same time of the year, is observed by Pennant to be very common on the willows in the islets of the Thames; where, in less than half an hour, fifty dozen have been caught by torch-light.

The second opinion has the sanction of antiquity for its support. Aristotle and Pliny think that Swallows do not remove to any great distance from their summer habitations, but repose during winter in the hollows of rocks, and lose their plumage at that period. Many ingenious gentlemen have adopted the former part of their opinion; and several testimonies have lately been produced that some species at least have been discovered in a torpid state. The honourable Mr. Daines Barrington, a few years ago, communicated the following fact to Mr. Pennant, on the authority of the late Lord Belhaven—that num-

bers of Swallows have been found in old dry walls, and sand-banks, near his lordship's seat in East Lothian; not once only, but from year to year; and that, on being exposed to the warmth of a fire, they revived. This circumstance is confirmed by similar observations in different places of this kingdom, by persons of whose veracity it would be illiberal to doubt.

The subsequent account of some Swallows on the Rhine, by Mr. Achard, was communicated by Mr. Peter Collinson, and read before the Royal Society, in 1763.

'In the latter end of March,' says Mr. Achard, 'I took my passage down the Rhine to Rotterdam. A little below Basil, the south bank of the river was very high and steep, of a sandy soil, sixty or eighty feet above the surface of the water.

'I was surprised at seeing, near the top of the cliff, some boys, tied to ropes, hanging down, doing something. The singularity of those adventurous boys, and the business they so daringly attempted, made us stop our navigation to enquire into the meaning of it. The watermen told us, they were searching the holes in the cliff for Swallows or martins, which took refuge in them, and lodged there all the winter, till warm weather, and then they came abroad again.

'The boys, being let down by their comrades to the holes, put in a long rammer, with a screw at the end, such as is used to unload guns; and twisting it about, drew out the birds. For a trifle I procured some of them. When I first had them, they seemed stiff and lifeless. I put one of them in my bosom, between my skin and shirt; and laid another on a board, the sun shining full and warm on it; and one or two of my companions did the like.

'That in my bosom revived in about a quarter of an hour. Feeling it move, I took it out to look at it, and saw it stretch itself on my hand; but perceiving it not sufficiently come to itself, I put it in again. In about another quarter, feeling it flutter pretty briskly, I took it out, and admired it. Being now perfectly recovered, before I was aware, it took flight: the covering of the boat prevented me from seeing whither it went. The bird on the board, though exposed to a full sun, yet, I presume, from a chillness of the air, did not revive so as to be able to fly.'

Such is Mr. Achard's account; on which the following observations were made by Mr. Collinson.

'What I collect from this gentleman's relation is, That it was the practice of the boys annually to take these birds, by their apparatus, and ready method of doing it; and the frequency of it was no remarkable thing to the watermen. Next, it confirmed my former sentiments, that some of this Swallow tribe go away, and some stay behind in these dormitories all the winter. If my friend had been particular as to the species, it would have settled that point.'

We cannot withhold our assent from the above circumstances, though seemingly contradictory to the common course of nature in respect to other birds: and must therefore divide our belief respecting these two very different opinions; and conclude that some Swallows emigrate, while others take up their winter-quarters at home.

The third notion would be too chimerical and unnatural to merit the least attention, were it not that some of the learned have been credulous enough

enough to assert as fact what has the strongest appearance of impossibility; we mean, the relation of Swallows passing the winter under ice, at the bottoms of lakes, or lodged beneath the water of the sea at the foot of rocks. The first who started this romantic idea, was Olaus Magnus, archbishop of Upsal, who gravely informs us, that these birds are often found in clustered masses at the bottoms of the Northern lakes, mouth to mouth, wing to wing, and foot to foot; and that in autumn they creep down the reeds to these subaqueous retreats: that when old fishermen lay hold of such a mass, they throw it again into the water; but when young inexperienced fishers perceive one, they place it near the fire; which indeed brings the animals to the use of their wings, but continues for a very short time, owing to a premature and forced revival.

To prevent an implicit assent to an authority apparently so respectable, let it be remarked, that our pious bishop does not seem destitute of faith; for, after having stocked the bottoms of the lakes with birds, he stores the clouds with mice, which sometimes fall in plentiful showers in Norway, as well as the neighbouring countries.

Some of our countrymen have given credit to the submerision of Swallows; and Klein, who strongly patronizes the doctrine, gives us the following history of their manner of retiring, which he learned from some countrymen. They asserted, that Swallows sometimes assembled in numbers on a single reed, till it broke, and sunk with them to the bottom; and that their immersion was preluded by a dirge of a quarter of an hour's length: that some would unite in laying hold of a straw with their bills, and so plunge down in conjunction; and that others would form a large mass, by clinging together with their feet, and so commit themselves to the deep.

Such are the relations of those who are attached to this opinion; and though their own proofs are fairly stated, the account can scarcely fail of having a risible effect. The advocates for the immersion of Swallows assign not the smallest reason that can account for their being able to endure so long a continuance under water, without being suffocated, or decaying, in an element so unnatural to birds of such a delicate frame. It is well known that the otter, the cormorant, and the grebes, soon perish, if caught under ice, or entangled in nets: how then is it possible that the Swallow, a bird which nature has in no respect adapted for an aquatic life, should be able to continue for months under water? and what vivifying principle can again recal it to existence?

SWALLOW, COMMON, called also the House or Chimney Swallow; the *Hirundo Rustica* of Linnæus. This species is distinguished from all others by the extreme forkiness of it's tail, and a red spot on the forehead and under the chin. The crown of the head, the upper part of the body, and the coverts of the wings, are black, glossed with a rich purplish blue. The breast and belly are white, tinged with red. The tail is black; and the two middle feathers are plain, the others being transversely marked with a white spot near their extremities. The tongue is short, broad, and yellowish; of which colour likewise is the palate; but the other parts of the mouth are blackish. The eyes are large; and the irides are hazel-coloured.

This bird builds it's nest on the tops of chim-

nies with great industry and art; and lays five or six white eggs, speckled with red. It sometimes breeds twice a year: this happens when the parent birds arrive early, which is always regulated by the mildness of the season. Sometimes, however, it finds a difficulty in rearing even a single nest, especially when the weather has been severe, or the nest has met with any accident.

The Common Swallow arrives in Great Britain about twenty days before the other species of the same genus which visits us; and it leaves us about the latter end of September. It has a pleasing note, which it puts forth in August and September, perching on the tops of houses.

SWALLOW, CHINESE; the *Hirundo Esculenta* of Linnæus. This bird resembles the common Swallow in shape; and during the season of incubation quits the inland parts of the country, and proceeds to the sea-side, where it builds a very extraordinary kind of nest, reckoned one of the most delicious viands in China. These nests, which are sometimes preserved after the manner of sweetmeats, and sent over to Europe as great curiosities, are composed of certain clammy, glutinous substances, collected from the surface of the sea; in which the Swallow lays it's eggs, and produces it's young.

We have no particular description of those birds; but the Chinese carry on a considerable trade with their nests in many parts of the East Indies. They are each about the size of a goose egg; and of a substance resembling isinglass. It is customary to dissolve one of them in broth, when it constitutes a sauce preferable to any that can be produced.

SWALLOW, AMERICAN; the *Hirundo Americana* of Linnæus. According to Catesby, the top of the throat of this species is of a brownish black colour; and the extremities of the tail-feathers are pointed.

These birds quit Virginia and Carolina, and return about the same season of the year as the English Swallows. Catesby supposes that they pass to the southern regions on the approach of winter; and that they are properly denominated Brazilian Swallows.

SWALLOW, SEA; the *Hirundo Marina*, or *Pratincola*, of Linnæus. This is a large species. The belly is entirely white; the head and back are of a dusky brown hue; the wings and tail are long and blackish, but a little brownish underneath; and the tail is forked. The beak is black and strong; and the mouth is very wide, and red within. A black line forms a kind of ring round the throat, passing by the eyes to the ears; and the legs are of a reddish lead-colour.

SWALLOW, SEA, is also an appellation by which some authors express the *Sterna Hirundo* of Linnæus.

SWALLOW, WATER. An appellation given by some ornithologists, though improperly, to the northern colymbus, more generally denominated the lumme.

SWALLOW-FISH. A marine fish of the trigla kind, remarkable for the size of it's gill-fins. In Cornwall it obtains the appellation of the tub-fish. See **SAPPHIRINE GURNARD**.

SWALLOW-FLY. An appellation by which some authors express the *chelidonus*, a fly very remarkable for the long continuance and rapidity of it's flight.

SWAN. A species of the anas or duck kind
in

in the Linnæan system; of which there are two varieties, the wild and the tame Swan.

SWAN, WILD; the *Anas Cygnus Ferus* of Linnæus. These birds frequent our coasts in large flocks when the severity of the winter drives them from the hyperborean regions; but we have not learnt whether they ever breed in Great Britain. We are informed by Martin, that in October they resort in great numbers to Lingay, one of the Hebrides, where they continue till March, and then retire more northward to breed. These, like most other water-fowl, prefer for that purpose those places which are least frequented by mankind: the lakes and forests of Lapland are therefore filled, during the summer season, with myriads of water-fowl, which in autumn return to us, and to other more hospitable shores.

The Wild Swan is less than the tame by almost one fourth part; the former weighing but sixteen pounds, the latter upwards of twenty. The tame Swan is entirely white; but the Wild Swan is of an ash-colour along the back, and on the tips of the wings; the eye-lids are bare and yellow; and the legs are dusky. The cry of the Wild Swan is very loud, and may be heard at a great distance; from which circumstance it sometimes receives the appellation of the hooper.

SWAN, TAME; the *Anas Cygnus Mansuetus* of Linnæus. The Swan was considered as a high delicacy among the ancients; but the goose was abstained from as totally indigestible. Modern manners, however, have inverted tastes as well as opinions: the goose is now become the favourite of epicures; and the Swan is seldom brought to table, except for the purpose of ostentation.

The Swan is the largest of British birds. It is distinguished from the wild breed by its size, which is much larger; and by its bill, which in the tame bird is red, and the tip and side are black. A callous knob projects over the base of the upper chap. In old birds, the whole plumage is white; but in young ones, ash-coloured; and the legs are dusky.

This bird lays seven or eight white eggs, which it is nearly two months in hatching. Its chief food consists of herbs growing in the water, roots and reeds near the margin, and sometimes insects.

No bird makes a more inelegant figure on land, or a more beautiful one in water, than the Swan. When it ascends from its favourite element, its motions are awkward, and its neck is stretched forward with an air of stupidity; but when it is seen smoothly sailing along the water, commanding a thousand graceful attitudes, and moving at pleasure, without the smallest effort, there is not perhaps a more beautiful figure in nature. In the exhibition of its form, there are no broken or harsh lines; no constrained or catching motions; but the roundest contours, and the easiest transitions: the eye wanders over every part with insatiable pleasure, and every member assumes new grace with new motion.

It is extremely difficult to reconcile the accounts of the ancients with the experience of the moderns, concerning the vocal powers of this bird. The Tame Swan is one of the most silent of animals; and the wild Swan has a loud, harsh, and disagreeable note. In neither is there the smallest degree of melody; nor have they, for more than a century, been said to afford the smallest specimen of musical abilities: yet, notwithstanding this, it was the general opinion of antiquity, that

the Swan was a most melodious bird; and that, even to its death, its voice continued to improve. It would evince but a small share of learning to produce what they have said on the music of the Swan: it has been already collected by Aldrovandus, and still more professedly by the Abbé Gedoyn. From these accounts it appears, that while Plato, Aristotle, and Diodorus Siculus, believed the vocal powers of the Swan; Pliny and Virgil seem to doubt that received opinion. In this equipoise of authority, Aldrovandus seems to have decided in favour of the Greek philosophers: and the structure of the windpipe in the wild Swan, so much resembling a musical instrument, inclined his belief still more strongly. Add to this the testimony of Pendasius, who affirmed, that he had often heard Swans singing sweetly on the Lake of Mantua. Also that of Olaus Wormius, who professed that many of his pupils and friends had heard them singing. 'There was,' says he, 'in my family, a very honest young man, John Rostorph, a student in divinity, and a Norwegian by nation. This man did, upon his credit, and with the interposition of an oath, solemnly affirm, that once, in the territory of Drontheim, as he was standing on the sea-shore early in the morning, he heard an unusual and sweet murmur, composed of most pleasant whistlings and sounds. He knew not at first whence they came, or how they were made; for he saw no man near to produce them: but looking round about him, and climbing to the top of a certain promontory, he there espied an infinite number of Swans, gathered together in a bay, and making a most delightful harmony; a sweeter than which he had never heard in his life.'

These are relations sufficient at least to keep opinion in suspense, though in contradiction to our own experience. But Aldrovandus, in order to put, as he supposed, the question past all doubt, gives us the testimony of an Englishman, to which he seems himself to have given implicit faith. This impostor assured him, that nothing was more common in England than to hear Swans sing; that they were bred in great numbers in the sea, near London; and that every fleet of ships that returned from distant voyages, were met by Swans, which came joyfully out to welcome their arrival, and salute them with a loud and a cheerful song. In this manner was that great and benevolent man imposed on: his unbounded curiosity drew people of every description round him; and his generosity was unhappily as ready to reward falsehood as truth. After expending an ample fortune for the purpose of enlightening mankind, he lived to experience their ingratitude: neither his former beneficence, nor the useful application of those splendid talents which Nature had conferred on him, could insure relief to him in the hour of adversity; for he at last paid the debt of nature in a public hospital. Foreign as this digression may appear to our subject, the benevolent and the feeling, we doubt not, will join us in the tear of sensibility; and should the morose and unfeeling be disposed to criticize, they must extort our pity!

It is probable that the ancients had some mythological meaning in ascribing melody to the Swan; and as to the moderns, it may easily be discovered, from the relations already produced, how little credit is due to their testimonies. The ancients, however, held a still more singular opinion; they imagined that the Swan foretold its

own death. This is doubtless a poetic flight: and as to their being supposed to sing more sweetly at the approach of death, the cause is beautifully explained by Plato, who attributes that unusual melody to the same sort of extacy that good men are sometimes said to enjoy at that awful hour, foreseeing the joys which await them when entering on immortality.

All the stages of the Swan's approach to maturity are slow, and seem expressive of it's longevity. Pliny observes, that those animals which continue longest in the womb, are the longest lived: the Swan remains the longest in the shell of any bird we know; and does not arrive at it's proper size in less than twelve months. It is said to live three hundred years; and Willughby, who is not reckoned very credulous, is inclined to believe the assertion. A goose, as he justly observes, has been known to live an hundred years; and the Swan, being a larger bird, and it's flesh of a firmer texture, may naturally be supposed to live much longer.

Swans were formerly so much valued in this kingdom, that by an act of Henry IV. no person, except the king's son, was permitted to keep a Swan, unpossessed of a freehold of five marks a year. And by a statute made in the reign of Henry VII. the punishment for taking their eggs was imprisonment for a year and a day, besides a fine at the king's pleasure. At present, they are less valued for the delicacy of their flesh; but great numbers of them are still preserved for their beauty. Abundance of them may be seen on the Thames and the Trent; and particularly on the salt-water inlet of the sea near Abbotsbury, in Dorsetshire.

The ancients consecrated the Swan to Apollo and the Muses, on account of it's fancied melody. It was also dedicated to Venus, probably because of it's extreme whiteness and elegance; and is frequently yoked in the car of that goddess.

SWIFT; the *Hirundo Apus* of Linnæus. A bird of the Swallow kind, and the largest of the genus which visits this isle. The expansion of it's wings is nearly eighteen inches, and it's length is eight. It's feet are so small, that the actions of walking and rising from the ground are attended with extreme difficulty; but Nature has made ample amends for this inconvenience, by furnishing it with the means for an easy and continued flight. It is more on the wing than any other swallow, and it's flight is more rapid. It rests by clinging to some wall; and from hence Klein styles this species *Hirundo Muraria*. It breeds under the eaves of houses, in steeples, and other lofty buildings; builds it's nest of grass and feathers; and lays only two eggs, of a whitish colour.

This bird is entirely of a glossy dark sooty colour, except the chin, which is marked with a white spot: but, by being constantly exposed to all weathers, the gloss of it's plumage is lost before it retires.

The Swift makes it's appearance in this country some time after the common swallow; and invariably retires about the tenth of August, being the first of the genus that emigrates. As it is almost continually on the wing, it in a great measure answers the fabulous history of the bird of Paradise, which was formerly believed to have no feet, to live on celestial dew, to float perpetually on the air, and to perform all it's functions in that

element: In fact, except the small time the Swift allots to sleep, and the necessary duty of incubation, every other action is performed in the air. It collects the materials for it's nest either as they are wafted about by the winds, or picks them up from the surface of the earth in it's sweeping flight. It's food unquestionably consists of the minute breed of insects which people the aerial regions; it's drink is taken in transient sips from the water's surface; and even it's amorous concerns are performed on high.

Few persons, who have attended to these birds in a fine summer's morning, can have failed to observe them encircling a certain space with an easy, steady motion: on a sudden they fall into each other's embraces; and then drop precipitate, with a loud shriek, for numbers of yards. This is the critical conjuncture; and in this circumstance they resemble the insect tribes.

Swifts delight in sultry, thundery weather; which seems to give them fresh spirits. During such seasons they fly in small parties with particular force; and as they pass near steeples, towers, and other edifices, where their mates are performing the office of incubation, emit a loud scream, by way of serenade to the females.

SWIFT is also an appellation by which some authors express the newt, or eel.

SWIT. A name by which the natives of the Philippine Islands denominate a very small species of the humming-bird kind, very common in those climates. It's colours are said to be extremely beautiful; and it lives on the honied dew of flowers.

SWORD-FISH. A genus of fishes of the order of apodes. According to Linnæus, it's characters are these: the membrane of the gills has eight bones; the point or extremity of the snout is ensiform; and the body is taper, and without scales. There is only one species, the *xiphias gladius*.

Artedi gives the subsequent characters of this genus: the branchiostege membrane on each side contains eight bones; the snout is extended into a very long and depressed point, resembling a sword, and of a bony substance; the body is oblong and roundish; the dorsal fin is small, and very low in the middle; and there are no ventral fins. The air-bladder is remarkably long; and the anus is situated near the tail.

This fish grows to a very considerable size, sometimes weighing one hundred pounds. It's body is long and rounded, largest near the head, and tapering by degrees towards the tail. The skin is pretty rough; the back is black; and the belly is of a silvery white colour. The mouth is of a moderate size; the upper jaw is extremely long; but the under is much shorter, and terminates in a sharp point. The dorsal fin runs almost the whole length of the body; the tail is remarkably forked; and there is one pair of fins at the gills, but none on the belly.

The Sword-Fish is common in the Mediterranean and some other seas; nor is it an entire stranger to those of Britain. It's flesh is esteemed very delicate.

Strabo gives us a particular description of the mode of taking this fish, which exactly agrees with the practice of the moderns. One person ascends a cliff that overhangs the sea; and as soon as he spies the fish, gives notice of the course it takes. Another, stationed in a boat, climbs up

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the mast; and on seeing the Sword-Fish, directs the rowers towards it. As soon as he thinks they are got within reach, he descends, and taking a spear in his hand, strikes it into the fish, which, after wearying itself with its agitation, is seized, and dragged into the boat.

The Sword-Fish is much esteemed by the Sicilians, who frequently purchase it at the rate of sixpence a pound. It is said to be extremely voracious; and a great enemy to the tunny, which, according to Bellonius, shuns it with as much terror as a flock of sheep avoid a wolf.

SYCABIS. An appellation by which some ornithologists express the atricapella, or black-cap; a small bird well known in England.

SYNAGRIS. A fish caught in the Archipelago, and some other seas; a species of the sparus in the Artedian system, distinguished by that author under the appellation of the sparus with a sharp back, and four large teeth. Linnæus also makes it a species of sparus, with a bifid red tail,

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a purple body, and seven gold-coloured lines on each side.

SYNGNATHUS. A genus of fishes of the order of nantes, and class of amphibia. The characters are these: the coverings of the gills on each side are composed of a thin and single bony lamella; the head is oblong and compressed; the jaws are closed up at the sides; and the mouth is capable of being opened at the extremity of the snout only, which is cylindrical, and covered by the lower jaw. The body is long, and very slender; the shape is somewhat roundish, but more usually angular; and there are no ventral fins.

Artedi enumerates four species of this genus; and Linnæus seven; among which are the pipe-fish, the hippocampus, ophidion, and typhle.

SYNODON, OR CYNODON. An appellation by which several ichthyologists express a fish caught in the Mediterranean; more commonly known by the name of dentex. It is a species of the sparus in the Linnæan system.

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TABANUS, the Ox-Fly. In the Linnæan system of zoology, a genus of the diptera order of insects: the characters of which are; that the mouth has a fleshy proboscis, terminated by two lips; and two subulated palpi, placed sideways, and parallel to the proboscis. Linnæus enumerates nineteen species.

TABBY. A variety of the common cat, so called from the beautiful manner in which it is streaked.

TACHAS. An appellation by which some naturalists express the manati, or sea-cow.

TADORNA; the *Anas Tadorna* of Linnæus. A name by which some ornithologists express that species of duck known in England by the appellation of the sheel-drake, or borough-duck.

This bird frequents the sea-coasts, where it lodges in deserted rabbit-holes. It lays fifteen or sixteen white roundish eggs: and attends to the preservation of its young with the most diligent care; at the same time evincing a very considerable degree of sagacity. Its flesh is rank and ill-flavoured. See **DUCK.**

TADPOLE. An appellation by which the frog, in its nascent state, is generally known. See **FROG.**

TÆNIA. A fish of the anguilliform kind, common in the Mediterranean. It is of a pale flesh colour, with an admixture of blue; entirely destitute of scales; and its flesh so extremely transparent, that the vertebræ of the back-bone may be easily counted through it. The body terminates in a long and very slender tail; the mouth is small, and furnished with a single row of sharp teeth in each jaw; the ventral fin is twice as large as the dorsal, and runs such a way up towards the head, that the anus, which is situated at its termination, is very near the angle of the under jaw; and the intestines are all covered with a silvery

peritoneum, which is also plainly distinguished through the flesh. This fish is usually about a foot long, and the breadth of a finger.

TÆNIA is also a genus of the zoophyte order of worms, in the Linnæan system; including four species. See **TAPE-WORM.**

TÆNIA CORNUTA. An appellation by which many authors express a species of the cobitis; denominated by Artedi the cobitis with a forked prickle placed under each eye. This fish is the *Cobitis Tænia* of Linnæus.

TAJAN DEVIL. A name given by the Dutch to a lizard found in the island of Formosa: but for what reason it has received this singular appellation, we know not, unless from the sharpness of its claws. It is about an ell long, and twenty inches broad; with scales like a fish; and so extremely harmless, that it will sooner die than make any resistance. It feeds on pismires; and avoids the human race with the most fearful circumspection.

TAJACU; the *Sus Tajacu* of Linnæus. An American animal, called also *aper moschiferus*, or the musk-boar, and the pecary. It is shaped somewhat like our hog, but is much smaller, and destitute of a tail. It has a very singular aperture on the ridge of the back near the rump, from which proceeds a strong-smelling liquid substance, of a brownish yellow colour.

This creature inhabits the hottest parts of South America, and some of the Antilles; and frequents mountains covered with wood, where it feeds on fruits, roots, toads and serpents. It is very savage in its nature; and when wounded will turn on the hunters. Its flesh is much esteemed; but unless the dorsal gland which supplies the odoriferous liquid is immediately extirpated, the flesh becomes tainted in a few minutes after it is killed. See **PECARY.**

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TAIBI. An American animal, described by Marcgrave, and some other authors; but generally supposed to be only the male opossum.

TAIPARA. The Brazilian appellation for a species of parroquet common in that country. It is about the size of a lark; the whole body is of a pale green colour; the tail is short; the beak is red; and the legs are grey. Near the origin of the beak there is a semilunar red spot; and on the middle of each wing there is a yellow spot.

According to Marcgrave, this bird builds in trees, in the deserted abodes of ants.

TAINHA. An appellation by which some authors express a species of mullet commonly caught in the American seas, more usually denominated curema.

TALABONG. A Philippine appellation for a species of heron common in those islands; entirely white; and considerably less than the European heron.

TALAPOIN. A species of monkey, so called by Buffon. It is distinguished from the other species by its beautiful variety of green, white, and yellow hair; as well as by that under the eyes, which is of a greater length than the rest. This animal is generally supposed to be confined to the African and Oriental climates.

TALBOT. A sort of dog, remarkable for its quick scent, and for pursuing its game in continual cry.

TALPA. The classical appellation for the mole.

TAMANDUA; the Ant-Bear, or Ant-Eater. This animal has a very long and sharp snout; and its tongue is slender, and capable of prodigious extension. It has no teeth; the body is covered with hair; and from the neck, across the shoulders to the sides, there is a black line, bounded above with white. The tail is about thirty inches long, and covered with black, coarse hair, almost a foot long.

This creature is the *Myrmecophaga Jubata* of Linnæus, with four toes on the fore-feet, and five on the hinder ones; and is a native of Brazil, and the country round the Cape of Good Hope.

Ants compose the principal food of the Tamandua. It catches them by means of its tongue, which is extended as a lure; and, when covered with these insects, hastily drawn into its mouth.

Though this animal is destitute of teeth, it is nevertheless fierce and dangerous. It sleeps by day, and preys by night. Its flesh has a strong and disagreeable taste; but is eaten by the Indians.

The Lesser Tamandua, or *Myrmecophaga Tetradactyla* of Linnæus, inhabits the same regions as the former; and resembles it in its manners. The Least Tamandua, or *Myrmecophaga Didactyla* of Linnæus, is by Buffon denominated Four-millier.

Linnæus also enumerates another species, which he describes under the appellation of the *Myrmecophaga Tridactyla*. It is a native of the East Indies; and seems to resemble the rest of the genus in its disposition and appetites.

TAMATIA. A very singular Brazilian bird, appearing to be a species of canchropha; the *Canchropha Canchrophaga* of Linnæus. The head is very large; the eyes are full and black; the beak is shaped somewhat like that of a duck, but pointed at the extremity; the upper chap is black; and the under yellow. The legs and toes are long; the thighs are chiefly naked; and the tail

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is very short. The head is black; the back and wings are of a plain dusky brown hue; and the belly is also of the same colour, variegated with white.

TAMIS BIRD. An appellation by which some authors express the pintada, or Guinea hen.

TAMOATA. An American fresh-water fish, denominated Soldido by the Portuguese. It is of a small oblong figure; with a flat head, somewhat like that of a frog. The mouth is small; and from each angle of it depends a long single filament, by way of a beard. It is destitute of teeth; and the eyes are extremely small. The fins are eight in number: two at the gills, of the length of a finger, hard, and firm, like horns; two on the belly, of a softer substance; one on the middle of the back; another near the tail; a small one opposite to it, on the belly; and the tail constitutes the eighth. The whole head is covered above with a hard coat like a shell; and the body with a sort of coat of mail composed of oblong, hard, squamous bodies, dented at their edges.

The flesh of the Tamoata is esteemed delicate. It lives in fresh-water rivers only; and when the water in which it resides accidentally dries up, it is said to crawl out on the dry land, and to go in quest of more.

TANAGRA. A genus of passerines: the characters of which are; that the bill is conic, and a little inclining towards the point; the upper mandible slightly ridged, and notched near the extremity. Linnæus enumerates twenty-four species.

Birds of this genus inhabit North and South America; but are most common in the latter. To this tribe belong the jacapu, jacarini, teitei, fayacu, and others, described by Marcgrave.

TANT. An English appellation for a small spider of the opilio kind, having only two eyes, and eight very long legs; commonly supposed to be very venomous. It is entirely of an elegant scarlet colour, resembling that of the flowers of the red poppy when full blown, except that the belly has a whitish cast.

These insects are common in dry pastures during the spring; and farmers entertain a notion, that if an ox should swallow one of them, he would instantly die.

TANTALUS. A genus of the order of grallæ, in the Linnæan system. Its characters are: the bill is long, thick at the base, and wholly incurvated; the face is naked; the tongue is short and broad; the nostrils are linear; and the feet, with four toes, are palmated at the base.

Linnæus enumerates seven species, of which the Egyptian ibis constitutes one.

TAPAYAXIN. An American appellation for a very remarkable species of lizard, called by Hernandez the *Lacertus Orbicularis*. It is nearly as broad as long; and in shape pretty nearly resembles the ray-fish, though seldom exceeding four inches in length or breadth. It possesses a very beautiful variety of colours. The head is exceedingly hard and elate, and has a sort of prickly crown for its defence: nevertheless, the animal is perfectly innocent; and seems attached to mankind, as it delights to be handled by them.

TAPE-WORM. A species of worm which breeds in the human bowels; and is called by authors *tænia*, and *lumbicus latus*, or the broad worm.

According to the Linnæan system, it constitutes

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tutes a genus of the order of zoophytes, in the class of worms: the characters of which are; that the body is jointed in form of a simple chain; and that each joint has its appropriate mouth, viscera, and other parts. This genus includes four species.

TAPECON. An appellation by which some authors express the fish more generally denominated the uranoscopus, or star-gazer.

TAPERA. A word, according to some ornithologists, signifying a species of swallow.

TAPETI. An American animal, sometimes denominated cuniculus Americanus, or the American rabbit. In the Linnæan system, it is a species of hare, the *lepus Braziliensis*. It has large ears, like the common hare; a white ring round the neck, though not always; the face is of a reddish colour; the chin is white; the eyes are black; the colour of the body resembles that of the common hare, except that it is somewhat darker; and it has no tail.

These animals inhabit the woods of Brazil, but never burrow; are very prolific; and their flesh is highly esteemed. They are also found in Mexico, where they obtain the name of citli.

TAPIIR; the *Hippopotamus Terrestris* of Linnæus. This animal is about the size of a young calf; and in shape somewhat resembles the hog, with an arched back. The head, which is thicker than that of the hog, terminates in a sharp ridge at the top. The male has a snout, or sort of proboscis, hanging over the opening of the mouth; in which there is a very strong muscle, that serves to retract it at pleasure. The nose of the female is destitute of a proboscis; and the jaws are of equal lengths. There are ten dentes incisores in each jaw; from the end of these the jaw seems toothless for a small space; and the grinders, which are large, are arranged five on each side. The eyes are small, like those of a hog; and the ears, which are roundish, bordered with white, the creature can draw forward at pleasure. The legs are thick and short; the fore hoofs are divided into three portions, and a sort of false hoof behind; but the hind have only two divisions. The hair is short, and of a pale brown colour variegated with white spots, when the animal is young; and along the neck there is a bristly mane, an inch and a half high.

The Tapiir inhabits the thick woods situated on the eastern side of South America, from the Isthmus of Darien to the River of the Amazons; sleeping all day, and roving abroad in the mornings and evenings in quest of food. It subsists on vegetables; and is particularly fond of the stalks of the sugar-cane. It often takes the water, swimming with the utmost facility. The natives eat its flesh; and the Indians shoot it with poisoned arrows, and cut its skin into bucklers.

The Tapiir is salacious, slow-footed, and slug-gish; and makes a kind of hissing noise. In Guiana it is sometimes domesticated, and fed with other animals in the farm-yard. Though generally accounted mild in its disposition, Gumilla asserts, that it makes a vigorous resistance when attacked; and seldom fails to tear off the skins of such dogs whom it happens to seize.

TARABE. A Brazilian species of parrot, considerably larger than the common green parrot. It is generally of a vivid green colour; but the head, breast, and origin of the wings, are red; and the beak and legs are dusky grey.

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TARAGUICO AYCURABA. A Brazilian appellation for a species of lizard common in that country. The tail is covered from its beginning with small triangular scales, and very regularly marked with four brown spots; the back also, particularly that part next the head, is variegated with undulated brown lines.

TARAGUIRA. An American lizard, about one foot in length, of a rounded body, and every where covered with small triangular dusky grey scales. Its back is smooth; and it is furnished with a false gullet under the throat.

This animal is very common about houses and gardens in South America. It runs very swiftly, but with a waddling motion; and when it perceives any object at a distance, has a peculiar way of shaking its head.

TARANDUS. An appellation by which Agricola, and some other naturalists, express the rein-deer.

TARANILOLO. A name given by some ornithologists to the whimbrel, or small curlew; the *arquata minor* of authors.

TARANTULA; the *Aranea Tarantula* of Linnæus. A species of venomous spider; so called from Tarentum in Apulia, where it is chiefly found.

The Tarantula is met with in all parts of Apulia; but particularly in uncultivated situations, and dry sunny hills which have a southern aspect. It is said to be entirely confined to this country; but is probably an inhabitant of many others, though its poison may be more injurious there than in colder latitudes.

Geoffroy is of opinion that the Tarantula never proves venomous except in the coupling season; and Baglivi affirms that it is never so but during the heat of summer, particularly in the Dog-days, when becoming enraged, it flies at all that pass by.

The Tarantula being of a very tender frame, and easily injured by cold, winds, and rain, it always digs a cave in the side of some hill for its habitation; and for that purpose usually makes choice of the hardest ground it can find, which is better able to defend it, and which it easily perforates with its forceps and claws. Sometimes it burrows itself a cave in a valley or plain; but in that case it always chuses a dry, and commonly a chalky soil. When found in such situations, the entrance into its cave is small, and within are several winding passages: and if it happens to be surprised with wet, it then quits the floor of its cell, and suspends itself by its feet from the roof.

The Tarantula preys on a number of small insects, with which Apulia abounds; and seldom appears in the day time, but creeps abroad about sun-setting in quest of carcase and depredation. Should it at any time remain the whole evening in its cave, it is only on purpose to practise a different method of hunting its prey: in this case it comes forward to the mouth of its hole, where it lies in wait; its fore-legs being placed at the extremity of its cell, and its eyes having a distinct view of every thing around it. The unwary objects of its prey are seized as they pass, and conveyed into its den; where the tyrant, having feasted on such portions as he prefers, conceals the wings and fragments to prevent suspicion, and resumes his former watchful posture.

The Apulian peasants practise a particular kind of artifice to allure the Tarantula from its den during

during the day-time, in order to destroy it. This consists in making a soft hissing noise through an oaten pipe. Whether the insect is enchanted with this sound, or imagines it to be the voice of some favourite prey, is uncertain; however, it always comes forth, and seldom fails becoming a sacrifice to its voracity.

The Tarantula has eight legs, each of which has three joints, and covered with fine downy hair. They are of a whitish colour at the bottom, and variegated with black lines; but in the upper part, where they join the breast, they are wholly black. They all originate from a kind of oval shield placed on the breast, black, hairy, and very hard; and are sometimes denominated the spiculum of the Tarantula. From the shoulders grow a pair of horns, or more properly arms, which the creature uses in confining its prey while killing it with its forceps: these horns or arms have an equal number of joints with the legs, but they greatly differ from them in being shorter and yellower; they are also covered with longer hair; and terminated with black claws, capable of bending in every direction. The belly is either white, or of a pale yellow hue; and marked with a transverse streak of black: this is surrounded with several other spots of the same colour, and clothed with a very fine short down. The rest of the body is covered with pretty long hair of a whitish or brownish colour. The apex of the head, the shield of the breast, and the extremities of the forceps, are as hard as a crab's claws; but the rest of the body is covered with a tender, supple skin. The eyes, which are very large, and of a fine shining black colour, are continually in motion; and, when seen during the night, or in a darkish situation, shine like the eyes of a cat. Where the mouth is placed in most other animals, a black, hard forceps, arises in this; the upper part of which instrument is covered with yellow hair; and terminated by extremely fine and sharp claws, which the insect is capable of closing or shutting up at pleasure. While the arms hold the prey in a proper position, these sharp points inflict wounds on the body; and the other parts of the forceps squeeze the victim till all the juices are pressed out. The mouth is situated considerably below the forceps, exactly placed for the reception of the juices expressed by this operation.

The Tarantula sleeps in its cave during the whole winter, and a great part of the autumn and spring; and if, during this time, it be disturbed by the motion of the earth, or by any other means be removed from its cell, it is found quite torpid and numbed, and incapable of the smallest exertion.

A full-grown Tarantula is about the size of a chestnut; but some old ones are considerably larger. The female may be distinguished from the male by the superior length of her legs, and largeness of her belly. They copulate in the months of June and July; and at such times the females are often observed in the fields carrying the males on their backs. In August and September, they lay their eggs, which remain in the same state during the whole winter, and are hatched the succeeding spring.

Pliny relates a story of the young ones always devouring their parent for their first food; which is countenanced by the observations of the peasants of Apulia, who say that they all surround

her, and extract her juices in many parts at once, till they leave her lifeless carcase on the field; after which they go in quest of other food.

The bite of the Tarantula, as it is called, is a wound inflicted in a very peculiar manner. The creature pierces the skin with its forceps, and instantly injects from its mouth a poison into the wound. The time when the wounds of these spiders are said to be most dangerous, is that of their copulation; when they are in their utmost vigour, and possess the most noxious powers. People of condition are seldom hurt by them; but poor labourers, who sleep half naked in the fields; and women who travel the country with their feet uncovered, gathering medicinal herbs; are much exposed to their injuries.

The bite of this creature occasions a pain which at first resembles that of the sting of a bee or an ant. In a few hours, the patient feels a numbness; and the part affected is marked with a small livid circle, which soon after rises into a very painful swelling: shortly after this, he falls into a profound sadness, breathes with much difficulty, his pulse grows feeble, and his senses fail. At length he loses all sense and motion; and, according to some naturalists, expires, unless speedily relieved. But these symptoms come on somewhat differently, according to the nature of the Tarantula, and the disposition of the patient. An aversion for black and blue; and, on the contrary, a predilection for white and red; are among the unaccountable symptoms of this disease. All the medical assistance hitherto discovered, consists in some chirurgical applications on the wound, and in cordials and sudorifics which are of little service; but music, which reason perhaps never could have pointed out, is said to be infinitely more efficacious.

No sooner has the person affected lost his sense and motion, than a musician tries several tunes on an instrument; and when he has hit on one whose tones and modulations suit the patient, he is immediately observed to make a faint motion; his fingers begin to move in cadence, then his arms, next his legs, and by degrees his whole body: then he rises on his feet, and begins to dance, his strength and activity still increasing. Some will continue to dance for six hours without intermission. After this the patient is put to bed; and when he is judged to be sufficiently recruited from his first dance, he is allured out of bed by the same tune, in order to a second.

This exercise is reiterated for several days successively, seven or eight at least; in which time the patient finds himself excessively fatigued, and unable to dance any longer, the characteristic proof of his being cured; for, as long as the poison acts on him, he would dance, if encouraged, till he fainted through extreme lassitude. Perceiving himself thus tired, he begins to recover his reason; and awakes, as out of a profound sleep, without the smallest recollection of what had passed in his paroxysm, or even in his dancing.

Sometimes the patient, on thus recovering from his first access, is quite cured; but if otherwise, he finds a melancholy gloom hanging over him, thins the sight of mankind, and searches for water; and, if not carefully watched, would drown himself. Should he now escape death, the fit returns at that time twelvemonth, when he is again driven to dancing; and some are said to have had

returns of it regularly for twenty or thirty years. Every Tarantula has it's particular and specific tune; but, in general, they are all brisk, sprightly airs, that effect a cure.

Such are the result and cure of the Tarantula's bite, according to Geoffroy, Baglivi, and others; and very ingenious theories have, in consequence of them, been spun by Geoffroy and Mead: but, notwithstanding all this cloud of testimonies, we are rather inclined to believe Dr. Dominico Cirillo, professor of natural history at the university of Naples, who positively contradicts their assertions. This gentleman having had an opportunity of examining the effects of the Tarantula in that country where it is found in the greatest abundance, affirms, that the surprising cure of the bite of this creature by the effects of music is totally destitute of truth; and that it is only an invention of the natives, who procure money by dancing when they say the tarantism begins. He makes no doubt that the heat of the climate contributes essentially to warm their imaginations, and to throw them into a delirium, which may in some measure be cured by music: but several experiments have been tried with the Tarantula; and neither men nor animals, after the bite, have had any other complaint, except a very trifling inflammation of the part, like that produced by the bite of a scorpion, which goes off spontaneously without any danger, or the necessity of medical applications. In Sicily, where the summer is still warmer than in any part of the kingdom of Naples, the Tarantula is never dangerous; and music is never employed for the cure of the pretended tarantism.

It is, without doubt, very extraordinary, says this writer, that a man of sense, and a physician of great erudition, as Baglivi was, should have been satisfied with the account of this disorder; and that, instead of examining the facts by experiments, he should rather have tried to explain it. Every year, this surprising disorder loses ground; and he is persuaded that, in a very little time, it will entirely lose it's credit.

All the Neapolitan physicians regard the Tarantula in the same light with Cirillo; especially since the publication of the learned book on this subject by Dr. Serao, who, by various experiments, has proved that the bite of the Tarantula never produced any bad effects, and that music never had any connection with it.

Thus does fable prevail for a time, till it's errors are detected by reason and philosophy: then the dupes of imposition blush at their credulity; and impostors lose their credit, the source of their gain.

TARANTULA is also a species of lizard common in Italy, and called by Aldrovandus *Lacertus Facetanus*. It is of a grey colour; the skin is extremely rough; and the body is pretty thick and round. It is found, like the common eel, under old walls, and amid ruinous buildings, particularly in the vicinity of Rome. The figure of this creature is so disgusting, that the Italians hold it nearly in the same abhorrence as the English do the toad. It is likewise reckoned poisonous; but this quality does not appear to be well attested.

TARDA AVIS. An appellation by which many express the bustard, more commonly called otis.

TAREIBOIA. An American species of serpent, called also Cacaboia, though the two appel-

lations are by some applied to different animals. However, they are both of the amphibious kind, and by no means remarkable for their poisonous effects. They are entirely black, small, and easily offended.

Authors, indeed, have given different descriptions of these serpents; some making the animal expressed by the latter name distinct from the former, and of a yellow colour.

TAREIRA. An American fish, having an oblong and thick body, gradually tapering towards the tail. The head resembles that of a snake; and is raised into two tubercles over the eyes, which are yellow, with black pupils. The nose is pointed, and the mouth is large, and yellow within. There are extremely sharp teeth in both the jaws, and on the tongue. It has eight fins, of which the tail is accounted one; and this, as well as the rest, is soft, tender, thin, and sustained by soft rays. The scales are so nicely laid over each other, that it seems smooth to the touch. The belly is white; and the back and sides are variegated with longitudinal green and yellow lines. The flesh is eaten, but not much admired for it's flavour.

TARIERA. An American fresh-water fish described by Marcgrave. It is of an oblong figure, with a straight back, and a belly somewhat depending. The under jaw is longer than the upper; and the teeth are extremely sharp, among which are two longer than the rest in the middle of the under jaw, and four in the upper. The scales are large; the back is brown; and the belly and sides are whitish. The flesh is well tasted, but full of bones.

TARIN. A French appellation for the citrinnella; an Italian bird remarkable for the beauty of it's plumage, and the melody of it's notes; and therefore always caged.

TARINGTING. A Philippine name for a species of lapwing common on the sea-shores, remarkable for it's fleetness in running.

TARRIER. A small dog of the hound kind, with rough hair. It is principally used in forcing foxes or badgers out of their holes; or rather to give notice, by it's barking, in what part of their kennel the fox or badger resides, when the sportsmen intend to dig them out.

TARROCK; the *Larus Tridactylus* of Linnæus. A marine fowl of the larus or gull kind, about the size of the common pigeon, and not very dissimilar in shape, except that the head is larger and thicker.

The usual length of the Tarrock is fourteen inches; and the expansion of the wings three feet. The bill is black, short, thick, and strong. The head is large; the colour of which, together with the throat, neck, and whole under side, is white. Near each ear, and under the throat, there is a black spot; and on the hind part of the neck is a black crescent, the horns pointing to the throat. The back and scapulars are of a blueish grey colour; the lesser coverts of the wings are dusky, edged with grey; the larger next to them are of the same colour; and the rest are grey. The exterior sides, and the extremities of the four first quill-feathers, are black; the tips of the two succeeding ones are black; but all the rest are wholly white. The ten middle feathers of the tail are white, tipped with black; the two extreme ones are quite white; and the legs are of a dusky ash-colour.

The great distinction of this bird from all others

others of the gull kind is, that it has no hinder toe; but, instead of it, a small protuberance. It is very common on the coasts of Cornwall, and among the Hebrides.

TARTARUGA. An American name for a species of tortoise, usually known among authors by its Brazilian one, Jurucua.

TASCHENMUI. An appellation whereby some ornithologists express the *anas clypeata*, a species of duck remarkable for the breadth of the end of its beak; and hence the English appellation shoveler, or broad-beaked duck.

TATU, or TATOU; the *Dasyfus* of Linnæus. A Brazilian appellation for the armadillo, or shell hedge-hog; of which there are several species.

TATU APARA; the *Tricinctus Dasyfus* of Linnæus. This creature has three bands; an oblong head; small, short, roundish ears; and five toes on each foot. The fore legs are considerably shorter than the hind ones; and the tail is of a pyramidal figure, and little more than the breadth of two fingers in length. The whole body is covered with a shelly coat, one foot long and about six inches wide, smaller at both extremities than in the middle, convex externally, and concave internally. In the middle, or a little towards the fore end, there are four junctures, placed transversely; by means of which the animal can at pleasure expand its shell, or contract it into a round figure. The whole crust is composed of pentangular pieces, very nicely fitted to each other; and the series of these between the commissures are parallelograms. The whole is composed of yellowish scales, joined by an extremely tough skin.

This animal burrows under ground, keeps in its hole during the day, and roves abroad at night: when desirous of repose, it contracts its crust into a round figure; and concealing its whole body, exhibits the appearance of a sea shell, rather than of a land animal. It is hunted with little dogs; and grows very fat. When young, it is esteemed delicious; but, when old, has a musky, disagreeable taste. It breeds every month, and brings forth four at a time.

TATU MUSTELINUS; the *Dasyfus Unicinctus* of Linnæus. This animal has a very slender head; small erect ears; and the crust on the shoulders and rump consists of square pieces. There are eighteen bands on the sides; and five toes on each foot. The length, from the nose to the tail, is about fifteen inches; and the tail itself is five and a half. It inhabits several parts of South America.

TATU PAHA; the *Dasyfus Sex Cinctus* of Linnæus. The crust of the head, shoulders, and rump, of this animal, is formed of angular pieces; and between the bands, and also on the neck and belly, there are a few scattered hairs. The tail is thick at the base, tapering to a point; and each foot is furnished with five toes. It inhabits Brazil and Guiana.

TATU PORCINUS, or PIG-HEADED; the *Dasyfus Novem Cinctus* of Linnæus. This animal has the crust of its head, shoulders, and rump, marked with hexangular figures; the nine bands on the sides are distinguished by transverse cuneiform marks; the breast and belly are covered with long hairs; there are four toes on the fore feet, and five on the hinder; the tail is taper, and somewhat longer than the body; and the length of the whole animal is three feet.

This creature inhabits South America. A live specimen, imported into England some years ago from the Musquito Shore, was fed on raw beef and milk, but rejected English grains and fruits.

TATUETTE. A species of armadillo, differently described by naturalists; some making it the *Dasyfus Novem Cinctus* of Linnæus, while Buffon and Pennant attribute to it only eight bands. It has two upright ears; small black eyes; four toes on the fore feet, and five on the hind ones. The length, from the nose to the tail, is about ten inches; and that of the tail is nine. It is of an iron colour on the back, and whitish on the sides; and the belly is also whitish, and naked, except a few hairs dispersed over it.

It is a native of Brazil; and its flesh is esteemed peculiarly delicate. See **ARMADILLO**.

TAURUS. The classical name for the male of the cow kind. See **Ox, Cow**.

TAURUS. By this appellation also some of the ancients expressed the bittern, from its note imitating the roaring of a bull.

TAURUS ÆTHIOPICUS. An obscure, or rather a fabulous animal, described by Pliny.

TEAL; the *Anas Crecca* of Linnæus. A fowl of the duck kind, and the smallest of the tribe. The beak is black; the head, and the upper part of the neck, are of a reddish brown hue; but on each side of the head runs a green streak from behind the eyes quite to the back part; between these is a black spot under the eyes; and there is likewise a white line which separates the reddish colour from the green. The lower part of the neck, the shoulders, and the sides, are very beautifully variegated with black and white streaks; and the breast and belly are of a dusky greyish white colour, the former delightfully spotted with black. The vent is black; the tail is sharp pointed and dusky; the coverts of the wings are brown; the greater quill-feathers are dusky; the exterior webs of the lesser are marked with a glossy green spot, above which is another of black; and the tips are white. The irides are whitish; and the legs are dusky.

The female is of a brownish ash-colour, spotted with black; and has a green spot on the wing, like the male.

TEAL, SUMMER; the *Anas Circia* of Linnæus. Pennant seems, with reason, to consider this bird as the female of the common Teal; though Linnæus has described it as a distinct species.

TEAL, CRESTED; *Querquedula Cristata*. By this appellation Bellonius, and others, express a species of duck remarkable for having a tuft of feathers, one inch and a half long, hanging down from the back part of its head; and thence called the tufted duck. It is more usually denominated *capo negro*.

TEAL, CHINESE; the *Anas Galericulata* of Linnæus. This beautiful and singular bird has a reddish-coloured bill, and hazel eyes. The sides of the head, from the basis of the bill to the ears, are white, in the middle of which spaces the eyes are placed. The crown of the head is of a fine green colour; from above the eyes backwards, there passes on each side a bar of purple feathers; and below these bars the plumage is green, on the hind part of the head. The feathers on the head are long, forming a crest, which usually reclines backwards; the hind part of the neck, and a little way down the fore part, are of a pleasing red colour: the breast is of a purplish hue; and at the

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bottom of the neck, on each side the breast, there is a spot of black and white bars alternately succeeding each other, placed transversely. The back, and the coverts of the wings, are brown, with a changeable lustre of blue and green; the outer quills of the wings are blackish; the middle quills are of a fine varying green, tipped with white; and three or four of the quills next the body are brownish, their extreme webs being edged with white.

Two uncommon feathers appear in this bird; one among the quills of each wing, which, when the wings are closed, rise above the back in a singular manner. These feathers are of a dull orange, or bright bay colour, on their upper or broader webs, edged towards their points with black; the narrow, or lower webs, are of a fine blue colour, except their tips, which are bay. The tail is brown, with a gloss of blue; the belly, and coverts beneath the tail, are white; and the side-feathers, which fall partly over the wings, are of a light cinereous brown hue, with transverse arched lines of white and black placed alternately. The legs and toes are of an orange colour; and the claws are dusky.

TEAL, INDIAN. This beautiful bird is a native of the East Indies. The bill and feet are of a fine red colour; the top of the head, the upper part of the neck, and almost all the back, are yellow; as well as the rump, which is marked with semilunar spots. The under part of the neck, the breast, and the belly, are white; but the wings possess a great variety of colours. The tail is partly green, and partly blue; and the toes are destitute of membranes.

TEITEL. A Brazilian bird, a species of the tanagra in the Linnæan system. It is about the size of the red-breast, and beautifully coloured; its voice is very melodious; and it is frequently tamed and caged.

TEJUGUACU. A Brazilian species of lizard, called also temapara. In its general figure, it bears a strong resemblance to the iguana; but differs from it in its whole body being black, with a few variegations of white. It principally subsists by sucking of eggs; and is capable of surprising abstinence, Marcgrave having kept one alive seven months without food. This species also afforded a certain testimony to that author of the reproduction of the tail when amputated.

TEIUNHANA. A small American lizard, with a sharp nose; and a long slender tail, terminating in a point almost as sharp as a needle. The head is covered with scales; the back, sides, and legs, have a soft velvet-feeling skin; and the tail is covered with extremely minute scales of a square figure.

TELESCOPE SHELL. An appellation by which some authors express a particular species of turbo, with plane, striated, and numerous spires.

TELLINA. In the Linnæan distribution, a distinct genus of the class of vermes, and order of testacea. Its characters are these: the inclosed animal is a tethys; and the shell a bivalve, generally sloping down on one side, with three teeth at the hinge. Linnæus enumerates twenty-nine species.

Da Costa makes the Tellinæ the ninth family of bivalve shells; defining them to be shells more broad than long, somewhat flat, and the hinge having two teeth set close together. Of this family he reckons two genera; the Tellinæ, or shells

with similar sides, whose beaks and hinges are central, containing few species; and the cimeci, or shells with dissimilar or unequal sides, whose beaks and hinges are placed near to, or quite at one extremity.

There are several fossil shells of this last genus which have not yet been discovered recent from the sea.

These shell-fish do not naturally live on the surface of the bottom of the sea, but bury themselves in the mud or sand, after the manner of the chamæ, preserving a communication with the water above by means of the same sort of tubes or pipes which those fish possess; but as the tubes of the Tellinæ are very short, they cannot exist at any great depth from the surface.

Pennant enumerates the following species of Tellinæ, all found on the British coasts: the fragile, the depressed, the flat, the plain, the rayed, the carnation, the flesh-coloured, the trifoliated, the rugged, the Cornish, and the horny.

TEMAPARA. A particular species of lizard, approaching to the nature of the iguana, and sometimes denominated the tejuguacu. See **TEJUGUACU.**

TEMELO. A name given by some ichthyologists to the umber; called the grayling in England.

TEMPATLAHOAC. A bird of the duck kind, described by Nieremberg; a native of some parts of the West Indies.

TENCH. In the Artedian and Linnæan systems, a species of the cyprinus; and distinguished by Artedi under the appellation of the blackish, mucous, or slimy cyprinus, with the end of the tail even. It is the cyprinus pinna ani radiis viginti quinque.

The Tench appears to have been little esteemed by the ancients; an evident proof of the capriciousness of taste: for what Aufonius deems only fit for the canaille, in modern days is a feast for the voluptuous.

Some have denominated this fish the physician of the sea, from its slime being supposed to possess such a healing quality, that the wounded apply it as a styptic. Diaper, in his Piscatory Eclogues, says, that even the voracious pike will spare the Tench on account of its healing powers. But whatever sanative powers its slime may possess, (which do not seem well authenticated) certain it is that its flesh is both wholesome and delicious.

The Tench seldom exceeds four or five pounds in weight, though it has sometimes been caught of the weight of ten pounds; and Salvian mentions one of twenty pounds. It seems fond of still waters, and is rarely caught in rivers. The body is thick and short in proportion to its length; and the scales, which are very small, are covered with slime. The irides are red; and sometimes, but not invariably, there is a small beard at each angle of the mouth. The back is dusky; the dorsal and ventral fins are of the same colour; the head, sides, and belly, are of a greenish cast, most beautifully mixed with gold, which appears in its greatest splendor when the fish is in season; and the tail is quite even at the extremity, and extremely broad.

TENDRAC. An animal of the hedge-hog kind, so called by Buffon. It is a native of the East Indies; and its flesh is much esteemed by the natives.

TENEBRIO.

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TENEBRIO. A genus of the coleoptera order of insects, including thirty-three species; and commonly known in this country by the name of the stinking beetle. The legs and thighs are slender; the feelers are pretty long, and composed of oblong joints, except the last, which is round; and the breast is marked with small specks, and adorned with a rim. It has a slow motion; lives in the deep cavities of dunghills during the day, and comes abroad only in the night-time.

The smell of this insect is extremely offensive; from which circumstance it obtains its English name.

TENTHREDO. A fly of the stinging kind, of the shape and size of the bee, and colour of the wasp, which annoys kitchens and larders. It is extremely gregarious; but though swarms associate together, they produce no honey.

In the Linnæan system, the Tenthredo is a genus of the hymenoptera order of insects. Its characters are these: the mouth is furnished with maxillæ, but has no proboscis; the wings are plane and tumid; the sting consists of two lamina, serrated, and somewhat prominent; and the scutellum is formed of two grain-like bodies separate from each other.

Linnæus enumerates fifty-five species, distinguished from each other by the shape of their antennæ.

TEPETOTOTL. A Brazilian bird of the gallinaceous kind, more usually denominated Mituporanga.

TEREBELLA. In the Linnæan system, a genus of the mollusca order of worms. Its distinguishing characteristics are: the body is filiform; from the mouth issues a tubulose gland; and the surrounding tentacula are numerous and capillary.

A single species is found in the cliffs which line the shores of the Mediterranean sea.

TEREBRATULA. An appellation whereby Gualtieri and others express a species of the smooth conchæ anomia, which have a small hole near the head of the shell, appearing as if bored by art.

TEREDO. A species of sea-worm, which eats its way into the bottoms of ships, lining its cell with a kind of shelly matter.

In the Linnæan system, the Teredo is a genus of the testacea order of worms, the animal of which is a terebella; the two maxillæ are calcareous, hemispherical, amputated before, and angulated below; and the shell is round, bending, and capable of penetrating wood. To one species Linnæus gives the appellation of Calamitas Navium.

The head of the Teredo is excellently adapted by nature for the toilsome offices it is destined to perform; being coated with a strong armour, and furnished with a mouth like that of the leech, by which it pierces wood as that animal does the skin. A little above this there are two horns, which look like a continuation of the shell. The neck is equally well fitted to the service of the creature as the head, being furnished with several strong muscles. The rest of the body is only covered with a very thin and transparent skin, through which the motion of the intestines may be plainly perceived by the naked eye; and, by the assistance of the microscope, several other curious particulars become visible.

This worm, when newly excluded from the egg, is wonderfully minute; though, when in its

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utmost perfection, it is sometimes one foot in length. However, three or four inches are its common size.

The bottom of a vessel, or any other piece of wood constantly under water, inhabited and injured by a number of these worms, exhibits no external appearance of their depredations; nor are the creatures visible till the outer part of the wood is removed, when their shelly habitations appear: these, however, lie so near the surface, as to have an easy communication with the water; and there are a multitude of little perforations in the very surface, through which the animals protrude the extremities of their little shelly horns, which are of a reddish colour, and may be distinguished by an accurate observer like so many red prominent points; these are all retracted on the least touch, and remain concealed till the danger is past. From these points, or the small apertures which admit them, are the cells of these creatures to be traced: they are composed of a perlaceous or shelly matter, forming a long tube, with various turnings and windings, which marks the abode of the creature; but which usually neither adheres to its body, nor to the wood, being always more or less loose in the wood; and within them there is always a large space for the body of the creature to be every where surrounded with water. They are very smooth internally; externally, a little rough; and, when serving for the habitations of old animals, are much firmer than those of the young ones.

These shelly tubes are composed of several annulations, differing greatly in length from each other; and there is an evident care in these insects that their habitations should not be so placed as to incommode their neighbours.

The vast increase of the Terebines, and their shelly tubuli, naturally lead to an investigation of the manner of their generation; and, when we consider that each of these creatures is, from the time that it is produced from the egg, immediately lodged in a cell, in which it lives without the least possibility of reaching another animal of the same kind, it is not easy to account for the propagation of the species in the common way. This difficulty, however, is solved by an accurate anatomical observation of the insects themselves; since, in every individual, the genitals of both sexes, the semen and ovula, are equally distinct: each individual therefore serves by itself for the propagation of the species; and the possibility of this is evidently proved from the analogy of other hermaphrodite animals more exposed to observation.

Eggs are found in great plenty in the bodies of these animals about the month of June; and are discharged with the water into the sea, where the far greater part of them are infallibly destroyed by other small marine insects; and the few that can affix themselves to any piece of wood which they may happen to touch, hatch, and penetrate its substance, after the manner of their parents.

To destroy these animals, at once so detrimental and dangerous, various arts have been tried; and perhaps some prescriptions may have assisted to retard their progress; but an universal and infallible preservative against their depredations is still among the desiderata of utility.

It is supposed that the Teredo was first imported from the Indies.

TERMES. A genus of the aptera order of insects,

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insects, in the Linnæan system. Its distinguishing characters are; that it has six feet formed for running; two eyes; setaceous antennæ; and a mouth with two jaws.

Linnæus enumerates three species; one of which is the death-watch; another, the *Termes fatalis*, which he represents as one of the greatest pests of either Indies, on account of the prodigious havoc it makes in every sort of furniture and apparel, as well as in the fruits of the earth.

This naturalist, however, seems to have given an imperfect and inadequate description of this formidable tribe: we shall therefore have recourse to the ingenious Mr. Smeathman, from whose account the subsequent particulars are abstracted.

The Termites, which have been noticed by various travellers in different parts of the torrid zone, and generally denominated white ants, resemble these sagacious insects in their manner of living, which is in communities; forming extraordinary nests in the surface of the ground, and various subterraneous passages; and also in their provident and diligent labour: but in every respect much exceed these congenerous insects.

Smeathman observes, that the insect, in its perfect state, has four wings, without any sting; and consequently should be arranged under the neuroptera, and not under the aptera of the Linnæan system.

The communities of Termites consist of one male and one female, generally the parents of all the rest; and of three orders of insects, apparently of very different, though really of the same species. Those of the first order are the working insects, or labourers; the second comprehends the fighting insects, or soldiers, which are exempted from labour; and the third are the winged, or perfect insects, which are male and female, and capable of propagation, but are neither labourers nor soldiers. To this order belong the kings and queens; and, within a few weeks after they are elected and elevated to this rank, they migrate, and either establish new kingdoms, or perish in a day or two.

The largest species, called the *Termes lullificus*, is the best known of any on the African coast: it erects immense buildings of well-tempered clay or earth, which are constructed with singular ingenuity. In one respect, it is peculiarly mischievous; and, in another, equally important and useful, by destroying those vegetable or animal substances which encumber the earth, and are noxious on account of their putridity.

The buildings which these insects erect are in general of a conical shape, and about ten or twelve feet high; consisting of an exterior part, which is large and strong; and of an interior, or the habitable part, divided into many apartments, for the residence of the king and queen, the nursing of their progeny, the accommodation of the soldiers and labourers, or magazines of provision. There are other nests or habitations constructed by different species, which are in the form of turrets, or upright cylinders, and contain a number of cells: they are of two sizes, for the accommodation of a larger and a smaller species. And there is also another kind of nests, generally spherical or oval, built in trees, the residence of a distinct species.

The labourers, which are by far the most numerous of the three orders already specified, are about a quarter of an inch long; and the soldiers are about half an inch long, and equal in magnitude

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to fifteen of the labourers: the mouth of the latter is evidently calculated for gnawing and holding bodies; whereas that of the former has its jaws shaped like two sharp awls, a little jagged, and as hard as a crab's claws; so that they are incapable of any thing but piercing or wounding. In the insects of the third order, or such as have arrived at full perfection, the head, thorax, and abdomen, are wholly different from those of the other orders; and they are furnished with four large brownish or transparent wings; their length is six or seven tenths of an inch, and each is equal in bulk to thirty labourers. When arrived at maturity, they have two eyes visible, which before were imperceptible.

The Termites are collected and eaten by the natives, who esteem them excellent food. The king and queen are lodged in apartments so closed up, that one passage only remains for the ingress and egress of the labourers and soldiers, but at which neither of the royal pair can come out. In the business of propagation, the abdomen of the female extends to an enormous size; so that an old queen's will be fifteen hundred, or two thousand times the bulk of the rest of the body, and twenty or thirty thousand times the bulk of a labourer; and, by its peristaltic motion, eggs are protruded to the amount of sixty in a minute, or eighty thousand and upwards in twenty-four hours. The eggs are removed by the attendants into the nurseries; and, after being hatched, the young are furnished with every necessary till they are capable of providing for themselves.

It seems worthy of remark, that none of the working and fighting insects ever expose themselves to the open air, but either travel under ground, or within such trees and substances as they destroy, or through pipes made of the same materials with their nests. Those Termites which build in trees frequently construct their nests within the roofs and other parts of houses; to which they do considerable damage, unless speedily extirpated: and the larger species enter under the foundations of houses, through the floors, or bore through the posts of buildings, making lateral perforations and cavities as they proceed. They are also equally destructive to clothes or stores.

Smeathman makes mention of a particular species, to which he gives the appellation of walking Termites: these are considerably larger, as well as less common, than the others.

TERN, BROWN; the *Sterna Nigra* of Linnæus. This bird, which is also called the brown gull, is described by Ray as having the whole under side white, and the upper brown; the wings partly brown, and partly ash-coloured; the head black; and the tail undivided. Pennant, however, conjectures that this bird is no other than the young of the greater Tern.

TERN, GREAT, OR SEA-SWALLOW; the *Sterna Hirundo* of Linnæus. This bird is about fourteen inches long; and the expansion of the wings thirty. The bill and feet are of a fine crimson colour; the former being tipped with black, straight, slender, and sharp-pointed. The crown and hind part of the head are black; the throat and whole under side of the body are white; and the upper part, together with the coverts of the wings, are of a pale grey colour. The tail consists of twelve feathers; the exterior edges of the three outmost are grey, the rest white; and the exterior on each side

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side is two inches longer than the others, and closed in flying, so as to resemble only one slender feather.

These birds frequent the sea-shores, banks of lakes and rivers. They feed on small fish and water-insects, hovering over that element, and suddenly darting into it in quest of their prey. They breed among small tufts of rushes; and lay three or four eggs, of a dull olive-colour, spotted with black. All of this genus are very clamorous.

TERN, LESSER; the *Larus Minuta* of Linnæus. The length of this species is only eight inches and a half; and the breadth somewhat more than nineteen. The bill is yellow, tipped with black; the forehead and cheeks are white; a black line extends from the eyes to the bill; the top and hind part of the head are black; the breast and under-side of the body are covered with feathers so closely arranged, of such an exquisitely rich gloss, and so pure a white colour, that the most beautiful satin cannot vie with it. The back and wings are of a pale grey hue; the tail is short, white, and forked; the legs are yellow; and the irides are dusky.

Both this and the great Tern seem too delicate to endure the inclemency of the weather on our coasts during winter; for they are observed to quit their breeding-places at its approach, and not to return till the spring.

The Lesser Terns frequent the same places as the great; but are far less numerous than the latter.

TERN, BLACK; the *Sterna Fissipes* of Linnæus. This bird is of a middle size between the great and the lesser Tern: its usual length is ten inches; and the expansion of its wings is twenty-four. The head, neck, breast, and belly, as far as the vent, are black; and beyond, white. The male has a white spot under his chin. The back and wings are of a deep ash-colour; the tail is short and bifid; the exterior feather on each side is white; the others are ash-coloured; and the legs and feet are of a dusky red hue.

Ray denominates this species the cloven-footed gull, as the webs are depressed in the middle, and form a crescent. The black gulls frequent fresh waters; breed on their banks; and lay three small eggs of a deep olive-colour, much spotted with black. They are found, during spring and summer, in prodigious flocks, in the Lincolnshire fens; where they feed on flies, water insects, and small fish; and emit a continual scream.

Birds of this species are seen at a great distance from land. Kalm saw large flocks of them in the middle of the Atlantic ocean; and a later voyager assured Mr. Pennant, that he perceived one in the same ocean, at the distance of two hundred and fifty leagues from the Lizard.

TERN, SURINAM. This bird, which is about the size of a thrush, feeds on flies, is often domesticated, and is remarkable for the continual agitation of its head and body. The crown of the head is black, adorned with a pendent crest; and from the angle of each eye extends a white line. The cheeks are of a bright bay colour; the neck is marked on the sides and hind part with longitudinal lines of black and white; and the wings, back, and tail, are dusky, the last being tipped with white, and always spread. The breast is white; the legs are short and thick; and the toes are palmed, and barred with black and white.

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TERNATE. An appropriate appellation by which some authors express a species of bat. See **BAT**.

TESTACEA. A denomination by which Linnæus expresses the third order of the vermes, or worms: the characters of which are; that they are animals of the mollusca or soft kind, of a simple make, and commonly covered with a calcareous habitation.

This order includes the whole tribe of shells, consisting of more than eight hundred species, comprehended under thirty-six genera.

TESTACEOUS. An epithet by which naturalists express such fish as are covered with a strong, thick shell; as oysters, pearl-fish, and others.

Strictly, however, Testaceous is only applied to fish whose strong and thick shells are entire: those which are thin, soft, and composed of several parts united by joints, as the lobster, are more properly denominated crustaceous.

TESTUDO. A classical name for the tortoise. See **TORTOISE**.

TETHYS. A genus of naked sea-insects; the bodies of which are formed, as it were, of two lips, with an oblong cartilaginous body between them. They have four tentacula, shaped like ears; and there are two perforations in most kinds near the tentacula. Hill enumerates several species of this genus.

In the Linnæan system, the Tethys is a genus of the mollusca order of worms: the characters of which are; that the body is oblong, fleshy, and without feet; the mouth terminates in a cylindrical proboscis under the lip; and there are two foramina at the left side of the neck. Linnæus mentions only two species.

TETIMIXIRA. An American appellation for a fish more generally denominated pudiano.

TETRADIS. A name by which Linkius expresses a species of star-fish with only four rays; the more common kinds having five.

TETRAO. A genus of birds in the Linnæan system of the order of gallinæ; the distinguishing character of which is, that they have a naked spot near the eyes, full of fleshy tubercles. Of this genus there are twenty species; among which are the grouse, partridge, quail, and ptarmigan.

TETRAODON. A genus of the amphibia nantes in the Linnæan system: the characters of which are; that the maxillæ are bony, extended, and bipartite at the apex; the aperture is linear; the lower part of the body is full of prickles; and it has no vertical fins. Of this genus there are seven species, several of which Artedi has referred to his genus of ostracion. The mola, or sun-fish, belongs to this tribe.

TETRAX. A bird of the otis or bustard kind; called by some *anas campestris*, or the field-duck; and by others *canna*.

This fowl, which is very plentiful in France, is about the size of the pheasant, and has a beak like that of the common hen. The belly is white; and the back is variegated with grey, red, and black. It feeds on vegetables and insects; runs very swiftly; and is usually taken with nets.

TETTIGOMETRA. An appellation by which the ancients expressed the nymph of the cicada, or tetyx.

TETTIGONIA. A name given by the ancients to the smaller species of cicada, the larger being denominated *achera*.

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It is generally supposed by the moderns, that the Tettigonia was the same with the insect which the French denominate cigalon; and Reaumur observes, that whereas the ancients were acquainted with only two species, we are with three; and that our middle-sized cicada was their Tettigonia.

TEUCHTLACOT-ZANHQUI. An American appellation for the rattle-snake.

TEUTHIS. A genus of the abdominal fishes: the characters of which are; that the head is a little truncated on the fore part; that the bronchial membrane has five rays; and that the teeth are equal, rigid, and close set, forming a regular series.

Linnæus enumerates only two species.

THEDO. An appellation by which some ichthyologists express the trout.

THISTLE-FLY. A small insect produced from a fly-worm, which hatches in the protuberances of the carduus hæmorrhoidalis. In the protuberances of this thistle, while they are closed in all parts, the worm of this fly undergoes its last transformation: it here makes a shell of its own skin, in form of an egg, within which it assumes the nymph state. When this nymph becomes a living fly, the least part of its difficulty consists in emancipating itself from the shell: it has a stronger prison from which it must get free, namely, the close compacted fibres of the protuberance of the vegetable. It has, however, no other way of performing this difficult task but that of inflating its head, and throwing out the bladder or muzzle with which it is provided in this stage of its existence.

THORACICI. In the Linnæan system, the name of the third genus of bony fishes, which respire by the means of gills only: the character of which is, that the ventral fins are placed underneath the pectoral ones.

This order includes seventeen genera, and two hundred and eighteen species. The genera are these: the cepola, echeneis, coryphæna, gobius, cottus, scorpæna, zeus, pleuronectes, chætodon, sparus, labrus, sciæna, perca, gasterosteus, scomber, mullus, and trigla.

THORNBACK; the *Raja Clavata* of Linnæus. A species of ray easily distinguished from all the other by the rows of strong sharp spines disposed along the back and tail. In large specimens, there are sometimes three rows on the back, and five on the tail, all inclining towards its end. On the nose, and on the inner side of the forehead, near the eyes, there are a few spines; and others are scattered, without any regularity, on the upper part of the pectoral fins. The mouth is small, and replete with granulated teeth. The upper part of the body is of a pale ash-colour, marked with short streaks of black; and the skin is rough, with small tubercles like shagreen. The belly is white, crossed with a strong semilunar cartilage beneath the skin: in general, the lower part is smooth, having only a few spines on each side.

Young fish have very few spines on them; and their backs are often spotted with white, each spot encircled with black.

The Thornback frequents the sandy shores of Britain; is extremely voracious, feeding on all sorts of flat fish; but is particularly fond of herrings and sand-eels; and sometimes devours crustaceous animals, such as crabs. It begins to generate in June; and brings forth its young in

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July and August, which, as well as those of the skate, obtain the name of maids before they are old enough to breed. This fish begins to be in season in November, and continues so for some months; but its young, as well as those of the skate, are in season throughout the whole year.

The Thornback sometimes weighs fourteen or fifteen pounds; and has even been known to exceed that weight.

THOS. An animal of the wolf kind, common in Surinam. It is larger than the common kind; has a light bent tail, and a white belly. It never touches men or cattle; provides its food rather by cunning than open force; and preys chiefly on poultry and water-fowl.

THRESHER. An appellation sometimes denoting the sea-fox.

THRIPS. A name whereby the ancients expressed a sort of worm hatched from the egg of a beetle; which, while in the worm state, eats its way into wood, wherein it forms cells and cavities of various shapes, and in various directions.

In the Linnæan system, the Thrips is of the order of hemiptera. Its characters are these: the rostrum is small and obscure; the antennæ are as long as the thorax; the body is slender, and of an equal thickness; the abdomen is reflexible, and often bent upwards; and the four wings are extended, incumbent, narrow, and cross each other at some distance from the base. The Thrips has also six feet, and the tarsus of each foot has only two articulations.

These insects are found on many plants and flowers, and especially peaches and nectarines.

THRISSA. An appellation by which the Greeks, and some of the modern Latin writers, express the fish known in England by the name of the shad, or mother of herrings.

THROSTLE; the *Turdus Musicus* of Linnæus. This bird, called also the song-thrush, or mavis, and sometimes the *turdus viscivorus minor*, is about nine inches in length, and thirteen and a half in breadth. It so nearly resembles the missel-thrush in colour, that nothing more need be remarked, than that it is inferior in size, and that the inner coverts of the wings are yellow.

The Throstle is the finest of our song-birds, not only for the sweetness and variety of its notes, but also on account of the long continuance of its harmony; for it favours us with its song almost three parts of the year.

Like the missel-bird, the Throstle emits its melody from the top of some high tree; but, in order to form its nest, descends to some low bush or thicket: the nest is constructed of earth, moss, and straws; and the inside is curiously plaistered with clay. It lays five or six eggs, of a pale blueish-green colour, marked with dusky spots.

These birds are migratory in France: in Burgundy, they appear just before the vine-harvest, in order to feed on the ripe grapes; and are therefore called *la grive de vigne*.

THRUSH; the *Turdus Viscivorus* of Linnæus. This bird, called also the missel, is the largest of the genus; weighing nearly five ounces. Its length is eleven inches; and the expansion of its wings sixteen and a half. The bill is shorter and thicker than that of other Thrushes; and dusky, except at the base of the lower mandible, where it is yellow. The head, back, and lesser coverts of the wings, are of a deep olive brown hue;

hue; the lower part of the back is tinged with yellow; the lowest order of lesser coverts and the great coverts are brown, the first tipped with white, and the last both tipped and edged with the same colour. The quill-feathers and secondaries are dusky, but the lower part of the inner webs is white; the inner coverts of the wings are also white; and the tail is brown, the three extreme feathers tipped with white. The cheeks and throat are mottled with brown and white; the breast and belly are of a whitish yellow hue, marked with large spots of black; and the legs are yellow.

The Thrush builds its nest in some bush, or in the side of a tree; and lays four or five eggs. Its note of danger or terror is harsh and dissonant; but its song is very melodious. It begins singing very early in the spring, often with the new year, in blowing, showery weather; whence the inhabitants of Hampshire call it the storm-cock.

This bird feeds on insects, holly, and mistletoe-berries, which are the food of all the Thrush kind. During severe snowy weather, when there is a failure of their usual diet, they are observed to scratch out of the banks of hedges the root of arum, or the cuckow pint; a plant remarkably warm and pungent, and well adapted for the season.

The Thrush migrates into Burgundy in the months of October and November; in Great Britain it continues the whole year.

The ancients were of opinion that the mistletoe could not be propagated but by the berries which had passed through the body of this bird; and hence the proverb—*Turdus malum sibi cacat*.

THRUSH, GOLDEN-CROWNED, of Edwards; the *Motacilla Canadensis* of Linnæus. The bill of this bird is of a dusky hue, except at the base of the lower jaw, which is flesh-coloured; the top of the head is of a fine golden colour; and over each eye there is a black line. The hinder part of the neck, the back, the wings, and the tail, are of a greenish brown or olive colour; but the inner coverts of the wings are whitish. The inside of the quills, and the under side of the tail, are of an ash-colour; and the throat, breast, and sides, are white, with longish black spots down the centre of the feathers. The middle of the belly, thighs, and coverts under the tail, are white; and the legs and feet are of a yellowish brown colour.

This bird builds its nest on the ground, always choosing the south side of some hill; forms its habitation after the similitude of a small oven, lining it with dry grass; and lays five white eggs spotted with brown.

THRUSH, LITTLE, of Edwards. This species, which weighs about an ounce and a half, remains in Carolina the whole year; but is seen only in the thickest woods and swamps. It feeds on holly-berries and haws; and is of a brown colour, except the neck and breast, which are streaked with white.

THRUSH, GOLDEN, of Edwards; the *Oriolus Galbula* of Linnæus. This is a bird of passage; and during summer is found in the southern parts of Europe. The bill and circles round the eyes are red; but the head, neck, body, thighs, and upper and under covert-feathers of the tail, are of a fine yellow colour. The upper sides of the wings are black, except the quills and bastard wings, which are tipped with yellow; the inner coverts of the wings are yellow; and the quills are dusky within. The middle feathers of the tail are black; and the side ones, above half way, have

fine golden-coloured tips. The legs and feet are of a dusky black colour.

THRUSH, BROWN INDIAN, of Edwards; the *Turdus Canorus* of that naturalist. The bill of this species is yellow; the head, whole upper side, neck, back, wings, rump, and tail, are of a dusky brown hue; but the breast, belly, thighs, and coverts beneath the tail, are of a lightish brown, gradually mixing with a darker shade on the sides of the neck and upper part of the breast. The feathers of the wings have their edges somewhat lighter than their middles; the middle feathers of the tail are an inch longer than those of the outside; and the legs, toes, and claws, are yellow.

This bird is a native of Bengal, in the East Indies.

THURSIO. A fish mentioned by Pliny; supposed by some to be the phocæna, or porpessæ; and by others the sturgeon.

THURUS. An animal described by Gesner and others as a distinct species of wild bull; but the accounts transmitted to us seem to be either fabulous, or falsely appropriated.

THWAITE. See SHAD.

THYMALLUS. An appellation by which some express the grayling.

TIBICEN. A fish of the trigla kind; called by many authors lyra, or the harp-fish; and in some parts of England the piper.

The head of this fish runs out into two broad horns, serrated, or beset with a sort of teeth, or small spines, all along their edges; which constitutes its principal distinction from the hirundo or swallow-fish. Above the gill-fins on each side there is a long and sharp spine. The forehead is elevated into a sort of eye-brows over the eyes; and at the angles of these there are small short spines, which are rough and crooked. The whole head is covered with a bony crust; the jaws are rough like files, but have no distinct teeth; and the caudal fin, together with the middle of the back, are red.

This fish is commonly caught in the Mediterranean; and sometimes on the Cornish coasts. See PIPER.

TIBURO. In the Linnæan system, a species of squalus, with a very broad and heart-shaped head; a native of the American seas. Linnæus seems to question whether it is not a variety of the *zygæna* or hammer-headed shark.

TICK. In the Linnæan system, a species of acarus, in the aptera order of insects. It is a small, disagreeable animal, of a livid colour, with a blunt and roundish tail, elevated antennæ, a globose ovated form, and full of blood. It infests cows, swine, goats, sheep, and dogs.

TIGEGUACU. A Brazilian bird about the size of a sparrow, with a ridged and triangular bill. It has a large blood-red spot on the top of the head; the eyes are of a fine blue colour; the legs and feet are yellow; and the body is wholly black.

TIGER. An animal of the feline kind, in the Linnæan system; having a long tail, and a body marked with coloured stripes.

This is one of the most beautiful of quadrupeds. The glossy smoothness of its hair, and the extreme blackness of the streaks with which it is marked, on a ground of a bright yellow colour, strike the beholder with a kind of pleasing admiration, when joined with the idea of security. The elegance of its shape is equal to the beauty

of its colouring. It is larger than the leopard, though more slender and delicate. But the mischievous disposition of this animal is as remarkable as its form is beautiful; as if Providence intended to shew us that beauty is of no estimation, by bestowing it on the most noxious of quadrupeds.

The Tiger is peculiar to Asia; and is found as far north as China and Chinese Tartary: but the greatest numbers, the largest, and the most formidable of these creatures, are found in India and its islands. The principal distinction of the Tiger, in which it differs from other mottled animals, consists in the form of its colours, which run in streaks, in the same direction as the ribs, from the back to the belly. On the leopard, the panther, and the ounce, the colours are broken in spots all over the body; but in the Tiger, they extend lengthwise; and hardly a round spot is to be found on its skin.

Of all animals, the Tiger resembles the cat most in shape; which, if observed through a proper magnifying-glass, will convey a tolerable idea of the former. The Tiger is the only animal whose spirit seems untameable: neither force nor flattery has the smallest effect on its stubborn nature; and with equal malignity it snaps at the hand that feeds it as that by which it is chastised. With an appearance seemingly mild and inoffensive, without either ferocity or anger in its countenance, it is fierce and savage beyond measure: correction cannot terrify it, nor indulgence tame it. The lion seldom ravages except when excited by hunger; but the Tiger is insatiable, and continues the carnage even after being glutted with slaughter. When it discovers a flock or herd, it gives no quarter; but levels all with indiscriminate rapacity, scarcely sparing time to appease the calls of hunger, so intent is it on gratifying the malignity of its nature. Animals of all kinds, whether wild or tame, fall a sacrifice to its fury; and it sometimes even ventures to attack the lion.

Tigers are one of the most terrible scourges of the countries they inhabit. They lurk among bushes on the sides of rivers; some places they almost depopulate; and seem to prefer preying on the human race rather than any other animals. They do not pursue their prey, but bound on it from their ambuscades with great agility, and from a distance almost incredible. If they miss their object, they instantly retire; but, when successful, carry it off with the greatest ease, even if as large as the buffalo: if not disturbed, they plunge their heads into the body of the animal up to the very eyes, as if through an eagerness to satiate themselves with blood.

There is a sort of cruelty in the devastations of this creature, unknown to the generous lion; as well as a kind of cowardice in its sudden retreat on any disappointment. We are informed on good authority, that, at the beginning of the present century, several ladies and gentlemen being on a party of pleasure, observed under the shade of some trees on the banks of a river in Bengal, a Tiger preparing for its fatal spring: on which one of the ladies, with amazing presence of mind, laid hold of an umbrella, and furl'd it full in the animal's face; whereupon it instantly retreated, and gave the company an opportunity of withdrawing from the vicinity of so dreadful an intruder.

Another party, we are told, had not the same

good fortune. A Tiger darted among them while at dinner, seized on one of the gentlemen, and carried him off; and he was never more heard of.

A popular notion prevails in some parts of India, that the rhinoceros and the Tiger live on amicable terms, from their being frequently seen near each other. But the truth is, the rhinoceros, like the hog, loves to wallow in the mire, on which account he frequents the banks of rivers; and the Tiger, in order to quench his raging thirst, is always found in situations contiguous to them.

Fortunately for mankind, this animal is not very common, the species being chiefly confined to the warmest provinces of the East. Some travellers have compared the Tiger to the horse, with respect to size; and others to the buffalo. Buffon informs us, that he was assured by a friend, on whose veracity he could rely, that he saw a Tiger in the East Indies of the length of fifteen feet. He probably included the tail in these dimensions: therefore, allowing four feet for that, the creature must have been eleven feet long from the tip of the nose to the insertion of the tail.

In order to give an adequate idea of the strength of this animal, we shall quote the substance of a passage from Father Frenchard, who saw a combat between a Tiger and two elephants at Siam. It was within a lofty palisade, about one hundred feet square. At first three elephants were produced, with their heads and part of their trunks covered with a kind of armour. A Tiger was then brought forth from his den, of a size much larger than any he had ever seen. He was at first held with cords; and one of the elephants approaching, gave him several blows on the back with its trunk, with such force, that the Tiger fell, and for some time lay motionless: but, when set at liberty, though the first blows had greatly abated his fury, he made at the elephant with a loud shriek, and aimed at seizing his trunk. The elephant drew it up with great dexterity, received the Tiger on his great teeth, and threw him into the air. After this, he was discouraged from again venturing to approach the elephant: instead of which, he made several circuits round the palisade, frequently attempting to fly at the spectators. At length, three elephants were sent against him, who struck him so terribly with their trunks, that he once more lay as if dead; and undoubtedly would have been killed outright, had not the combat been suspended. Hence we may form an opinion of the strength of this animal, which, under such great disadvantages, ventured to continue the engagement against such potent enemies, covered and protected from his fury.

Captain Hamilton informs us that there are in the Sundah Rajha's dominions no less than three sorts of Tigers, the smallest of which are the fiercest. The small ones are about two feet high, the second three feet, and the larger sort above three feet and a half. But the latter, though possessing superior powers, is less rapacious than either of the former. This formidable animal is called the Tiger-royal; one of which was lately to be seen in the Tower of London.

We have no certain accounts as to the number of young which the Tigress brings forth; but it is generally said that she produces four or five at a time. Though furious at all times, her ferocity on this occasion is incredible. If robbed of her
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young, she enragedly pursues the spoiler, who, in order to save a part, usually drops one of her cubs. This she carries back to her den, and again pursues him: he then drops another, with which she runs to her den, as with the former; and the plunderer generally escapes with the remainder before she returns. But, if robbed of all her young, she then becomes desperate; and boldly entering the adjacent towns, commits the most dreadful slaughter.

The skin of the Tiger is much esteemed all over the East, especially in China, where the mandarins cover their seats of justice with it; but in Europe those of the panther and leopard are held in much greater estimation. The Indians sometimes eat the flesh of this animal, but do not seem to regard it as a delicacy.

The Tiger often accompanies the monuments of Bacchus; and the chair of that god is usually drawn by those animals. Tigers are also sometimes placed at the feet of the Bacchanals: a proper emblem of the fury with which they are agitated.

TIGER, RED. See **COUGAR**.

TIGER, HUNTING, OF LEOPARD. See **LEOPARD**.

TIGER CAT. A species of the feline genus, about the size of the wild cat, with a coat beautifully striped and varied like that of the common tiger. The tail is long, and streaked with black; the body is yellow, with black stripes above, and round black spots below; the ears are black, and each is marked with a white lunated spot.

This animal, which was first briefly described from a skin by Pennant, has been lately accurately and scientifically described by Dr. Forster. It inhabits all parts of Africa, from Congo to the Cape of Good Hope; lives in mountainous and woody tracts; and in its wild state is a great destroyer of hares, rabbits, lambs, young antelopes, and all kinds of birds. Its manners and œconomy are perfectly anomalous to those of our domestic cat.

TIGER, MAN. See **MANTEGAR**.

TIGER SHELL. An appellation by which conchologists sometimes express the red *voluta*, with large white spots. In the Linnæan arrangement, it is a species of the *cyprea*.

TIHOL. A name by which the natives of the Philippine Islands express a species of crane, remarkable for its size; being represented as taller than a man when standing erect and holding up its head.

TIJEGUACU-PAROARA. A Brazilian bird, of the size of a lark. The beak is short and thick, brown above, and white below; the head, throat, sides, and lower part of the neck, are of a fine yellow colour, variegated with red in the female, and entirely of a deep sanguine colour in the male; the upper part of the neck and the whole back are grey, with an admixture of brown; the wings are brown, tipped with white; the tail is of the same colour; and the sides of the neck, the breast, belly, and thighs, are white. This bird was first described by Marcgrave.

TIJEPİRANGA. A Brazilian bird of the sparrow kind, described by Marcgrave. It is somewhat larger than the lark. The whole body, neck, and head, are of a very fine red colour; and the wings and tail are black.

There is another variety, about the size of the sparrow; of a blueish grey colour on the back;

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white on the belly; of a sea-green on the wings; and pale grey on the feet.

TIKE. An appellation by which the natives of Zetland express the otter, an animal very common in that island.

TINCA. A name by which some ichthyologists express the tench.

TINCA MARINA. An appellation sometimes given to the common turdus; known in English by that of the wraffe.

TINEA. The classical name for the moth. See **МОТН**.

TINNUNCULUS. A name by which many ornithologists express a hawk of the long-winged kind; the *Falco Tinnunculus* of Linnæus: in English, known by the appellation of the kestrel, stannel, and windhover.

This is the hawk so frequently observed in the air, fixed in one place, and as it were fanning with its wings; at which time it is watching for its prey.

When falconry was a fashionable amusement in this country, this species was trained for catching young partridges and small birds. See **FALCON**.

TIPHLE. An appellation by which some authors express the acus, or tobacco-pipe fish.

TIPUL. See **TIHOL**.

TIPULA. In the Linnæan system, a genus of the diptera order of insects. The characters are these: the head is long; the upper jaw is arched; it has two bending feelers, longer than the head; and a very short recurved proboscis. Linnæus enumerates fifty-eight species.

The smaller species of this genus bear such a strong resemblance to the gnat, that the generality of naturalists, not excepting the penetrating Swammerdam, have confounded the two genera, and described these among gnats. The long form of the body, the position of the wings, and the length and structure of the legs, are the circumstances which constitute a resemblance between the gnats and the *Tipulæ*; but the structure and organs of the head are alone a very sufficient distinction.

As the *Tipulæ* differ from gnats in the structure of their mouths, and in being destitute of trunks; so they differ equally from other flies of that character by their resemblance to gnats in the figure of their bodies, in the conformation of their mouths, and in several parts and organs. The aperture of the mouth consists of a slit, extending from the fore part of the head toward the hinder part; and the lips cannot be said to be upper and lower, but lateral. When the body of the creature is pressed, this mouth opens, and discovers what may be denominated a second pair within: these are not more firmly closed than the others, and therefore only resemble certain duplications of the flesh. The exterior lips are cartilaginous, and furnished with short hairs; the interior are perfectly smooth, and of a fleshy texture. The head is of a long and slender figure: the lips are articulated at the extremity of this head; and on each side stands, on the upper part, a sort of beard, which, when closely examined, appears to be articulated in the same manner as the antennæ of other insects: the office of these beards seems to be that of a covering to the mouth; they are constantly found in every species of *Tipula*, and are uniform in their position.

The larger species of *Tipulæ* frequent meadows;

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dows; and their size is an obvious and sufficient distinction from the gnat tribe: they are often an inch in length from head to tail; their bodies being slender, and composed of nine rings. The male *Tipula* is easily distinguished from the female: it is much shorter and thicker; and the tail usually turns upwards, whereas that of the female is placed in the same direction with the body. The legs of these insects are greatly disproportioned to their bodies, especially the hinder pair, which in the larger species are usually three times the length of the body.

The larger *Tipula* is of a brownish colour; and it's corselet is so elevated, that the creature seems hump-backed. The head is small; and the neck is very short. The eyes are large and reticulated, covering almost the whole surface of the head; and are of a greenish colour, with a cast of purple. Reaumur supposes that the two very lucid specks which appear on the anterior part of the breast are eyes, though placed in so very singular a manner. The wings are long, but very narrow, and transparent, with a light cast of brown; and the ribs, when microscopically examined, appear as if beset with scales or feathers. Some species of the *Tipulæ* have them also fringed, with these scales at their edges. There are no ailerons, or petty wings; but, in their stead, two very fine balancers, or mallets, having long pedicles, and roundish or oval heads. The stigmata of the corselet are four; one pair placed immediately beneath the balancers, and the other just below the first pair of legs: the first pair are very long, and the others small. Each ring of the body is composed of two half cylinders, united by means of a membrane, which gives them an opportunity of being distended or contracted at the creature's pleasure.

All the large *Tipulæ* carry two antennæ, or horns, on their heads, composed of a number of joints, each covered with fine downy hairs; and at the juncture of each to the next there is a tuft of longer and more stiff hairs.

Such is the description of the common large *Tipula* found in meadows; which, in almost every particular, is applicable to the generality of the larger species of these insects.

The smaller kinds are very numerous, and of great variety. They are frequent in almost every place, and at every season of the year. Immense clouds of them appear in the spring; and even during the coldest winter's day they may be seen about noon, flying with the greatest facility, and almost continually on the wing.

In tracing these flies from their origin, they are all found to be produced from worms without legs, and regular scaly heads. Those from which the larger *Tipulæ* are produced, live under ground, usually about an inch from the surface; and in some places they are so extremely numerous, that the herbage is considerably damaged by them. In general, they are fond of marshy situations; nevertheless, they are not unfrequently found in the cavities of the stumps of old trees.

TIRSIO. An appellation by which some authors express the phocæna of Willughby; the porpesse, or marsum, of others.

TITLARK; the *Alauda Pratensis* of Linnæus. This bird, which is most commonly seen in low, moist places, has a delightful note, singing in all situations, on trees, on the ground, and in the air. It becomes silent about Midsummer,

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and resumes it's melody towards the month of September.

The Titlark is of an elegant, slender shape; the length is five inches and a half, and the breadth nine inches. The bill is black; the back and head are of a greenish brown colour, spotted with black; the throat and lower part of the belly are white; the breast is yellow, marked with oblong spots of black; the tail is dusky, but the exterior feather is varied by a bar of white, running across the end, and taking in the whole outmost web. The claw on the hind toe is very long; and the feet are yellowish.

TITMOUSE. A distinct genus of birds in the Linnæan system, of the order of passeræ: the distinguishing characters of which are; that the extremity of the tongue is truncated, and terminated by three or four bristles; and that the beak is entire, and covered with bristly feathers at the base. There are fourteen species.

TITMOUSE, GREAT. This bird, which is also called the ox-eye, is six inches long, nine inches broad, and about one ounce in weight. The bill is straight, black, and half an inch long; the tongue is broad, terminating in four filaments; the head and throat are black; the cheeks are white; and the back and coverts of the wings are green. The belly is of a yellowish green colour, divided in the centre by a line of black, extending to the vent; the rump is of a blueish grey; and the quill-feathers are dusky, tipped with blue and white. The lesser coverts are blue, and the greater are tipped with white. The tail is about two inches and a half long, and of a black colour, except on the exterior edges, which are blue.

Though this bird sometimes visits our gardens, it chiefly inhabits woods, where it makes it's nest in hollow trees, and lays nine or ten eggs. This, and the whole tribe of Titmice, feed on insects which they meet with in the bark of trees; but in the spring they considerably damage fruit-gardens, by destroying the tender buds. Like the woodpecker kind, they are perpetually running up and down the trunks of trees in pursuit of food.

TITMOUSE, BLUE. This bird frequents gardens, and greatly injures fruit-trees, by bruising the young buds in search of such insects as lurk under them. It breeds in holes of walls, and lays about twelve or fourteen eggs. The bill is short and dusky; the crown of the head is of a fine blue colour; the forehead and cheeks are white; and a black line extends from the bill to the eyes. The back is of a yellowish green hue; and the lower side of the body is yellow. The wings are blue, transversely marked with a white bar; the tail is also blue; and the legs are of a leaden colour.

TITMOUSE, COLE, or BLACK; the *Parus Ater* of Linnæus. The length of this bird is five inches, and the breadth seven. It is distinguished from all others of the genus by it's smallness. The head is black, with a white spot on the hind part; the back is of a greenish ash-colour; the rump is of a deep green; and the exterior edges of the principal wing-feathers are also green.

TITMOUSE, MARSH. This bird receives it's name from it's frequenting moist situations. In this country it generally inhabits woods, and seldom infests gardens. Willughby observes, that it differs from the cole Titmouse in being bigger, in wanting the white spot on it's head, in having a larger tail, in it's under side being white, in being

ing less black under the chin, and in wanting the white spot on the coverts of the wings. Repeated experience, however, evinces that all these distinctions are not to be relied on.

TITMOUSE, LONG-TAILED. This bird is five inches and a quarter long, and the expansion of the wings seven inches. The bill is black, short, thick, and very convex, differing from all the rest of the genus; the base is beset with small bristles; and the irides are hazel-coloured. The top of the head is white, surrounded with a broad stroke of black, which rises on each side of the upper chap, passes over each eye, and unites at the hind part of the head, continuing along the middle of the back to the rump. On each side of this black stroke the feathers are of a purplish red colour, as well as those immediately incumbent on the tail. The coverts of the wings are black; and the secondary and quill-feathers are dusky. The tail is three inches long, and formed like that of a magpie, consisting of twelve feathers of unequal lengths. The cheeks and throat are white; the breast and belly are also white, tinged with red; and the legs and feet are black.

This bird builds an elegant nest, of an oval shape, about six inches deep, composed of moss, wool, feathers, and down. It lays from twelve to sixteen eggs; and the young follow the parent bird during the whole winter.

TITMOUSE, BEARDED: the *Parus Biarmicus* of Linnæus. This species is found in the marshes near London, and in some other parts of the kingdom. It is of the same shape as the long-tailed Titmouse, but rather larger. The bill is short, strong, very convex, and of a box colour; the irides are of a pale yellow; the head is of a fine grey; on each side of the bill beneath the eye, there is a long triangular tuft of black feathers; the chin and throat are white; the middle of the breast is flesh-coloured; the sides and thighs are of a pale orange hue; the hind part of the neck and back are of an orange bay; the secondaries are black, edged with orange; the quill-feathers are dusky on their exterior, and white on their interior sides; and the lesser quill-feathers are tipped with yellow. The tail is nearly three inches long: the two middle feathers are largest; the others gradually shorten on each side; and the extreme ones are of a deep orange colour. The vent-feathers of the male are of a pale black; of the female, a dull orange; and the legs are of a deep shining black.

The female is destitute of the black mark on each cheek, and the fine flesh-colour on the breast. The crown of the head is of a brownish rust-colour, spotted with black; and the extreme feathers of the tail are black, tipped with white.

Edwards describes this bird under the appellation of the least butcher-bird. See **BUTCHER-BIRD**.

TITMOUSE, PARADISE, of Edwards; the *Tanager Tatao* of Linnæus. The bill of this bird is black and dusky; and round the basis of the upper mandible the feathers are black. The top and sides of the head are covered with yellowish green feathers, in which space the eyes are placed. The hinder part of the head and neck, the beginning of the back, the tail, and the quill-feathers, with the row of coverts immediately above them, are of a deep glossy black hue. The edges of a few of the outer quills are of a fine blue colour; as are the lesser coverts, with transverse dusky

lines. The insides of the wings are dusky, the coverts being edged with blue green. The tail has twelve feathers of a dull black colour; the lower part of the back and rump is covered with feathers of an exceeding fine bright reddish orange colour; the throat and breast are of a fine dark ultramarine blue; and the belly and thighs gradually change to a fine blueish sea-green. The middle of the belly, about the vent, and the ends of the coverts beneath the tail, are tinged with dusky; and the legs and feet are of the same colour.

This bird is a native of Guiana, in South America.

TITMOUSE, GREEN SPOTTED, of Edwards; the *Todos Cinereus* of Linnæus. This bird has a short bill, of a blueish black colour. The feathers of the whole body are of a very fine parrot green; but the centre of each being black, gives the bird a beautiful spotted appearance. The plumage on the throat and breast inclines to a whitish blue; the coverts within-side the wings are of a light green; the insides of the quills, and the under side of the tail, are of a dark ash-colour; and the legs and feet are dusky.

Edwards informs us, that this bird is a native of Surinam,

TITMOUSE, GOLDEN, of Edwards; the *Tanager Violacea* of Linnæus. The bill of this bird is black; the hinder part and sides of the head; the neck, throat, back, and wings, are of a dark shining blueish purple; the forehead, breast, belly, thighs, and covert-feathers under the tail, are of a fine bright orange colour; the upper side of the tail, and the exterior quills of the wings, are dusky or black; the inner coverts of the wings, and the inner webs of the quills towards their bottoms, are white; the interior webs of the outer feathers of the tail are white near their tips; and the legs and feet are of a dark brown colour.

This bird is also a native of Surinam; and was first figured and described by Edwards from a live specimen in London.

TITMOUSE, BAHAMA, of Catesby. This bird has a pretty long black bill, somewhat incurvated; the head, back, and wings, are brown; a white streak runs from the angle of the bill to the back part of the head; the breast and upper part of the wings are yellow; and the tail, which is long, is brown above, and of a dirty white hue below.

TITMOUSE, CRESTED. This bird is about five inches long; the expansion of the wings is eight; and the tail is two inches long. The top of the head is black, the edges of the feathers appearing somewhat white. The crest, which rises to an inch in height, sufficiently distinguishes this from all others of the genus.

TITMOUSE, YELLOW-THROATED, of Catesby. The bill and back part of the head of this bird are black; the throat is of a shining yellow colour, separated on each side the upper part of the head and neck by a black streak, which begins at the angle of the bill, crosses the eye, and advances to the breast. The hinder part of the head, the neck, and the back, are grey; and the wings are of a brownish grey colour. The belly is white in the middle; the sides are spotted with black; the tail is black and white; and the legs and feet are brown, and armed with very long claws, by which it is assisted in climbing trees.

TLACOOZELOTL. See **OCELOT**.

TLAQUACUM. An appellation by which

the Spániards expres that singular animal more usually denominated the opoffum.

TLAQUATZIN SPINOSUM. A name by which Hernandez has expressed the cuanda, a kind of American porcupine.

TLANHQUACHUL. A Brazilian bird, pretty nearly approaching to the nature of the European platea, or spoon-bill. It is extremely voracious, feeding entirely on live fish, and fastidiously rejecting dead ones. It is entirely of a beautiful red colour, with a black ring round the upper part of it's neck. It frequents the seashores, and the banks of rivers.

TLEUQUECHOLTOTOTL. A Mexican bird of the woodpecker kind; described by Nieremberg under the name of the avis salutiferus, the plumage of a red crest which adorns it's head being esteemed a specific against the head-ach.

TOAD; the *Rana Bufo* of Linnæus. This animal bears a strong resemblance to the frog, except that it is blacker in it's colours; and being slow and heavy in it's motions, exhibits nothing of the agility of that creature. Yet such is the force of habit, begun in early prejudice, that those who consider the frog as an harmless, playful animal, turn from the Toad with horror and disgust. The frog is considered as an useful assistant in ridding our grounds of vermin; the Toad as a secret enemy, which only seeks an occasion to infect us with it's venom.

In this manner the imagination, biassed by it's terrors, delineates the Toad in the most hideous colouring, and clothes it with more than natural deformity. It's body is broad; it's back is flat; and it is covered with a dusky, pimpled hide. It's belly is large, swagging, and prominent; it's pace is laboured, and crawling; it's retreat is gloomy and filthy; and it's whole appearance is generally supposed to be calculated to excite disgust and horror: hence few can examine it without antipathy. Yet Goldsmith informs us that, on first seeing a Toad, none of it's deformities affected him with the smallest sensations of loathing; and that he even mistook it for a frog.

As the Toad bears a general similitude to the frog, so it also resembles that animal in it's nature and appetites. Like the frog, the Toad is amphibious; like that animal, it lives on worms and insects, which it seizes by darting out it's tongue; and in the same manner also it crawls about during moist weather.

The male and female couple, as in all the frog kind; their time of propagation being very early in the spring. Sometimes the females are seen on land, oppressed by the males; but they are more frequently coupled in the water. They continue together for some hours; and adhere so fast, as to tear off the very skin from the place. In all these particulars they entirely resemble the frog. But the assistance which the male lends the female in bringing forth, is a peculiarity in this species worthy of attention. A French gentleman, on the evening of a summer's day, perceiving two Toads coupled together in the king's gardens at Paris, stopped to examine them. Two facts, equally new, surprised him: the first, the extreme difficulty of the female in laying her eggs; the second, the assistance lent her by the male for that purpose. The eggs of the female lie in her body like beads on a string; and, after the first was excluded by a strong effort, the male

caught it with his hinder paws, and kept working it till he had thus extracted the whole chain. In this manner the animal performed, in some measure, the functions of a midwife; impregnating every egg at the same time that it issued from the body.

It is probable, however, that this difficulty in parturition happens only on the land; and that the Toad, which produces it's spawn in the water, performs it as easily as the frog.

In England, the Toad propagates exactly in the same manner as the frog; and the female, instead of retiring to a dry hole, descends to the bottom of some pond, where she lies torpid the whole winter, preparing to propagate at the beginning of the spring. On these occasions the number of females is found greatly to surpass that of the other sex, there being above thirty to one; and twelve or fourteen of the former are frequently seen clinging to the same female.

When, like the frog, the young have undergone all the variations of the tadpole state, they forsake the water; and are often seen, in a moist summer's evening, crawling up by myriads from fenny places into drier situations. Having found out retreats for themselves, or dug them with their mouths and hands, they lead a patient, solitary life, seldom venturing abroad except when the evening moisture invites them. At such times the grass is commonly covered with snails, and the paths with worms, which constitute their principal food. They are also very fond of every kind of insects: and we have the authority of Linnæus to support the assertion, that they sometimes continue immovable, with their mouths open, at the bottoms of shrubs; where the butterflies, by some unaccountable fascination, are observed to fly down their throats.

As the subsequent letter from Mr. Arscott, on the subject of the Toad, throws considerable light on it's natural history, we shall make no apology for laying it before our readers.

'Concerning the Toad,' says this gentleman, 'that lived so many years with us, and was so great a favourite, the greatest curiosity was it's becoming so remarkably tame. It had frequented some steps before our hall-door some years before my acquaintance commenced with it; and had been admired by my father for it's size, (being the largest I ever met with) who constantly paid it a visit every evening. I knew it myself for above thirty years; and by constantly feeding it, brought it to be so tame, that it always came to the candle, and looked up, as if expecting to be taken up and brought upon the table, where I always fed it with insects of all sorts. It was most fond of flesh maggots, which I kept in bran: it would follow them; and, when within a proper distance, would fix it's eyes, and remain motionless for near a quarter of a minute, as if preparing for the stroke, which was an instantaneous throwing it's tongue at a great distance upon the insects, which stuck to the tip by a glutinous matter. The motion is quicker than the eye can follow.

'I cannot say how long my father had been acquainted with the Toad before I knew it; but when I was first acquainted with it, he used to mention it as the old Toad he had known for so many years. I can answer for thirty-six years.

'This old Toad made it's appearance as soon as the warm weather came; and I always concluded it retired to some dry bank to repose till spring.

spring. When we new-layed the steps, I had two holes made in the third step, each with a hollow of more than a yard long, for it; in which I imagine it slept, as it came from thence at it's first appearance. It was seldom provoked. Neither that Toad, nor the multitudes I have seen tormented with great cruelty, ever shewed the least desire of revenge, by spitting, or emitting any juice from their pimples. Sometimes, upon taking it up, it would let out a great quantity of clear water, which, as I have often seen it do the same upon the steps when quite quiet, was certainly it's urine, and no more than a natural evacuation. Spiders, millepedes, and flesh-maggots, seem to be this animal's favourite food. I imagine, if a bee was to be put before a Toad, it would certainly eat it to it's cost; but, as bees are seldom stirring at the same time that Toads are, they rarely come in their way; as they do not appear after sun-rising, or before sun-set.

' I once, from my parlour-window, observed a large Toad I had in the bank of a bowling-green, about twelve at noon, a very hot day, very busy and active upon the grass. So uncommon an appearance made me go out to see what it was; when I found an innumerable swarm of winged ants had dropped round his hole; which temptation was as irresistible as a turtle would be to a luxurious alderman.

' In respect to it's end, had it not been for a tame raven, I make no doubt but it would have been now living. This bird, one day seeing it at the mouth of it's hole, pulled it out; and although I rescued it, pulled out one eye; and hurt it so, that notwithstanding it's living a twelvemonth, it never enjoyed itself; and had a difficulty of taking it's food, missing the mark for the want of it's eye. Before that accident, it had every appearance of perfect health.'

To this account of the Toad's inoffensive qualities, we shall subjoin another from Valisnieri, to prove that, even taken internally, the Toad is no way dangerous.

' In the year 1692, some German soldiers, who had taken possession of the castle of Arceti, finding that the peasants of the country often amused themselves in catching frogs, and dressing them for the table, resolved to provide themselves with a similar entertainment, and made preparations for frog-fishing in the same manner. It may easily be supposed that the Italians and their German guests were not very fond of each other; and indeed it is natural to think, that the soldiers gave the poor people of the country very good reason for discontent. They were not a little pleased, therefore, when they saw them go to a ditch where Toads, instead of frogs, were found in great abundance. The Germans, no way distinguishing in their sport, caught them in great numbers; while the peasants kept looking on, silently flattering themselves with the hopes of speedy revenge. After being brought home, the Toads were dressed up after the Italian fashion; the peasants, quite happy at seeing their tyrants devour them with so good an appetite, and expecting every moment to see them drop down dead. But, what was their surprise, to find that the Germans continued as well as ever; and only complained of a slight excoriation of the lips, which probably arose from some other cause than that of their repast!'

Solenander likewise relates the following story.

' A tradesman of Rome and his wife had long lived together with mutual discontent. The man was dropsical, and the woman amorous. This ill-matched society promised soon, by the very infirm state of the man, to have an end: but the woman was unwilling to wait the progress of the disorder; and therefore concluded that, to get rid of her husband, nothing was wanting but poison. For this purpose she made choice of a dose which she supposed would be the most effectual; and having calcined some Toads, mixed their powder with his drink.

' The man, after taking a hearty dose, found no considerable inconvenience, except that it greatly promoted urine. His wife, who considered this as an incipient symptom of the venom, resolved not to stint the next dose, but gave it in greater quantities than before. This also increased the former symptom; and, in a few days, the woman had the mortification to see her detested husband restored to perfect health; and remained in utter despair of ever being a widow.'

From the foregoing relations, it will, we doubt not, be extremely evident what unjust prejudices have been entertained against this animal; and that mankind have been taught to consider as an enemy a creature which, by destroying numbers of the insect tribe, frees them from real invaders. We may therefore regard, as fables and vulgar errors, those accounts which represent the Toad as possessed of venom to kill at a distance; of it's ejecting it's venom, which burns wherever it touches; of it's infecting those vegetables near which it resides; and of it's excessive fondness for sage, which it renders poisonous by it's approach. These, and many others of the same kind, most probably originated from an antipathy which some persons have to all animals of the genus. The Toad is certainly a harmless, defenceless creature; slow, and unvenomous; and seeks the darkest retreats, not from the malignity of it's nature, but the multitude of it's enemies.

During the severity of winter, the Toad, like all the frog kind, becomes torpid. It then makes choice of either the hollow root of a tree, the cleft of a rock, or the bottom of a pond, for it's retreat, where it is sometimes found in a state of insensibility. As it is very long lived, so it is extremely tenacious of life. It's skin is tough, and not easily pierced; and the animal, though covered with wounds, continues to shew signs of life, and every part appears in motion. But for the story of it's existing whole centuries in the bosom of a rock, or cased within the body of an oak tree, without the smallest access on any side either for nourishment or air, and yet taken out alive and perfect, we can by no means account.

It would perhaps be as uncandid to contradict, as difficult to believe, relations of this sort: we have the most respectable authorities witnessing for their truth; and yet the whole analogy of nature seems to arraign them of falshood. Bacon asserts, that Toads are sometimes discovered in this manner; Plot confirms his testimony; and to this day there is a marble chimney-piece at Chatsworth having the print of a Toad on it, with a tradition of the manner in which it was found. In the Memoirs of the Academy of Sciences, we meet with an account of a Toad found alive and healthy in the heart of a very thick elm, without the smallest aperture for entrance or egress. In the

the year 1731, another was discovered in the heart of an old oak near Nantes, without the smallest avenue to it's cell; and it was generally supposed, from the size of the tree, that the animal could not have been confined there less than eighty or a hundred years, without either sustenance or air.

To all these relations we can only oppose the strangeness of the facts; the necessity this animal is under of receiving air; and it's dying like all others in the air-pump when deprived of that all-sustaining fluid. But whether these objections are of sufficient weight against such respectable and disinterested authorities, we pretend not to determine: certain, however, it is, that the Toad, if kept in a damp situation, will live for several months without any food whatever.

To this singular quality, whether real or imaginary, may be added another equally singular, and equally questionable; namely, that of Toads sucking cancerous breasts; thus extracting the venom, and effecting a cure. The first intelligence on this strange subject is contained in a letter to the Bishop of Carlisle from Dr. Pitfield, who was the first person of consequence that attended the experiment. The epistle follows:

Your lordship must have taken notice of a paragraph in the papers with regard to the application of Toads to a cancered breast. A patient of mine has sent to the neighbourhood of Hungerford, and brought down the very woman on whom the cure was done. I have, with all the attention I am capable of, attended the operation for eighteen or twenty days, and am surpris'd at the phenomenon. I am in no expectation of any great service from the application; the age, constitution, and thoroughly cancerous condition of the person, being unconquerable barriers to it. How an ailment of that kind, absolutely local, in an otherwise sound habit, and of a likely age, might be relieved, I cannot say: but as to the operation, thus much I can assert, that there is neither pain nor nausea in it. The animal is put into a linen bag, all but it's head, and that is held to the part. It has generally instantly laid hold of the foulest part of the sore, and sucked with greediness till it dropped off dead. It has frequently happened, that the creature has swollen immediately, and from it's agonies appeared to be in great pain. I have weighed them for several days together, before and after the application, and found their increase of weight, in their different degrees, from a drachm to an ounce. They frequently sweat exceedingly, and turn quite pale; and sometimes they disgorge, recover, and become lively again. I think the whole scene is surpris'ing, and a very remarkable piece of natural history. From the constant inoffensiveness which I have observed in them, I almost question the truth of their poisonous quality. Many people here expect no great good from the application of Toads to cancers; and where the disease is not absolutely local, none is to be expected. When it is seated in any part not to be well come at for extirpation, I think it is hardly to be imagined, but that the having it sucked clean as often as you please, must give great relief. Every body knows that dogs licking of sores cures them; which is, I suppose, chiefly by keeping them clean. If there is any credit to be given to history, poisons have been sucked out. *Pallentia vulnera lambit ore venena trahens*, are the words of Lucan on the occasion. If the people to whom these words are

applied did their cure by immediately following the injection of the poison, the local confinement of another poison brings the case to a great degree of similarity. I hope I have not tired your lordship with my long tale: as it is a true one, and, in my apprehension, a curious piece of natural history, I could not forbear communicating it to you. I own I thought the story in the papers to be an invention; and when I considered the instinctive principle in all animals of self-preservation, I was confirm'd in my disbelief: but what I have related I saw; and all theory must yield to fact. It is only the rubeth, the Land-Toad, which has the property of sucking: I cannot find any the least mention of the property in any one of the old naturalists. My patient can bear to have but one applied in twenty-four hours. The woman who was cured had them on day and night, without intermission, for five weeks. Their time of hanging at the breast has been from one to six hours.

Other remarks on the method by which these creatures perform this surpris'ing operation, are these. Some Toads die very soon after they have sucked, others live about a quarter of an hour, and some much longer. For example; one that was applied about seven o'clock, sucked till about ten, and died as soon as it was taken from the breast; another that immediately succeeded continued till three o'clock, but dropped dead from the wound: each swelled exceedingly, and became of a pale colour. They did not seem to suck greedily, and often turned their heads away; but, during the time of their sucking, were heard to smack their lips like a young child.

From these relations, which seem well authenticated, and published from the purest motives of humanity, we might conclude that no room remained for doubt: and yet authorities equally respectable maintain, that there is no visible appearance of the Toad's sucking any part of the cancerous poison; though they allow, that the animal's swelling and falling off dead is a general consequence of the application.

There are several varieties of the Toad in this country, such as the land and water Toad; but the principal distinction between these seems to consist in the ground-colour of their skin. In the first, it is more inclining to ash-colour, with brown spots; in the other, the colour is brown, approaching to black. The Water-Toad is also inferior in size to the other; but both breed equally in that element. The size of the British Toad is generally from two to four inches long; though mention is made of several which have greatly exceeded those dimensions. But, in some of the tropical climates, the Toad is usually six or seven inches in length; and now and then much larger. Of these hideous creatures, some may be said to be beautifully streaked and coloured; some studded over as with pearls; others bristled with horns or spines; some with their heads distinct from their bodies; and others with such short necks, as to appear almost without heads.

These varieties, and many others which we leave the friends of deformity to enumerate, are found in the tropical climates in great abundance, particularly after showers of rain. At such seasons the streets and fields are almost wholly covered with them: they then crawl from their retreats, and disfigure every place in search of their favourite moisture.

With us, the conceit of it's raining Toads and frogs

frogs has long been justly exploded; but it is still entertained in the tropical countries, not only by the savage natives, but by the more refined settlers, who frequently add to their own the prejudices and superstitions of other nations.

It would be an endless, as well as a disagreeable task, to enter into all the minute discriminations of these animals, as found in the various climates of the globe; nor do they appear in general to differ essentially in nature and habits from each other: the pipal, or Surinam Toad, however, seems to be too singular an object in natural history to be passed over in silence.

TOAD, SURINAM, OR PIPAL. This creature is still more hideous in its shape than the common Toad. The body is flat and broad; the head is small; the jaws, like those of the mole, are extended, and evidently fitted for digging in the ground; and the skin of the neck forms a sort of wrinkled collar. The head is of a dark chestnut colour; the eyes are small; the back, which is very broad, is of a lightish grey colour, and seems to be covered with a number of small eyes, roundish, and arranged at nearly equal distances. These eyes are very different from what they appear, being in reality the animal's eggs, covered with their shells, and placed there for hatching: they are buried deep in the skin; and at the beginning of incubation, just begin to appear; but are very visible when the young animal is about to burst from its confinement. They are of a reddish, shining yellow colour; and a number of small warts, resembling pearls, are dispersed over the body.

Such is their situation previous to their coming forth; but nothing is more singular than the manner of their production. The eggs, when formed in the ovary, are sent, by some internal canals which anatomists have not hitherto described, to lie and arrive at maturity under the bony substance of the back: in this state they are impregnated by the male, whose seed finds its way by a series of pores, and pierces not only the skin but the periosteum. The skin, however, is still apparently entire, and forms a very thick covering over the whole brood; but, as they advance to maturity, at different intervals, one after another, the egg seems to start forward, and to project from the back, becoming more yellow, and at last breaking, when the young one puts forth its head: nevertheless, it still retains its situation, till it has acquired a proper degree of strength; and then quits the shell, but continues to adhere to the back of the parent. In this manner the Pipal travels, with her singular brood on her back, in all the different stages of maturity. Some of the strange progeny, not yet come to sufficient perfection, appear quite torpid, and as yet without life in the egg; others seem just beginning to rise through the skin, in one place peeping forth from the shell, in another entirely emancipated from their prison; some are sporting at large on the parent's back; and others descending to the ground, in order to search for their proper food, and in time to propagate their kind.

Such is Seba's description of this singular production; in which he differs from Ruysch, who affirms, that the young ones are bred in the back of the male only, where the female deposits her eggs. However, Seba's authority is generally allowed to be the best, though many circumstances are wanting to compleat his information,

such as a description of the passage by which the egg finds its way into the back, the manner of its fecundation, the time of gestation, as also a history of the manners of the animal itself.

The male Pipal is every way larger than the female, and the skin more flaccid. The whole body is covered with pustules, resembling pearls; and the belly, which is of a bright yellow colour, appears as if sewed up from the throat to the vent.

This creature, however hideous in its appearance, is probably entirely harmless, like the rest of the frog kind; though we are told of terrible effects resulting from its powder, when calcined. This, however, must certainly be false: no creature whatever, when calcined, can be poisonous; for the fire consumes every particle that could be dangerous in this composition; all animal substances, when calcined, being exactly the same both in nature and quality.

TOBACCO-PIPE FISH; the *Syngnathus acus* of Linnæus. See **PIPE-FISH**.

TOBACTLI. An American appellation for a bird of that country described by Nieremberg, more usually denominated **Troactli**.

TOBIANUS. A name by which some ichthyologists express the ammodytes, or sand-eel.

TOBIS is also a name for the sand-eel.

TOCKAY. A species of Indian lizard, distinguished from the other kinds by being entirely covered with spots.

TOCMOL. An appellation sometimes given to the common mole.

TODTENVOGEL. A name by which Gesner, and some others, have expressed that species of *œnanthe* known in England by the appellation of the stone-chatter, stone-sinich, or moor-titling.

TODY. A genus of the picæ: the characters of which are; that the bill is subulated, depressed, obtuse, straight, and beset with bristles; and the feet formed for walking.

Linnæus enumerates two species; the green, with a red breast, found in America; and the ash-coloured, with the under part of the body yellow, found in Surinam.

TOE-SHELL. A particular species of shell, called also *pollicipes*.

TOMINEIO. An appellation by which some writers express the *guainumbi*, or humming-bird. The name is supposed to be derived from *Tomino*, a Spanish word signifying a Grain, as if expressive of the minuteness and lightness of this tribe of birds.

TOP. An English appellation for a genus of shells, of which Pennant enumerates the following species, all natives of the British coast: the livid, the rough, the umbilical, the cinereous, the tuberculated, and the land Top.

TOPAN. An appellation sometimes given to the horned-beaked Indian raven, more usually denominated the rhinoceros-bird.

TOPE; the *Squalus Galeus* of Linnæus. Arredi distinguishes this fish from others of the squali, by its nostrils being placed extremely near the mouth, and by certain foramina or apertures near the eyes.

The Tope has sometimes been caught on the British coasts, weighing twenty-seven pounds, and five feet in length; but, according to Arredi, it is frequently one hundred weight. The upper part of the body and fins is of a light cinereous hue; the belly is white; the nose is very long, flat,

and sharp-pointed; and behind each eye there is a small orifice. The teeth are numerous, arranged in three rows, small, sharp, triangular, and serrated on their inner edges. The first dorsal fin is upwards of a foot and a half from the head; the second is near the tail; and the tail itself is finned beneath, the upper part ending in a sharp angle.

Rondeletius informs us that this species is extremely fierce and voracious, pursuing it's prey to the very edge of the shore. The skin and flesh have an offensive, rank smell; from whence it has ironically received the appellation of Sweet William.

TORDINO. A name by which the Venetians express a bird of the lark kind, called also spinoletta.

TORDO MARINO. A bird of the starling kind; called also rutililla major; and by Aldrovandus Merula Saxatilis. It is about the size of the common starling, and greatly resembles it in figure. The breast is greyish, with a black transverse streak; the head and back are blackish, with some slight variations of grey; the tail is long, and of a reddish orange colour; and the under feathers of the wings are of the same hue.

The female is mouse-coloured, variegated with white, on the back; and ash-coloured on the belly.

This bird is commonly met with in Germany; and may be taught to imitate the human voice.

TORGOCH. A name by which some authors express the charr. See CHARR.

TORPEDO, Cramp Fish, or Electric Ray; the Raja Torpedo of Linnæus.

This is a well known and formidable animal; whose narcotic, or numbing qualities, have been noticed in all ages. The body is almost circular, and thicker than others of the ray kind; the skin is soft, smooth, and of a yellowish colour, marked with large annular spots like the rest of the kind; the eyes are very small; the tail tapers to a point; and the weight of the fish is sometimes eighty pounds. From it's external appearance, none would suppose it possessed of any very extraordinary powers: it has no muscles which seem calculated for any great exertions; no internal conformation essentially different from the rest of it's kind; yet such is it's wonderful power when alive, that it instantly deprives the person who handles it of the use of that member which comes in contact with it, and even affects him if he only touches it with a stick. Oppian asserts, that it will benumb the astonished fisherman through the whole length of line and rod.

The shock given by the Torpedo resembles the stroke of an electrical machine. Kempfer gives us the following account of it: 'The instant,' says he, 'I touched it with my hand, I felt a terrible numbness in my arm, and as far as my shoulder. Even if one treads upon it with the shoe on, it affects not only the leg, but the whole thigh upwards. Those who touch it with the foot, are seized with a stronger palpitation than even those who touch it with the hand. This numbness bears no resemblance to that which we feel when a nerve is a long time pressed, and the foot is said to be asleep; it rather appears like a sudden vapour, which, passing through the pores in an instant, penetrates to the very springs of life, from which it diffuses itself over the whole body, and gives it real pain. The nerves are so affected, that the person struck imagines all the bones of his body, and particularly those of the limb that received the blow, are driven out of

joint. All this is accompanied with an universal tremor, a sickness of stomach, a general convulsion, and a total suspension of the faculties of the mind. In short, such is the pain, that all the force of our promises and authority could not prevail on a seaman to undergo the shock a second time. A negro, indeed, that was standing by, readily undertook to touch the Torpedo; and was seen to handle it without feeling any of it's effects. He informed us, that his whole secret consisted in keeping in his breath; and we found, upon trial, that this method answered with ourselves. When we held in our breath, the Torpedo was harmless; but when we breathed ever so little, it's efficacy took place.'

Though Kempfer has given an accurate description of the effects produced by the shock of this creature, experience has proved, that holding in the breath will not preserve from it's violence; and yet the fish may sometimes be touched with perfect security.

Great as the powers of the Torpedo are when in vigour, they are impaired as it declines in strength, and totally cease when it expires. We also hazard a conjecture, which those who have an opportunity may bring to the test of experience, that a frequent repetition of the stroke weakens it's efficacy; and that it might be totally exhausted of it's electric power for some little space, till it could gain time to recruit it's strength afresh.

The noxious qualities of the Torpedo by no means affect it's flesh; for it is frequently eaten by the French and other nations. Galen affirms, that it is serviceable to epileptic patients; and that the shock of the living fish, applied to the head, is efficacious in removing any pains in that part.

There is a double use in this strange faculty with which the Torpedo is endued: it is exerted as a means of defence against voracious fish, which by a single touch are deprived of all possibility of seizing their prey; and, by concealing itself in the mud, and benumbing such fish as are carelessly swimming about, it makes a ready prey of them.

The Torpedo is a native of the Mediterranean and many other seas; and is not unfrequently found on the British coasts, though it seems to be more peculiarly attached to warmer climates.

The female Torpedo is generally supposed to be much more powerful than the male. Lorenzini, who made several experiments on this animal, is of opinion that it's power is wholly resident in two thin muscles which cover a part of the back; these he calls the trembling fibres: and he seems convinced that the animal may be touched with safety in any other part. It is now generally known that there are other fish of the ray kind possessed of this benumbing quality, which has gained them the appellation of the Torpedo. Atkins and Moore describe these as shaped like the mackerel, except that the head is considerably larger.

Condamine describes a fish possessed of the powers of the Torpedo, of a shape very different from the former, and greatly resembling a lamprey. He also informs us that, if touched by the hands, or even with a stick, it instantly benumbs the hand and arm to the very shoulder.

The subsequent experiment made by Mr. Walsh, in presence of the Academy of Rochelle, for evincing the circuit of the electric matter issuing from the Torpedo, deserves attention.

A living Torpedo was laid on a table, on a wet napkin;

napkin; round another table stood five persons insulated; and two brass wires, each thirteen feet long, were suspended from the ceiling by silken strings. One of the wires rested by one end on the wet napkin; and the other end was immersed in a basin full of water, placed on a second table, on which stood four other basins, likewise full of water. The first person put a finger of one hand into the water in which the wire was immersed, and a finger of the other hand into the second; and so on successively, till all the five persons communicated with one another by the water in the basins. In the last basin one end of the second wire was dipped, and with the other end Mr. Walsh touched the back of the Torpedo; when the five persons felt a shock, differing in nothing from that of the Leyden experiment, except in being weaker. Mr. Walsh, who was not in the circle of conduction, felt nothing. This was several times successively repeated, even with eight persons. The experiment being related by M. de Signette, mayor of the city, and one of the secretaries to the Academy of Sciences of Rochelle, and published by him in the French Gazette; the account is therefore sufficiently authenticated.

Aristotle affirms that the Torpedo brings forth its young at the autumnal equinox. A gentleman of Rochelle, on dissecting certain females of this species the 10th of September, found in the matrices several of the fœtuses quite formed, and nine eggs, in no state of forwardness: superfœtation seems therefore to be a property of this fish.

The ingenious Mr. Pennant speaks thus of a small Torpedo, caught on the British coasts. 'Its length,' says he, 'was eighteen inches from the head to the tip of the tail; the greatest breadth twelve inches. I could not inform myself of the weight of this; but that of one, measuring four feet in length, and two and a half in breadth, was fifty-three pounds avoirdupoise.

'The tail was six inches long, pretty thick and round; and the caudal fin broad and abrupt. The head and body, which were indistinct, were nearly round; about two inches thick in the middle, attenuating to extreme thinness on the edges. Below the body, the ventral fins formed on each side a quarter of a circle. The two dorsal fins were placed on the trunk of the tail. The eyes were small, placed near each other; and behind each was a round spiracle, with six small cutaneous rays on their inner circumference. The mouth was small; the teeth were minute and spicular; and there were two openings to the gills, as in others of this genus. The skin was every where smooth; of a cinereous brown hue above; and white beneath.'

TORQUATA. An appellation by which many naturalists express the common water-snake; so called from the remarkable ring about its neck.

TORQUILLA. A species of woodpecker; more commonly known by the appellation of the jynx; in English, the wry-neck.

TORTOISE. A distinct genus of animals of the class of amphibia, and order of reptiles, in the Linnæan system: the characters of which are; that the body has four feet, is defended by a thick crust, and furnished with a tail; and the mouth has naked mandibles without teeth. Linnæus enumerates fifteen species.

Tortoises are usually divided into those which

live on the land, and such as subsist in the water; and custom has made a distinction even in the name; the one being called Tortoises, the other Turtles. Seba, however, has proved, that all Tortoises are amphibious; that the Land-Tortoise will live in the water; and that the Sea-turtle can be fed on the land.

The Land-Tortoise is generally from one to five feet long, from the end of the snout to the extremity of the tail; and from five to eighteen inches across the back. It has a small head, somewhat resembling that of a serpent; and an eye without the upper lid, the under eye-lid serving to cover and keep that organ in safety. The tail is long and scaly, like that of a lizard; and the head may either be protruded, or concealed under the great pent-house of its shell, at the pleasure of the animal.

All Tortoises nearly resemble each other in their external shape; their outward covering appearing to be composed of two great shells, one laid on the other, and touching only at the edges: but, on a closer inspection, we shall find that the upper shell is composed of no less than thirteen pieces, laid on the ribs like the tiles of a house; by means of which the shell is kept arched and supported. Indeed, to an inattentive observer, the shells, both above and below, seem to make each but one piece; but they are bound together at the edges by very strong and hard ligaments.

The Tortoise, though peaceable in itself, is admirably formed for war, and seems to be almost endued with immortality. Hardly any species of cruelty can deprive it of life: mangling and maiming are but slight injuries; and it will live though deprived of the brain; nay, even of the head. Redi informs us, that he made a large opening in the head of a Land-Tortoise; drew out all the brains; so washed the cavity, as not to leave the smallest part remaining; and then, leaving the hole open, set the animal at liberty: notwithstanding all this, the Tortoise marched off, without seeming to have received the smallest injury; and lived in that state for six months. A certain Italian philosopher carried his experiment yet farther; for he cut off the head, and yet the animal lived twenty-three days after its separation from the body.

Tortoises are also remarkable for their longevity; they are commonly known to live upwards of eighty years; and one kept in the garden belonging to Lambeth Palace was remembered above one hundred and twenty. The Tortoise retires to some cavern, in order to repose during the winter; and at that season, when its food is no longer found in plenty, it happily becomes insensible to the want. It is sometimes buried two or three feet under ground; having first providently stored its hole with moss, grass, and other substances; as well to keep the retreat warm, as to serve for aliment in case it should prematurely emerge from its stupefaction. From this dormant state the Tortoise is awakened by the genial return of the spring.

These animals are frequently admitted into gardens, on a supposition that they destroy insects and snails in great abundance. Their strength is so prodigious, that a child has been known to get on the back of one, and yet not retard its activity; but, when it had carried its burden to the place where it expected to be fed, nothing could prevail on it to advance any farther.

For a description of the Sea-Tortoises, see **TURTLE**.

Two of the most curious species of Land-Tortoises are the following.

TORTOISE, AFRICAN. This species, which was accurately figured and described by Edwards, is the *Testudo Puzilla* of Linnæus. It was imported from Santa Cruz in West Barbary, and lived several years in the garden of the College of Physicians, London. The irides are of a reddish hazel colour; the lips are hard and corneous; the head is covered with yellowish-coloured scales; the neck, hinder legs, and tail, are covered with a flexile skin of a dull flesh-colour; and the fore-legs with yellow scales on their outsides, being partly exposed when the head is drawn in. The shell is round, pretty prominent on the upper side, and flat underneath: it is divided into many compartments, or separate scales, with furrows or creases all round, lessening one within another to the middle of each scale. The shell is of a yellowish colour, clouded with large and small irregular dusky or black spots. There are five claws on each foot forwards; and four on each of the hinder feet.

When this creature is apprehensive of any danger, it draws its head, tail, and legs, into the shell; a quality it possesses in common with the rest of the genus.

TORTOISE, AMERICAN; the *Testudo Carolina* of Linnæus. This animal is a native of Carolina, and other parts of America. Its head is invested with a hard shelly covering, of a dark brown colour on the top; on the sides and throat it is yellow, with small black or dusky spots; the nostrils are placed very near each other, not far from the extremity of the beak; the eyes are of a yellowish colour; the neck is covered with a loose skin, of a dark purplish flesh-colour, partly covering the head when not fully extended; the hinder legs, and parts about the vent, are covered with the same coloured skin as the neck; and the fore-legs and feet with yellow hard scales. There are five toes on each of the fore-feet; but only four on the hinder; all armed with pretty strong dusky claws.

The upper part of the shell is pretty convex, divided into separate scales; and each scale is engraved, as it were, with rings round its extremities, which lessen inwards to its centre. The shell is of a dusky brown colour above, with yellowish spots of various forms; underneath it is flattish, of a yellowish colour, with black clouds and spots; and there is no tail.

Both this and the African Tortoise are small species of that kind to which the English resident in those countries give the appellation of Turapins.

TOTANO, OR TOTANUS. A term by which some ornithologists express a bird more commonly called *vetola*; frequent in Italy.

In the Linnæan system, the Totanus is a species of the *scolopax*, the *crex* of authors in general. See **RAIL**.

TOTAQUESTAC. An American bird described by Nieremberg. It is somewhat smaller than the pigeon: the whole plumage is of a beautiful green colour; and the tail-feathers, which are prodigiously long, are much valued.

This beautiful bird is in such high estimation among the Indians, that it is death by their laws to kill it: however, they do not scruple to strip it

of its elegant plumage whenever they can catch it.

TOTTAVILLA. A name by which some ornithologists express the *alauda arborea*, or common wood-lark.

TOUCAN. A genus of birds of the order of *picæ* in the Linnæan system: the characters of which are; that the bill is very large, convex, and ferrated on the edges; both mandibles are bent at the apex; the nostrils are situated near the base of the bill; the tongue is feathered about the edges; and the feet are formed for climbing.

Linnæus enumerates eight species, most of which are natives of South America.

TOUCAN, RED-BEAKED; the *Ramphastos Tucanus* of Linnæus. The shape of this bird resembles that of the jack-daw; and the size is nearly the same. The head is very large, and well calculated to support its enormous bill, which, from the base to the point, is six inches and a half in length, and in the thickest part exceeds two inches in breadth: its thickness near the head is one inch and a quarter; it is a little arched or rounded along the top of the upper chap; and the under side is also rounded. The whole substance of the bill is extremely slight, and almost as thin as parchment. The upper chap is of a bright yellow colour, except on the sides, which are of a beautiful red; as is also the lower chap, except at the base, which inclines to a purple. There is a black line of separation quite round the base of the bill, between that and the head. The nostrils are situated in the upper part of the bill, and almost covered with feathers. Round the eyes, on each side of the head, there is a space of blueish skin, destitute of feathers; above which the head is black, except a white spot on each side joining to the base of the upper chap. The hind part of the neck, the back, wings, tail, belly, and thighs, are black; the under-side of the head, the throat, and the upper part of the breast, are white; a series of red plumage, in the form of a crescent, with its horns upwards, appears between the white on the breast and the black on the belly; the covert-feathers under the tail are red, and those above it are yellow; the legs, feet, and claws, are ash-coloured; and the toes are disposed like those of parrots, two before and two behind.

Travellers assure us that, notwithstanding this bird is furnished with such a formidable beak, it is very gentle and inoffensive; and so easily tamed, that it will sit and hatch its young in houses. They also inform us, that it feeds principally on pepper; which it devours very greedily, gorging itself in such a manner, as to exclude its crude and uncooked. Whatever degree of credit this account may deserve, certain it is that the Toucan lives principally on a vegetable diet; and, in a domestic state, it is known to prefer such food before any other. Pozzo, who bred up one of these birds tame, says it leaped up and down, moved its tail, and cried with a voice resembling that of a magpie. Any thing on which parrots feed, seemed to be agreeable to it; but it shewed the strongest predilection for grapes, which, if plucked off singly, and thrown into the air, it would catch with great dexterity before they fell to the ground. This gentleman farther informs us, that its bill was hollow and extremely light, and consequently it possessed no proportionable strength to its appearance; but its tongue seemed to assist the efforts of this unwieldy machine. This member is long,

long, thin, and flat, and moves up and down; and the animal often extends it five or six inches from the bill: it is of a flesh-colour; and curiously fringed on each side with very small filaments, exactly resembling a feather.

It appears evident that this long tongue is stronger than the thin hollow beak that contains it: and probably the beak is only a kind of sheath for this peculiar instrument, which the Toucan employs not only in forming it's nest, but also in procuring it's food.

The Toucan has not only men, birds, and serpents, to guard against; but also a numerous tribe of monkeys, still more prying and mischievous. It therefore scoops out it's nest in the hollow of some tree, leaving a hole just large enough for ingress and egress: there it sits, guarding the entrance with it's great beak; and if a monkey, prompted by curiosity, or any other motive, presumes to pay the Toucan a visit, he usually meets with such a reception as compels him to seek for safety in a speedy retreat.

This bird inhabits only the warm climates of South America, where it is much esteemed for the delicacy of it's flesh and the beauty of it's plumage. The feathers of the breast are particularly admired: and the Indians pluck off the skin of this part, which, when dry, they glue to their cheeks; considering it as an irresistible addition to their beauty; and every woman conceiving herself happy in the possession of it.

TOUCAN, BRAZILIAN; the *Ramphastos Piscivorus* of Linnæus. This species is about the size of the common tame pigeon; but the head is much larger in proportion; and the tail, which is composed of feathers of an equal length, is rather short. The bill is six inches long; it's greatest depth is upwards of two inches; and from side to side, near the head, it is one inch thick. The upper mandible is of a pale yellow greenish colour; the sides near the toothed edges have each a long cloud of orange, transversely barred with black: the lower mandible is of an exceeding fine blue colour; and the point both of the upper and lower chap, for above an inch in depth, is of a fine scarlet hue. The nostrils are almost invisible, being situated pretty near together in the upper part of the bill, exactly in the line that separates the bill from the forehead; and the eyes are of a dark hazel colour, encircled with a bare skin of a greenish yellow. The top of the head, the upper side of the neck, the back, wings, belly, thighs, and tail, are black; but the wings have a changeable lustre. The sides of the head, the throat, and the breast, are white, or rather cream-coloured; and between the white on the breast and the black belly there is a fine red crescent, with horns pointing upwards. The rump, or coverts on the upper side of the tail, are white; the feathers beyond the vent, as well as those which cover the under side of the tail, are of a pale red hue; and the legs, feet, and claws, are of a light blue or violet colour.

This bird was first figured and described by Edwards.

TOUCAN, YELLOW-BREASTED; the *Ramphastos Viridis* of Linnæus. Like the rest of the genus, the bill of this bird is extremely large; the upper mandible is green, and the lower blue; the point is red; and it has five transverse faint dusky bars. The irides are of a faint green colour; and round the eye there is a broad space of naked skin of a

violet colour. The throat and breast are of a bright yellow; below which there is a bar of scarlet feathers, which divides the yellow on the breast from the black on the belly. The coverts of the tail are white above, and beneath of a fine red colour. The crown of the head, the upper part of the neck, the back, wings, belly, and tail, are wholly black; but the upper side of the wings and tail has a variable gloss of blueish purple.

TOUCAN, GREEN. This bird, which seems to correspond with the Toucan à Collier de Cayenne of Brisson, was first accurately figured and described by Edwards. The bill is blackish, except at it's base, which is red round the upper mandible, and yellow round the lower; the eyes are placed in spaces of bare skin, of an obscure flesh-colour; and the head, neck, and breast, are black, with several changeable glosses. About the place of the ears, on each side, there is an oval spot of a gold-colour; and at the bottom of the neck behind, the black is terminated with a narrow golden crescent, the horns of which tend upwards. The back, rump, wings, and tail, are of a fine green colour, except the tips of the tail-feathers, which are reddish, and the tips of the quills, which are dusky. The inner coverts of the wings are cream-coloured; and the quills within are light-coloured, with light edges. The tail is composed of ten feathers, long in the middle, and gradually shortening towards the sides; ash-coloured beneath, and tipped with brown. The belly is of an olive green hue, with a transverse confused mixture of dusky; the thighs are of a reddish brown colour; and the legs, feet, and claws, are all of a deep black.

TOURACO; the *Cuculus Perfa* of Linnæus. This bird, which was beautifully delineated by Edwards, is about the size of a magpie; and very elegant both in shape and colour. The bill is short, and compressed sideways; the upper mandible is a little arched; the under side of the lower mandible has a small angle; and both the upper and lower chaps are of a dirty red or brick colour. The eye is of a dark hazel-colour, encompassed with a skin of a bright scarlet hue. From the corner of the mouth to the eye there is a broad black line, which grows narrower, and extends itself under and beyond the eye, beneath which is a white line; and from the corner of the mouth another white line extends above the eye. The head, neck, breast, and lesser coverts of the wings, are of a fine dark green colour; and the head is adorned with a crest, the tips of which are red. The thighs, lower belly, and coverts under the tail, are dusky or black; the back, wings, and tail, are of a fine blueish purple colour; part of the greater quills, next the belly, are of a fine crimson colour; the tips and borders of the outer webs are black; and the legs, feet, and claws, are ash-coloured.

Albin calls this the Crown-bird from Mexico; though it is most probably a native of Africa, and only imported hither by way of the West Indies.

TRACHIDNA. An appellation by which some ichthyologists express the draco marinus; in English, the weever.

TRACHINUS. A genus of fishes, in the Linnæan system, of the order of jugulares: the characters of which are; that the head is compressed, and not smooth; the membrane of the gills has six rays; the lower lamina of the opercula is serrated; and the anus is situated near the breast.

Linnæus mentions only one species, the draco. Artedi refers the uranoscope to this genus. The term is derived from the Greek Tracheinos, Rough, Sharp, or Prickly; expressive of the prickly roughness of the rays of the dorsal fin.

TRACHURUS. A fish of the scomber kind; in English, the scad, or horse-mackerel.

TRACHURUS BRAZILIENSIS. An appellation by which Ray expresses a fish of the scomber kind; the Scomber Cordyla of Linnæus; more commonly denominated Guaratereba.

TRAGELAPHUS. An animal of the goat kind; of which there are two species, the one described by Gesner, and the other by Bellonius.

TRAGUM. A term whereby Aristotle, and some of the ancient ichthyologists, express the *pistinacha marina* of the more modern writers; in English, the fire-flaire and sting-ray.

TRASCINA. A name by which some ichthyologists express the fish more usually denominated draco marinus and araneus.

TREBIUS. An appellation given by some modern writers to the Phycis of Aristotle, Ælian, and Pliny.

TRIANGULAR FISH. A marine fish of a very singular figure, called in English the coney-fish; of which there are two species, the one having two horns, the other wanting that character.

The horned species is sometimes six inches long, and three broad; the tail ends in a longish fin; the mouth is small, with twelve strong serrated teeth in the upper jaw, and eight larger ones in the lower; the head rises gibbously from the mouth to the horns; and the back is humped in the middle. It has only one small fin near the tail; but there are four others on different parts of the body. The eyes are large, and placed near the horns, which grow straight out of the forehead. It has no scales; but a hard skin, white on the belly, and brown every where else, very curiously marked with trigonal, tetragonal, pentagonal, and hexagonal figures.

The species destitute of horns has a broader belly, and longer tail; and is marked over the whole body with hexangular figures only, and innumerable small tubercles. The belly is yellowish; and the rest of the body is of a greyish yellow hue. The mouth is narrow; the teeth are small, five in the lower, and eleven in the upper jaw; and the eyes are large and round.

Both these species belong to the genus of ostracion in the Linnæan system. They are caught among the rocks on the shores of the Isle of Java; and are sometimes eaten by the natives, after being skinned.

TRIBULUS MARINUS, the Caltrop Shell. A peculiar species of purpura, of a whitish colour, with three rows of spines.

TRICHECUS. In the Linnæan system, a genus of the order of bruta, and class of mammalia: the characters of which are; that it has no cutting-teeth; that it has tusks only in the upper jaw; that the grinders on both sides are formed of a rugged bony substance; that the lips are germi-nated; and that the hinder feet are formed into fins. There are two species; the manati, or sea-cow; and the morse, or walrus.

TRICHIDES. An appellation by which the ancients expressed a fish of the harrengiform kind, probably the pilchard; called also sardinia and jardella.

TRICHIURUS. A genus of the order of

apodes: the characters of which are; that the head is extended, with lateral opercula; that the teeth are ensiform, and semi-sagittated at the apex; that it has seven branchiostegous rays; that the body is compressed and ensiform; and the tail subulated, without any fin: whence it is called lepturus; in English, the needle-tail. There is but one species; the Indian Eel of Willughby, or Mucu of Brazil.

TRICHOURI. A term by which some naturalists express such flies as have one or more hairs growing out of their tails: they are also called feticaudæ.

TRIDACNÆ. A genus of bivalve shells.

TRIEMERUS; the Three-day Fly. An insect somewhat resembling a butterfly. It has four large yellowish wings; a long body; a head furnished with long antennæ; large eyes; and a spiral trunk. It is found among nettles and mallows.

TRIGLA. A genus of fishes, of the order of thoracici; of which Linnæus enumerates nine species.

According to Artedi, the characters of this genus are the following: the branchiostege membrane contains several bones; the head is very declivious from the eye to the extremity of the snout, large, aculeated, and squarish; it is the broadest part of the fish; and thence grows gradually narrower, till it ends in a very small tail; and in several species of this fish there are two or three articulated appendices growing under the pectoral fins. The eyes, which are situated on the top of the head, are covered with a skin; there are two dorsal fins, the first of which is prickly; and the pectoral fins, in some kinds, are very large.

Many of these fish are capable of emitting a noise; and some of them, by the assistance of their pectoral fins, can suspend themselves for a time out of the water, and fly to some distance. The appendices of the pylorus are from five to twenty in number.

There are seven species of Triglæ with continuous, obtuse, and undivided snouts; among which is the red Triglæ, with the snout divided into two small horns, and the opercula of the gills striated: this is the cuculus and lyra of some ichthyologists. When taken out of the water, it makes a grunting noise, supposed to imitate that of a cuckow, from whence it receives one of its names.

Of those Triglæ, with the snout very deeply divided, and opened into two very broad parts, there are three species.

TRINGA, Sand-Piper. A distinct genus of birds of the order of grallæ: the distinguishing characters of which are; that the beak is roundish, and of the length of the head; that the nostrils are linear; and that the feet have each four toes, the outer being generally connected at bottom by a small membrane.

Linnæus enumerates twenty-three species; among which are the pugnax avis, or ruffe; the vanellus, or lapwing; the gambetta; the turnstone; the phalarope; the stint; and others.

TRISACTIS. An appellation by which some authors express a genus of star-fish composed of a body and three rays only.

TRISCÆDECACTIS. A name sometimes used to express a kind of branched star-fish, with thirteen rays, each of which is divided and subdivided into numerous others.

TRISSETÆ.

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TRISETÆ. A term by which some writers on insects express a certain genus of the seticaudæ, or bristle-tailed flies; distinguished from the rest by having three hairs or bristles proceeding from the tail.

TRISEUS. An appellation by which some ichthyologists express that species of gadus more usually denominated the mustela fluviatilis, or eelpout.

TRITON. In the Linnæan system, a genus of the mollusca order of worms: the characters of which are; that the body is oblong, and the tongue spiral; and that the tentacula are twelve in number and bipartite, six on each side, and the three hinder ones cheliferous.

There is only one known species, found in the clefts of submarine rocks.

TRITON AVIS. A name by which Nieremberg has described a West Indian bird famous for its musical qualities. It is said to have three distinct notes; and to be able to give breath to sounds of all the three kinds at the same time. It is also much celebrated for its beauty.

TROCHILUS. In the Linnæan system, a genus of the picæ, comprehending the polytmus and mellifuga of Brisson; the former including sixteen, and the latter twenty species. See **HUMMING-BIRD.**

TROCHILUS is also an appellation used by Aristotle, and other ancient naturalists, for the regulus cristatus, or golden-crowned wren.

TROCHILUS is likewise the name of a remarkable aquatic bird, called Corriza by the Spaniards. It is described by Aldrovandus as being very long-legged, yet web-footed. Its beak is straight, and black at the end; and the opening of the mouth is very wide. The under part is white; and the back, shoulders, and wings, are ferruginous. It runs swiftly.

TROCHUS. An appellation by which some conchologists express a genus of shells; some species of which resemble the Trochus or top. However, as the species are numerous, many of them bear very little resemblance to the plaything from which they receive their name: a late French writer has therefore more aptly characterized the genus by calling it Cochlea ore depresso.

According to Linnæus, the characters of this genus are the following: the inclosed animal is a slug; the shell is univalve, spiral, and conical; the aperture is subtetragonous, angular, or roundish; and the columella or axis is oblique. He enumerates twenty-six species.

The Trochi or Tops constitute the fifteenth family of shells in Da Costa's ingenious arrangement. He defines them to be shells of a conic or pyramidal shape, the top being broad and flattish, and gradually tapering thence to a very narrow point; and the aperture or mouth generally angular, low, and narrow.

This is a numerous family; and consists of many beautiful and curious shells.

TROCTUS. An appellation by which Aristotle, and other ancient writers, express a species of scomber; distinguished from others of the kind by the name of the scomber with two dorsal fins, and the last ray of the hinder fin very long.

TROGLODYTES. A term by which the wren is sometimes expressed.

TROGON, Curucui. A genus of the picæ: the characters of which are; that the bill is shorter than the head, cultrated, hooked, and serrated at

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the margin of the mandibles; and that the feet are formed for climbing, having two toes forward, and two backward. There are three species of this genus; one of which is the Curucui of Brazil.

TROMBETTA. An Italian appellation for the scolopax of some ichthyologists. See **TRUMPET-FISH.**

TROUT. A well-known valuable river-fish: the distinguishing characters of which are; that the body is long; the head short and roundish; the extremity of the snout obtuse and blunt; the tail very broad; the mouth large; and each jaw furnished with a single row of sharp teeth: that in the palate there are three parcels of teeth, each of an oblong figure in the congeries, all meeting in an angle near the end of the nose; that the tongue also is furnished with six, eight, or ten teeth; and the sides beautifully variegated with red spots.

It is worthy of observation, that this fish, so universally disseminated, is unnoticed by any of the ancients except Ausonius; and it is also equally singular, that so delicate a species should be neglected at a time when epicurism was arrived at an excess which it never can surpass.

The colours of the Trout, and its spots, vary greatly in different waters, and in different seasons; yet all may be reduced to one species. In Llyn-divi, a lake of South Wales, there are Trouts denominated coch y dail, marked with large red and black spots; others are unspotted, and of a reddish hue, that sometimes weigh near ten pounds, but their flesh is little esteemed. In Lough Neagh, in Ireland, there are Trouts called buddaghs, some of which weigh thirty pounds; others of a much superior size are taken in Hulse-water, a lake in Cumberland, supposed to be of the same kind with the Trouts in the Lake of Geneva; and in the River Enyion, in North Wales, there is a variety of the Trout, having a remarkable obliquity near the tail.

It has been remarked that the stomachs of common Trouts are uncommonly thick and muscular; as they feed on the shell-fish of lakes and rivers, as well as small fish; and swallow gravel or small stones, for the purpose of comminuting the testaceous parts of their food. The Trouts of certain lakes in Ireland are remarkable for the thickness of their stomachs, which, from some slight resemblance to the organs of digestion in birds, are called gizzards; and the species that contain them are called gillaroo, or gizzard Trouts. However, from the observations made by Dr. Watson and Mr. Hunter, there seems to be no reason for considering the stomachs of these Trouts as gizzards, but as true stomachs. That of the English Trout is of the same nature with the stomach of the gillaroo Trout, except that its coat is only about one-third as thick; a circumstance that seems to arise from the nature of the waters in which the different varieties reside. These stomachs are sometimes served up at table in Ireland under the name of gizzards.

Trouts are extremely voracious, and afford excellent diversion to the angler. They shift their quarters when about to spawn; and, like salmon, make towards the heads of rivers, in order to deposit their roes. The under-jaw of the Trout is subject, at certain times, to the same curvature as that of the salmon.

TROUT, WHITE. Pennant has described a species under this appellation, which migrates from the sea into the River Esk, in Cumberland, from

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from July to September. When dressed, it's flesh is red, and very delicious. On it's first appearance from the salt water, the salmon-louse is found adhering to it's body. It has both milt and spawn; but no fry has ever yet been discovered.

The White Trout never exceeds one foot in length: the upper jaw is somewhat longer than the lower; in the first, there are two rows of teeth, in the last, but one; and on the tongue there are six teeth. The back is straight; the whole body is of an elegant form; the lateral line is straight; the colour between that and the top of the back is dusky and silvery intermixed; and beneath the line, of an exquisite silvery whiteness. The first dorsal fin, which is spotted with black, has eleven rays; the pectoral has thirteen; the ventral and anal have nine each; and the tail is black, and much forked.

TROUT, SEA; the *Salmo Trutta* of Linnæus. This fish, which some suppose to be synonymous with the salmon, bull, or scurf Trout, an obscure species described by Willughby, like the salmon, migrates up several of our rivers; where it spawns, and returns again to the sea. It is thicker than the common Trout: the irides are silvery; the head is thick, smooth, and dusky, with a gloss of blue and green; and the back is of the same colour, growing fainter towards the lateral line. The back is plain; but the sides, as far as the lateral line, are marked with large, distinct, irregularly shaped black spots. The lateral line is straight; the sides and belly are white; and the tail is broad, and even at the end. The dorsal fin consists of twelve rays; the pectoral of fourteen; the ventral of nine; and the anal of ten. The flesh, when boiled, is of a pale red colour, and extremely well flavoured.

TRUFFLE-WORMS. A species of fly-worm found in truffles, on which it feeds till it undergoes the common metamorphosis of such creatures.

These very small insects have two brown spots near their hinder extremity, being the two posterior stigmata. They are wholly white, and very transparent; and the two black stalks of their two hooks, with which they tear the substance of the truffle, may be easily distinguished. When they have arrived at their full growth, which is usually in a few days, they quit the truffle, and go in quest of some proper retreat, where they may remain undisturbed during the time of their transformation. In the space of twelve hours they are generally transformed into an egg-shaped shell, of a chestnut brown colour, and of the same nature with that of the blue flesh-fly.

These worms are in a manner peculiar to truffles.

TRUMPE. An appellation by which some English writers express that species of whale to which Linnæus gives the name of the *Physeter Microps*, the blunt-headed cachalot. The Dutch call this species the pot-whale-fish.

TRUMPET-FISH, *Scolopax*, or Bellows-Fish. In the Linnæan system, a species of the *centricus*; but, in the Artedian, a kind of the *balistes*.

This small fish is commonly caught in the Mediterranean. It's usual length is about three inches; it's body is flat, and covered with rough, harsh scales; it's snout is extremely long, hard, straight, broad at the head, and narrow at the end, where it opens transversely by means of a

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membrane affixed to the under jaw, which serves to open and shut it at pleasure. The eyes are large; the irides are of a pale red colour; and at each of the gills there is a thin fin. The anterior part of the body, which is formed into a sharp edge, has two bony substances instead of fins; and another below on the belly, which is lower, and notched. Behind the anus there is a long fin, reaching to the tail; and on the back are two others; the one near the tail; and the other a long and large bony spine, set in a joint, and moveable at pleasure: before this there is another fine prickle; and behind it three more, which, taken collectively, constitute a kind of fin.

TRUMPET-SHELL, OR WHELK; *Buccinum*. A large genus of shells: the characters of which are; that the shells are univalve, and shaped like a trumpet; that they have a distinct and regular tail, usually long, though sometimes short; a crooked beak; and the clavicle often elevated, though sometimes depressed and contabulated.

According to Linnæus, the characters of this genus are these: the inclosed animal is a slug; the shell is univalve, spiral, and gibbous; and the aperture oval, terminating in a short canal or gutter. He enumerates fifty-one species.

For Da Costa's arrangement of the *Buccina*, see **SHELLS**.

TRUMPETER. An English appellation for a particular species of pigeon; the *Columba Tibicen* of Moore.

This species is nearly of the size of the common pigeon: it is pearly eyed; of a mottled black colour; feathered down the legs and feet; turn-crowned like the nun, and sometimes like the finnikin.

The most distinguishing character is a tuft of feathers at the root of the beak; and, the larger this tuft, the more highly is the bird esteemed.

These pigeons receive their names from their cooing in some respects imitating the sound of a trumpet; but, in order to be often entertained with their melody, if we may credit Moore, they must be frequently fed with hemp-feed.

TRUMPETER is also an appellation given by Pennant to the *Psophia* of Linnæus, because of it's making a strong noise with it's mouth; which it answers by a different sound from it's belly, as if it proceeded from the anus.

TRUTTACEOUS. The name of a genus of fish of the trout kind, distinguished from all others by a small fat fin, without rays or nerves, near the extremity of the back. Some species of this genus live only in fresh waters; but others frequent both salt and fresh, and are therefore called *anadromi* and *catanadromi*.

Truttaceous fish are divided into two orders; those which have, and those which are destitute of teeth. Of the edentulous kind, or such as have no teeth, are the *lavaretus*, *ferra*, *thymallus*, *oxyrinchus*, and *albula*; and of the toothed kind are the *salmo*, *umbra*, *trutta*, *carpio*, &c.

All truttaceous fish are highly esteemed for the table.

TRYGUM. An appellation by which some of the ancient ichthyologists expressed the *passinaca marina*, or fire-flare of the moderns. It is a species of the ray.

TUB-FISH. The English name for a species of *trigla*, sometimes called the flying-fish. See **SAPPHIRINE GURNARD**.

TUBIPORA. An appellation by which Lin-

næus expresses a genus of lithophyta, in the class of worms: the characters of which are; that the animal is a nereis; and that it is a coral, consisting of cylindrical, hollow, erect, and parallel tubes. He enumerates four species.

TUBULI VERMICULARES. A term by which some naturalists express certain small oblong and hollow sea-shells, resembling worms.

TUBULUS MARINUS, or CANALIS. A genus of univalve shells, of an oblong figure, terminating in a point, and hollow within, so as to resemble a tube or horn.

These shells are also called dentalia, from their resemblance to the tooth of a dog. See SHELLS.

TUCANA. A term whereby some authors express the Toucan.

TUFTED DUCK. An English name for the capo negro, a species of duck. See DUCK.

TUI. A Brazilian appellation for the paroquette.

TUIAPUTEJUBA. A Brazilian paroquette described by Marcgrave; of a beautiful green colour, but in different shades, very deep on the wings, very pale, somewhat yellowish on the belly, and of a faint colour over the rest of the body.

This bird is about the size of a swallow; and the eyes, which are large and black, are surrounded with a circle of yellowish green feathers.

TUIETE. A beautiful Brazilian bird of the paroquette kind, about the size of a lark, and entirely of a pale green colour, variegated with blue. The origin of the wings is blue; and there is a blue spot on the rump. The tail is short; the beak is small, crooked, and of a pale red colour; and the legs and feet are grey.

TUITIRICA. A Brazilian paroquette, somewhat larger than the common kind, entirely of a beautiful green colour, but of a deeper tinge on the back and wings. The beak is very hooked, and of a pale red colour; the eyes are black; the feet are blue; and the tail is somewhat longer than the wings when closed.

This species is peculiarly esteemed in Brazil; as it is capable of being taught to speak, and tamed with the utmost facility.

TUMBLER; the *Columba Revolvens* of Moore. A well-known species of pigeon, which receives its name from its peculiar quality of tumbling when on the wing. It is a small fowl, short-bodied, full-breasted, thin-necked, and narrow-beaked; having a small short head; and the irides generally of a bright pearl colour.

The Tumbler in this country is usually of one plain colour; black, blue, or white. The Dutch variety is nearly of the same make; but has different colours, and is sometimes feathered on the legs: it has also a larger head, and a thin skin round the eyes. Some of the finest pigeons of this sort are bred from a mixture of the Dutch and English kinds.

These pigeons are remarkable for the great heights to which they rise: they seldom ramble far from home; but mount in a perpendicular direction till they almost disappear; and at this elevation they will sometimes continue for hours. However, they never tumble when at those prodigious heights; but only near the earth, in ascending or descending.

TUMBLER is also a sort of dog; called in Latin *vertagus*, from his quality of tumbling and winding his body about before he attacks and fastens on his prey.

These dogs seem nearly to correspond with our modern lurchers, a kind of mongrel greyhounds.

TUNALLUS. An appellation by which some ichthyologists express the grayling, or umber.

TUNG. An Indian term for a small insect, the Pique of the Spaniards, which is very common, as well as very troublesome, in some parts of the East and West Indies. It is about the size of a small flea. It lays its eggs within the skin of the human body; for the effecting of which it diligently watches its opportunity; and often succeeds in the attempt, to the great annoyance and pain of the person on whom it seizes.

Sensible of its own imbecillity, this little animal generally makes its way either under the nails, or where there is some callus on the surface, that it may rest in greater security: there it lays its eggs, which hatching into so many young ones, spread themselves between the flesh and the skin, if not timely prevented by removing the parent insect.

TUNNY; the Scomber *Thunnus* of Linnæus. A large fish of the scomber kind; called by authors *thynnus*, *arcynus*, *limosa*; and by some of the ancient ichthyologists, *pelamys*. Artedi characterises it under the denomination of the scomber with eight or nine fins in the hinder part of the back, rising out of a *fulcus*; having another *fulcus* at the place of the ventral fins.

This fish is common in the Mediterranean, and some other seas; and is also sometimes caught on the English coasts.

Tunnies appear to have been well known to the ancients, and constituted a considerable branch of commerce: the season of their arrival in the Mediterranean from the ocean was observed; and stations for taking them were established in those places which they were known most to frequent. At present, there are considerable fisheries of them on the Sicilian coasts, as well as several other parts of the Mediterranean, where they are cured, and supply the adjacent countries with a valuable article of provision.

These fish are sometimes found in the lochs on the western coasts of Scotland, into which they have pursued herrings; and are either sold fresh, or salted and preserved in large casks. The pieces, when fresh, have the appearance of raw beef; but, when boiled, turn pale, and acquire something of the flavour of salmon. One of them has been known to weigh four hundred and sixty pounds.

The Tunny grows sometimes to the length of seven or eight feet. It has a rounded and thick body, becoming gradually smaller towards the tail, till at length it is extremely slender. The irides are of a pale green colour; the teeth are extremely minute; the skin on the back is smooth, thick, and black, or (viewed in some lights) of a shining blue or greenish hue; the belly and half the sides are of a silvery whiteness, tinged with *cærulean* and pale purple; near the tail it is marbled with grey; the scales are very minute; and the tail is shaped like a crescent.

TUNUPOLON. An East Indian species of viper, principally a native of the Isle of Ceylon. It is of small dimensions; and of a fine fawn gloss, beautifully variegated with shades of brown.

TURBAN. A term denoting the aggregate, or whole set of the whirls of a shell. The flat, or helix Turban, is one so slightly prominent, as to

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be nearly on a level. There are also the short Turban, the produced Turban, and the long Turban.

TURBAN SHELL. An appellation by which some conchologists express a genus of shells of an hemispheric or spheroidal figure, in some measure resembling a Persian Turban.

TURBIT PIGEON; the *Columba Fimbriata* of Moore. A particular species of Pigeon, remarkable for its short beak; called by the Dutch *Cort Bek*, or short beak.

This Pigeon is small, and short-bodied; it has a short round head; and the plumage on the breast opens, and reflects both ways. This is usually called the purple; and, the greater quantity any bird has of it, the more it is esteemed. The tail and back are generally of one colour, as blue, black, red, yellow, or dun, and sometimes chequered; but the flight-feathers, and those of the rest of the body, are white.

This species is extremely active; and, if properly trained, will take very lofty flights.

TURBO. A genus of the testacea order of worms in the Linnæan system: the characters of which are; that the inclosed animal is a slug; that the shell is univalve, spiral, and solid; and that the aperture is straightened, orbiculated, and entire. Linnæus enumerates fifty species.

According to Da Costa, the Turbo is a genus of snails with a lengthened clavicle or turban, having in general a perfectly round mouth; the columella, or inner lip, not much faced outwards; and the body spire very prominent; so that the turban is suddenly, and not insensibly, produced from it.

The species of the Turbo are so numerous, that some conchologists have thought proper to arrange them into seven classes, in the subsequent manner—

The Turbines with long and toothless mouths, and wrinkled columellæ; of which there are seven species.

The Turbines with dentated mouths, and wrinkled columellæ, including two species.

The Turbines of a pyramidal figure, with depressed mouths; comprehending five species.

The Turbines with long and erect mouths; including four species.

The Turbines with flat mouths and long bodies; including two species.

The Turbines with large oval mouths; containing three species.

The Turbines with round mouths; comprehending six species.

One of the most remarkable species of the Turbo, is the *Scalare* of Rumphius; so called from its spires running up hollow, or with a space between them. This is a very scarce and valuable shell when large; but it is often found small in the Adriatic.

TURBO COCHLEA. A term by which some conchologists express the Persian shell; a species of *concha globosa*, or *dolium*.

TURBOT; the *Pleuronectes Maximus* of Linnæus. A well-known, valuable fish, of a remarkably square shape. The colour of the upper part of the body is cinereous, marked with numerous black spots of different sizes; the belly is white; and the skin is destitute of scales, but much wrinkled, and mixed with small short spines irregularly disposed.

These fish grow to a very great size, frequently

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weighing from twenty to thirty pounds. They are chiefly taken off the north coasts of England, and on those of Scotland and Holland. The large Turbots, as well as several other kinds of flat fish, are caught by means of hooks and lines, as they lie in deep water; the method of taking them in wiers, or staked nets, being very precarious.

When the fishermen go forth, each of them is provided with three lines, coiled on a flat oblong piece of wicker-work; the hooks being baited, and placed regularly in the centre of the coil. Each line is furnished with fourteen score of hooks, at the distance of six feet two inches from each other; and the hooks are fastened to the lines on snoods of twisted horse-hair, each about twenty-seven inches in length. When engaged in fishing, there are always three men in each coble; and consequently nine of these lines are fastened together, and used as one, extending near three miles in length, and furnished with 2520 hooks. An anchor and a buoy are fixed to the first end of the line, and one more of each at the end of each man's lines; in all four anchors, which are usually perforated stones, and four buoys made of leather or cork. The line is always laid across the current. The tides of flood and ebb continuing on our coasts an equal time, about six hours each when undisturbed by winds, and being extremely rapid, the fishermen can only shoot and haul their lines at the turn of each; and therefore the lines always remain on the ground about six hours; during which time the myxine glutinosa of Linnæus will frequently penetrate the fish that are on the hooks, and entirely devour them, leaving only the skin and bones. The same rapidity of the tides prevents the fishermen from using hand-lines; and therefore two of them usually wrap themselves in the sail, and so go to sleep; while the other keeps a strict look out, lest they should be run down by some vessel: as well as to watch the weather; for storms sometimes arise so suddenly, that it is with extreme difficulty they are able to make the shore, leaving their hooks and lines behind them.

Besides the coble, those who are employed in the Turbot-fishery have generally a five-man boat, about forty feet long and fifteen broad, and of twenty-five tuns burden: which boat is decked at each end, but open in the middle; and has two lug-sails.

In such kind of boats do the most expert fishermen go to the herring-fishery at Yarmouth, about the latter end of September, and return about the middle of November. The boats are then laid up till the beginning of Lent, when they proceed in them to the edge of the Dogger Bank, and other proper situations, in order to fish for Turbot, cod, ling, and skates. They always take two cobbles on board; and, when arrived at their station, anchor the boat, throw out the lines, and fish in the same manner as those who go from the shore in a coble; with this difference only, that here each man is provided with double the quantity of lines; and, instead of waiting the return of the tide in the coble, go back to their boat, and bait their lines; thus hauling one set, and shooting another, at every turn of the tide. They commonly run into port twice a week, for the purpose of delivering their fish.

Fresh herring seems to be the best bait for all kinds of fish; and the five-men boats are always furnished

furnished with nets for taking them. Next to herrings, the lesser lampreys are most esteemed. Haddocks, cut in pieces, sand-worms, and limpets, are also used; and when neither can be procured, bullock's liver is substituted in their room. The hooks used for Turbot are two inches and a half long in the shank, and near an inch wide between the shank and the point. The line is made of small cording, and always tanned before using.

Turbots, as well as all fish of the Ray kind, are extremely delicate in their choice of bait; for, if a piece of herring has been twelve hours out of the sea before it is placed on the hooks, they will seldom touch it.

TURBOT, PEARL; the *Pleuronectes Rhombus* of Linnæus. This variety is frequently exposed to sale in the London markets; but it is inferior to the Turbot in goodness, as well as in size. The irides are yellow; the skin is covered with small scales, quite free from any spines or inequalities; the upper side of the body is of a deep brown colour, marked with spots of dirty yellow; and the under side is pure white.

TURDUS, Thrush. In the Linnæan system, a genus of birds of the order of passeræ: the distinguishing characters of which are; that the tongue is jagged, and surrounded with a rim or margin; the bill is of a conic, pointed figure, the upper mandible bent at the apex, and emarginated; the nostrils are naked, and but half covered above with a small membrane; and the chaps are ciliated. Linnæus enumerates twenty-eight species.

According to Ray, the characters of this genus are the following: they are of a middle size between the lark and the pigeon; their beaks are moderately long, thick, and a little incurved downwards; their mouths are yellow within; their tails are long; and their food is both vegetable substances and animals in common.

Most of these birds sing very melodiously; and are capable of being taught to imitate the human voice.

Britain affords four species of the Thrush: the missel-bird; the song-thrush, or throistle; the field-fare; and the swine-pipe, or redwing.

TURDUS is also the name of a genus of fishes, according to Ray's distribution, of the class of such as have only one back fin; the anterior rays of which are prickly, and the hinder ones soft and smooth.

TURKEY. A distinct genus of birds of the order of gallinæ; the distinguishing characters of which are, that the head and neck are covered with naked tuberos flesh, and a long fleshy appendage hanging down from the base of the upper mandible: to which may be added, from Pennant, that the bill is convex, short, and strong; the nostrils are open and pointed at one end, and lodged in a membrane; the tongue is sloped on both sides towards the end, and pointed; and the tail is broad, consisting of eighteen feathers, and extensible. Linnæus enumerates three species.

The Turkey was unknown to the ancient naturalists; and even to the Old World, before the discovery of America. It was a bird peculiar to the new continent; and is at present the most common wild fowl of the northern parts of that country. It was first imported into France in the reign of Francis I. and into England in that of Henry VIII. The first birds of this kind must therefore have been brought from Mexico; which conquest was completed in 1521. Ælian in-

deed mentions a bird found in India, which some have supposed to be the Turkey; but Gesner and Pennant are of opinion, that it was either the peacock, or some bird of that genus. Some persons who have resided in the East Indies inform us, that though the Turkey is bred there, it is not considered as a native of the country, but only as a domestic bird.

The Turkeys of this country, when young, are among the tenderest of birds; yet in their wild state, they are very numerous in the forests of Canada, which are covered with snow above nine months in the year. In their natural woods they are much larger, as well as more beautiful, than in their state of domestic captivity; their plumage being grey, bordered at the edges with a bright gold colour. The Savages weave their feathers into cloaks, to adorn their persons; they also form them into umbrellas and fans; but never think of animals under their protection, which the woods supply in sufficient abundance.

The hunting of the Turkey constitutes one of the Savage's principal diversions; and it's flesh contributes greatly to the support of his family. When he has discovered the retreat of the Turkeys, he takes with him his dog, which he has trained to the sport, and sends him into the midst of the flock. As soon as the Turkeys perceive their enemy, they run with such prodigious swiftness, as to leave the dog at a great distance behind: he still, however, continues to follow them, knowing from experience that they must soon be tired, as they are incapable of running fast for any considerable space of time. At length, he obliges them to take shelter in some tree; where, quite exhausted with fatigue, they sit till the hunter arrives, who, with a long pole provided for that purpose, knocks them down one after another.

Turkeys are furious among themselves, but extremely weak and cowardly even among other animals less powerful than themselves. The common cock generally makes the Turkey keep at a distance. Indeed, the Turkey-cock will fly from the most contemptible animal that boldly ventures to face him: on the contrary, he pursues any creature that seems to fear him with the most cowardly insolence; particularly children and lap-dogs, to whom he seems to have a peculiar aversion. After such an exploit, he returns to his female train, displays his plumage around, struts about the yard, and seems to exult in his valour.

The female seems to be of a milder disposition. She lays eighteen or twenty eggs, larger than those of the hen, which are whitish, and speckled, or rather freckled, with dusky yellow spots. Though extremely tender when young, her offspring become more hardy as they grow older, and accompany their parent to considerable distances, in pursuit of insects, which they prefer to any other food; consequently they are but of small expence to the farmer.

The Turkeys bred in Norfolk are said to be the largest of this island, weighing from twenty to thirty pounds each. But in the East Indies, where they are known only in their domestic state, they often weigh fifty or sixty pounds.

The Turkey expands it's tail after the manner of the peacock: the neck and head are bare of feathers, and covered only with a purple or reddish skin, which, when the bird assumes stateliness, swells; and is blown up as it were to a considerable

able size. It has a red fleshy appendix, or carbuncle, resembling a worm, on the upper chap of the bill, which it can raise or contract at pleasure. The tail consists of eighteen feathers; and each wing contains twenty-eight primaries. The legs have a kind of rudiment of spurs, which are very conspicuous.

The flesh of a Hen-Turkey is sweet and delicate, and not inferior to a pullet's; but that of a Turkey-Cock is inferior both in flavour and delicacy.

'Most of our housewives,' says a Swedish writer on agriculture, 'have long despaired of success in rearing Turkeys; and complained that the profit rarely indemnifies them for their trouble and loss of time: whereas,' continues he, 'little more is to be done than to plunge the chick into a vessel of cold water the very hour, or, if that cannot be done, the day it is hatched; forcing it to swallow one whole pepper-corn, and then restoring it to its mother. From that time it will become hardy, and fear the cold no more than a hen's chick. After which, it must be remembered, that these useful creatures are subject to one particular malady, whilst they are young, which carries them off in a few days, without timely precaution. When they begin to droop, carefully examine the feathers on their rumps, and you will find two or three whose quill-part is filled with blood: on drawing these, the chick recovers; and after that requires no other care than what is commonly bestowed on poultry that range the court-yard.'

Such are the Swedish agriculturist's remarks; and some tell us that they are founded in truth and reason. The experiment is easily made; and, if successful, would be attended with considerable advantages in rural œconomy.

TURNSTONE; the *Tringa Morinellus* of Linnæus. This bird, called also the *Morinellus Marinus*, or the sea-dottrel, is somewhat larger than the black-bird. The head is moderately thick, and the body of a longish shape; the beak is thick, whitish at the base, and sharp and black at the point; the head, neck, shoulders, wings, and upper part of the breast, are of a brownish colour; the throat and forehead are ash-coloured; the back and rump are white; the middle of the back is marked with a very large triangular black spot; and the tail consists of twelve feathers, the lower half being white, the upper black, and the tips white. The quill-feathers are dusky; but from the third or fourth the bottoms are white, increasing to about the nineteenth, when the feathers are entirely of that colour. The legs are short, and of a reddish yellow or orange colour.

These birds receive their English name from their method of searching for food, by turning up small stones with their strong bills, in order to come at such insects as lurk under them.

TURNSTONE, HUDSON'S BAY; the *Tringa Interpres* of Linnæus. This species, which is about the size of a thrush, is often shot on the islands in the north of Scotland, but is properly a native of North America. The forehead, throat, and belly, are white; the breast is black; and the neck is surrounded with a black collar, whence another bounds the sides of the neck, and passes over the forehead. The head and lower part of the neck behind are white, the former streaked with dusky lines; the back is ferruginous, mixed with black; the coverts of the tail are white,

crossed with a black bar; the tail is black, tipped with white; and the legs are of a full orange colour.

TURONILLA. An appellation by which some ichthyologists express the small fish more usually denominated the stickleback or banstickle.

TURSIO. A name given by some authors to the phocæna or porpoise.

TURTLE. See DOVE.

TURTLE. An appellation by which the moderns express that kind of tortoise which is found only in the sea, or on its shores. There are a great variety of species.

TURTLE, EDIBLE. Mariners generally distinguish such Turtles as are proper for food into four kinds: the trunk Turtle, the logger-head, the hawkbill, and the green Turtle.

The trunk Turtle is generally larger than any of the rest; and its back is higher and rounder. The flesh of this variety is rank, and reputed unwholesome.

The logger-head has obtained its title from the size of its head, which is much larger in proportion than that of the other kinds. The flesh of this kind is also rank, and seldom eaten.

The hawkbill Turtle has a long and small mouth, somewhat resembling the bill of a hawk. Though the flesh of this Turtle is not much esteemed, the shell answers some valuable purposes. This is the animal which supplies the tortoise-shell of which snuff-boxes and a variety of beautiful trinkets are made.

The green Turtle is the most celebrated, as well as the most valuable, of all the animals of the tortoise kind. The delicacy of its flesh, its nutritive qualities, together with the property of being easily digested, are now well known in this kingdom.

Dampier appears to have been the first who observed the above distinctions among these animals; and that, while the rest might be valuable for other purposes, the green Turtle alone was prized for the delicacy of its flesh.

The green Turtle is indeed become a branch of commerce; and ships are provided with conveniences for supplying them with water and provisions, in order to bring them hither in a healthy state from Jamaica and other West India islands. This, however, cannot always be effected; for though they scarcely require any provisions on the voyage, yet the working of the ship occasions their beating against the sides of their receptacles, whereby they become lean and battered: so that, in order to enjoy this luxury in the highest perfection, instead of bringing the Turtle to the epicure, the epicure should be transported to the Turtle.

The colour of the shell of this creature is somewhat greener than that of others of the kind; whence it receives the appellation of the Green Turtle. Such as weigh about two hundred pounds are of the most common size; though they are sometimes known to exceed five hundred, and even to reach nine hundred.

The ancients, however, speak of much larger Turtles: Ælian assures us, that the houses in the island of Taprobane are usually covered with a single shell; and Diodorus Siculus informs us, that a people bordering on Æthiopia, called the Turtle-eaters, coast along the shore in boats made of the upper shell of this animal.

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The Turtle seldom quits the sea, except to deposit its eggs, and sometimes to sport in fresh water. In about twenty-five days after laying, the eggs are hatched by the heat of the sun; and the young Turtles, about the size of quails, are seen bursting from the sand, and running directly to the sea, guided wholly by instinct. But it sometimes happens that the surges beat them back on the shore; when they become a prey to the innumerable quantities of bird, which then frequent the sea-coasts.

TURTLE, MEDITERRANEAN. This species is common to the Mediterranean, and our southern seas; and is sometimes, though not frequently, caught on the north coasts of England. Two of a vast size were taken on the coast of Cornwall, in the mackerel nets, a little after Midsummer 1756; the largest weighing eight hundred pounds, the lesser near seven hundred. A third, of equal weight with the former, was caught on the coast of Dorsetshire, and deposited in the Leverian Museum.

The length of the body is nearly five feet; of the head, nine inches; and of the neck, three. The upper jaw is bifurcated at the extremity; the end of the lower is sharp, and clasping into the fork of the upper. The breadth of the body, at the widest part, is three feet; the length of the fore fins is two feet seven; of the hind, thirteen and a half. The body is covered with a strong hide, exactly resembling black leather, destitute of scales, but marked with their appearance; and the back is divided into five longitudinal flutings or grooves, with as many sharp but smooth risings.

This species is extremely fat; but the flesh is coarse, and so very unwholesome, that a gentleman, by imprudently eating of one, is said to have been well nigh poisoned.

TURTUR. The classical appellation for the dove.

TURTUR is also a name by which some ichthyologists express the *pastinacha marina*, or fire-flaire.

TWAITE. See **SHAD.**

TWITE; the *Linaria Montana* of Linnæus. This bird, according to Willughby, inhabits the hilly parts of this country. This author likewise informs us, that the colour of the head and back is the same with that of the common linnet; that the feathers on the throat and breast are black, edged with white; and that the rump is of a rich scarlet, or orange tawny colour. The edges of the middle quill-feathers are white; as are the tips of those of the second row. The two middle feathers of the tail are of an uniform dusky colour; and the others are edged with white.

Pennant, however, gives a somewhat different description; and says that the Twite is rather in-

ferior in size to the common linnet, and of a more taper make; the bill is short, and entirely yellow; above and below each eye there is a pale brown spot; the edges of the greater coverts of the wings are white; and the female wants the red mark on the rump. In other respects, both agree.

These birds derive their name from the poverty of their note, which is totally destitute of music. They are supposed to breed only in the northern parts of this island.

TYGER. See **TIGER.**

TYPHLINUS. An appellation by which some ichthyologists express the *cæcilia*, or slow-worm.

TYRANNUS. A name given by some authors to the *lanius*, or butcher-bird; a small but very destructive creature.

TZANATL. An American bird described by Nieremberg; the body of which is entirely covered with very long and beautiful plumage of a fine pavonaceous green colour. The upper side of the wings is black, but the under is of a very fine shaded green. The head is adorned with a most elegant crest; the throat and breast are of a fine scarlet hue; and the primaries are very long, and beautifully variegated with several colours.

The feathers of this bird are held in higher estimation among the Indians than gold; because with them they decorated the images of their gods.

TZANPAU. An American bird described by Nieremberg, and by many reputed the female of the *polyglotta avis* of ornithologists, or *cencontlatollri* of the Indians. It is celebrated for the modulations of its voice.

TZINITZIAN. A beautiful American bird, of the size of a pigeon, and ornamented with elegantly varied plumage. The beak is short, crooked, and of a pale colour. The breast, and part of the belly, are red; but that part which is next the tail is of a fine blue colour, and a bright white, elegantly intermixed. The tail is green on the upper part, and black underneath; the wings are variegated with white and black; the shoulders are of a very beautiful green colour; and the legs and feet are grey.

This bird is most commonly seen on the coasts of the South Sea. It feeds on vegetables; and is generally caged on account of its beauty, though its voice is totally destitute of melody.

TZTACTZON. An American appellation under which Nieremberg has described a species of duck remarkable for the variable and beautiful colours of its head, which are purple, blue, white, and green, with the richest gloss. The body is variegated with black, grey, and white; and the legs are red.

It is common in the lakes of Mexico; and its flesh is esteemed very wholesome.

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VACCA. The female of the ox kind. See Cow.

VACCA MARINA. See MANATUS and SEA-Cow.

VAMPYRE; the *Vespertilio Vampyrus* of Linnæus. A species of bat, the *La Roufette* and *La Rougette* of Buffon, with large canine teeth, four cutting ones above, and the same number below. It has a sharp black nose; large naked ears; and a pointed tongue, terminated by sharp aculeated papillæ. The exterior toe is detached from the membrane; the claw is strong, and hooked; there are five toes on the hind feet; the talons are very crooked, strong, and compressed sideways; the membrane is divided behind quite to the rump; and there is no tail. The colour varies, some being entirely of a reddish brown, and others dusky. The size likewise differs much; the extent of the wings, in some, being four feet; in others, five feet four inches; and in some considerably more.

This animal inhabits Guinea, Madagascar, and most of the Oriental Islands. It is also found in New Holland, the Friendly Islands, the New Hebrides, and New Caledonia.

These bats, which are gregarious, darken the very air with their numbers; beginning their flight from one neighbouring island to another immediately after sun-set, and returning in clouds from the commencement of the morning twilight till sun-rising. They lodge in hollow trees during the day; live on fruits; and are so extremely fond of the juice of the palm-tree, that they often drink it till quite intoxicated, and then drop to the ground.

The natives of New Caledonia use the hair of these bats in ropes, and in the tassels of their clubs; the Indians esteem their flesh excellent food; and the French resident in the Isle of Bourbon boil them in their bouillon, to give it a relish. They make a singular kind of noise while feeding; their smell is rank; and, when opposed or molested, their bite is said to be very dangerous.

The ancients appear to have had some knowledge of these animals; and Buffon apprehends that the poets formed their fictions of harpies from such subjects.

Linnæus gives this bat the appellation of *Vampyre* from a supposition of its being that species which sucks the blood of the human race when asleep: but Buffon is of opinion that the *Vespertilio Spectrum* of Linnæus is the bat which possesses the dangerous quality of sanguisuction. See BAT.

VANDOSIA. An appellation by which some ichthyologists have expressed the leuciscus, or common dace.

VANELLUS. A name given by some writers to the capella or lapwing.

VANSIRE. A species of weasel which inhabits Madagascar. It has short ears; the hair is brown at the roots, barred above with black, and

ferruginous; and the tail is of the same colour. The length of this animal is from nine to fourteen inches; and the tail is nearly ten.

VARI. An appellation by which some naturalists express the lemur catta of Linnæus, a species of maucauco about the size of a cat, inhabiting Madagascar and the neighbouring isles.

The Vari of Buffon is the ruffed maucauco of Pennant, the black maucauco of Edwards, and the lemur caudatus collari barbato of Linnæus. The irides are orange-coloured; the sides of the head are encompassed with long hair, standing forward like a ruff; the tail is long; the colour is wholly black, though sometimes white spotted with black; and the feet are black.

This animal is very fierce in a wild state; and makes such a terrible noise in the woods, that the voice of one may be mistaken for that of numbers: but, when tamed, which is very practicable, it is gentle and docile.

VARIA. An appellation given by some authors to the leopard or pardalis, from the beautiful variegations of its hair.

VEGETABLE FLY. An insect found in the island of Dominica; resembling the drone in size and colour, but differing from it in that it has no wings.

This insect buries itself in the earth in the month of May, and begins to vegetate. By the latter end of July, the tree is arrived at its full growth; and resembles a coral branch, being about three inches high, and bearing several little pods, which dropping off, become worms, and afterwards flies, like the English caterpillars. Such is the opinion of the credulous natives; and even in the *Philosophical Transactions*, Vol. LIV. p. 270, this singular vegetable insect is figured and described. But the judicious Dr. Hill observes, that the cicada is common in Martinico; and that in its nymph state, in which ancient authors call it *tettigometra*, it buries itself under dead leaves, and there waits its change; but when the season is unfavourable, many perish: and that the seeds of the *clavaria sobolifera*, a fungus producing soboles or shoots from its sides, and usually growing from the bodies of putrid animals, finds here a proper bed to vegetate. This the doctor asserts as a fact.

VELLIA. An appellation whereby many authors express the *lanius minor*, or *lanius tertius* of Aldrovandus; called the flusher in England.

VELVET DUCK. See DUCK.

VELVET RUNNER. A bird described by Brooke. The whole body is finely coloured with black and red, except the belly, which is white; and the black has a very glossy appearance. The legs are pretty long and of a dusky colour. It appears to be an obscure species.

VENEREA CONCHA. A very large and elegant genus of shells, more usually denominated porcellanæ. See PORCELAIN SHELL.

VENUS. In the Linnæan system, a genus of the testacea order of worms. Its characters are these:

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these: the animal is a tethys; the shell is bivalve; the legs are incumbent at the interior margin; the hinge has three teeth, diverging at their apex; and the anus and vulva are distinct. Linnæus enumerates thirty-nine species.

VER-PUCERON. An appellation by which Reaumur expresses a kind of insects, very destructive to the Puceron, from which they receive their name. They are a sort of worms produced from the eggs of flies of two principal kinds; the one being furnished with legs, and the other being destitute of them.

VER-POLYPE. A name by which Reaumur and some other authors express a species of aquatic worm, by no means to be confounded with the common Polype, so famous for its reproductive qualities.

The insect under consideration is produced from the egg of a tipula; and received its present appellation from some remarkable productions, placed at the anterior and posterior parts of the body, supposed to have some analogy with the parts of the sea-fish called the polypus.

These worms are usually met with in ditches abounding with mud.

VERANO AVE. A term by which the Portuguese resident in the Brazils express a large bird of the thrush kind, remarkable for its loud noise; and better known by its American name, Guirapanga.

VERDONE. A name by which some ichthyologists express a fish of the turdus or wrasse kind, more usually denominated turdus viridis minor. The body is entirely of a fine green colour of different shades; and it has one long dorsal fin, consisting of thirty rays, the eighteen anterior of which are rigid and prickly, but the remainder soft and flexible.

This fish is caught in the Mediterranean, and frequently exposed to sale in the Italian markets.

VERGADELLE. An appellation sometimes given to a fish of the mullet kind; called also chelon; remarkable for the thickness of its lips.

VERITH. A name given by Isidore to the fish more usually called thrissa; in English, the shad, or mother of the herrings.

VERKINS VISCH. A Dutch appellation for an East Indian fish about seven inches long, of a blackish green colour, with fins and tail wholly black, and yellow irides.

This fish, which is caught in fresh waters, and much esteemed for its delicacy, is nearly allied to the capricus or goat-fish.

VERMELPO. An American fish, more usually denominated pudiano.

VERMES. See **WORMS.**

VERMICULUS MARINUS. A genus of shell-fish, so called from the inclosed animal, which is always a kind of worm. They are usually found in large clusters, interwoven with each other in a very singular manner.

Bonani calls them sea-serpents inclosed in shells, from the various twisted forms in which they adhere to ships and rocks. He further ranks them among multivalves, because they are never found single, but always in clusters. This author, however, is not very remarkable for the accuracy of his discriminations; a quality without which the natural historian can never arrive at any great degree of celebrity.

According to Da Costa's arrangement, the

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vermiculi, or worm-shells, constitute the third family of univalve shells: and he defines them to be tubular cylindric shells, single, in masses together, or adherent to other shells or bodies; variously sinuous, by winding or twisting to and fro in a very irregular manner. Of these vermiculi he enumerates two genera; those which have no fixed or regular form, as the common vermiculi, of which, though they are found in great abundance, there are not many different species; and the penacilli, or worm-shells, which in the whole, or any particular part, have a determinate regular shape or structure. There are few species of this genus: the watering-pot from the East Indies is the chief kind; and, when perfect, is much valued.

There are also some vermiculi with concamerations; but these are seldom regular, or set at equi-distant intervals; and are not pierced by a pipe or siphunculus, communicating from chamber to chamber, so as to permit the fish to penetrate more than one chamber or inclosure at a time; in which respect they wholly differ from the nautili, and other concamerated shells.

VERONUS. An appellation by which some authors express the small river-fish so well known in England under that of the minnow.

VERZELLINO. An Italian name for a bird common in that country, where it is caged; and much valued for its notes. It is the citrinella and thraupis of some ornithologists.

VESPA. See **WASP.**

VESPERTILIO. A name by which some conchologists express a species of voluta, supposed to bear some resemblance in colour to a bat. See **BAT.**

VESPIVORUS BUTEO. A name given by some ornithologists to the honey-buzzard; so called from its feeding its young with the maggot-worms found in honey-combs. It is also denominated Apivorus Buteo.

VETOLA. A Venetian appellation for an aquatic bird of the scolopax kind; the scolopax limosa of Linnæus.

This bird usually weighs about nine ounces. The beak is entirely red, except at the extremity, where it is blackish; the neck is grey; the belly and breast are white; the head is of a brownish grey colour; the back is brown; the rump is marked with a white ring; and the tail is composed of black and white feathers.

VIBRANT, OR VIBRION. A name by which some naturalists express a class of flies more usually denominated ichneumons.

VICUNA. A word by which some naturalists denominate the pacos, or American camel.

VIELLEUR. A species of fly common in Surinam and some other places. It resembles the lantern-fly in many respects, but is considerably larger.

VINAGO. An appellation given by some ornithologists to the wood-pigeon; so called from the red vinous colour of its breast, shoulders, and wings.

VINE GALL-INSECT. A small creature of the gall-insect class, principally found on the vine, though sometimes discovered on other trees. Its manner of life, shape, and figure, bear a general conformity to others of the same class: but it differs from them in this; that whereas they lay all their eggs under their bodies, and continue absolutely to cover them till they are hatched

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hatched; the insects under consideration protrude them from their bodies, and are found in prodigious numbers, lodged in a sort of silky bags dispersed over the stalks and branches of the vine.

VINE-GRUBS. A name given by some naturalists to the pucerons, or little insects, usually of a green colour, found in great abundance adhering to the leaves of trees and plants, and particularly to their young stalks.

VIOLA. An appellation by which some ichthyologists express the fish called in English the smelt.

VIPER; the *Coluber Berus* of Linnæus. This well-known poisonous serpent is found in many parts of this island; but the dry, stony, and in particular the chalky countries, abound with them. It seldom arrives at a greater length than that of two feet, though it is sometimes met with above three. The ground colour of the body of the male is a dirty yellow; that of the female is deeper. The back is marked the whole length with a series of rhomboidal black spots, touching each other at the points; the sides are marked with triangular ones; and the belly is entirely black. It is chiefly distinguished from the common black snake by the colour, which in the latter is more beautifully mottled; as well as by the head, which is thicker than the body; but particularly by the tail, which in the viper, though it terminates in a point, does not run tapering to so great a length as in the other: when, therefore, other distinctions fail, the difference of the tail can be discerned at a single glance.

This reptile differs from most others of the serpent class in being slower in its motions, but more especially in being viviparous. Providence, in compassion to mankind, seems not only to have diminished its speed, but also its fruitfulness; and, in proportion as it is dangerous, its powers of mischief are abridged, and its numbers confined.

The Viper copulates in May, and is supposed to go with young three months. If the female be dissected during the period of gestation, she will be found to contain about ten or eleven eggs, chained together in the womb like a string of beads; each egg containing from three to four young: these continue in the matrix till they arrive at such a degree of perfection as to be able to burst from the shell; and they are said, by their own efforts, to creep from their confinement into the open air, where they continue for several days without any sustenance whatever.

‘We have often been assured,’ says Pennant, ‘by intelligent people, of the truth of a fact, that the young of a Viper, when terrified, will run down the throat of the parent, and seek shelter in its belly, in the same manner as the young of the opossum retire into the ventral pouch of the old one. From this,’ continues he, ‘some have imagined that the Viper is so unnatural as to devour its own young; but this deserves no credit, as these animals live on frogs, toads, lizards, and young birds; which they swallow entire, though the morsel is often three times as thick as their own body.’

These creatures are capable of supporting abstinence for a remarkable length of time. One of them has been confined in a box for six months, without the least visible food; and yet,

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during the whole time, never abated in its vivacity. It feeds only during a small portion of the year, but never when under confinement; for if mice, its favourite food, should at any time be thrown into the box, though eager to kill, it will never taste them. When at liberty, it remains torpid throughout the winter; but, when confined, has never been observed to take this annual repose. Its poison, however, decreases in proportion to the continuance of its confinement; and it is imagined that the virtues of the animal’s flesh are considerably lessened by the same restraints.

Vipers are usually taken with wooden tongs, by the ends of their tails, which may be done without danger; for, while held in that position, they are unable to wind themselves up to hurt the aggressor; yet, notwithstanding this precaution, the Viper-catchers and others are frequently bit by them: and as they are the only animals in this country truly alarming because of their poisonous effects, we shall note such remarkable cases, and modes of cure, as may tend to alleviate the pain, and obviate the noxious consequences of the bite when it has at any time unfortunately taken place.

A person named Oliver, a Viper-catcher at Bath, is said to have been the first who discovered the efficacy of olive-oil in curing the bite of this dreaded serpent. On the first of June, 1735, in the presence of a great number of persons, he suffered himself to be so bit by an old black Viper, brought by one of the company, on the wrist, and joint of the thumb of the right-hand, that blood issued from the wounds. He immediately felt a violent pain, both at the top of his thumb, and up his arm, even before the Viper was loosened from his hand. Soon after, he felt a pain, resembling that of burning, trickle up his arm. In a few minutes, his eyes began to look red and fiery, and to water much. Within less than an hour, he perceived the venom seize his heart, by a kind of pricking pain, attended with faintness, shortness of breath, and cold sweats. In a few minutes afterwards, his belly began to swell, accompanied with severe gripings, pains in his back, vomitings, and purgings. During the violence of those symptoms, his sight forsook him for several minutes, but he was still capable of hearing. He said that, in his former experiments, he had never deferred his remedy longer than till he perceived the effects of the venom had reached his heart; but at this time, being willing to satisfy the company thoroughly, and trusting to the speedy effects of his antidote, which was nothing more than olive-oil, he forbore to apply any thing till he found himself extremely ill, and quite giddy.

About an hour and a quarter after he was first bit, a chaffing-dish of glowing charcoal was brought in; and his naked arm was held over it as close as he could bear, while his wife rubbed in the oil with her hand, turning his arm continually round, as if she would have roasted it over the coals. He said the poison soon abated, but the swelling was not much diminished. Most violent purgings and vomitings soon ensued; and his pulse became so low, and so often interrupted, that it was thought proper to give him a repetition of cordial potions: he was not sensible, he said, of any great relief from them; but that the drinking a glass or two of olive-oil seemed to give him ease. Continuing in this dangerous condition,

dition, he was put to bed, where his arm was again bathed over a pan of charcoal, and rubbed with olive-oil heated in a ladle over the charcoal by Dr. Mortimer's direction, the physician who drew up the account. From this last operation he declared that he found immediate ease, as though by some powerful charm. Soon afterwards, he fell into a profound sleep; and, after nine hours rest, awaked about six the next morning perfectly well: but, in the afternoon, after drinking such a quantity of rum and strong beer as to be almost intoxicated, the swelling returned, accompanied with much pain and cold sweats, which soon abated on bathing the arm as before, and wrapping it up in brown paper soaked in the oil.

This cure being attributed to the oil alone, though it appears that cordials were administered, some ingenious foreigners were induced to try the same experiment, but not uniformly with success. Dr. Vater at Dresden found oil a specific; but Messrs. Geoffroy and Hunauld, of the Royal Academy of Sciences at Paris, made a number of experiments, in which this oil proved ineffectual: and added to their own accounts some others of people who were bit; in which all the dreadful consequences of that poison are shewn, and the remedies specified by which they were removed.

The first instance which these gentlemen produce, is in the case of Mr. Pison, who was bit on the end of his fore-finger by an enraged Viper. A drop of blood immediately issued from the wound; and the first application made was that of covering the whole member with a quantity of Venice treacle: the finger, however, swelled violently, and was scarified in several places. The patient was ordered to eat the body of the Viper boiled, and to drink a glass of wine after it, with some Venice treacle, in which were infused a few drops of the volatile spirit of Vipers; and the finger was wrapped round with compresses and bandages wetted in aqua vitæ. Soon after this, the patient began to vomit; and, after a plentiful discharge in that way, the swelling increased; and his arm, which was now very much distended, was scarified in twenty places; and compresses of linen, dipped in aqua vitæ, were laid on the wounds. He afterwards took volatile salt of Vipers in repeated doses; had more scarifications made in his arm; and drank, in the space of one afternoon and evening, a quart of strong wine. After this, he slept very sound; all the symptoms disappeared; and he was almost recovered by six o'clock next morning, except that the scarifications were two months in healing. After that time, he enjoyed a confirmed state of health.

A second instance is recorded of a young lad, of a robust constitution, bit by a Viper enraged, and kept for some time in a very hot situation near the fire. He at first perceived a pain, like that of the oil of vitriol dropped on the wound; when the finger on which he was bit was tied very tight with a binder: after this, some scarifications were made in it, and a quantity of the fat of the Viper was rubbed into them. Four Vipers were then killed, and all their fat was used. After which he took three drams of Venice treacle in some wine.

The patient's whole arm swelled; he perceived a violent heat diffused over his body; and his other

hand became so turgid, that at length he could scarcely shut it. On this, he took a large dose of Venice treacle, camphire, volatile salt of Vipers, of amber, of sal ammoniac, and sal volatile oleosum: this he repeated at some distance of time. He was bled in the opposite arm; he vomited violently; and an incision being made all along the finger, no blood issued thence. The hand, arm, and breast, were embrocated with a mixture of spirit of lavender, camphire, Venice treacle, and the fat of Vipers. After having vomited plentifully, and being rubbed with this warm mixture, he found himself much easier. At eight o'clock in the evening he took another dose of his volatile medicines, and slept till four in the morning: he then took a large glass of wine, slept till six, and at seven eat part of a fowl with a good appetite. The surgeons would have made more scarifications in the arm, but the patient would not suffer them. Three days afterwards, an erysipelas appeared, to which a mixture of aqua vitæ and ointment of marsh-mallows was applied; and, finally, he was perfectly restored to health.

In these two instances, the symptoms appeared much in the same manner as those of the Bath Viper-catcher, who suffered himself to be bit that he might be cured by his own antidote oil. The sleep came on in all the same circumstances; and they were all cured, as well he who used no unctions, as he who used the fat of the Vipers, or the Englishman who depended on oil. The internal medicines given to them all were of much the same kind. All, therefore, that can be concluded from these cases is, that either these bites would not have proved mortal in themselves, or that the cordial medicines taken internally were the remedies which prevented the mischiefs that would have ensued; and these seem to have acted, not as specifics against the bite of this creature, but merely as medicines that would stop the progress of a gangrene; the unprevented increase of which is the circumstance that proves fatal from the bite of the Viper.

The dissection of such animals as have died by the bite of the Viper, whether rubbed with oil or not, afforded all the like appearances. The limb that had received the wound was wholly swelled and livid; and these symptoms were usually carried along the thigh to the belly, and sometimes up to the breast. Incisions made along these parts always discovered the cellules of the membrana adiposa full of a bloody-coloured water; and the membrane itself was swelled, blackish, and gangrened: and this always appeared more plainly in the belly than in any other part; the membrana adiposa, in all other parts of the body, being in it's natural state. The injured parts often emitted a cadaverous smell; the muscles of the wounded limb were also of a brownish colour; and their fibres had lost their consistence, and seemed ready to give way to the approaching gangrene. Nor is this effect confined to the external parts alone: a goose that had been bit had three gangrenous spots on it's heart, and all the indications of an incipient gangrene in other parts of it's body; the concave side of the liver was also gangrened, and had wholly lost it's consistence. The lungs also of a fowl, that had been bit on the wing, were found to be gangrened in part.

The effects, however, of the bites of different Vipers, were different in their degree; and several

circumstances relative to the animal wounding, or the creature wounded, may occasion very different consequences: hence remedies, which succeed in one or two cases, are not to be regarded as specifics.

The poison of the Viper is only dangerous when immediately conveyed into the blood. It is neither noxious to eat the flesh of creatures killed by Vipers, to drink the liquor in which they have been drowned, or to suck the parts they have wounded: on the contrary, Signor Redi asserts, that sucking the wound is a sovereign remedy against the bite of the Viper; but he denies, what has been affirmed by Aristotle and Galen, that the spittle of a fasting person will kill those animals.

The practice of extracting poison by suction is very ancient; and indeed nothing can be more rational. Where the bite cannot be cut out, this is the most probable method of succeeding: nor can there be any danger in performing that office, the poison being perfectly innocent, unless taken into the body by a wound. The person, however, who sucks the wound, ought frequently to wash his mouth with fallad-oil, which will prevent the least inconvenience. After the wound has been well sucked, it should be rubbed with warm fallad-oil. A poultice of bread and milk, softened with fallad-oil, should likewise be applied; and the patient should drink freely of vinegar whey, or water-gruel mixed with vinegar, to bring on a perspiration. Vinegar is, indeed, one of the very best medicines that can be used in any poisonous case, and ought to be taken very liberally. 'This course,' says the ingenious Dr. Buchan, 'will be sufficient to cure the bite of any of the poisonous animals of this country.'

Though the bite of the Viper is sufficiently dreadful, notwithstanding the simplicity of the applications which are sometimes effectual in curing it; yet its flesh has long been celebrated as a noble medicine. A broth, made by boiling a Viper in a quart of water till it comes to a pint, is the most usual method in which it is at present recommended; and it is said to be a very powerful restorative in battered constitutions. The salt of Vipers is also supposed to exceed any other animal salt whatever in giving vigour to a languid circulation, and in prompting to venery.

VIPERA PILEATA, OR VITTATA. An appellation by which some naturalists have expressed a remarkable and dangerous species of Indian serpent, more usually denominated Cobra de Capella.

VISON. An animal of the weasel kind, so called by Buffon; a native of North America.

VITIFERA. An appellation by which some ornithologists have expressed the common ænanthe, a bird well known in this country by the name of the wheat-ear.

VITTA CÆRULEA. A name whereby some conchologists express a species of the dolium.

VITTA. An appellation by which Gaza and other ichthyologists express the tænia.

VITULUS MARINUS. See SEA-CALF and SEAL.

VITULI AQUATICI. A term by which some naturalists express those worms which resemble animated horse-hairs. See AMPHISBÆNA AQUATICA.

VIVERRA. See FERRET.

VIVERRA. In the Linnæan system, a distinct genus of the order of feræ. The distinguishing characters are: it has six cutting-teeth, the intermediate ones being shortest; the grinders are more than three; the tongue bends backwards, and is frequently aculeated; and the nails are extended.

This genus includes six species; the ichneumon, or Indian quirpele; the na'ua, or coati mundi of Brazil, of a reddish colour, having its tail annulated with white; the narica, of a dusky colour, and the tail sometimes annulated with black and white, and sometimes of an uniform dusky colour, which some naturalists consider as a variety of the former; the putorius, or American pole-cat; the zibetha, or civet; and the ginetta.

ULULA. See OWL.

UMBER, OR OMBRE. A provincial name for a fish of the truttacæous kind, more commonly called the grayling; and sometimes the thymallus. It is a much esteemed and very delicate fresh-water fish.

UMBRA. A Mediterranean fish; called *cro-mis* by some, and *corvo* by the Venetians.

The Umbra is commonly about twelve or fourteen inches long, though it sometimes grows to the length of five or six feet; and weighs about sixty pounds. It is of a somewhat depressed figure; its back is ridged, and rises up from the head; and, in its general figure, it resembles the carp, except that it is broader. Its colours are very elegant, for a number of long oblique lines cover its sides, alternately of a fine pale blue and a beautiful yellow. The scales are moderately large; and the covering of the gills, and a great part of the head, as well as the body, are overspread with them. The head is moderately large; the mouth is small; and there is a single beard depending from the chin.

UMBRA, OR UMBRE. A bird found in the interior parts of the Cape of Good Hope, about the size of a crow. The bill is three inches and a half in length, compressed, cuneated, and carinated; the head is adorned with a large crest, near three times the length of the head, of an uniform deep brown colour, and pointing backwards; the tail is rounded at the end, brown, tipped with black, and crossed with six black bars; the legs are long, and marked far above the knees with black; the toes are semi-palmated, nearly of an equal length, the back toe being shorter by half than the rest; and the whole body is of the same colour as the crest.

UMBRINO. An Italian name for the coracinus, or umbra; though some authors will have the Umbrino to be a distinct species from the coracinus.

UNICORN. A creature concerning which many fables have been invented; and which, if it ever did exist, is now to be found no more; unless, rejecting the numerous absurdities and misrepresentations which have been propagated both by the ancients and moderns, we consider it as the rhinoceros unicornis, the only animal in nature that in any respect answers the description of the Unicorn.

Indeed, the ancients themselves appear to have questioned the existence of this creature. The first author who mentioned it was Ctesius, whom Aristotle treats as a suspicious historian. Ælian speaks of it in very doubtful terms: and those subsequent

subsequent naturalists who thought proper to take any notice of it, by their strange contradictions, and the diversity of their opinions, sufficiently evince that they were blundering without a certain object.

What commonly passes among the moderns for the horn of the Unicorn, and is shewn as such in the collections of the curious, we are assured by Pereyra, is nothing more than the tooth of a large fish of the whale kind, frequent enough in the Icy Sea, and called by the islanders Narwal. Some of these horns or teeth are seven or eight feet long.

UNICORN, SEA. A cetaceous fish, called also Narwal, remarkable for a horn proceeding from its nose, after the manner of the supposed Unicorn's horn. In the Linnæan system, it is a species of monodon.

This fish feeds on flesh, or other fish; and is not only found in the main sea, but also in large rivers. In 1736, a large one was caught in the river Oste, near its influx into the Elbe, four German miles from the sea. The skin of this fish was spotted with dark brown on a white ground; the epidermis was transparent; and under it was another skin very thin and spotted; but the true skin was brown, and nearly an inch in thickness. On the top of the head there was a semilunar hole, as in porpoises; and this hole opened into two channels, which ran through the skull to the palate.

Those who examined this fish were unable to discover any aperture in the body for the discharge of its excrements; whence it has been generally supposed that the creature voids them through this passage in its head. Authors differ as to the name of the process issuing from the head; some calling it a horn, and others a tooth. Some are of opinion that it serves to break the ice, for the admission of air; others pretend that it is an offensive weapon, with which the Unicorn wounds the common whale, and other large fish; and that, after plunging it to the head into the whale's body, it sucks the juices of that animal.

The fish caught in the Oste was near twenty feet long, and about four feet in diameter. The horn, which stood on the fore-part of the head, just above the mouth, was six feet long, white like ivory, and curiously wreathed or twisted; the body was smooth and slippery, like that of an eel; the head was small in proportion to the body, not exceeding sixteen inches in length; and the eyes were equally small. On each side of the neck there were two black fins, one above the other, at a small distance: these were two feet long, and about half an inch in thickness.

UNICORN, SEA, is also an appellation given to two sorts of small fish caught in the American seas, known among authors by the name of monoceros piscis.

UNISETA. A species of fly, so called from having only one long hair or bristle proceeding from its tail. See **HENOTHRIX**.

UNIVALVE. A term by which the largest and most beautiful class of shells is denominated. See **SHELLS**.

VOLVOX. In the Linnæan system, a genus of the order of zoophytes, and class of vermes. Its distinguishing characters are; that the body is smooth, gelatinous, roundish, without joints, and formed for a vertiginous motion. The

young are roundish, and lodged in small holes in different parts of the body. Linnæus enumerates four species, of which the globe animalcule is one.

VOLUTA. A genus of shells: the characters of which are; that the shells are univalve, with an oblong mouth; and a clavicle, sometimes erect, sometimes depressed; and that there are some species coronated at the top.

In the Linnæan distribution, the Voluta is a genus of the testacea order, in the class of vermes. The characters are: that the inclosed animal is a slug; and that the shell is univalve and spiral, the aperture narrow without a beak, and the columella or pillar plaited.

Linnæus enumerates forty-six species; among which are the mitres, Persian crowns, cylinders, and other univalves with their pillars plaited or wrinkled. The Voluta of other conchologists he denominates conus.

In Da Costa's arrangement, the Voluta constitutes the twelfth family of univalves. This genus of shells is frequently confounded with that of the cylindri: however, when accurately examined, they will be found to be very different. The Volutæ are of a conic shape. One of their extremities is of a pyramidal figure, and the other formed into high ribs, which constitute a depressed clavicle, or a dentated crown: on the contrary, the cylinder is nearly of an equal size at both extremities; and it is not necessary to recur to the form of the mouth of this shell to fix its generic character.

The Volutæ form the most rich and beautiful shells of the whole body of sea productions. Rumphius gives them the epithet of eximæ; and the admiral and vice-admiral shells, so famous among the curious, and so highly valued, both belong to this genus. Indeed, the brightness of the colours, the perfect white of the enamel, and the elegant shape of these shells, would render them the first in esteem among this class, were they even common; but, what enhances their value, is, that they are prodigiously scarce. See **SHELLS**.

UPLOPER. An appellation by which some writers express a particular species of pigeon, the columba gutturosa faliens of Moore. It was originally introduced into this country from Holland, and bears a strong resemblance to the pigeon called a pouter, but is smaller. Pigeons of this species have round crops in which they bury their bills, small slender legs, and short close toes; their colours are usually blue, black, or white, being seldom pied. They receive their name from the Dutch word Oplopen, to leap up. They are very scarce and much valued in England.

UPUPA. See **HOPOE**.

URANOSCOPIUS. A fish denominated the star-gazer in England; and callionymus by some ichthyologists.

In the Linnæan system, the Uranoscopus is a genus of the order of jugulares. Its characters are these: the head is flat, rough, and large; the upper-jaw is shorter than the lower; the branchiostege membrane contains five rays, and is covered with small eminences like teeth; the opercula are membranaceous, and ciliated; and the anus is situated in the middle of the body. There is only one species, the trachinus of Artdi, with many beards in the lower jaw.

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This fish is commonly about seven or eight inches in length; the head is large, bony, rough, and squarish; and the body is long and rounded. The upper part is ash-coloured; and the belly is white. The scales, which are small and thin, are disposed in oblique ranges across the body of the fish, running towards the tail. The face is flat, and seems to be turned upwards; and the eyes are small and prominent, and so placed in the upper part of the head, as naturally to look upwards; whence the fish receives its present name.

Providence, indeed, seems wisely to have ordered that the eyes of the *Uranoscopus* should be thus situated; for the fish, keeping always at the bottom, must look for its food above it. However, it is not the only inhabitant of the deep whose eyes are placed in a similar manner; the rana piscatrix, as well as some others, have the same manners, and enjoy the like advantages.

URCHIN. An appellation by which many naturalists express the hedge-hog.

URCHIN, SEA. A name by which ichthyologists sometimes express a genus of fishes, of which there are many species.

The manner in which these creatures move at the bottom of the sea has frequently been the subject of dispute among naturalists. The general opinion has been, that their motion is effected by means of their spines or prickles, which serve them instead of legs: but some have maintained, that the spines of Urchins are of no use to them for this purpose; but that they move by means of certain legs, resembling those of the star-fish, which they occasionally protrude or retract. Reaumur, however, who seems to have investigated the subject with much accuracy, is of a contrary opinion. It is a fact, indeed, that the Sea-Urchin does throw out at the lower aperture of its shell, at pleasure, certain bodies strongly resembling the legs of the star-fish; but these do not at all assist its progressive motion; on the contrary, their real use is to keep the creature still, and fixed in the same position: and, to describe these instruments more exactly, they may be compared to the horns of snails; whence Reaumur has chosen rather to give them the appellation of horns than legs. The use the Urchin makes of these horns, while in motion, is to feel about, and examine the ground on which it walks; and they are not only placed round the orifice of the shell, but every where dispersed among the spines, entirely over the surface of the shell.

All the spines are capable of assisting the creature in its motions; but it principally employs those near the mouth. When it has determined which way it shall move, those spines which stand directly toward that point, and those which are immediately opposite, are of equal service. It draws itself forward by means of the first, and pushes itself on with the others: to effect this, it first thrusts out the foremost ones as far as possible; and, pressing them against the bottom, draws on its body by their assistance; and this is succeeded by drawing up the hinder ones close to its shell, and then fixing them likewise against the bottom.

Such is the manner of this curious creature's marching in the common way with its mouth downward: but it possesses this singularity, that it is not confined to that posture alone in moving,

but can, with equal facility, walk with its mouth upwards, or run along sideways after the manner of a wheel, or in any intermediate direction. The legs and horns cover all parts of the animal; and are in every part of it capable of moving separately thirteen hundred horns; and upwards of two thousand spines, which serve for legs.

URIBACO. A Brazilian sea-fish, somewhat of the figure of the perch. Its back is ridged; its belly is slightly prominent; and its length is usually ten or twelve inches. The teeth are small and sharp; the extremities of the gills and gill-fins terminate in a triangular point; the ventral fins are supported by a very rigid and strong spine; a long fin, behind the anus, is sustained by flexible and short spines; and the dorsal fin, which is of an equal breadth, and reaches nearly to the tail, is supported by prickly rays. The tail is deeply bifid; the scales are of a fine silvery whiteness, with a faint cast of pale clear red; the ventral fins are white; and the dorsal fin and tail are reddish. The lateral line is broad, and of a fine red colour; and over and under it, near the tail, on each side, there is a large black spot.

UROGALLUS MAJOR. See **COCK OF THE MOUNTAIN**, and **GROUSE**.

UROGALLUS MINOR. See **GROUSE**.

UROMASTIX. A name given by some naturalists to that kind of lizard usually denominated cordylus.

VROW-FISH. A fresh-water fish of the malacostomous or leather-mouthed kind, caught in the German lakes and rivers, and esteemed very delicate. It has some resemblance of the English rudd; but its body is longer in proportion to its breadth. The back is brown; the belly is yellow; the ventral fins, near the anus, are a little reddish; and the rest are brown. The scales are large and silvery; in the lower part of the irides there is a blood-coloured spot; and the tail is forked.

The usual size of this fish is seven or eight inches, though it is sometimes caught considerably larger.

URSA. See **BEAR**.

URTICA ERRANS. A marine animal, resembling the common *Urtica Marina* in many particulars; but as that is always fixed down to the rocks, this species is always found loose.

It has been generally supposed that these creatures affect the skin with a stinging pain like nettles; but Reaumur, who saw prodigious numbers of them on the coasts of Poitou, declares that he discovered no such quality in any of them, any more than in those fixed to the rocks.

In substance, these animals nearly resemble a stiff jelly; and, if one of them be taken into the hand, it will speedily melt into clear water. Nevertheless, they are true and perfect animals, of various species and colours; though their general figure may be expressed by that of the head of a large mushroom: their upper surface is convex in the same manner; and this convexity is greater or less in the different kinds, as it is in the different species of mushrooms.

URTICA MARINA. A remarkable genus of aquatic animals; so called from a supposition of their affecting the skin, on touching them, with a painful sensation like the stinging of nettles. These are animals of the lowest class; and have

have been considered by many as zoophytes, or plant-animals. Some of the species are found loose on the smooth shores, and others fixed to those rocks which are always covered with water. This has occasioned them to be divided into two classes; a distinction as old as Aristotle; those which move being called *Urticæ solutæ*, and referred by Linnæus to the genus of medusa, called also *Urtica errans*; and such as are usually fixed to the rocks, though capable of a locomotive power, being generally called *Urtica Marina*, and belonging to the *Actinia* of Linnæus.

These creatures assume so many different forms, that it is impossible to give any precise description of their figure. The most natural and general shape seems to be that of a truncated cone, the base of which is applied to the rock; but this base is often round, often elliptic, and very frequently of a perfectly irregular figure. The surface of the top of the cone is not flat, but convex; and has an aperture in it's centre, which the creature enlarges or contracts at pleasure. In some positions, the whole fish not unaptly resembles a purse; with this difference only, that the body is not drawn up into any folds or wrinkles by the closing of the aperture or mouth. In the middle of this purse, as it may be called, is placed the body of the fish, touching this exterior covering at the bottom on every side. At it's top, however, it is loose, and stands every way clear of it's covering. The sides are more or less distant from this free or loose part of the body, as the aperture of the top of the cone is more or less open: when it is nearly shut up, very little of the body of the animal can be seen; but, when it opens it's mouth to different widths, more or less of the body becomes visible; and, when it is at the widest, every part of it, and all the horns, are seen perfectly distinct. These horns resemble those of the common snail; but, in their use, they seem more allied to the pipes or proboscides of the chamæ kind, the fish generally spouting out water from them on being touched. They are arranged in three rows on the internal surface of the covering, and are very numerous; their whole number amounting to one hundred and fifty at least.

The progressive motion of this animal seems to be thus performed. When it has determined on it's route, it distends all the tubes on that side of it's body which is placed towards the point it wishes to move to: this, from it's round shape at the base, gives it an oblong one; that is, it throws the fore-part somewhat forward on the rock; and at the same time, if the tubes on the opposite side of the body be all left empty, and those which are naturally circular be distended, these of consequence draw the whole body toward the fore-part, whereby a small advance is made and preserved; and this being often repeated, gives a locomotive power to the creature. All this, however, is performed so very slowly, that though there is a continual change going on both as to figure and place, yet, if the eye is continually kept on the object, neither is perceptible; but, if taken off for a short space, and the place and figure again investigated, both will be found different.

The food of the *Urtica Marina* is no less singular than it's formation and motions. Strange as it may appear in an animal of this kind, it's constant food is the flesh of muscles, sea-snails, and other shell-fish. It finds means to admit the shell-fish whole into it's body, and then closes the aper-

ture fast upon it: here it keeps the prey as long as it pleases, and then discharges the empty shell by the same aperture, which it can contract or expand occasionally. By what means the *Urtica* is able to extract the flesh from these shell-fish, is not known, as the whole process is performed within the body; certain, however, it is, that it frequently fails in the attempt, and is obliged to disgorge the shell-fish alive.

It has been discovered that this creature possesses the remarkable reproductive quality of the polype. Reaumur tried various experiments on the different species of this and the star-fish kind; and found that, whatever parts were amputated, the wound soon healed: and M. De Villars, who watched the whole progress of the growth of the amputated part, perceived that the animal not only appeared alive and healthy after cutting, but also soon regained what it had lost, and speedily became as perfect as before.

Gaertner refers the *Urtica Marina*, or Sea-nettle, to the *Hydra* of Linnæus, commonly called the polype; since it agrees with that genus in the following general and essential characters, as well as several subordinate ones: it is of a gelatinous substance; it has only one aperture in it's body, which gives a passage to it's food, as well as to it's excrements; and it has also a set of feelers which surround this opening, serving for claws to catch it's prey, and to convey it to it's mouth.

The Greeks and Romans knew these animals under the appellations of *Pneuma Thalassios*, and *Pulmo marinus*, or sea-lungs. They ascribed several medicinal virtues to them. Accordingly Dioscorides informs us, that they cure the gout in the feet, and kibe heels, if rubbed fresh on the diseased part: and Ælian says they are so depilatory, that, if macerated in vinegar, they would extirpate the very beard. Pliny remarks their phosphoric quality; and asserts, that a stick rubbed with them will seem to burn, and the whole wood to become lucid: he also adds that, when they sink to the bottom of the sea, they portend a continuance of bad weather.

URUBU. A name by which some ornithologists have expressed the vulture. See **VULTURE**.

URUS. A species of wild bull, of a very remarkable size and strength. Cæsar, in his Commentaries, has described it as little inferior to the elephant in size; and resembling the bull in shape, figure, and colour. He adds, that it is very swift and fierce; and has horns much larger, and very different from those of the common bull.

The *Urus*, or Wild Bull, is now chiefly found in the province of Lithuania; and, according to Klein, arrives at a size which scarcely any other animal except the elephant is known to equal. It is quite black, except a stripe, mixed with white, that runs from the neck to the tail along the ridge of the back; the horns are short, thick, and strong; the eyes are fierce and fiery; the forehead is adorned with a kind of garland of black curled hair, and some varieties are found to have a beard of the same; the neck is short and strong; and the skin has a musky smell. The female, though inferior in size to the male, exceeds the largest of our bulls in magnitude; nevertheless, her udder and teats are so small, that they can scarcely be perceived. On the whole, however, this animal resembles the tame one very exactly, except in some trifling varieties, which a state of freedom,

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freedom, or the luxuriance of the pasture where it is produced, may easily have occasioned.

UTAMANIA. A bird of the web-footed kind, without the hinder toe, common about the island of Crete, and remarkable for its activity and agility in diving. It is nearly of the size of a teal. The head and back are black; and the belly is white. The feathers resemble down rather than plumage; but, though soft and slender, they are very firmly affixed to the skin. The beak is sharp at the edges, and in a great measure covered with down.

From the description and figure given us by Bellonius, it appears that this bird has a strong affinity to the razor-bill, if indeed at all differing from it.

VUBARANA. An American fish of the herringiform kind, nearly resembling our river-trout. Its body is almost of an equal thickness the whole length; but is slightly elevated on the back, and somewhat slender near the tail. It grows to the length of one foot, and is about six inches in thickness. The flesh is very delicate, and much esteemed.

VULPANSER. An appellation by which some authors express the shieldrake, or burrow-duck; a very beautiful species of duck, common on some of our coasts, and denominated tadorna by the generality of ornithologists.

VULPECULA. A name by which Bellonius and Gesner express the fish more generally known by the appellation of centrine.

VULPES. The classical appellation for the fox.

VULPES MARINA. See SEA-FOX.

VULTURE. A genus of birds of the hawk kind. The characters are these: the bill is straight, being hooked only at the extremity; the head is destitute of feathers; the base of the bill is covered with a naked skin; and the tongue is bifid. Linnæus enumerates eight species; namely, the gryphus, or condor; the harpyia, or crested eagle; the papa king of Vultures; the monachus; the aura, or urubu of Brazil; the bearded, golden, or Bœtic Vulture of Egypt; and the albiulla, or pygargus.

In the description of birds, the first rank has usually been adjudged to the eagle; not because of its being stronger or larger than the Vulture, but because it is more generous and intrepid. The eagle, unless pressed by hunger, will not be satisfied with carrion; nor will he ever devour what has not been earned by his own pursuit: the Vulture, on the contrary, is indelicately voracious; and seldom attacks living animals when it can be supplied with dead ones. The eagle meets, and singly opposes his enemy: the Vulture, if it expects resistance, calls in the aid of its kind, and basely overpowers its prey by a cowardly combination. Putrefaction and stench, instead of deterring, only serve to allure them. The Vulture is among birds what the jackall and hyæna are among quadrupeds; it preys on carcases, and disinters the dead.

Vultures are easily distinguished from birds of the eagle kind by the nakedness of their heads and necks, which have no other covering than a very slight down, or a few scattered hairs. Their eyes are more prominent, those of the eagle being in a great measure buried in their sockets; their claws are also shorter, and less hooked. They differ considerably from all other birds of prey, in hav-

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ing the inside of their wings covered with a thick down; their attitude less erect than that of the eagle; and their flight more difficult and heavy. They are still more strongly marked by their nature, which, as before observed, is cruel, indolent, and unclean. Their sense of smelling is amazingly perfect, nature having supplied them with two large apertures or nostrils without, and an extensive olfactory membrane within. Their intestines are differently shaped from those of the eagle kind, for they partake more of the form of such birds as live on grain. They have both a crop and a stomach; and, in fact, from their internal structure, it would seem that they are equally adapted for a carnivorous or frugivorous life.

Vultures, though common in many parts of Europe, and but too well known on the Western Continent, are absolute strangers in England. In Arabia, Egypt, and many other kingdoms of Africa and Asia, they are extremely numerous; and the down on the inside of their wings is converted into a very warm and comfortable kind of fur, and commonly sold in the Asiatic markets.

These birds are of singular service in Egypt. In the vicinity of Grand Cairo there are large flocks of them, which none are permitted to destroy, because they devour all the carrion and filth of that great city, which might otherwise tend to contaminate the air. They accompany the wild dogs of that country; and frequently feed with them very deliberately on dead carcases. As both are extremely voracious, and both lean and bony to a very great degree, it is remarkable that this odd association produces no quarrels: on the contrary, these birds and beasts seem to live together on very amicable terms.

In America, where the hunters pursue quadrupeds only for the sake of their skins, these birds are generally observed to attend. They continue hovering at a little distance; and, as soon as the animal is slayed and abandoned, they call to each other, fly eagerly to the carcase, and in a very short time lay the bones entirely bare.

At the Cape of Good Hope, these predaceous birds seem to discover a still greater share of dexterity in their methods of carving. 'I have,' says Kolben, 'been often a spectator of the manner in which they have anatomized a dead body; I say anatomized, for no artist in the world would have done it with more address. They have a wonderful method of separating the flesh from the bones, and yet leaving the skin quite entire. On coming near the carcase, one would not suppose it thus deprived of its internal substance, till he began to examine it more closely; he then finds it, literally speaking, nothing but skin and bone. Their manner of performing this operation is as follows: they first make an aperture in the belly of the animal, from whence they pluck out and greedily devour the entrails; then entering into the hollow they have made, they separate the flesh from the bones, without ever injuring the skin. It often happens that an ox, returning home alone to its stall from the plough, lies down by the way: it is then, if the Vultures perceive it, that they fall with fury down, and inevitably devour the unfortunate animal. They sometimes also attempt them grazing in the fields; and then, to the number of an hundred, or more, make their attack all at once and together.'

Catesby informs us, that they are attracted by carrion at a very great distance. 'It is pleasant,'

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says he, 'to behold them when they are feeding, and disputing for their prey. An eagle generally presides at their entertainments, and makes them all keep their distance till he has satisfied himself. They then fall to with an excellent appetite: and their sense of smelling is so exquisite, that the instant a carcase drops, we may see the Vultures floating in the air from all quarters, and come fousing on their prey.' It is supposed by some, that they eat nothing which possesses life: but this happens only when they are unable to overcome their prey; for, when they discover lambs, they shew no mercy; and serpents are their ordinary food.

The indolence, voracity, and filthiness, of these birds, almost surpasses belief. In the Brazils, where they are found in great abundance, whenever they discover a carcase which they are at liberty to tear at their ease, they so gormandize as to be unable to fly. At all times, indeed, they are birds of a low flight, and can hardly raise themselves from the ground; but, when over fed, they are entirely helpless: however, when pursued, they soon get rid of their burden; for, possessing the faculty of vomiting up what they have eaten, they fly off with greater facility.

To be a spectator of the hostilities between noxious or hateful animals, is generally very entertaining; and, of all creatures, the two most at enmity are the Vulture and the crocodile of the Brazils. The female of the latter (which in the rivers of that country grows to the size of twenty-seven feet) lays from one to two hundred eggs in the sands on the side of the river, where they are hatched by the heat of the climate. The crocodile uses every precaution to conceal from all other animals the spot where she deposits her burden; but an assembly of Vultures sit silent and unseen in the lofty trees of some neighbouring forest, and observe the operations of the crocodile with the pleasing expectations of succeeding plunder: they patiently wait till she has laid the whole number of her eggs, covered them in the sand, and retired to a convenient distance; and then they suddenly pour down on the nest, uncover the eggs, and devour the whole brood in an instant.

Some persons, when pressed by hunger, have been tempted to taste the flesh of the Vulture: but it is lean, stringy, nauseous, and unfavoury; smells and tastes of the carrion by which it was nourished; and sends forth an almost insupportable stench.

These birds usually lay two eggs at a time, and produce but once a year. They build their nests in inaccessible cliffs; and other situations so very remote, that they are seldom seen. Those in Europe principally reside where they breed, seldom venturing into the plains, except when the snow and ice, in their native retreats, have banished all living creatures but themselves: then they descend from their heights, and brave those perils which they must encounter in more cultivated regions.

Such are the manners of this bird in general; indolent, filthy, and rapacious. The whole genus agrees in those leading characters; and their diversities are chiefly those of climate, size, or colour. The following are the most remarkable species.

VULTURE, GOLDEN. This bird resembles the golden eagle in various particulars, but is larger in every proportion. It is four feet and a half in length from the tip of the beak to the extremity of the tail; and, to the end of the claws, forty-five inches. The length of the upper chap is about seven inches; and the tail is twenty-seven inches.

The lower part of the neck, breast, and belly, are red; the feathers on the back are blackish; and on the wings and tail of a yellowish brown hue.

VULTURES, KING OF. The King of the Vultures is a native of America, and somewhat larger than a turkey-cock. It is chiefly remarkable for the singular formation of the skin of the head and neck, which is bare: this skin, which is of an orange colour, arises from the base of the bill, and extends on each side to the head; from whence it proceeds like an incanted comb, and falls on either side, according to the motion of the head. A scarlet-coloured skin surrounds the eyes; and the irides have the colour and lustre of pearl. The head and neck are destitute of feathers, having a flesh-coloured skin on the upper part, a fine scarlet behind the head, and a dusky coloured skin before. Farther down behind the head, there rises a tuft of black down; from which issues a wrinkled skin, which extends beneath the throat on each side, of a brownish colour, mixed with blue and reddish behind. Below, on the naked part of the neck, a collar is formed of soft longish feathers of a deep ash-colour, surrounding the neck, and covering the breast before. The bird sometimes withdraws it's whole neck, and frequently a part of it's head, into this collar; and appears to view as if the head issued immediately from the body.

By these marks the King of the Vultures is sufficiently distinguished from all others of the kind; and it cannot be denied, that it is by far the most beautiful of this deformed family; but neither it's habits nor instincts differ from those of the cowardly, indolent, and filthy tribe, to which it belongs.

VULTURE, BEARDED. This bird is about the size of an eagle; measuring three feet four inches from the tip of the bill to the extremity of the tail. The expansion of the wings is seven feet six inches; and the primaries are upwards of twenty-three inches in length. The bill is flesh-coloured, inclining to purple, darkest at the point; and about four inches in length. From the base of the lower chap hangs a remarkable tuft of black feathers. The eyes are situated just above the part where the mouth extends, each eye having a bright yellow circle. The sides and fore-part of the head are black; the nostrils are covered with black stiff feathers; and from each angle of the mouth proceeds a blackish line, which tends a little downwards, in the shape of whiskers. The rest of the head, and the whole of the neck, are covered with white feathers; which on the latter are long, loose, and pointed, like those of a cock; and on the former short and smooth. The upper side of the neck, the back, wings; and tail, are of a dark brown colour; and the lesser coverts of the wings have dashes of a bright reddish brown along the shafts, but very narrow. The bottoms of all the feathers are white; and there is also a very thick, soft, white down, all over the body, beneath the feathers. The under side of the breast, belly, thighs, and coverts under the tail, are white, tinged with a reddish brown; and the legs are covered with short white downy feathers. The feet are of a leaden colour; the claws are dusky; and the middle and exterior toes on each foot are united by a strong skin.

This bird is a native of Barbary; and was first figured and described by Edwards.

VULTURE, BRAZILIAN. This species, called also the Mexican Vulture, according to Marcgrave,

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grave, is about the size of a kite; but Ray says that it is not inferior in magnitude to the common Vulture. It has a long tail; and the whole plumage of the body is black. The head is small, and covered with a wrinkled skin of various colours; being yellow on the left side below the eye, and blue above, as well as on the top of the head: the remaining part is reddish. The beak is pretty long, very crooked, and covered half way with a saffron-coloured skin. In the middle of the upper part of the beak there is a wide nostril, with only one aperture, placed crosswise. The extreme part of the beak is white, and destitute of any skin; and the eyes are ruby-coloured, with round black pupils.

Labat calls these birds a kind of turkey-cocks, which feed wholly on carrion, and never touch fruit, corn, or herbage.

VULTURE, TAWNY. This species, which is a

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native of the Falkland Islands, is about two feet four inches long. The bill is dusky, short, and thick, and covered at the base with a large, thick, bristled cere. The nostrils are small, and placed obliquely near the edge of the bill; the space between the bill and the eyes is naked; and the rest of the head is covered with plumage. The chin is bearded with a tuft of long slender feathers; the head, neck, back, breast, belly, and thighs, are of a pale tawny colour; the coverts of the wings are mixed with brown; and the tail, which is long and rounded, is of a dirty white hue, barred with narrow oblique strokes of brown. The legs are long, slender, and blueish; and the claws are long, and slightly bent.

The brown, the spotted, and the black Vulture of Egypt, agree with the general description of the Vulture; and are chiefly distinguished by their colour.

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WAGEL. An appellation by which the natives of Cornwall express a species of the Larus, or sea-gull; known among some ornithologists by the name of martinazzo.

In the Linnæan system, the Wagel is the Larus Nævius. The whole plumage of the head and body, above and beneath, is a mixture of white, ash-colour, and brown: the last colour occupies the middle of each feather; and is pale in some birds, in others dark. The quill-feathers are black; the lower part of the tail is mottled with black and white, towards the end of which there is a brown black bar; and the tips are white.

Some writers have considered the Wagel as the young of the herring-gull; but Pennant seems to have established the contrary opinion on the most permanent foundation. It has also obtained the name of the dung-hunter; probably for the same reason that others of it's genus have been dignified with that title.

WAGTAIL. A genus of passeres: the characters of which are; that the bill is straight and subulated; the mandibles are almost equal; the tongue is lacerated, and has a margin or rim round it; and the nostrils are ovated. Linnæus enumerates fifty-nine species; among which are the nightingale, black-cap, petty-chaps, reed-sparrow, stone-chatter, wheat-ear, whin-chat, white-throat, wren, &c.

All birds of this kind have very long tails, which are always in motion; and from this circumstance they receive their name.

WAGTAIL, WHITE; the Motacilla Alba of Linnæus. This bird weighs about six drams; is eight inches long from the tip of the bill to the extremity of the tail; and the expansion of the wings is eleven inches. The head, back, and neck as far as the breast, are black; in some the chin is white, and the throat marked with a black crescent. The breast and belly are white; the quill-feathers are dusky; and the coverts are black,

tip and edged with white. The tail is very long, and continually in motion: the exterior feather on each side is white, the lower part of the inner web excepted, which is dusky; and the others are black. The bill, the inside of the mouth, together with the legs, are black; and the back claw is remarkably long.

This species frequents the sides of ponds and small streams; and feeds on insects and worms like the rest of the genus. It shifts it's quarters in Winter, directing it's course from the north to the south of England; and in Spring and Autumn it constantly attends the plough, in pursuit of such worms as are turned up by that instrument. In some places it builds it's nest under the eaves of houses, in the holes of walls; and lays four or five eggs.

WAGTAIL, YELLOW; the Motacilla Flava of Linnæus. This species has a straight, sharp-pointed black bill, except at the base of the lower chap, which inclines to a flesh-colour. The irides are hazel; and the top of the head, the upper part of the neck, and the back, are ash-coloured, slightly edged with yellowish green.

The male is a most beautiful bird; the breast, belly, and thighs, being of a most vivid and beautiful yellow colour. The throat is marked with some large black spots; a bright yellow line passes above the eye, and below that another of a dusky hue, from the bill across the eye; and beneath the eye there is a third line of the same colour. The head, the upper part of the neck, and the back, are of an olive-green colour, which brightens in the coverts of the tail.

The colours of the female are more obscure than those of the male; and she is destitute of the black spots on the throat. The legs and feet are of a dusky colour; and the claw of the hind toe is pretty long.

This bird makes it's nest on the ground, among corn, bents, and stalks of herbs; and lines the inside

side with hair. It lays four or five eggs, variegated with dusky spots and irregular lines.

WAGTAIL, GREY; the *Motacilla Voarula* of Linnæus. This bird has a slender, straight bill, of a dusky colour, terminating in a point. The top of the head, the upper part of the neck, and the back, are ash-coloured; the space round each eye is also ash-coloured, beneath and above which there is a line of white.

In the male, the chin and throat are black; the feathers incumbent on the tail are yellow; and the tail is longer, in proportion to it's size, than that of any other species. The breast, and the whole under side of the body, are yellow; and the quill-feathers are dusky, those next the back being edged with yellow.

In the female, the black spot on the throat is wanting; the colours in general are more obscure than those of the male; and the legs, feet, and claws, are of a dusky colour.

The Grey Wagtail frequents pebbly rivers; and feeds on insects.

WAGTAIL OF JAMAICA. This bird has a small head; and a straight black bill, with a blueish cast towards the base. The head and lower part of the neck are black, but the upper part is yellow; and the whole of the back, breast, and lower part of the belly, are also yellow. The wings are black, with a white spot in the middle; the tail is likewise black; and the feet are brown.

The tail of this species is nearly four inches long; which circumstance, together with the colours of the plumage, induced Ray to place it among the Wagtails; but Marcgrave says that it neither feeds nor wags it's tail like birds of this kind.

WAGTAIL, GREEN. This beautiful species is a native of Ceylon. The head is cinereous; the neck, back, and breast, are of a pale green colour; the wings and tail are cinereous, edged with white; and the belly is white.

WALDRAPP. An appellation by which some ornithologists express the wood-raven, or *Corvus Sylvaticus* of Gesner; a bird about the size of a hen, of a glossy black colour, and adorned with a beautiful crest.

WALKING LEAF. A West Indian insect, having a very flat body; and of a reddish colour, resembling that of certain dry leaves; that is, at particular seasons of the year, for at first it is green. It is produced from a green egg about the size of a coriander seed, from which, in a few days, a small black insect is hatched. The wings are at first as green as a fresh leaf, with fibres running along them from the inner to the outer edges after the manner of many kinds of leaves, and branching into subdivisions as they approach the edge. On the fore-part of the body there are four other small wings, which, though they differ from each other, every pair being dissimilar, yet they exactly resemble some sorts of leaves. When the larger wings are shut, the insect exactly resembles a leaf; and hence it has obtained the appellation of the Walking Leaf. The eyes are small and prominent; and the mouth is forked. The head is round; about the neck there is the resemblance of a ring of the same colour as the body; and behind this the neck becomes much larger, so that it appears like a second head. The whole insect is about three inches in length, and one inch and a half in breadth.

WALL-CREEPER. This bird, to which Aldrovandus gives the appellation of the spider-catcher, is about the size of a starling; and has an

oblong, slender, black bill. The neck, head, and back, are ash-coloured; and the breast is whitish. The wings are partly ash-coloured, and partly red; and the long feathers on the wings below the back are black. The tail, the belly, and the thighs, are black and short like those of wood-peckers; and the toes are long, of which three are placed before, and the other supplies the place of a heel.

This bird receives it's name from creeping up walls, after the same manner as wood-peckers climb trees. It builds it's nest in the holes of trees; and is sometimes found in England, but not very commonly.

WALRUS. An appellation by which some authors express the morse, or sea-horse; the *Trichechus Rosmarus* of Linnæus.

Pennant mentions two species of these animals; one of which he distinguishes by the name of the Arctic Walrus; and the other by that of the Indian Walrus. The former inhabits Spitzbergen, Nova Zembla, and Hudson's Bay; the latter the Cape of Good Hope, and the Philippine Islands. See MORSE.

WANDEROW. A sort of baboon, common in Ceylon and Malabar.

WANDSU. A species of Ceylonefe monkey, of a fine deep black colour all over the body, except a long beard depending from the chin, which is of a snowy whiteness.

WANT, or WONT. A provincial name for the mole.

WAPPER. An appellation sometimes used to express the smaller sort of river-gudgeon.

WARBLERS. A term by which Pennant distinguishes an order of birds; comprehending the nightingale; red-start; red-breast; black-cap; petty-chaps; hedge-sparrow; yellow, golden-crested, and common wren; the sedge-bird, or lesser reed-sparrow; the tit-lark; the wheat-ear; whinchat; stone-chatter; and white-throat. Their general characters are these: the bill is slender, and weak; the nostrils are small, and sunk; and the exterior toe is joined at the under part of the last joint to the middle toe.

WARBLER, OLIVE-COLOURED. This beautiful little bird, which is of the motacilla kind, and inhabits Ceylon, is about the size of a hedge-sparrow. The bill is whitish, beset with pale yellow feathers; the head, the whole upper part of the body, the wings, and the tail, are of an olive white hue; and the breast and belly are white.

WARBLER, BROWN. This bird has a yellowish brown bill, a little incurvated; the colour is entirely brown, marked on the back, wings, and tail; with numerous dusky bars; and the legs are of the same colour as the bill.

WARBLER, GREEN. This species, which inhabits the East Indies, is said to change into a variety of beautiful colours like the humming-bird. The bill is dusky brown; the head, neck, back, coverts of the wings, and tail, are variable green; and the breast and belly are yellow.

WARBLER, PINK-COLOURED. This bird, which inhabits Ceylon, and belongs to the muscipala or fly-catcher kind, is about the size of the wren. The bill is reddish; the neck, head, back, breast, and coverts of the wings, are of a pale pink colour; and the legs are red.

WARINE. A Brazilian monkey of the sapajous kind; called also Guariba.

WARREE. A name by which Wafer describes an animal of the hog kind, a native of the Isthmus of Darien.

WASP. A genus of the hymenoptera order of insects; the characters of which are these: the mouth has maxillæ without any proboscis; the upper wings are plicated; the sting is pointed and concealed; the eyes are lunar; and the body is naked and smooth. Linnæus enumerates twenty-eight species.

The bee and the Wasp resemble each other very strongly; yet, if we examine their natures and periods of duration, they will be found to differ very widely. The bee labours to lay up honey, and lives to enjoy the fruits of it's industry: the Wasp appears equally assiduous; but toils for posterity only, as the habitation is scarcely completed when the inhabitant resigns it's being. The Wasp is well known to be a winged insect, furnished with a powerful sting; to be longer, in proportion to it's bulk, than the bee; to be marked with bright yellow circles round it's body; and to be the most swift and active insect of all the fly kind. On each side of the mouth, it is furnished with a long serrated tooth; and with these it is enabled to cut any substance, and to carry it to it's nest. Wasps, like bees, live in communities; and sometimes ten or twelve thousand inhabit a single nest.

Wasps, when enraged, are the most fierce and dangerous of insects, and at all times the most voracious. Wherever flesh is cutting up, they may be seen gorging themselves, and flying to their nests with the spoil. They are also inimical to every other kind of fly; and the spider, with all it's malignity, dreads the approach of this superior foe.

Every community among bees is composed of females or queens, drones or males, and neutral or working bees. Wasps have likewise similar occupations: the two first are for the propagation of the species; the last for nursing, defending, and supporting the nascent progeny. Among bees, however, there is seldom more than one or two queens in a hive; but, among Wasps, there are frequently more than two or three hundred.

No sooner does the genial influence of summer begin to invigorate the insect tribes, than the Wasps are seen in prodigious numbers, diligently employed either in gathering provision for their nest, if already made; or in making one, if the former retreat has been found too small for the increasing community. Their nest forms one of the most curious objects in natural history; and discovers almost as strong marks of ingenuity and contrivance as the cells of bees. The principal care of the Wasp kind is to seek out a hole that has been begun by some other animal, a field-mouse, a rat, or a mole, in which to build their nests. They sometimes fix their habitations on a plain, where they are sure of the dryness of their situation; but most commonly on the side of a bank, to avoid the effects of rain or other water. Having pitched on a proper spot, they proceed to work with unwearied assiduity: with indefatigable pains they first erect the walls of their retreat, which is shaped somewhat like a pear; and then provide a double entrance, with design either to admit the warmth of the sun, or to allow of egress, should one of the doors be invaded by plunderers. They next labour at their cells, which they form of a paper-like substance, the same as that which composes their outside works. Their combs differ from those of bees not less in their composition than in their position. The honey-combs of bees are edge-ways with respect to the

hive; those of Wasps are flat, and the mouth of every cell opens downwards. Thus is their habitation contrived, story above story, supported by several rows of pillars, which give stability to the whole building; while the upper story is flat-roofed, and as smooth as the pavement of a room laid with squares of marble. The Wasps can freely walk on these stories, between the pillars, and perform whatever their wants may require. The pillars are very hard and compact, being larger at each end than in the middle. All the cells of the nest are destined only for the reception of the young, being totally destitute of either wax or honey.

The cells, like those of bees, are hexagonal; but they are of two sorts; the one larger, for the production of the male and female Wasps; the other less, for the reception of the working part of the community.

When the females have been impregnated by the males, they lay their eggs, one in each cell, and fasten it in with a kind of gummy matter. From this egg the insect proceeds in it's worm state; of which the parents are extremely careful, feeding it from time to time, till it acquires a sufficient size to fill the cell destined for it's reception. But the Wasp society differs from that of the bee in this; that among the latter, the working bees assume the parental duties; whereas the females alone of the Wasp kind are permitted to nurse their rising progeny. For this purpose, the female waits patiently till the working Wasps have returned with their provisions, which she receives, and cuts into fragments. She then proceeds with great composure from cell to cell, and feeds the young Wasps in order with her mouth.

When the brood have attained to a certain magnitude, they leave off feeding, and begin to spin a very fine silk, fastening the first end to the entrance of the cell; then turning their heads, first on one side, then on the other, they fix the thread to different parts; and thus they form a sort of door, which serves to close up the mouth of the cell. After this they divest themselves of their skins by the usual method of transformation: the aurelia begins by degrees to emancipate itself from it's shell; by little and little it protrudes it's legs and wings; and imperceptibly acquires the colour and shape of it's parent insect.

Thus formed, and prepared for depredation, the Wasp soon becomes a bold, troublesome, and dangerous insect: it despises perils when in pursuit of it's prey; and it's gluttony seems insatiable. Though incapable of collecting honey itself, no creature is fonder of sweet substances; for the attaining which, it will pursue the bee and humble bee, disable them with it's sting, plunder them of their honey-bags, and then fly triumphantly to it's nest; in order to regale it's young with the spoil.

Wasps generally form their nests in the vicinity of bees, merely for the sake of opportunely robbing their hives, and feasting on the honey. Yet the bees are not always patiently submissive to these tyrants; but fierce battles sometimes ensue, in which the former, by their conduct and numbers, compensate for the want of personal bravery. When the Wasps happen to be disappointed of honey, they have recourse to the best and sweetest fruits, and are never mistaken in their choice. From the garden they fly to towns and villages, to shops and shambles; from whence they sometimes carry off pieces of flesh half as big as themselves:

selves: all which they convey to their nests, for the nourishment of their young.

Such is the dread with which these Wasps impress all the insect tribes, that they instantly disappear at their approach, and leave them masters of their prey. Like the eagle or the falcon, wherever they fly, they form a kind of desert in the ambient air. In this manner they pass their summer, plundering the neighbourhood, and rearing their young: every day adds to their numbers; and from their strength, agility, and indiscriminate appetite for every sort of food, were they possessed of the longevity of bees, they would soon swarm on the face of nature, and become one of the greatest pests of mankind; but providentially their lives are apportioned to their mischief, their existence being limited to a single season.

During the continuance of the summer heats, Wasps are voracious and enterprising; but as the sun withdraws his genial warmth, their courage and activity gradually forsake them. In proportion as the cold increases, they become more domestic; seldom quit their nests; make but short excursions; and, after fluttering about in the noontide heats, return to their habitations quite chilled and enfeebled. As their calamities thicken, new passions begin to operate: their care for posterity is discontinued; and as the parents are no longer able to supply their growing progeny with food, they barbarously sacrifice them to the necessity of the times. Thus all the useless hands are destroyed: the young worms, which, but a short space before, they fed and protected with so much assiduity, they now cruelly butcher, and drag from their cells.

The cold increasing, and these insects no longer finding sufficient warmth in their cells, which become odious to them, they fly to the corners of houses, where they may enjoy an artificial heat. But the winter still continuing insupportable, before the commencement of the new year they wither and die; the working Wasps first, the males soon following, and many of the females suffering in the general calamity. In every nest, however, a few females outlive the winter; and, having been impregnated by the males during the preceding season, they begin in the spring to lay their eggs in a little hole of their own contriving: this bundle of eggs, which is clustered together like grapes, soon produces two worms, which the female takes proper precautions to defend and supply; and these, when hatched, soon yield assistance to the female, who is employed in hatching two more; these also gathering strength, extricate themselves from the surrounding web, and become likewise assistants to their parent. Fifteen days afterwards, two more make their appearance: and thus does the community daily increase; while the female lays in every cell, first a male, and then a female. In a short time, these become breeders in their turn; till, from a single female, ten thousand Wasps are frequently produced before the month of June. After the female has thus produced her progeny, which are distributed in different districts, they assemble from all quarters about the middle of summer, and provide for themselves the large and commodious habitations already described.

Such is the history of the social Wasp, or that species which lives in communities. But as among bees, so among these insects, there are various tribes that live in solitude. These lay their eggs

in a hole they provide for that purpose, and the parent dies long before the birth of it's offspring. In the chief species of the solitary Wasp, the insect is smaller than the working Wasp of the social kind. The filament, by which the corselet is joined to the body, is longer, and more distinctly seen; and the whole colour is blacker than in the ordinary kinds. But the manners of this extraordinary insect, rather than it's figure, claim our principal attention.

This kind of Wasp is most diligently employed from the end of May to the beginning of July. The whole purpose of it's life seems to be that of contriving and fitting up a commodious apartment for it's young, which is not to succeed it till the return of spring. For this end it is employed, with unceasing assiduity, in boring a hole into the finest mould, some inches deep, but not much wider than the diameter of it's own body; and this is only a gallery leading to a larger apartment destined for the lodgment of it's offspring. As it always chuses a gravelly soil to work in, and where the earth is of consequence extremely hard, the digging and hollowing this apartment is an enterprize of no small labour. To accomplish it's operations, this insect is furnished with two teeth, which are strong and firm, but not sufficiently hard to penetrate the substances through which it is resolved to make it's way: in order, therefore, to soften that earth it cannot pierce, it is possessed of a gummy liquor, which it emits on the spot, thereby rendering it more easily separable from the rest; and the whole becoming a kind of soft paste, is gradually removed to the mouth of it's habitation.

The animal's supply of liquor, however, being soon exhausted in these operations, it imbibes water either from some neighbouring flower or stream, in order to supply the deficiency of it's natural fluid. At length, after much toil, a hole some inches deep is formed, with a large cavity at the bottom; and to which no other hostile insect would venture to make it's way, from the length and straitness of the defile through which it would be obliged to pass. In this cavity the solitary Wasp lays it's egg which is destined to continue the species: there the nascent animal remains upwards of nine months, unattended and immured; at first appearance, one of the most defenceless insects in the creation; but, when accurately investigated, presenting new wonders, no other creature of the kind having such a luxurious provision, or such confirmed security.

No sooner has the parent Wasp deposited her egg at the bottom of the hole, than she turns her care to furnish a supply of provisions, which the young insect may readily find immediately on being hatched. To this end, she procures a number of little green worms, generally from eight to twelve; and these are to serve the young Wasp for food the instant it awakens into life. When this supply is regularly arranged and laid in, the old one, with the same assiduity she before worked out her hole, now closes the mouth of the passage; and thus leaving her young one immured in perfect security, and copiously supplied with animal food, she soon after expires, having performed every thing in her power to continue the kind.

When the young Wasp first quits the egg, it is so small as to be scarcely visible; and is immured among a number of insects larger than itself, orderly arranged round it; which, however, can excite

eite in it no degree of apprehension. Whether the parent, when she laid in the insect provision, contrived to disable the worms from resistance, or whether they were originally incapable of any, has not yet been ascertained: certain it is, that the young Wasp feeds on the living spoil without any controul; his prey lies within his reach, and he devours one after the other as the calls of appetite incite. The life of the young animal is therefore spent in the most luxurious manner, till it's whole flock of worms is exhausted; and then the time of it's transformation begins to approach, when spinning a silken web, it continues fixed in it's cell till the increasing heat of the sun prompts it to attempt it's enlargement, and perform the duties it owes to posterity.

Though the European Wasps are sufficiently mischievous, yet they may be regarded as harmless insects when compared with those of the tropical climates, where all the insect tribes are not only numerous, but large, voracious, and destructive. Those of the West Indies are thicker, and twice as long as common bees. They are of a grey colour, striped with yellow, and armed with very dangerous stings. They form their cells after the manner of a honeycomb, in which their young are hatched and bred. They generally suspend their nests by threads, composed of the same substance with their cells, to the branches of trees, and the eaves of houses; and are seen every where in great numbers, descending like fruit, and as large as a man's head. The inside is divided into three round stories, full of hexagonal cells, like those of an honeycomb. In some of the West India islands, these insects are so excessively numerous, that their nests are every where suspended, sometimes at no greater distance from each other than two feet; and the inhabitants are in continual apprehension from their accidental resentment. However, it sometimes happens that no precautions avail in warding off their attacks; and the pain attending their sting is said to be more excruciating than that of a scorpion.

WASP-FLY. A species of Fly produced from the rat-tailed fly-worms; and nearly resembling the wasp in it's external figure. It has only two wings; and is totally destitute of a sting.

WASP-TIPULA. An appellation given by Reaumur to an insect properly belonging to the Tipula genus, though greatly resembling a wasp. It is produced from a worm, lodged in the mould at the bottom of the cavities of old trees, which is destitute of legs. The fly has long legs; and a mouth resembling that of the Tipula; with the remarkable double beard which covers it, and constitutes the great character of this class of insects: but then the body is thick and short, contrary to that of the Tipula kind. This, together with the breast, is variegated with black and yellow streaks, after the manner of the wasp; and it's antennæ are beautifully feathered, and bearded like those of the males of many of the gnat kind. The head is black; and the legs are yellowish. The wings are of a whitish yellow hue; and near their extremities there is a large spot of brown.

The female of this species is always much thicker than the male; by which circumstance the sexes are easily distinguished.

WATER-ELEPHANT. See HIPPOPOTAMUS.

WATER-HEN. A name by which some ornithologists express the moor-hen.

WATER-HOG. An appellation given by some naturalists to the capybara. See CAPYBARA.

WATER-OUZEL. See OUZEL.

WATER-RAIL. See RAIL.

WATER-RAT. See RAT and MUS.

WAX-BILL, EAST INDIAN. This beautiful little bird, which was first described by Edwards, belongs to the genus *loxia* of Linnæus. The bill is of a moderate size; and of a fine red colour, resembling sealing-wax, from whence it receives it's name. From the angle of the mouth passes a long red spot, broad in the middle, and terminating in a point about the place of the ear; and in the centre of this spot the eye is situated. The top of the head, the upper side of the neck, the back, and the upper sides of the wings and tail, are of a dark dusky brown colour. The sides of the head beneath the red marks are whitish: the breast becomes gradually of a light ash-colour; the sides of the belly, the thighs, and coverts of the tail, both above and beneath, are also of a light brownish ash-colour; and the lower part of the breast and middle of the belly are beautifully marked with a longish red spot, which gradually loses itself in the brownish ash-colour that surrounds it.

The brown plumage of this bird is transversely marked with fine lines of a darker colour; and the toes, which stand three forwards, and one backwards, as usual in most small birds, are dusky.

WAX-BILL, RED-RUMPED. This curious little bird is a native of Benguela, in Africa. The bill resembles red sealing-wax; the head and hind part of the neck are cinereous; the back and coverts of the wings are brown; the primaries are dusky; the belly and breast are of a dirty white hue; the vent is crossed with a crimson bar; the coverts of the tail are of the same colour; the tail is dusky; and the legs are dark grey.

WAX-BILL, WHITE-TAILED. This species is a native of the Brazils. The bill resembles those of the same name; the head and coverts of the wings are cinereous; the back is of a rich yellow hue; and the breast and belly are of the same colour, but much paler. The tail is white, except the two exterior feathers, which are black; and the legs are of a fleshy colour.

WEASEL. The Weasel kind are characterized by having six cutting and two canine teeth in each jaw; the nose sharp; the body slender; and five toes before, with the same number behind.

Animals of this sort may be distinguished from other carnivorous creatures by their long and slender bodies, which enable them, like worms, to insinuate themselves into very small openings in pursuit of their prey; and they are actually called vermin from their resembling worms in this particular. In the formation and disposition of their claws, they differ from all those of the cat kind, as they can neither extend nor contract them like the feline species. They are clothed with fur rather than hair; and in this respect they vary from the dog tribe. All of this kind, however, are more distinctly marked by their actions and dispositions than by their external forms: they are all cruel, cowardly, and voracious; subsisting only by theft, and principally protected by their smallness and insignificance. Having short legs, they are slow in pursuit; and obtain a support by cunning, patience, and assiduity. Their prey being precarious, they often subsist a long time without food: but, when successful, they destroy all around them before they begin to feed; and suck the

the blood of every animal before they regale on it's flesh.

Under this genus Pennant enumerates the common Weasel, the stoat, the American fitchet, the fitchet, the Sarmatian Weasel, the Siberian Weasel, the ferret, the martin, the pine Weasel, the sable, the fisher, the Madagascar Weasel, the Pekan Weasel, the vison, the white-cheeked Weasel, the grison, the Guinea Weasel, the Guiana Weasel, the woolly Weasel, the ichneumon, the four-toed Weasel, the yellow Weasel, the Mexican Weasel, the Brazilian Weasel, the stifling Weasel, the striated Weasel, the skunk, the zorilla, the ratel, the blotched Weasel, the civet, the zibet, the genet, and the fossane.

Several of these species are described under their respective appellations; and the manners and qualities of the rest may easily be collected from the subsequent description of the common Weasel; and one or two more species, which properly serves as a model for the rest.

WEASEL, COMMON; the *Mustela Nivalis* of Linnæus. This is the smallest of the numerous tribe to which it belongs; the length of the head and body not exceeding six or seven inches. The tail is about two inches and a half long, and terminates in a point. The length of this animal, however, appears very great, when compared with it's height, which does not exceed one inch and a half. The eyes are small and black; and the ears are large, having their lower parts doubled in. The head, tail, legs, and feet, together with the upper part of the body, are of a very pale tawny brown colour; the lower part of the body, from the chin to the tail, is white; but on each jaw there is a spot of brown, beneath the corners of the mouth. It is furnished with whiskers; and has thirty-two teeth, which are two more than any of the feline kind have, and they all seem well adapted for chewing and tearing.

The Weasel, though a very diminutive animal, is nevertheless a formidable enemy to many greatly it's superiors in size. Like the rest of it's kind, it is very destructive to rabbits, poultry, and young birds; and it is also a great devourer of eggs. It is held in different estimation in distinct parts of the world. In such places where lambs are bred, it is a very dangerous neighbour; but where agriculture constitutes the principal employment of the natives, it is considered as a friendly animal that destroys much of the vermin which preys on corn.

The Weasel frequents hovels, barns, stables, and granaries; where, in order to compensate for it's depredations among the poultry, it speedily clears it's haunts from rats and mice, being a greater enemy to them than even the cat itself.

This animal is absolutely untameable and untractable. When kept in a cage, either for amusement or inspection, it will not touch it's food while any person continues within it's view. It appears continually agitated; and is so terrified at the sight of mankind, that, if not permitted to hide itself from their eye, it will even expire. It's cage should therefore be furnished with a sufficient quantity of wool or hay, under which it may conceal itself, as well as whatever food it is possessed of. It passes three parts of the day in sleep; and employs the night in exercise and feeding.

In a state of nature, this animal steals from it's hole towards the evening, and prowls about farm-yards in search of prey. If it enters any place

where poultry are kept, it never attacks the old cocks and hens, but aims immediately at the young ones. It does not devour it's prey on the spot; but, after killing it, conveys it to it's young or it's retreat.

This creature is remarkably active; and, in a confined situation, hardly any animal can escape from it. It runs up the sides of walls with such facility and expedition, that few places are secure from it's approaches; and it's body is so very slender, that there is scarcely a hole impervious to it. During the winter, it chiefly confines itself to barns and farm-yards: at this season it wars against rats and mice; and, creeping also into pigeon-holes, destroys the young. In summer, it ventures farther abroad, and particularly into such places where rats have preceded it: it is chiefly found in low grounds, by the sides of waters, and near mills; and it's young are frequently lodged in the hollow of some tree.

The female makes an excellent bed for her little ones, of which she generally brings forth four or five at a time. Like the dog kind, all these animals produce their young blind; but they soon acquire sufficient strength to accompany their dam in her excursions, and become accomplices in her petty depredations.

The Weasel, as well as all those of it's kind, has a very strong, offensive smell, proceeding from the fœtid glands beneath it's tail. It smells stronger in summer than in winter; and still more abominably when irritated, or pursued. It utters neither voice nor cry, except when hurt; and then it expresses it's pain by a disagreeable kind of squeak.

WEASEL, GUINEA; the *Tayra*, ou le *Galera* of Buffon. This species is about the size of a rabbit; of a dusky colour; and it's form resembles that of a rat. The upper jaw is much longer than the lower; and the eyes are placed at about an equal distance between it's ears and the tip of it's nose. The ears resemble the human; and the tongue is remarkably rough.

This creature is very common about the negro settlements. It burrows like a rabbit; and is so fierce, that it will fly at either man or beast when provoked.

WEASEL, STIFLING. This disagreeable animal has a short, slender nose; short ears and legs; and a body covered with full black hair. The tail is long, and of a black and white colour. The length of the whole animal, from the nose to the insertion of the tail, is about eighteen inches. It is a native of Mexico, and probably some other parts of America.

This creature, together with the Conepate of Buffon, the skunk, the zorilla, and some others, are all remarkable for the pestiferous, stinking, and suffocating fumes, they emit from behind; when attacked or terrified. It is indeed their sole means of defence. Some turn their tails to their enemies, and emit a horrid effluvia; and others eliminate their urine to a very considerable distance. The terrible stench immediately stops the pursuers. If any of this liquid happens to enter the eyes, it almost occasions blindness; and if it chances to alight on the cloaths, the smell continues for several days, and no washing can remove it: they must even be buried in fresh earth, in order to be sweetened.

Dogs which have been accustomed to hunt this animal generally succeed in destroying it; but

others run from it as soon as they perceive it's smell; and even the former are obliged to relieve themselves, by often thrusting their noses into the ground. Professor Kalm informs us that he was in danger of being suffocated by the stench of one of these Weasels that was pursued into a house where he slept; and that the cattle were so much affected by it, as to bellow through pain. The smell of another, which was killed by a woman in a cellar, so overcame her, that she kept her bed for several days afterwards. Nevertheless, the Americans eat it's flesh, which they reckon delicious food; but they are careful to deprive it of those glands which are so abominably offensive.

The Virginian Weasel differs little from the rest of the kind, except that it is capable of being tamed; and then it will even follow it's master. It never emits it's stench but when either injured or frightened.

In other respects, the squash, the conepate, the skunk, the zorilla, and the fizzler, do not materially differ. All the tribe is mischievous and disgusting; nevertheless, the fur of some species is excessively valued; and the civet is no less esteemed for it's perfume.

WEASEL COOT. A name by which some ornithologists express the *Mergus Minutus* of Linnæus; called also the red-headed smew.

WEEK FISH. An appellation given by some ichthyologists to a very delicate East Indian fish; termed *Wit-yisch* by the Dutch.

WEEVER. An English appellation for the fish which Willughby and some others denominate *Draco Marinus*. Under this title Pennant describes the following species.

WEEVER, COMMON; the *Trachinus Draco* of Linnæus. This fish appears to have been well known to the ancients; who remark, that the wounds inflicted by it's spines are extremely painful, attended with a violent burning, and most pungent shooting; and sometimes with an inflammation.

It is the general opinion that these symptoms arise from something more than the small wound this fish is capable of inflicting; and that there is a venom infused into it, at least such as proceeds from the spines that compose the first dorsal fin, which is dyed with black, and has a most suspicious aspect. Some persons have used sea-sand, rubbed on the place affected, as a specific against the wounds of the Weever; while others have applied stale warm urine with success.

This fish buries itself in the sand, leaving only it's nose exposed; and, if trod on, immediately strikes with great force. But, notwithstanding this noxious quality of the spines, the flesh is excellent food.

The Common Weever grows to the length of twelve inches; but is frequently found much shorter. The irides are yellow; the under jaw is longer than the upper, and slopes very much towards the belly; and the teeth are small. The back is straight; the sides are flat; the belly is prominent; the lateral line is straight; and the covers of the gills are armed with a very strong spine. The first dorsal fin consists of five very strong spines, which, together with the intervening, are tinged with black; the second consists of several soft rays, commences just at the end of the first, and extends nearly to the tail. The pectoral fins are broad and angular; and the ventral fins are small. The vent is placed remarkably forward;

the anal fin, which extends within a small distance of the tail, is slightly hollowed in the middle; and the sides are longitudinally marked with two or three dirty yellow lines, and transversely by numbers of small ones.

WEEVER, GREAT. This species, which appears to be the *Draco Major* seu *Araneus* of Salvian, and inhabits the sea near Scarborough, is sometimes upwards of a foot in length. The head is flat; the eyes are large; the edges of the jaws are rough, with minute teeth; the head is covered with small tubercles; the cheeks and gills are overspread with small scales; and a sharp spine rises on the gills. The first dorsal fin is black, with five spines; the second reaches almost to the tail; the pectoral fins contain three branchiostegæ rays; the ventral six; and the anal fin extends opposite to the second dorsal one. The tail is large, triangular, and even at the extremity; and the scales run in oblique lines from the back to the belly, with a division between each row.

WEEVIL. A small insect, extremely noxious, and destructive to magazines of corn. It is scarcely larger than a louse; and appears to be of the scarabæus or beetle kind, having two jointed, tufted horns; and a trunk, or piercer, projecting from the fore-part of it's head. At the extremity of this trunk, which is very long in proportion to it's body, there is a sort of forceps, with which it gnaws it's way into the heart of the grain, either for the sake of feeding on it, or in order to deposit it's eggs.

If these creatures be confined in a glass tube into which are put a few grains of wheat, their copulation and manner of generation may be discovered. The female perforates one grain, and therein deposits a single egg, or two at the utmost; and in this manner she stocks five or six grains, for several days successively. Each of these eggs, which is very little bigger than a grain of sand, produces a kind of white maggot in about a week; and this, in the space of a fortnight, turns to an aurelia, from which the perfect Weevil is produced.

This destructive creature is in it's turn subject to be destroyed by mites, while in it's egg or aurelia state.

WEPOLON. The Ceylonesse appellation for an East Indian serpent; having a very long and slender body, in some measure resembling a piece of cane.

WHALE. In the Linnæan system, the seventh order in the class of mammalia. The characters are these: animals of this order have breathing apertures on the head, pectoral fins, the tail placed horizontally, and no claws.

This order includes four genera; the monodon, or sea-unicorn; balæna, or Whale; physter; and delphinus, comprehending the dolphin, porpoise, and grampus.

The genus of the balæna, or Whale, is distinguished by having horny laminæ in the upper jaw, instead of teeth; and a double fistula, or pipe, in the head. It includes four species.

WHALE, COMMON, OF GREENLAND; the *Balæna Mysticetus* of Linnæus. This species is the largest animal of which we have as yet received any authentic information, being frequently found in the northern seas ninety feet in length: but, some centuries ago, Whales were much larger, when the captures were less frequent, and the fish had time to grow. Such is their bulk within the Arctic circle: but within the bounds of the torrid zone,

zone, where they remain unmolested, they are still discovered one hundred and sixty feet in length.

The Whale is a large, heavy animal; the head alone constituting a third part of it's bulk. The under lip is much broader than the upper; the tongue is composed of a soft spongy fat, capable of yielding five or six barrels of blubber; but the gullet is very small for so large a fish, not exceeding four inches in width. There are two orifices in the middle of the head, through which it spouts water to a vast distance, and with a great noise, especially when disturbed or wounded. The eyes, which are not superior in size to those of an ox, are placed towards the back of the head; by which means they are capable of discerning objects both before and behind. There is no dorsal fin; but on the sides, beneath each eye, there are two large ones. The tail is broad and semilunar; and, when the fish rests on one side, it's blow is amazingly powerful.

The colour of the Common Whale is not uniform; the back of some being red, and the belly generally white. Some are black, others mottled, and some quite white; according to Marten, who informs us that their colours in the water are extremely beautiful, and their skins very smooth and slippery. The substance known by the appellation of Whale-bone adheres to the upper jaw of the animal; and is composed of thin parallel laminae, some of the longest being four yards in extent. Of these there are commonly three hundred and fifty on each side; and, in old fish, a great many more: about five hundred are of a proper length for use; but the rest are too short to be serviceable. They are surrounded with long strong hair, not only to hinder their injuring the tongue, but as strainers, to prevent the return of their food when they discharge the water out of their mouths. On account of these hairs, Aristotle gave this species the appellation of the Bearded Whale, which he informs us has hairs in it's mouth instead of teeth: and Pliny describes the same under the name of Musculus. From this and other circumstances we may infer, that though the ancients were acquainted with these animals, they were ignorant of many of their qualities, and of all their uses, as well as the manner of catching them. Aldrovandus, indeed, describes from Oppian, what he has mistaken for Whale-fishing: he seems to have been led into an error by the word Ketos, which is used not only to express Whales in general, but also any great fish. The poet, in the passage alluded to, undoubtedly meant the shark; and shews the way of taking it at present, namely, by a strong hook baited with flesh.

Though an animal of such magnitude, the Whale swims with vast swiftness, and generally against the wind. It uses it's tail only to help itself forward in the water: this serves as an oar to push it along; it's enormous bulk cuts through the ocean with amazing force and celerity; and it's fins are principally used for turning in the water, and giving a direction to the velocity impressed by the tail.

As Whales resemble quadrupeds in their conformation, so they likewise strongly resemble them in some of their appetites and manners. The female joins with the male, as it is assisted *more humano*, and once every two years feels the accesses of desire.

The fidelity of these animals to each other exceeds whatever is related of even the constancy of

birds. Anderson informs us, that some fishermen having struck one of two Whales in company, a male and a female, the wounded fish made a long and terrible resistance; and, with one stroke of it's tail, overturned a boat with three men in it, and sent them all to the bottom. The other still attended it's companion, affording it all the assistance in it's power; till at last the mangled fish sunk under the number of it's wounds; while it's faithful associate, as if disdainful to survive the loss, with dreadful bellowing and lamentation stretched itself on the dead fish, and in this situation shared it's fate.

The period of the female's gestation is about nine or ten months: she is then fatter than usual, particularly when near the time of parturition. It is said that the embryo, when first perceptible, is about seventeen inches long, and of a white colour; but the cub, when excluded, is black, and about ten feet long. She generally produces one, and never above two young. When she suckles them, she throws herself on one side on the surface of the sea, and they attach themselves to her teats. Her breasts are generally hid within her belly; but she can produce them at pleasure, so as to project forward a foot and a half, or even two feet. The teats resemble those of a cow. In some, the breasts are white; in others, speckled; but in all, filled with a large quantity of milk resembling that of land animals.

Nothing can exceed the tenderness of the female for her offspring: she carries it with her wherever she goes; keeps it supported between her fins when pursued; even when wounded, she still clasps her young one; and, as often as she plunges to avoid danger, takes it with her to the bottom, but rises sooner than usual, in order to give it breath again.

The young of the Whale continue one year at the breast; during which time they are by sailors called short heads. They are then extremely fat, and yield above fifty barrels of blubber. The mother is at the same time equally lean and emaciated. At the age of two years they are called stunts, as they do not seem to grow so rapidly after quitting the breast, and then scarcely yield above twenty or twenty-four barrels of blubber. From that time forward they receive the general appellation of skull-fish; and their age is wholly unknown.

Every species of the Whale propagates only with it's own kind, so that each is preserved distinct: however, they are generally seen in shoals, of different kinds together; and they perform their migrations from one ocean to another in large companies. They are gregarious animals; which implies their want of mutual defence against the attacks of smaller, but more powerful fishes. It is astonishing, therefore, how a shoal of these enormous animals find subsistence together, when it would seem that the supplying even one with food required greater plenty than the ocean could furnish. But our wonder is increased, when we not only see them herding together, but usually find them in better condition than any other animals of whatever element. We likewise evidently discover, that they cannot swallow large fishes, as their throats are so very narrow, that any animal larger than a herring could not find admission. How then do they subsist, and grow so fat? Small insects; seen floating in the seas where they abound, and to which Linnæus gives the appellation of Medusæ,

Medusæ, are sufficient for this supply. These insects, which are black, and each about the size of a small bean, are sometimes seen in large clusters on the surface of the water: they are of a round figure; but furnished with wings, which are so extremely tender, that it is scarcely possible to touch without breaking them; and they are rather adapted for swimming than flying. The little animals themselves, which, in the Icelandic language, are called the *Walfischoas*, or *Whales Providers*, possess the taste of raw muscles, and the smell of burnt sugar. These the Whale is observed to draw up in great numbers with its enormous jaws; and to bruise between its barbs, which are always found with several of these insects sticking round them.

Such is the simple food of the common Whale: it pursues no other prey; leads an inoffensive life in its own element; and is innoxious in proportion to its powers to do mischief. There seems to be an analogy between its manners and those of the elephant. They are both the strongest and the largest animals in their respective elements; neither of them offer any injury; but are terrible when provoked to resentment.

The Whale being a harmless animal, it is not surprising that it should have many enemies, ever ready to avail themselves of its indolence and inaptitude for contest. A small creature of the testaceous kind, called the *Whale-louse*, adheres to its body, and frequently insinuates itself under the fins; still retaining its hold, and feasting on the fat, in spite of all the efforts of that most powerful animal to disengage it.

But the *xiphias*, or *sword-fish*, is the most terrible enemy the Whale has to contend with. 'At the sight of this little animal,' says Anderson, 'the Whale seems agitated in an extraordinary manner; leaping from the water as if with affright: wherever it appears, the Whale perceives it at a distance, and flies from it in the opposite direction. I have been myself,' continues he, 'a spectator of their terrible encounter. The Whale has no instrument of defence except its tail; with that it endeavours to strike the enemy; and a single blow taking place, would effectually destroy its adversary: but the sword-fish is as active as the other is strong, and easily eludes the stroke; then bounding into the air, it falls upon its great subjacent enemy, and endeavours, not to pierce with its pointed beak, but to cut with its toothed edges. The sea all around is soon dyed with blood, proceeding from the wounds of the Whale; while the enormous animal vainly endeavours to reach its invader, and strikes with its tail against the surface of the water, making a report at each blow louder than the noise of a cannon.'

There is still another, and more powerful enemy, called by the fishermen of New England the *Killer*. This is itself a cetaceous animal, armed with strong and very powerful teeth. A number of these fish are said to surround the Whale: some attack it with their teeth behind; others attempt it before; till at last the invader is overcome; and its tongue, the only part they devour, is eagerly seized by the invaders. These creatures, we are told, are of such vast strength, that one of them singly stopped a dead Whale, which several boats were towing along, and dragged it to the bottom.

But man is by far the most formidable enemy of these enormous fishes: he alone is supposed to

destroy more in one year than the rest in an age; and has actually thinned their numbers in that part of the world where they are chiefly sought for. The great resort of these animals was found to be on the inhospitable shores of Spitzbergen; where the distance of the voyage, the coldness of the climate, the terrors of the icy sea, and, still more, their own formidable bulk, might have been expected to protect them from human injury. However, all these circumstances united proved but slight barriers against the arts, the intrepidity, and the necessities of man. The Europeans, soon after the improvement of navigation, found their way into those seas; and, as early as the beginning of the fourteenth century, the *Biscayneers* were in possession of a very considerable trade to the coasts of Greenland. The Dutch and English followed them thither, and soon wrested that branch of commerce from their hands. The English commenced the business about the seventeenth century; and the town of Hull had the honour of first attempting that lucrative branch of trade. But at present, though the spirit of commerce is not abated, the fishery seems to be on the decline, as the quantity of Whales are greatly reduced by the constant capture for such a vast period of time. On account of the scarcity of Whales, fishermen apply themselves to the taking of seals; yet, as these animals are extremely timorous, it is probable they will soon be driven from those shores where they are exposed to such frequent molestation.

The art of catching Whales, like most others, is much improved by time; and differs in many respects from that practised by the *Biscayneers*, when they first frequented the icy seas. But as the description of their method is the least complicated, and generally known, to it we shall adhere.

In favourable seasons, the *Biscayneers* fitted out thirty ships, of two hundred and fifty tons each, for this navigation; with fifty choice men a-piece, and some boys. These were furnished with six months provision; and each ship had its respective boats, which were to be applied to service as soon as they arrived at the scene of action.

When they reach those latitudes where the Whales are expected to pass to the southward, they always keep their sails set; and a sailor is placed at the mast-head, to give information whenever a Whale appears. As soon as he discovers the wished-for prize, the whole crew instantly prepare themselves for action; they man their boats, and direct their course to the place where the Whale is seen. The harpooner, who is to strike the fish, stands at the prow of the boat, with a harpoon or javelin in his hand, five or six feet long, pointed with steel like the barb of an arrow, and of a triangular shape. As this person's office requires the greatest dexterity, so it also exposes him to the most imminent danger: the Whale sometimes overturns the boat with a blow of his tail; and, at others, pushes against it with great fury. In general, however, the animal seems to repose on the surface of the water; while the boat approaching, the harpooner stands aloft; and his harpoon being fixed to a cord several hundred fathoms in length, he darts it into the creature, and then rows away as fast as possible. It is some time before the Whale seems to feel the blow; the instrument has usually not pierced deeper than the fat, and that being callous, the creature continues for a while motionless; but rousing from his lethargy

thargy as the shaft continues to force it's way deeper and deeper into the muscular flesh, he flies off with amazing rapidity. In the mean time the harpoon sticks in his side; while the rope, which is coiled up in the boat, and runs on a swivel, lengthens as the Whale recedes, but still points out the part of the deep to which he has retreated. This cord is always wound up with great care; for such is the rapidity with which it runs off, that, were it in the least checked, as it yields with the animal, it would infallibly overfet the boat. It also sometimes happens, that the rapidity with which it runs over the swivel at the edge of the boat, heats it; and it would certainly take fire, did not some person continually stand with a wet mop in his hand, and cool the swivel as the cord runs. The Whale having dived to a considerable depth, remains there sometimes for the space of half an hour, with the harpoon in his body, and then rises to take breath; but no sooner does he again appear, than the harpooners are all ready to receive him; and, every time the animal emerges, repeat their blows. The ship follows in full sail, never losing sight of the boats, but affording them assistance when necessary; while the whole ocean seems dyed with blood. Thus they renew their attacks, till the Whale begins to be quite enfeebled and spent; then they plunge a kind of long spears into various parts of it's body, and the enormous creature expires. When dead, in order to prevent it from sinking, they affix it to the side of the boat by means of a strong iron chain; and either cut it up into pieces, and carry it home in that condition; or extract the oil from the blubber on board the ship.

Such is the manner in which Whales were originally taken; though length of time and experience have introduced several improvements into this as well as other arts. But as a detail of this kind belongs rather to a history of commerce than of nature, suffice it to observe, that several parts of this animal, and indeed all but the intestines and bones, are turned to very good account; not only the oil, but also the grease from which it is separated. The flesh of this creature is also a dainty to some nations; and even the French sailors sometimes dress and use it as their ordinary diet at sea. It is said by the English and Dutch mariners to be hard and ill-flavoured; while the French assert the contrary. The savages of Greenland; as well as those near the south pole, are excessively fond of it; and eat the flesh, and drink the oil, as a first-rate delicacy. The discovery of a dead Whale on their coasts is considered among the most fortunate circumstances of their wretched lives: they fix their habitations near it; and seldom remove while any part remains besides the bones.

WHALE, PIKE-HEADED; the *Balæna Boops* of Linnæus. The head of this species is of an oblong form, sloping down, and gradually narrowing to the nose; about six feet and a half from the extremity of which there are two spout-holes, separated by a thin division. The eyes are small; the pectoral fins are about five feet long, and eighteen inches broad; there is a large horny protuberance on the back, about eight feet and a half from the tail; and the tail itself is about nine feet and a half broad. The belly is corrugated, and formed into longitudinal folds; and the skin, which is remarkably bright and smooth, is black on the back, and white on the belly.

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This animal receives it's name from the shape of it's nose, which is narrower and sharper pointed than that of other Whales.

The specimen from which this description is taken, was forty-six feet long; and it's greatest circumference twenty feet. It was caught on the coast of Scotland.

WHALE, ROUND-LIPPED; the *Balæna Musculus* of Linnæus. The lower lip of this species is broader than the upper, and of a semicircular form. One of them, taken near Abercorn Castle, in Scotland, was seventy-eight feet long, and thirty-five in circumference. The mouth was extremely wide; the tongue was fifteen feet and a half long; and there were two spout-holes, of a pyramidal form, on the forehead. The eyes were thirteen feet from the extremity of the nose; the length of the pectoral fins was ten feet; and the height of the dorsal fin three feet. The dorsal fin was situated near the tail, which was eighteen feet in breadth; and the belly was full of folds.

This species is said to feed on herrings.

WHALE, BEAKED, BOTTLE-HEAD, OR NEBBE-HAUL. This species is about fourteen feet long, and seven and a half in circumference. The body is very thick; the forehead is high; the nose is depressed, and equally thick through it's whole length, not unlike the beak of a bird; the mouth is destitute of teeth; the eyes are large, but the lids small; the spout-hole, which is situated on the top of the head, is semilunar, the angles pointing towards the tail; the pectoral fins are seventeen inches long; the dorsal fin, which is placed nearer the tail than the head, is one foot long; and the breadth of the tail is upwards of three feet.

These fishes sometimes grow to the length of twenty feet. They make but little noise in blowing; and are very tame, approaching close to ships, and accompanying them a considerable way.

WHALE, FIN-BACK; the *Balæna Physalus* of Linnæus. This species, called also the Fin-fish, is distinguished from the common Whale by a fin on it's back, placed very low, and near the tail. It's length is equal to that of the largest species; but it is much more slender. It is furnished with whale-bone in the upper jaw, mixed with short and knotty, and of little value; and the blubber on the body is very inconsiderable. It is so extremely fierce and active, that the capture of it is dangerous, and the fishermen are said to have neglected it; however, the Greenlanders esteem it on account of it's flesh. It's lips, which are brown, resemble twisted ropes: the spout-hole appears as if split on the top of it's head; and through this it blows water with greater violence, and to a greater height, than the common Whale.

Fishermen dislike the sight of this animal, as it is invariably observed to drive all others of the genus from it's vicinity.

WHALE, SPERMACETI. See CACHALOT, PHYETER, and SPERMACETI.

WHAME. A provincial appellation for the burrel-fly, or wriggle-tail; a species of fly very troublesome to horses.

WHEAT BIRD. A name given by the inhabitants of Virginia to a species of bird which makes it's appearance in that province about the time when the wheat is ripe, and soon after disappears. Before that grain was introduced into Virginia, this bird was unknown.

WHEAT-EAR; the *Motacilla Cenanthe* of Linnæus.

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Linnæus. This bird, called also the White-tail, and the Fallow-finch, is somewhat larger than the common sparrow. The head and back are of a greyish colour, with some admixture of redness; and the rump is white, whence the bird has received the appellation of the white-tail: but this is not always the case; for the rump is sometimes of the same colour with the rest of the back. Over each eye there is a white line; and beneath it a broad black stroke, passing across each eye to the hind part of the head. The under side of the body is white, tinged with yellow; on the neck it inclines to red; and the quill-feathers are black, edged with reddish brown. The colours of the female are more dull: she wants the black stroke across the eye; and the bar of white on her tail is narrower.

These birds feed on beetles, and other insects; and build in the deserted burrows of rabbits. They are very plentiful in Suffex, and some other English counties, after harvest-time, when they are extremely fat, and much esteemed at table. They seem to thrive best in rainy seasons, because they then find a greater plenty of food than during dry ones.

At Eastbourne, in Suffex, they particularly abound, on account of a small fly which frequents the adjacent hills, for the sake of the wild thyme with which they are covered; and are taken in great numbers by means of horse-hair snates placed under long turfs, into which they are easily driven, to avoid the human species. The number annually caught there has frequently amounted to upwards of eighteen hundred dozen; and yet the flocks that appear the succeeding year do not seem to be diminished. They lay from six to eight eggs, of a light blue colour.

Wheat-Ears begin to visit us about the middle of March, and continue migrating into this country till the beginning of May. The females arrive about a fortnight before the males. They disappear in September, at least from the northern parts of the kingdom; but many of them continue in Hampshire the whole winter.

WHEEL ANIMAL. A genus of animalcules, furnished with an apparatus of arms for seizing their prey. This apparatus has been supposed, by microscopical writers, to be a sort of wheels: however, Dr. Hill describes the animal, when at rest, as having a plain smooth body; being of a conic figure, obtuse at the posterior extremity, and open at the anterior; of a dusky olive colour, and semitransparent.

When in motion, it protrudes from the open extremity a part of its naked body, to the whole of which this exterior conic substance seems to be but a case or sheath. From the extremity of this exerted part of the body it thrusts out two protuberances, which give it the appearance of a double head; and in each of these is discovered an apparatus in continual motion, appearing to be a rotatory, though really a vibratory one very rapidly repeated. Each of these protruded bodies has six arms inserted into it, which continually shuts and opens over each other. Every arm is furnished with a double series of fibres at its edge, which being expanded, occasion its spreading to a considerable breadth.

Several species of this animalcule have been mentioned by Baker and others.

WHELK; *Buccina.* See **SHELLS.**

WHIFF; the *Passer Cornubiensis Asper* of

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Jago. This fish bears some resemblance to the hohibut. It is about eighteen inches long; and its greatest breadth seven, exclusive of the fins. The mouth is extremely large; the teeth are minute; the under jaw hooks over the upper; and the eyes are large. The scales are broad and rough. The lateral line is uncommonly incurvated at its rise; but, after making a sharp angle, it proceeds straight to the tail, and is tuberculated. The tail is rounded. The upper part of the body is of a cinereous brown colour, clouded in some parts, and obscurely spotted; and the under side is white, tinged with red.

WHIMBREL; the *Scolopax Phæopus* of Linnæus. This bird is much less frequent on our shores than the curlew, to which it is nearly allied; but its haunts, food, and general appearance, are much the same.

These birds are observed to visit the neighbourhood of Spalding, in Lincolnshire, where they receive the appellation of Curlew Knats, in vast flocks, about April, continuing only till May; nor are they seen at any other season of the year. Indeed, they seem to be then on their passage to the places where they breed, which Pennant suspects to be the Highlands of Scotland.

The specific difference between this bird and the curlew is, that the former never exceeds twelve ounces in weight. The bill is two inches and three quarters long, dusky above, and red below; the feathers on the head and neck are brown tinged with red, marked in the middle with an oblong black spot; the cheeks are of a paler colour; the upper part of the back, the coverts of the wings, the scapulars, and the extreme quill-feathers, are of the same colour with the neck; but the black spots spread out transversely on each web. The quill-feathers are dusky, their shafts white, and their exterior webs marked with long semicircular white spots. The breast, belly, and lower part of the back, are white; the coverts of the tail, and the tail itself, are of a very pale whitish brown colour, crossed with black bars; and the legs and feet are of a dull green, and formed like those of the curlew.

Pennant describes a variety of this bird, which he received from Invercauld. It was shot on the Grampian hills; measured sixteen inches in length; and differed considerably in its colours from the common Whimbrel.

WHINCHAT; the *Motacilla Rubetra.* This bird is about the size of the common water-wag-tail. The head, neck, and back, are of a reddish brown colour, with regular rows of black spots. Over each eye there is a narrow white stroke, and beneath that a broad bed of black, extending from the bill to the hind part of the head. The breast is of a reddish yellow hue; the belly is paler; the quill-feathers are brown, edged with yellowish brown; the upper part of the wings is marked with two white spots; the lower part of the tail is white, the two middle feathers excepted, which are wholly black; and the upper part of the rest is of the same colour. The colours, however, in this bird, are very uncertain, and it frequently bears a strong resemblance to the stone-chatter; but an accurate observer may always distinguish it from that bird by the white spots on its wings, by the whiteness of the under part of its tail, and by the white lines on its head.

The colours of the female are much less pleasing than those of the male: in lieu of the white and

and black marks on the cheeks, there is a broad pale brown one; and the white on the wings is much less conspicuous than that of the male.

In the north of England, the Whinchat is a bird of passage; but in the south it continues during the whole year.

WHISTLE FISH. A provincial appellation for a species of gadus, with only two fins on the back. It is also called *mustela fluviatilis*. See **GADUS** and **MUSTELA**.

WHITE-HORSE-FISH. An English appellation for the *Raia Fullonica* of Rondeletius and Linnæus. The back is rough and spiny; the nose is short and sharp; there are a few spines at the corner of each eye; and the nictitating membrane is fringed. On the upper part of the pectoral fins there are three rows of spines pointing towards the back, and crooked like those of a fuller's instrument; whence it's name Fullonica and Fuller. The tail is furnished with three rows of strong spines. The upper part of the body is cinereous, usually marked with many black spots; and the lower part is white.

This fish sometimes arrives at an equal size with the skate.

WHITE BAIT. A small fish, which, during the month of July, is found in immense swarms in the Thames, near Blackwall and Greenwich. It is esteemed very delicious when fried with flour; and is much valued by London epicures, many of whom resort to the taverns in the vicinity of the place of capture, that they may enjoy their favourite dish in the greater perfection.

Naturalists are much divided in their opinions to what genus this fish ought to be referred; however, they uniformly seem to think it the fry of some fish, the shad, the sprat, the smelt, or the bleak. That the White Bait neither belongs to the shad nor the sprat, is evident from the number of branchiostege rays, which in those are eight, in this only three; that it is not the young of the smelt, is equally evident, because it wants the pinna adiposa; and that it is not the offspring of the bleak, is highly probable, since we never heard of the White Bait being found in any other river, notwithstanding the bleak is very common in several of the British streams.

Nevertheless, we may safely affirm, that the fish now under consideration belongs to the carp or the cyprinus genus, having only three branchiostege rays, and one dorsal fin; but, with respect to the form of the body, it is compressed like that of the bleak.

The usual length of the White Bait is two inches; the under jaw is longer than the upper; the irides are silvery, and the pupil is black; the dorsal fin is placed nearer to the head than the tail, and consists of about fourteen rays; the lateral line is straight; the tail is forked; and the tips are black.

WHITE-TAIL. An appellation by which some authors express the wheat-ear. See **WHEAT-EAR**.

WHITE-THROAT. This bird, which appears to be the *Motacilla Sylvia* of Linnæus, frequents our gardens in the summer season, and leaves us in the winter. It builds it's nest in low bushes; framing it, externally, of the tender stalks of herbs and dry straw; the middle part of fine bents and soft grass, and the inside of hair. It lays five eggs of a whitish green colour, sprinkled with black spots. It's note, which is continually repeated, and often attended with singular gesti-

culations of the wings, is harsh and ungrateful. The head is of a brownish ash-colour; the throat is white; the breast and belly are white tinged with red, in the female wholly white; the lesser coverts of the wings are of a pale brown hue; the back inclines to red; the greater coverts of the wings are dusky, edged with tawny brown; the quill-feathers are dusky, edged with reddish brown; the tail is of the same colour, except the upper part of the interior side, and the whole exterior side of the outermost feather, which are white; and the legs are of a yellowish brown hue.

This bird is timid and wild, avoiding the human race.

WHITING; the *Gadus Merlangus* of Linnæus. According to the Artedian system, the Whiting is one of the gadi, distinguished by the appellation of the gadus with three fins on the back, without beards, with a white body, and the upper jaw longer than the under.

The Whiting is an elegantly shaped fish. The eyes are large; the nose is sharp; and the teeth of the upper jaw are long, appearing above the lower when closed. The first dorsal fin has sixteen rays, the second eighteen, and the third twenty. The colour of the head and back is a pale brown; the lateral line is white and crooked; and the belly and sides are silvery, the last longitudinally streaked with yellow.

Large shoals of Whittings visit the British seas during the spring; seldom approaching nearer than half a mile of the shore, and as seldom removing farther than three miles from it. They are the most delicate and wholesome of any of the genus; but rarely grow to a greater length than twelve inches.

By an act of parliament, no Whittings of a less size than six inches from the eye to the extremity of the tail, may be taken in the Thames or Medway; nor at any season, except from Michaelmas to Ember Week.

WHITING POLLACK; the *Gadus Pollachius* of Linnæus. This fish is common on many of our rocky coasts. It is esteemed very wholesome; and commonly weighs six or seven pounds; but Pennant mentions some, caught near Scarborough, which weighed no less than twenty-eight pounds. The colour of the back is dusky, of some inclining to green; the sides beneath the lateral line are marked with yellow lines; and the belly is white. See **POLLACK**.

WHITING POUT; the *Gadus Barbatus* of Linnæus. This fish seldom exceeds twelve inches in length; and is distinguished from all others by it's great depth. The back is much arched and carinated; and the scales are larger than those of the cod fish. The mouth is small, and furnished with a short beard; and on each side of the lower jaw there are seven or eight punctures. The first dorsal fin is triangular, and terminates in a long fibre; the tail is even at the end, and, together with the scales, of a dusky colour. The lateral line is white, broad, and crooked. The colour of the body is white, more obscure on the back than the belly, and slightly tinged with yellow. The flesh is highly esteemed.

WICRANGLE. An English appellation for the mattagefs, or greater butcher-bird; the *lanius cinereus major* of some ornithologists.

WIGEON, or WIDGEON; the *Anas Penelope* of Linnæus. This bird, which is of the duck kind, weighs nearly twenty-four ounces; and the expansion

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Expansion of the wings is upwards of two feet. The bill is lead coloured, and black at the extremity; the head and upper part of the neck are of a bright light bay colour; the forehead is paler, in some almost white; the plumage of the back, and the sides under the wings, are elegantly marked with narrow black and white undulated lines; the breast is of a purplish hue, sometimes, though rarely, marked with round black spots; the belly is white; and the vent-feathers are black. In some of these birds, the coverts of the wings are almost wholly white; in others, of a pale brown hue, edged with white. The greater quill-feathers are dusky; the extreme webs of the middle feathers are of a fine green colour, tipped with black; the last are elegantly striped with black and white; the two middle feathers of the tail are longer than the rest, black, and sharp-pointed; the remainder are ash-coloured; and the legs are dusky.

The head of the female is of a rusty brown colour, spotted with black; the back is of a deep brown, edged with a paler; the tips of the lesser quill-feathers are white; and the belly is of the same colour.

WILLOW GALLS. A name commonly given to a kind of protuberances found on the leaves of the several species of willow; originating from a fly which deposits her eggs there, and leaves them to be hatched by the usual course of nature.

WIMBREL. See **WHIMBREL.**

WINDER MEB; the *Larus Cinerarius* of Linnæus. A bird so called by Ray; and described by Aldrovandus under the appellation of the *Larus Major*.

WINE FLY. A small insect, of a black colour, found in empty wine casks, and about wine lees; whence it has obtained the appellation of *Bibio* by the Latins. It is produced from a small red worm, very common in the sediment of wine.

This Fly is extremely small when the wings are not extended; but is, however, very beautiful. The breast and body are yellow; the reticulated eyes are red; and the wings contain a beautiful variety of colours. In short, these Flies form very beautiful microscopical objects; and, when viewed through that medium, they appear as elegant and perfect as the largest and most beautiful Flies that fall under the natural eye.

WING. That part of a bird which in general assists it in flying; but, in some species, tends only to accelerate it's running, as in the dodo, the ostrich, the auk, and the penguin. The Wing has an appendage, near it's extremity, covered with four or five feathers, called the *Bastard Wing*; the lesser coverts are denominated the *terstices*; and the greater coverts are those which lie beneath the former, and cover the quill-feathers and secondaries. The quill-feathers, or *primores*, springing from the first bones of the wings, are ten in number, and broader on their inner than exterior sides; the secondaries are those which arise from the second part, or *cubitus*, being in number about eighteen, and equally broad on both sides. The primary and secondary wing-feathers are called *remiges*. The *tertials* are a tuft of feathers placed beyond the secondaries, near the junction of the Wings with the body: this, in water-fowl, is generally longer than the secondaries, and cuneiform. The *scapulars* are composed of a tuft of long feathers rising near the junction of the Wings with the

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body, and lying along the sides of the back, but still easily distinguishable. The inner coverts are those which clothe the under-side of the Wing.

The Wings of some birds are farther adapted for instruments of defence: the *Anheima* of Marcgrave, the whole tribe of *Jacana*, and the *Gambo* of Willughby, afford instances of this kind.

WINGS also belong to the insect tribe; which, beside enabling them to fly, form several subordinate distinctions of the genera of those animals.

WOLF. The *Canis Lupus* of Linnæus. An animal of the canine kind, with a long head, a pointed nose, sharp and erect ears, a long bushy tail, long legs, and longish hair. He has large teeth, and is taller than any greyhound. His colour is generally a pale brown, tinged with yellow; though sometimes found white, and in Canada sometimes black.

The feature which principally distinguishes the visage of the Wolf from that of the dog, is the eye, which opens slantingly upwards, in the same direction with the nose; for in the dog it opens more at right angles with the nose, as in man. The tail also, in this animal, is long and bushy; and he carries it rather more between his hind legs than the dog. The colour of the eye-balls in the Wolf is a fiery green; and gives his visage a fierce and formidable air, which his natural disposition is by no means adapted to contradict.

The Wolf is, in reality, one of those animals whose carnivorous appetite is the most vehement; and whose means of satisfying this appetite are the most various. Nature has furnished him with strength, cunning, agility, and all those requisites which qualify an animal for pursuit, speed, and conquest; and yet, with all these, the Wolf frequently dies of hunger, for he is the avowed enemy of mankind. Having been long proscribed, and a reward offered for his head, he is obliged to fly from the habitations of men, and to live in the woods, where the few wild animals that frequent the forests escape him, either by their fleetness or art; or, at best, are not sufficiently numerous to gratify his rapacious disposition. He is naturally dull and cowardly; but being frequently disappointed, and as often reduced to the verge of famine, he becomes ingenious from want, and courageous from necessity. When impelled by hunger, he braves danger; and ventures to attack those animals which are under the protection of man, particularly such as he can readily carry off, as lambs, sheep, or even dogs themselves, for all animal food becomes then equally acceptable. When he has succeeded in this excursion, he often returns to the charge; till having been wounded, or hard pressed by the dogs or shepherds, he hides himself by day in the thickest coverts, and only ventures out at night: he then traverses the country, prowls about the villages, carries off such animals as are unprotected, attacks the sheep-folds, scratches up and undermines the thresholds of doors where they are housed, enters furiously, and destroys all, before he begins to select what prey he intends to carry along with him. When these sallies prove unsuccessful, he returns to the thickest part of the forest, and contents himself with pursuing those smaller animals which, even when captured, afford him but a scanty supply. He there proceeds regularly to work, following by the scent, and anxiously expecting some other Wolf to come to his assistance; for, singly, he has but very little hope of overtaking the prey. At last, when his necessities

cessities become extremely urgent, he boldly faces certain destruction; attacks women and children, and sometimes ventures even on men; becomes furious by his continual agitation; and at length terminates his miserable existence in the most outrageous madness.

This animal, as well externally as internally, so nearly resembles the dog, that he seems modelled on the same plan; and yet he only exhibits the reverse of the medal. If similar in form, his nature is so different, that he only possesses the bad qualities of the dog, without any of his amiable ones. Indeed, so much do they differ in their dispositions, that no two animals can have a stronger antipathy to each other. A young dog shudders at the sight of a Wolf, he even shuns his scent, which, though unknown, is so repugnant to his nature, that he approaches his master with trembling, and seems to implore his protection. A stronger dog, who has some degree of confidence in his own powers, bristles up at the sight, testifies his animosity, attacks him with courage, endeavours to put him to flight, and exerts all his might to be freed from such a hateful intruder. They never meet without either flying or fighting; and their combats are generally fatal to one, if not both. If the Wolf happens to get the mastery, he tears and devours his prey: the more generous dog, on the contrary, contents himself with the victory; he leaves him where he falls, either as food for birds of prey, or for other Wolves, since they devour each other; and, when one Wolf happens to be desperately wounded, the rest track him by his blood, and are sure to treat him with unrelenting severity.

The dog, even in his savage state, is not cruel; he is easily tamed, and continues firmly attached to his master. The Wolf, when early secured, becomes tame, but has never any attachment; in him nature predominates over education; with age, he resumes his natural instincts; and, as soon as opportunity serves, returns to his original retreats.

Dogs, even those of the dullest sort, seek the society of other animals; they are naturally disposed to follow and accompany other creatures not belonging to their own tribe; and even instinctively take care of flocks and herds. The Wolf, on the contrary, is an enemy to all society; not even associating with those of his kind. When seen together in packs, they are not to be considered as peaceful societies, but combinations for war: they testify their hostile intentions by their loud howlings; and, by their fierceness, discover their design of attacking some large animal, a stag, a bull, or a mastiff. The instant their project is completed, their society is at an end; they then separate, and each returns in silence to his solitary retreat.

Nor are there any strong or permanent attachments even between the male and the female; they seek each other only once a year, and continue but a few days together. They always couple in winter; at which time several males are seen following one female: and this association is still more bloody than the former; they dispute most cruelly, growl, bark, fight, and tear each other; and when one Wolf happens to be preferred by the female, the rest of the males frequently unite their force to destroy him.

The season of copulation does not continue above twelve or fifteen days; and usually com-

mences among the oldest, the young ones being more late in their desires. The males, who have no fixed time for engendering, pass from one female to another, beginning at the end of December, and ending about the commencement of March. The time of pregnancy is about three months and a half; and the young Wolves are found from the latter end of April to the beginning of July.

The period of the Wolf's gestation forms a sufficient distinction between him and the dog, did not the fiery fierceness of his eyes, his tremendous howl, and the greater duration of his life, also render him unquestionably an animal of his own particular species. In other respects, however, they are entirely similar: the Wolf couples exactly like the dog; the generative parts are formed in the same manner; and their separation is hindered by the same cause.

When the she Wolves are near their time of parturition, they seek some very tufted spot, in the thickest part of the forest; in the middle of which they make a small opening, cutting away the thorns and briars with their teeth; and afterwards carry thither a great quantity of moss, which they form into a bed for their progeny. They generally bring forth five or six, and sometimes nine, at a litter. Their cubs are produced, like those of the bitch, with their eyes closed; the dam suckles them for some weeks; and early habituates them to eat flesh, which she prepares for them by first chewing it herself. Some time after, she provides them stronger food, such as hares, partridges, and birds still alive. The young Wolves begin by playing with them, and conclude with killing them. The dam then strips them of their feathers, tears them in pieces, and distributes a share to each cub.

The young do not leave the den where they were originally produced till nearly two months old; and then they follow their dam, who conducts them to the nearest watering place. If apprehensive of danger, she immediately conceals them in some secure retreat, or brings them back to their former abode. In this manner, they follow her for several months; and, when attacked, she is resolute in their defence, exerting uncommon strength and ferocity. Though at other times more timorous than the male, at that season she becomes bold and intrepid. It is not, however, till the young are about ten or twelve months old, and until they have shed their first teeth and compleated the new, that she considers them as capable of shifting for themselves: then, when they have acquired strength from nature, and have learned industry and courage from her example, she declines all future care of them, being again engaged in rearing a new offspring.

The male and female Wolves generally begin to feel the access of desire at the age of two years. It is probable that the females of this species, as well as of most others, arrive at maturity sooner than the males; but it is certain that they never desire to copulate till their second winter: from whence we may suppose, that they live fifteen or twenty years; for, allowing three years for their compleat growth, this, multiplied by seven, gives them a life of twenty-one; most animals having been observed to live about seven times the number of years which they take to arrive at perfection.

The Wolf becomes grey as he grows old, and his

his teeth wear by use. He sleeps when satisfied, or fatigued, rather by day than night; and is always, like the dog; easily awaked. He drinks frequently; and in times of drought, when no water is to be found in the trunks of old trees, or in the pools about the forest, he often descends from his retreats, in order to visit the brooks or lakes in the plains. Though extremely voracious, he supports hunger for a considerable time; and frequently lives four or five days without any food, provided he is well supplied with water.

This animal possesses such vast strength, particularly in his fore parts, in the muscles of his neck, and in his jaws, as to be able to carry off a sheep in his mouth, without ever suffering it to touch the ground, and to run with it much swifter than the shepherds can pursue; so that nothing but the dogs can overtake, and oblige him to quit his prey. He bites very cruelly, and always with greater vehemence in proportion as he is less resisted; for he generally uses precautions with such animals as attempt to act on the defensive. He is invariably a coward, never fighting but when under a necessity of satisfying hunger, or making good his retreat. When wounded by a bullet, he is heard to cry out; and yet, when surrounded by peasants, and attacked with clubs, he never howls as the dog under correction, but defends himself in silence, and dies as hard as he lived.

In fact, the nature of the Wolf is more savage than that of the dog. He possesses less sensibility, and abundantly more strength. He travels, runs, and continues his predaceous excursions for days and nights successively. He is in a manner indefatigable; and perhaps, of all animals, he is the most difficult to be hunted down. The dog is mild and courteous. The Wolf, though savage, is ever fearful. If he happens to be caught in a pit-fall, he is for some time so terrified and astonished, that he may be killed without resistance, or taken alive without any considerable danger. At that instant, a collar may be clapped round his neck, he may be muzzled, and dragged along, without ever testifying the least signs of anger or resentment. At all other times, he enjoys his senses in great perfection; his eye, his ear, and particularly his sense of smelling, which is superior to all the rest. He smells a carcase at more than a league's distance; and also perceives living animals a great way off, and follows them a prodigious way by the scent. Whenever he leaves the wood, he always observes the precaution of going against the wind; and, when just at its extremity, he stops, in order to examine on all sides, by his smell, the emanations that proceed either from his enemy or his prey, which he distinguishes with great exactness. He prefers those animals which he kills himself to such as he may find dead; and yet, when driven to extremities, every sort of flesh is acceptable.

Wolves have sometimes been seen following armies, and arriving in numbers on the field of battle, where they devoured such bodies as were left upon the field, or but negligently interred. These, when once accustomed to human flesh, ever after shew a particular predilection for it, and chuse rather to attack the shepherd than his flock. It sometimes happens that one or two of these ferocious animals alarm a whole province; and a whole country has been called out to extirpate these most dangerous invaders.

The hunting the Wolf is a favourite diversion

among the great of some nations; and it must be confessed, it seems to be the most allowable and useful of any. These animals are discriminated by hunters into the young Wolf, the old Wolf, and the great Wolf. They are distinguished by the prints of their feet. It is necessary to have a good starter for the purpose of forcing the Wolf from his retreats; and it is even proper to use every art to encourage him in the pursuit, as all dogs have a natural reluctance to follow this animal, and their endeavours are consequently void of animation.

When the Wolf is once put up, greyhounds are then let fly at him, in leashes, one after another. The first leash is sent after him at the beginning, seconded by a man on horseback; the second is let loose about half a mile farther; and the third, when the rest of the dogs come up with him, and begin to bait him. The Wolf keeps them off for a considerable time, stands his ground, threatens them on all sides, and sometimes escapes; but the hunters generally arrive in due time to the assistance of the dogs, and help to dispatch him with their cutlasses. When killed, the dogs testify no appetite to enjoy their victory; but leave him where he falls, a frightful spectacle, and hideous even in death.

This animal is also sometimes hunted with harriers; but as he always proceeds in a direct course, and often holds his speed for a whole day without intermission, this kind of chase is tedious and disagreeable; at least if the harriers are not supported by the greyhounds, which, by their superior fleetness, are enabled to harass him at every view.

Several other methods have also been adopted for the destruction of this noxious animal. He is surrounded and wounded by men and large hound-dogs; he is caught in traps; he is poisoned by carcases prepared and placed for that purpose; and he is trepanned by pitfalls. Gesner mentions a friar, a woman, and a Wolf, being caught in one of these, all in the same night. The woman lost her senses by the fright, the friar his reputation, and the Wolf his life. All these disasters, however, do not prevent Wolves from multiplying in great numbers, particularly in those countries which are abundantly woody. France, Spain, and Italy, are much infested with them; but England, Ireland, and Scotland, are happily liberated from such disagreeable company.

Edgar is said to have been the first who endeavoured to extirpate these animals, by commuting the punishment for certain crimes into the acceptance of a number of Wolves tongues from each offender. In Wales, he converted the tax of gold and silver into an annual tribute of three hundred Wolves heads. We find, however, that some centuries after the reign of that Saxon monarch, these animals were again so much increased, as to become the object of royal attention. Edward the First issued out his mandate to Peter Corbet, to superintend and assist in their destruction in the several counties of Gloucester, Worcester, Hereford, Salop, and Stafford. Camden informs us, that certain persons at Wormhill, in Derbyshire, held their lands by the duty of hunting and catching such Wolves as infested that county; whence they were called *Wolve-hunt*. And these animals were so numerous, in Yorkshire, during the reign of Athelstan, that a retreat was built at Flixton, in that county, to defend passengers from their attacks.

WOLF

Wolves infested Ireland many centuries after they were extirpated in England: for mention is made of one being killed as late as the year 1710. The last Wolf known in Scotland, was slain in 1680 by the celebrated Sir Ewen Cameron, according to the tradition of the country; nevertheless, Buffon says that he has been assured there are still some Wolves in Scotland.

The colour of these animals varies according to the different climates where they are bred; and often changes even in the same country. Besides the common Wolves, which are found in France and Germany, there are others with thicker hair, inclining to yellow: these are less savage and noxious than the former, neither approaching the flocks, nor the habitations of men, and living rather by the chase than by rapine. In the northern climates there are some entirely black, and others equally white. The former are larger and stronger than any other variety.

The species is much diffused over every part of the world; being found in Asia, Africa, and America, as well as Europe. The Wolves of Senegal resemble those of France, except that they are larger and more fierce. Those of Egypt are smaller than the European kinds. In the East, Wolves are trained up for shew, being taught to dance and play tricks; and one of those animals, when properly educated, has sometimes been sold for four or five hundred crowns.

The North American Wolves are blacker, and much smaller than those of other parts of the world; and in shape approach nearer to the dog than those of the ordinary kind. They are also said to have been used by the savages for every purpose to which we apply the dog, before the Europeans introduced the latter animal; but of this we are very doubtful. Certain it is that the European Wolf is a very noxious animal: scarcely any thing appertaining to him, except his skin, is useful; and of it furriers make a covering, which is warm and durable, though coarse and inelegant. His flesh is despised by all other animals, no other creatures being known to eat his flesh except Wolves themselves; for, when one of these animals receives a desperate wound, the rest follow him, and presently dispatch and devour him.

The Wolf breathes a most foetid vapour from his jaws, and is in every respect offensive and disgusting: a savage aspect, a frightful howl, an insupportable odour, fierce habits, and a perverse disposition, are qualities inherent in his nature; qualities which render him dreaded and detested while living, and useless when dead.

WOLF, MEXICAN; the *Canis Mexicanus* of Linnæus. This animal, which Pennant considers as a distinct species, has a very large head, wide jaws; vast teeth; and very strong bristles on the upper lips, reflected backwards, and not inaptly representing the softer spines of the porcupine. The ears are large, erect, and cinereous; the intermediate space is marked with broad tawny spots; the head is ash-coloured, striped transversely with bending dusky lines; the neck is fat and thick, covered with a loose skin, marked with a strong tawny stroke; and on the breast appears another of the same kind. The body is ash-coloured, spotted with black; and the sides are striped, from the back downwards, with the same colour. The belly is cinereous; the tail is of the same colour, except in the middle, where it is

WOLF

tinged with tawny; and the legs and feet are striped with black and ash-colour.

This animal inhabits the hottest parts of Mexico. In its manners it agrees with the European Wolf; attacking cattle, and sometimes men.

WOLF, GOLDEN. See JACKALL.

WOLF, MARINE. An appellation by which some writers express the hyæna.

WOLF is also a name given by some authors to a species of insect which infests granaries; and is extremely mischievous, by eating its way into wheat, and other kinds of grain.

WOLF FISH; the *Anartrichas Lupus* of Linnæus. This fish appears to be wholly confined to the hyperborean seas, having never been discovered by ichthyologists to the south of the British Channel. It is very ravenous and fierce; and, when captured, fastens on any thing within its reach. Fishermen, who dread its bite, endeavour, as soon as possible, to beat out its fore-teeth; and then kill it, by striking it on the neck.

The Wolf Fish feeds almost entirely on crustaceous animals and shell-fish; and these it grinds to pieces with its teeth, which are so excessively strong, as to leave an impression on iron. It has such a hideous and disgusting appearance, that few can be tempted to eat of its flesh, except the fishermen; though we are told, that it is by no means improper food, when skinned and properly dressed.

This fish sometimes grows to the length of four feet; and, according to Dr. Gronovius, it has been caught measuring upwards of seven feet. The head is a little flattened on the top; the nose is obtuse; the eyes are small, and placed near the extremity of the snout; and the irides are pale yellow. The fore-teeth are strong and conical, diverging a little from each other, and project far out of the jaws; and they are supported in the inside by a row of lesser teeth. The dentes molares of the under jaw are higher on the exterior than the interior edges; and they join to the canine teeth in that jaw, but in the upper they are separate from them. In the centre there are two rows of flat strong teeth, fixed on an oblong basis on the bones of the palate and the nose. The two bones which compose the under jaw are united before by a loose cartilage; and this mechanism admitting of a motion from side to side, evidently contributes to assist the fish in breaking, grinding, and comminuting its testaceous and crustaceous food. The body is long, and slightly compressed sideways; and the skin is smooth and slippery. There is no lateral line. The pectoral fins, which consist of eighteen rays, are five inches long, and upwards of seven broad; the dorsal fin extends from the hind part of the head almost to the tail; the anal fin extends as far as the dorsal; and the tail is rounded. The back, sides, and fins, are of a livid lead colour; the two first are longitudinally marked with irregular, obscure, dusky lines; but these, in different fishes, have various appearances.

WOLVERENE; the *Ursus Luscus* of Linnæus. This animal, called also the Glutton or Quickhatch, has a black sharp pointed visage, and short round ears, almost lost in the hair. The head, back, and belly, are covered with reddish hair tipped with black; the sides are of a yellowish brown hue; on the throat there is a white spot; on the breast a white crescent; and the legs are of a deep black colour, thick, short, and strong.

This

This creature rests on it's foot as far as the joint of the leg, like others of the bear kind; and the tail is covered with long coarse hair, reddish at the base, and black at the extremity.

The Wolverine is about twenty-eight inches long from the nose to the tail; and the whole body is clothed with very long and thick hair, varying in colour according to the season of the year. It is a native of Hudson's Bay and Canada; and, under the appellation of Glutton, is known in the northern parts of Europe and Asia, being wholly confined to the most rigorous climates. It's voraciousness is without bounds; but it is so slow, that it can gain it's prey only by surprize. It often lurks in trees, and falls on such quadrupeds as pass below. It will fasten on the shoulders of a horse, elk, or stag, and continue eating a hole into the body till the miserable animal faints through pain. It searches for the traps intended for fables and other animals, and often anticipates the visits of the hunter.

In a wild state, the Wolverine is a very fierce animal; and a terror to both the wolf and the bear. It's skin is highly valued in Kamtschatka, where the women adorn their hair with the white paws appendant to it. In Siberia it will fetch about six shillings. The fur is likewise in high estimation throughout Europe; but that of the north of Europe and Asia is blacker and more glossy than what is imported from America.

WOOD-CHAT; the *Lanius Minor Primus* of Aldrovandus. A species of butcher-bird, or shrike, with a horn-coloured bill. The plumage is whitish at it's base. Above there is a black line drawn across the eyes, and then downwards on each side of the neck. The head and the hind part of the neck are of a bright bay colour; the upper part of the back is dusky; the coverts of the tail are grey; the scapulars are white; the coverts of the wings are dusky; the quill-feathers are black, with a white spot at their bases; the throat, breast, and belly, are of a yellowish white hue; and the legs are black.

In the female, the upper part of the head, neck, and body, are reddish, transversely striated with brown; the lower parts of the body are of a dirty white hue, rayed with brown; and the tail is of a reddish brown, marked near the extremity with dusky, and tipped with red.

WOODCOCK; the *Scolopax Rusticola* of Linnaeus. This bird is chiefly distinguished by it's size, which is smaller than the partridge; and by it's colour, which is a variegation of black, grey, and reddish brown; but the black predominates on the forehead. The quill-feathers are dusky, indented with red marks; and the belly is of a pale grey colour, variegated with transverse streaks of brown. The beak is three inches long, dusky towards the extremity, and reddish at the base; and the upper chap is somewhat longer than the under. The tongue is slender, long, sharp, and hard pointed; the eyes are large, and situated near the top of the head; a black line extends from the bill to the eyes; the forehead is of a reddish ash colour; and the chin of a pale yellow. The tail consists of twelve feathers, dusky or black on one web, and marked with red on the other; and the tips are ash-coloured above, and white below. The legs and toes are livid; the latter being divided almost to their origin, and having only a small web between the middle and interior toes.

During the summer season, Woodcocks inhabit the Alps, Norway, Sweden, Polish Prussia, and the countries in the north of Europe; from whence they migrate, at the approach of winter, into milder climates, where the ground remains open, and adapted to their mode of subsistence. The period of their appearance and disappearance in Sweden exactly coincides with their retreat from and arrival in Great Britain.

Worms and insects are almost the only food of Woodcocks; and these they search for, with their long bills, in soft spongy grounds and moist woods. They generally arrive in this country in large flocks, taking the advantage of a fog, or the night: however, they soon separate; yet pair again before they return to their native haunts. They feed and fly by night; beginning their flight in the evening, and returning in the same manner to their day retreat.

These birds leave England the latter end of February, or beginning of March; though they have sometimes been known to continue here the whole year. In Casewood, near Tunbridge, a few are said to breed annually. About the season of incubation, they are very tame. During the first week of October, a few small flocks are usually observed to arrive on the Suffolk coasts; but the greatest part do not visit this kingdom till the months of November and December, and they always contrive to land after sun-set. They are determined in their flight by the winds, and often arrive separate and dispersed.

Before their departure, they flock towards the sea-coast, and if the wind be favourable, speedily depart; but otherwise they lurk in the neighbouring woods, or among the ling and furze on the coasts, to wait the opportunity of a prosperous gale. In a similar manner they are known to quit France, Germany, and Italy, making the hyperborean regions their general summer rendezvous.

In the winter they are found as far south as Smyrna, Aleppo, and some parts of Barbary; and some have appeared even in Egypt, which seems to limit their southern migrations. In Japan they are very common.

Our species of Woodcocks is unknown in North America; but they have a bird about half the size of the European Woodcock, in colours and conformation almost exactly the same, except that it wants the bars on the breast and belly.

Woodcocks are averse to high flights, because their direct vision is imperfect; and to this imperfection it is owing that they are so easily taken in nets spread in their places of retreat: a very profitable, as well as amusing employment.

WOODCOCK-SHELL. An English appellation for a shell of the purpura kind, to which the French give the name of becaffé. There are two species, one prickly, and the other smooth.

The prickly Woodcock is an extremely beautiful and elegant shell. It is of a yellowish colour; it's beak is furnished with four rows of large and very long spines; and between these rows there are others much smaller and shorter. The body of the shell is furrowed, and very deep, adorned with a number of transverse circular lines; and both this and the clavicle are beset with several rows of long spines.

The smooth Woodcock is also very beautiful, but much less than the former; and of a yellowish colour, radiated with black and grey lines. It is all

all over deeply fulcated; the clavicle is elevated; and the beak is extremely long, and hollowed into a sort of tube.

WOOD-LARK. See LARK.

WOOD MITE. A little animal, called also the Wood Louse, frequently found among rotten wood. It has often been the subject of microscopical observations; and is probably the *Pediculus Pulvatorius*, described by Derham, as constituting one of the death-watches.

WOODPECKER. The English appellation for a bird of the *picus* kind, of which there are numerous varieties. These form large colonies in almost every part of the world; and the wisdom of Providence in the admirable contrivance of the fitness of the parts of animals to their respective natures, cannot be better illustrated than from this tribe.

Woodpeckers subsist entirely on insects; and their principal action is that of climbing up and down the trunks or boughs of trees. For the purpose of procuring their food, they are provided with a long slender tongue, armed with a sharp bony point, barbed on each side, which, assisted by a curious apparatus of muscles, they can exert at pleasure, darting it to a great length into the clefts of the bark, transfixing and extracting the concealed insects. Such is the instrument with which this bird is provided, and such the purpose to which it is applied.

When a Woodpecker discovers a hollow rotten tree, where worms, ants eggs, or insects, may be expected, it instantly prepares for it's operations. Resting by it's strong claws, and leaning on the thick feathers of it's tail, it bores with it's sharp strong beak, till it discloses the whole internal habitation. Then, either as an expression of joy, or with an intent to alarm the insect colony, it sends forth a loud cry, which creates terror and confusion among the whole tribe, and puts them immediately in motion; while the bird luxuriously feasts on them at it's leisure, darting it's tongue with unerring certainty, and devouring the whole brood, according as appetite prompts.

The depredations of the Woodpecker, however, are not confined solely to trees; but it sometimes descends to the ground, in order to try it's fortune at an ant-hill; where it is less secure of prey, though the numbers are much greater. The insects, in this case, usually lie too deep for the birds to reach them; but they supply by stratagem the defect of their power. The bird pecks at their hills, in order to call them abroad; and thrusting out it's long red tongue, which resembles their usual prey, the ants come in crowds to settle on it; when the bird watching a favourable opportunity, suddenly withdraws it's tongue, and devours the devourers.

The Woodpecker forms a cavity in some tree, in which it builds a nest. This is performed with it's bill, though some have erroneously affirmed, that this bird uses it's tongue as a piercer to bore with. It generally selects such trees as are decayed, or soft and spongy; in which it makes a round hole with vast perseverance and exactness. When the nest is completed, the Woodpecker immediately lays it's eggs, generally five or six in number, which are oblong, and of a semi-transparent white colour. It employs neither feathers, straw, or any other lining; but trusts entirely to the heat of it's own body.

The old hole is frequently possessed by the

jay, the starling, or the bat, which are less expert borers, and less delicate in their choice of a nest.

However, the Woodpeckers of Guinea and Brazil suspend their nests from the extremity of the branches of trees. In peopled countries, indeed, the feathered tribe exert all their address to conceal their nests from the human race; but, in climates where man is seldom seen, he cannot possibly be dreaded. In these remote and solitary forests, where the monkey and the snake are the principal enemies of the kind, the Woodpeckers are only solicitous to protect their eggs and themselves from the encroachments of these hideous invaders. For this purpose, they select the extreme branches of some tall tree, such as the banana or the plantane: there they suspend their nests in great abundance; forming them of a fibrous substance resembling hair, which being conglutinated by a viscid juice, either natural to the birds or found in the forest, easily assumes any shape. On one side there is a hole left for entrance; and there they lay their eggs and rear their young in security.

WOODPECKER, GREEN; the *Picus Viridis* of Linnæus. This species is about thirteen inches long; the expansion of the wings is twenty-one; and the weight nearly six ounces and a half. The bill, which is dusky, triangular, and nearly two inches long, is exceedingly strong and hard, and somewhat cuneiform at the extremity: Derham observes, that a neat ridge runs along the top, as if designed for strength and beauty. The eyes are surrounded with black; beneath which is a crimson mark in the males, which is wanting in the females. The back, neck, and lesser coverts of the wings, are green; and the rump is of a pale yellow hue. The greater quill-feathers are dusky, spotted with white on each side. The tail consists of ten stiff feathers, the extremities of which are generally broken, as the bird rests on them in climbing; their tips are black; and the remainder is alternately barred with dusky and deep green. The whole of the under part of the body is of a very pale green colour; and the thighs are marked with dusky lines. The legs, which are pale green, are short and strong; the thighs are very muscular; and two of the toes point backwards, and two forwards.

This bird is also called the Rain-fowl, because it is supposed to predict rain when it makes a louder noise than usual.

WOODPECKER, SPOTTED, GREAT; the *Picus Major* of Linnæus. This bird is about nine inches long, and sixteen wide; and the weight is little more than two ounces. The bill is of a black horn-colour, and the forehead a pale buff. The crown of the head is a glossy black; and the hind part is marked with a rich deep crimson spot. The cheeks are white, bounded beneath by a black line, passing from the angle of the mouth, and surrounding the hind part of the head. The neck is encircled with black; and the throat and breast are of a yellowish white colour. The back, rump, coverts of the tail, and lesser coverts of the wings, are black; the quill-feathers are also black, each web being elegantly marked with round white spots; the four middle feathers of the tail are black; the next are tipped with dirty yellow; the bottoms of the two extreme ones are black; and the legs are of a leaden colour.

The female is distinguished from the male by

her wanting the beautiful crimson spot on her head.

WOODPECKER, SPOTTED, LESSER; the *Picus Minor* of Linnæus. This resembles the Great Spotted Woodpecker in colour and shape; but is considerably smaller, scarcely weighing one ounce. Its length, from the tip of the bill to the extremity of the tail, is only six inches; and the expansion of the wings is eleven. The forehead is of a dirty white hue; the crown of the head (in the male only) is of a beautiful crimson; the cheeks and sides of the neck are white; and the hind part of the head and neck, together with the coverts of the wings, are black. The back is barred with black and white; the breast and belly are of a dirty white hue; and the vent-feathers are a bright crimson. The crown of the head (in the female) is white; and the feet are lead-coloured.

This species has all the characters and habits of the larger kind, but is less common.

Pennant mentions a middle Woodpecker, the *Picus Medius* of Linnæus; but it differs so little from the Great Spotted Woodpecker, that he is doubtful whether it ought to be considered as a distinct species, or only as a variety. We are inclined to embrace the latter opinion.

WOODPECKER, THREE-TOED; the *Picus Trydactylus* of Linnæus. This species, which is a native of Hudson's Bay, and some of the northern countries of Europe, is about five inches and a half long, and eleven inches broad. The body is black, with a white streak beginning at the root of the bill, and extending on each side to the nape of the neck, where it joins, and afterwards runs down the neck, and along the back, as far as the tail. The breast and the lower belly are white and black; and the wing-feathers are black above, marked with a few rows of small white spots, and ash-coloured below. The tail is short, strong, and black, except the extreme feathers, which are marked with white at their tips. The top of the head is of a saffron colour; and the bill is angular, but terminates in a round point. On each foot are three toes, two before, and one behind; a peculiarity in which it differs from all other Woodpeckers.

WOODPECKER, JAMAICA. The bill of this species is straight, sharp-pointed, and black; and about one inch and a half long. The fore part of the head, all round the base of the bill, and beyond the eyes, are of a yellowish white colour; but the hinder part of the head and neck is of a bright scarlet. The throat and breast are of a dirty olive, which gradually becomes reddish on the belly, with transverse dusky lines on its lower part, and on the thighs. The coverts under the tail are marked with dusky and whitish broken transverse lines; and the back, the upper side of the wings, the rump, and the tail, are black, with narrow, transverse, light brown lines on the back, which assume a lighter colour on the wings, and become broader and whiter on the rump. The two extreme feathers of the tail have white spots on the outer webs. The legs and feet are strong, and exactly resemble those of the kind.

WOODPECKER, SPOTTED, INDIAN. This species has a long, straight, blackish bill, ridged on the upper part; the crown of the head, from the bill backwards, and beyond the eyes, is black, speckled with white; but the hinder part of the head is covered with long scarlet feathers tending

backwards, in form of a crest. The sides of the head below the eyes are white; and the throat, from the bill to the middle of the breast, is irregularly variegated with large black and white spots. The hinder part of the neck is black; and on each side runs a white line down to the wings. The beginning of the back is yellow; but the lower part and the rump are of a dull green hue. The belly, thighs, and coverts beneath the tail, are white, sprinkled with semilunar spots. Some of the exterior primaries are black, barred with white; the remainder, and the coverts of the wings, are of a dull green colour; and the lesser coverts are a dark brown, with distinct white spots. The tail is blackish, with a cast of dull green; the feathers that compose it are stiff and pointed; and the legs and claws are dusky.

This bird is a native of Bengal, in the East Indies.

Ornithologists mention several other species of Woodpeckers; such as the green grey-headed, the red-cheeked, the yellow, the great black, the great of Catesby, and the hanging: but all these exactly correspond in their manners and conformation; and, where the difference consists only in the colour of a few feathers, it is beneath the attention of the general naturalist to remark every variation.

WOOD-PIGEON. See RING-DOVE.

WOOD-PUCERONS. An appellation by which Reaumur expresses a small species of insect of the puceron kind, of a greyish colour, and distinguished by two hollow horns on the posterior part of its body. These insects make their way into the substance of trees, particularly elms, where they are sometimes found in great numbers after the trees are cut down.

WOOD-SPITE. A provincial appellation for the common green woodpecker.

WOOFÉ. A name by which some authors denote the sea-wolf, or *lupus marinus*.

WORMS. The sixth class of animals in the Linnæan distribution of nature; including five orders, the intestina, mollusca, testacea, lithophyta, and zoophyta; which are again subdivided into eighty genera, and eleven hundred and sixty-six species.

Animals of this class are distinguished by having the heart with one ventricle, and no auricle; and a cold, colourless sanies: they are particularly discriminated from insects by being tentaculated, whereas the latter are antennated.

A description of the common Earth-worm, or *Lumbricus*, a genus of the order of intestina, will give a general idea of the whole.

This creature has a spiral muscle, running round the whole body from the head to the tail, by means of which it performs its progressive motion, alternately contracting and extending itself, and keeping the ground it has gained by the slime of the fore part of its body.

Designed by nature for a life of obscurity, it seems wisely adapted for its situation. Its body is armed with small, stiff, sharp prickles, which it occasionally erects or depresses; under the skin is a slimy juice, which it ejects, according to its necessities, through certain perforations between the rings of the muscles, which assisting to lubricate its body, facilitates its passage into the earth. Like insects in general, it has breathing holes along the back, adjoining each ring; but it is destitute of bones, eyes, ears, and properly of feet.

feet; but it is furnished with a mouth, and an alimentary canal, running along to the very extremity of the tail. However, in some Worms, particularly such as are found in the bodies of animals, this canal opens towards the middle of the belly, at some distance from the tail.

The intestines of the Earth-worm are always found replete with a very fine earth, which seems to be the only nourishment it is capable of receiving.

No part resembling a brain has ever been discovered in this animal; but near the head is placed the heart, which is seen to beat with a very distinct motion; and round it lie the spermatic vessels, forming a number of little globules, containing a milky fluid: these have an opening into the belly, not far from the head; and are often found replete with eggs; which being laid in the earth, are hatched, in twelve or fourteen days, by the genial warmth of their situation.

Like snails, all these animals unite in themselves both sexes at once, impregnating and being impregnated in their turn.

During winter, Worms bury themselves deeper in the earth; and appear in some measure to participate of the native torpidity of the insect tribe: but in spring they revive with the rest of nature, and pursue the universal purpose of propagating their kind.

The most extraordinary circumstance attending Worms is, that they continue to live in separate parts; and that one animal, by the means of cutting, is divided into as many existences as fancy may propose. Each section gradually acquires what is wanting to complete the insect; and in a few months the minute parts of the original creature attain the full size and proportion, together with all the powers and appetites of the kind. Thus one of the most contemptible of lives is the most difficult to destroy; and, in proportion to the dangers to which the tribe is exposed, Providence seems to have allotted it qualities for its preservation.

Worms are very prejudicial to corn-fields, eating up the roots of the plant, and occasioning the failure of a considerable part of the crop.

One of the most efficacious things in nature for their destruction, is sea-salt: they are likewise extirpated by foot, or by a mixture of chalk and lime; but these methods are not wholly to be relied on.

If they become very troublesome and mischievous in gardens, the refuse brine of salted meat, or some walnut-leaves steeped in a cistern of water for about a fortnight, will help to destroy them; or a decoction of wood-ashes, sprinkled on the ground, will answer the same purpose.

WORMS; Lumbrici, or Vermes. In a medical sense, a disease originating from some of these reptiles being generated in the body, from which the most alarming symptoms sometimes proceed.

Vallisneri has proved, that Worms in the human bowels are not produced from the eggs of reptiles swallowed down with our food or drink, but that they actually propagate their kind within us. However, though this may be the case with respect to their propagation, it seems most probable that the parents were originally conveyed into the intestines by the common vehicles of aliments; and that particular sorts of food acting in conjunction with constitutional predispositions, may considerably encrease or lessen the danger.

There are three species of Worms most usually found in the human body: the teretes, or round and thick, commonly bred in the small guts, and sometimes in the stomach; the latus, or flat, called also the tænia, generally bred either in the small intestines or in the stomach; and the ascarides, or round and small Worms, generally found in the rectum.

But though the intestines are the ordinary residence of Worms, there is scarcely any part of the human body which they do not occasionally infest: for, besides the vermes intestales already enumerated, we sometimes hear of the dentales, gingivales, pulmonarii, cardiaci, sanguinearii, cutanei, umbilicales, hepatici, salivales, &c.

So numerous indeed are the varieties of Worms which infest different parts of the body, that it is almost impossible to particularize them all: and, as for the modes of cure which physicians have prescribed, they more properly belong to medicine than natural history; for which reason we shall leave them to the proper professors.

WORM ASCARIS. A genus of the order of intestina, and class of vermes, in the Linnæan system; the distinguishing characters of which are, that the body is round and filiform, and attenuated towards both extremities. There are two species.

WORM BUTTERFLY. An appellation sometimes given to the butterfly when in the aurelia and caterpillar state. See **AURELIA** and **CATERPILLAR**.

WORM, CANKER. The common English name for the scarabæus or beetle. See **BEEBLE** and **SCARABÆUS**.

WORM, COCHINEAL. An appellation by which some authors express that valuable insect the cochineal fly. See **COCHINEAL**.

WORM, EARTH. See **WORMS**, and **EARTH-WORM**.

WORM, FLY. The worm or maggot produced from the egg of a fly destined to be transformed into the same shape with its parent, and corresponding with flies in the same manner as the caterpillar does with butterflies.

Fly-worms differ very essentially from each other in form and figure, and therefore may be arranged into several classes.

The most obvious and remarkable differences between the classes of these creatures are such as arise from the conformation and shape of their heads. Many of them have heads which are with difficulty distinguished as such; and many of them have variable heads, which alter in length, breadth, thickness, and figure, at the pleasure of the insect. There are also others whose heads are hard, and retain the same uniform and regular shape.

The first general arrangement of these Worms may be into those which have variable, and such as have invariable heads.

The subordinate distinctions may be deduced from the number, disposition, structure, and form of the other parts. Some Worms of this kind are without legs; those of others are membranous, or scaly; and others have them both membranous and scaly. Some Worms possess the power of changing the figure of their bodies at pleasure; the bodies of others are rigid, and incapable of any alteration. Others, again, have a thin membranous coat; while others have a firm and scaly, or crustaceous covering. And farther, consider-
able

able discriminations may be remarked with regard to the position, number, and figure, of their organs of respiration.

Among Fly-worms with variable heads, the disposition of the stigmata, at which the tracheæ terminate, will afford several distinctions of genera. For instance; the Worm of the common flesh-fly has six apertures in it's stigmata, three in each; but the Worms of many other flies have only one small eminence in each: others have them cylindric and hollow, and projecting like horns, of which some have two, three, or more, differently situated and arranged.

The number and figure of the tentacula or hooks, which supply the place of teeth, may also afford subjects of distinction. The Worm of the common flesh-fly has two hooks, with a dart between them; others have hooks without any dart; some have only one hook; and others are totally destitute of this distinction. The figure of the body, and the differences of size and colour, may furnish farther discriminations with regard to the genera of the first class.

Worms of the second class, with variable heads, but which have the addition of legs, like those of the caterpillar class, have often a sort of hooks fastened to them: they have also a long fleshy tail, capable of contraction or extension, and hence they have been called Rat-tailed Worms. In this division, the tail is the principal organ of respiration; it's end being always open, and supplying the office of the stigmata in other genera.

The third class of Fly-worms is composed of such as have invariable heads, and are destitute of any thing analogous to the organization of moveable jaws. These form a very numerous family both in the terrestrial and aquatic kingdom; and all of them produce two-winged flies.

Under this class Reaumur enumerates and describes eight genera.

This ingenious naturalist also mentions Worms of another class, usually producing four-winged flies, having heads of an invariable figure, and two teeth or moveable jaws near the aperture of the mouth, with the stigmata placed on the sides of their bodies. The flies produced from these are bees, wasps, ichneumons, and gall-flies.

There is another class of the hexapode, or six-legged Worms, without any mouth, but having two openings at the top of their antennæ, through which their aliments may pass. The formica leo and the puceron-eaters belong to this class.

Various other distinctions have been mentioned by curious investigators of the insect tribe; but those being the principal, may be sufficient for us to enumerate.

WORM-GOURD. A species of tænia or tapeworm, the body of which is of an oblong form, flat on the belly, and rounded on the back. The skin is soft; and the mouth is large, horizontal, and emarginated in the middle. It resembles the common gourd in figure; and hence it has received the appellation of Vermis Cucurbitinus, or the Gourd-worm. It is frequently found in the intestines of animals.

WORM, GOLDEN. A name by which some naturalists express the aphrodita. See **APHRODITA.**

WORM, GALLY. See **GALLY-WORM.**

WORM, GLOW. See **GLOW-WORM.**

WORM, HORSE. See **HORSE-WORM.**

WORM, SILK. See **SILK-WORM.**

WORMS, SEA. Animals of this kind are included in a sort of cases or pipes; and may be divided into two classes, according to the nature of those cases. In the one class these are only composed of grains of sand, fragments of shells, and similar substances, fastened together by a viscous humour; in the other, they consist of a real shelly matter.

WORMS, AQUATIC. Insects of this kind are extremely numerous, and compose many different genera. Some of these transform themselves into flies, without any visible change in their exterior form, by a very singular process; and others are capable of reproduction, in the manner of the polype, after being divided into any indefinite number of parts.

WORMWOOD-FLY. An appellation by which naturalists have expressed a small black fly, commonly found on the leaves and stalks of the plant from which it receives it's name, during the months of June and July.

WORRALL. An animal of the lizard kind, about four feet long, and eight inches broad; with a forked tongue, but no teeth.

It is a native of Egypt, principally frequenting the grottos and caverns in the mountains on the west of the Nile, where it sleeps during the winter, and makes it's appearance only in the hottest months.

This creature is perfectly harmless and gentle, feeding only on large flies and the smaller species of it's own genus. Music has been said to have a most powerful effect on it; but experience has proved this to be an ill-grounded assertion.

WRASSE. A marine fish, to which different ichthyologists have given the appellations of turdus vulgaris, tinca marina or sea-tench, and sometimes the old-wife. There are several species.

WRASSE, ANCIENT, OR COMMON; the Labrus Tinca of Linnæus. This fish bears some resemblance to the carp in figure, and is covered with large scales. It grows to the weight of four or five pounds. It's colour is very variable, red, yellow, and brown, being frequently intermixed in the scales; and there are five or six longitudinal lines, alternately of a pale yellow, an olive colour, and a dusky red. The nose is long, and incurvated upwards; and the lips are thick and fleshy, extending over the jaws. The mouth is small; the teeth are disposed in two rows, the first conic, and the second very minute; but neither very sharp. In the throat, just before the gullet, there are three bones, two above of an oblong form, and one below of a triangular shape, with the surface of each rising into roundish protuberances; and these are of singular use to the fish in comminuting it's shelly food before it arrives at the stomach. The dorsal fin consists of sixteen sharp and spiny rays; and nine soft ones, longer than the others. The pectoral fins, which are large and round, are composed of fifteen rays; the ventral fins consist of six, the first sharp and strong; and the anal of three sharp spines, and nine flexile. The tail is rounded at the extremity, and formed of fourteen soft branching rays. The membranes of the fins and tail are variegated with red and blue spots; and the anterior rays of the back fin are prickly.

The Wrasse abounds on the English shores. It is eaten by the poor in Cornwall and Wales, but is not considered as a delicate fish. It is found in deep water, adjacent to rocks; and will take

take a bait, though it's native food be shell-fish, and the smaller crustaceous animals.

WRASSE, BIMACULATED; the *Labrus Bimaculata* of Linnæus. This species has a pretty deep body, of a light colour, marked in the middle on each side with a round brown spot, and another on the upper part of the base of the tail. The lateral line is incurvated; the branchiostege rays are six; the first fifteen rays of the dorsal fin are spiny, the other eleven soft, and lengthened by a skinny appendage; the pectoral fins consist of fifteen rays; the ventral of six, the first spiny, the second and third terminating in a slender bristle. The anal fin is pointed, the four first rays being short and spiny, the rest long and soft.

This fish is a native of the Mediterranean, and is also found sometimes in the British seas.

WRASSE, BALLAN. This variety (for it does not appear to constitute a distinct species) is annually caught in great abundance off Scarborough, where it is frequently found to weigh five pounds.

In shape, it resembles the common Wrasse; except that between the dorsal fin and the tail there is a considerable depression, above the nose a deep sulcus, and on the farthest cover of the gills a depression radiated from the centre. The branchiostegous rays are four; the dorsal fin has thirty-one rays, twenty spiny, the rest soft; the pectoral fins consist of fourteen rays; the ventral of six; and the anal of twelve.

The tail is rounded at the extremity; and at the bottom, for about a third part of the way, between each ray, there is a series of scales. The usual colour is yellow, spotted with orange.

WRASSE, TRIMACULATED. This species, which is found on the coast of Anglesea, measures about eight inches. It is of an oblong form: the nose is long; the teeth are slender; and the eyes are large. The branchiostegous rays are five in number. The dorsal fin is composed of seventeen spiny rays, and thirteen soft ones; and beyond each extends a long nerve. The pectoral fins are round, and consist of fifteen branched rays; the ventral of six rays, the first spiny; and the anal of twelve, the three first short, very strong and spiny, the others soft and branched. The tail is rounded; the lateral line is straight at the beginning of the back, but becomes incurvated towards the tail. The body is covered with large red scales; and the covers of the gills with small ones. On each side of the lower part of the dorsal fin are two large spots; and there is a third between the fin and the tail.

WRASSE, STRIPED. This species was first discovered by Pennant on the coast of Anglesea. It's form is oblong, and it measures nearly ten inches. The lips are large, double, and reverted. In the number of rays in the dorsal, ventral, and pectoral fins, it resembles the Trimaculated Wrasse; but the anal fin has fifteen rays, the three first strong and spiny. The tail is nearly even at the extremity. The covers of the gills are cinereous, striped with a beautiful yellow; the sides are marked with four parallel lines of greenish olive, and the same number of an elegant blue. The back and belly are red, the last being much paler than the former. Along the beginning of the dorsal fin there is a broad bed of rich blue; the middle part is white; the rest red. A dark olive spot appears at the base of the pectoral fins; the

extremities of the anal and ventral fins are of a bright blue colour; the upper half of the tail is of the same hue; and the lower part of it's rays is yellow.

WRASSE, GIBBOUS. To Pennant we are indebted for the description of this species, which was caught off Anglesea. It's length is about eight inches; it's figure is deep and elevated, the back being vastly arched, and very sharp. From the rise of the head to the nose there is a steep declivity; above each eye there is a dusky semilunar spot; the nearest cover of the gills is beautifully ferrated; the first sixteen rays of the dorsal fin are strong and spiny, the rest soft and branched; the pectoral fins consist of thirteen rays; the ventral of six; and the anal of fourteen, of which the three first are strongly aculeated. The tail is large, rounded at the extremity, and furnished with branched rays, their extremities extending beyond the webs. The lateral line is incurvated towards the tail; the gills and body are covered with large scales; and the colours are an agreeable intermixture of green, orange, red, and blue.

WREATH. An appellation by which some conchologists express the turbo. See **TURBO**.

WREN. A well-known bird, of which there are several species.

WREN, COMMON; the *Motacilla Troglodytes* of Linnæus. This species weighs about three drams; and is four inches and a half long from the tip of the bill to the extremity of the tail. The head and upper part of the body are of a deep reddish brown colour; and above each eye there is a stroke of white. The back, the coverts of the wings, and the tail, are marked with slender transverse lines of black; and the quill-feathers with bars of black and red. The throat is of a yellowish white hue; the belly and sides are crossed with dusky and pale reddish brown lines; and the tail is intersected with dusky bars.

The Wren may be placed among the finest of our English singing-birds. It continues it's melody throughout the winter, except in extremely severe frosts; and both it's voice and manners are full of vivacity. The female builds a curious nest, of an oval shape, very deep, with a small aperture in the middle for ingress and egress: the external part consists chiefly of moss; and the internal of hair and feathers. It lays from ten to eighteen eggs, of a white colour, sprinkled all over with pale reddish spots. Ray observes, that it is one of those daily miracles which escape our observation, that a Wren should produce so many young, and regularly feed each of them in total darkness.

The Wren breeds twice a year; first about the end of April, and a second time about the middle of June. The young may be easily reared. For this purpose they should be taken out of the nest at about fourteen days old, and fed with the hearts of animals well minced, and mixed with eggs. When they are able to peck this meat for themselves, they may be put into cages: nevertheless, they should be served for some days longer, lest they should neglect themselves, and thus die of hunger. When grown up, they may be fed with paste, without any flesh. They will speedily take to their own natural wild notes; but they may be taught any other with a moderate share of trouble and attention.

The Wren usually creeps about hedges and holes, making but short flights; and, if it be

driven from the hedges, it may be easily tired and run down.

WREN, WILLOW, OR YELLOW; the *Motacilla Trochilus* of Linnæus. The weight of this bird is about two drams. The upper part of the body is of a dusky green colour; and the wings and tail are brown, edged with yellowish green. A yellowish stroke passes over each eye. The breast, belly, and thighs, vary in their colour in different birds: in some, they are of a bright yellow; and, in others, almost white.

This species builds in hollows in the sides of ditches, forming an oval nest, with a large hole at the top for an entrance; the outside consisting of moss and hay, and the inside being lined with soft down. It usually lays seven eggs, which are white, marked with rust-coloured spots. Its note is low and plaintive. It frequents large moist woods, and such places as abound with willows; from which circumstance it is not unfrequently called the Willow-wren.

WREN, GOLDEN-CRESTED; the *Motacilla Regulus* of Linnæus. This is the smallest of all British birds, weighing no more than twenty-six grains. It is about three inches and a half in length; and the expansion of the wings is five inches. It is easily distinguished from other birds, not only by its size, but also by the beautiful scarlet mark on its head, bounded on each side by a fine yellow line. The bill is dusky; the feathers of the forehead are green; and a narrow white line extends from the bill to the eyes. The hind part of the neck and back are of a dull green colour; the coverts of the wings are dusky, edged with green, and tipped with white; the quill-feathers and the tail are dusky, edged with pale green; the throat and belly are white, tinged with green; the legs are of a dull yellow hue, and the claws are extremely long in proportion to the size.

This bird frequents woods, and is usually seen perched on oak-trees. Its note does not materially differ from that of the common Wren. It continues in this island the whole year; and, though a weak and minute creature, seems capable of supporting the rigour of our severest winters.

WREN, RUBY-CROWNED; the *Motacilla Calendula* of Linnæus. This is a native of North America, particularly of the province of Pennsylvania. The bill is black; the head, the back part of the neck, and the rump, are of a darkish olive green colour, but deeper on the head, and lighter on the rump; a spot of the most beautiful red adorns the crown of the head; and the breast and belly are of a lightish yellow or cream colour. The coverts of the wings are olive-coloured, with whitish tips, forming two lines across each wing; the three quills next the back are dusky, edged with cream-colour; and the remainder of the quills are also dusky, with narrow greenish edges.

The tail is black or dusky, edged with yellow green, but ash-coloured beneath; and the legs, feet, and claws, are dusky.

WREN, CARIBBEE. This is a native of the West Indies; where, on account of its melodious note, it has received the appellation of the nightingale. It is larger than the common Wren; and is the more remarkable for possessing a fine voice in a country where birds are not much celebrated for that excellence.

WRINGLE-TAIL. An appellation by which some authors express the *curvicauda*; a species of bee-fly very much resembling the bee in shape, but having only two wings.

This insect is very troublesome to horses, by laying its eggs in their hides. It is also called the whame and barrel-fly.

WRY-NECK. A bird of the pie kind, to which some naturalists give the name of *Torquilla*. It forms a distinct genus in the Linnæan system, under the denomination of *Jynx*: the characters of which are; the bill is slender, round, and pointed; the nostrils are concave and naked; the tongue is very long, slender, cylindrical, and terminated by a hard point; and the feet are formed for climbing. There is only one species.

This bird, which Linnæus distinguishes by the appellation of the *jynx*, has its colours pencilled in the most elegant manner, though its plumage is marked with the plainest kinds. A list of black and ferruginous strokes divides the top of the head from the back; the sides of the head and neck are ash-coloured, beautifully traversed with fine lines of black and reddish brown; the quill-feathers are dusky, but the webs are marked with rust-coloured spots. The chin and breast are of a light yellowish brown hue, adorned with sharp-pointed bars of black; the tail is composed of ten feathers, broad, and feeble at their extremities, of a pale ash-colour, sprinkled with red and black, and marked with four equi-distant bars of black. The irides are of a yellowish colour; and the tongue is long and cylindrical, being adapted for the same purposes with that of the woodpecker.

Pennant is of opinion that the Wry-neck is a bird of passage. It generally appears a little before the cuckoo; and its note is like that of the kestrel, a quick repeated squeak. It builds in the hollows of trees, forming its nest of dry grass. It has a very singular and whimsical method of turning its neck round, and bringing its head over its shoulders; whence it has received the appellation of *Torquilla*, and in English the Wry-neck. It also possesses the faculty of erecting the feathers of its head like the jay. Its usual food consists of ants, which it dextrously transfixes with the bony and sharp end of its tongue, and then draws them up into its mouth.

This bird weighs about one ounce and a quarter; its length is seven inches; and the expansion of its wings eleven,

X.

XANTHURUS INDICUS. An appellation by which some ichthyologists express the Geel-start of the Dutch; a fish about the size and shape of the bream, having it's jaws armed with straight and very sharp teeth, which project almost directly forward. The back is yellow; the tail is very strongly tinged with the same colour; the belly is of a blueish white; the head is brown; and the fins are of a vivid red hue.

This fish is frequently caught among the rocks on the shores of the East-Indies. It's flesh is delicate, and esteemed salubrious.

XANXUS. A name given by some conchologists to a large species of shell found in great abundance near the Isle of Ceylon. It is used in medicine as an alkali and absorbent, much in the same manner as the European testaceous powders.

XATHOS. An appellation given by Appian, and other ichthyologists, to the erythrinus, or rubellio.

XIPHIAS. The classical name for the sword-fish. See **SWORD-FISH.**

XOCHITENACATL. An American name for the toucan, or great-beaked magpie.

XOCHITENACATL ALIA. An appellation given by Nieremberg to a bird resembling the toucan, or Brazilian magpie. It is about the size of a pigeon. The beak is large, thick, black, and sharp-pointed; the wings and tail are variegated with black and white; a large black stroke reaches from the back to the breast; the anterior part of the wings is yellow; the rest of the body is of a pale colour; and the legs and feet are brown.

This bird is pretty common, among the sweet-flowering trees, in many parts of South America.

XOMOTL. An American bird, of which Nieremberg gives a short and very imperfect description. He says it is a web-footed fowl; that the back and upper part of the wings are black; that the breast is brown; and that, when enraged, it erects the feathers of it's head in form of a crest.

Y.

YARWHELP. A provincial appellation for the *œgocephalus* of ornithologists. See **GODWIT.**

YAYAUHQUITOTOTL. An American bird described by Nieremberg, remarkable for having two feathers in it's tail much longer than the rest, and naked for a great way from their base, but terminating in a tuft of black and blue filiform feathers.

This bird is about the size of a starling; and beautifully variegated with green, blue, yellow, and grey.

Ray seems to be of opinion, that this corresponds with the Guaira-Guainumbi of Marcgrave.

YELLOW-HAMMER; the *Emberiza Citrinella* of Linnæus. A common English bird; called also *emberiza lutea*, *hortulanus*, *luteus*, or *chloreus*.

The bill is dusky. The crown of the head is of a pleasant pale yellow colour; in some, almost plain; in others, spotted with brown. The hind part of the neck is tinged with green; the chin and throat are yellow; the breast is marked with an orange red; the belly is yellow; the lesser coverts of the wings are green, the others dusky

edged with rust-colour; the back is of the same colours; the rump is of a dull red hue; and the quill-feathers are dusky, edged on their exterior webs with yellowish green. The tail is slightly forked: the middle feathers are brown; the two central ones are edged on both sides with green; the others on their exterior sides only; and the interior sides of the two extreme feathers are obliquely marked with white near their extremities.

This bird forms a large flat nest on the ground, near some bush or hedge; lining it with moss, dried roots, and horse-hair. It lays six white eggs, veined with dark purple; and in winter frequents our farm-yards together with other small birds.

Pennant gives this species the appellation of the yellow bunting. See **BUNTING.**

There is another variety much smaller, and of a browner colour on the back, which ornithologists have distinguished by the name of *Zivolo*.

YS. An appellation given by Athenæus, and other Greek ichthyologists, to the fish called also *mus* and *fus*. It is the *capricus* of the later naturalists. See **GOAT-FISH.**

YSARD.

YSARD. A term frequently used to denominate that animal which is more generally known by the name of the chamois.

YZQUAUHTLI. An Indian name for a bird described by Nieremberg, called also the crested eagle.

YZQUIEPATL. An American animal of the mustela kind, with a short slender nose, short ears and legs, a black body full of hair, and a long tail. The entire length is about eighteen inches.

It inhabits Mexico, and probably other parts of America; living in caves, and the hollows of rocks, where it breeds and rears its offspring. It feeds on worms, beetles, and other insects; and, when pursued, emits such a horrid stink, as is scarcely supportable by any other living creature.

Professor Kalm relates, that he was one night

in the most extreme danger of being suffocated by one of these animals, that was pursued into the house where he slept; and that it affected the cattle so sensibly, as to occasion their bellowing through excess of pain.

The stench of another of these animals, which was killed by a maid-servant in a cellar, so affected her, that she lay seriously ill for several days; and all the provisions in the place were tainted to such an extraordinary degree, that the owner was obliged to throw them away. Nevertheless, the flesh of this creature is reckoned fit for food, and not very dissimilar to that of a pig; but, if intended for use, it must be skinned as soon as possible, and the bladder carefully extracted. See **CONEPATL.**

Z.

ZAUROS. An appellation by which several of the ancient Greek ichthyologists express the fish called saurus and lacertus by the moderns; and by the Italians at Rome, tarantola.

Artedi distinguishes it by the name of the omerus, with eleven rays in the pinna ani. In the Linnæan system, it is the salmo saurus with ten rays in the pinna ani.

ZEBRA; the *Equus Zebra* of Linnæus. Whether we consider symmetry of shape, or beauty of colours, this is perhaps the most elegant of all quadrupeds. In it the figure and gracefulness of the horse are united with the nimbleness of the stag.

In the most valuable animals, the species are few and distinct; in the lower orders, they are numerous, and often blended. There are only three animals of the horse kind; the horse, which is the most stately and courageous; the ass, which is the most patient and humble; and the Zebra, which is the most beautiful, but at the same time the wildest animal in nature. Nothing indeed can surpass the delicate regularity of this creature's colour, or the lustrous smoothness of its skin: but, on the other hand, nothing can be more untractable and indocile.

The Zebra is chiefly a native of the southern regions of Africa; and whole herds of them are sometimes observed feeding in those extensive plains which lie towards the Cape of Good Hope. However, their vigilance is such, that they will suffer nothing to approach them; and their fleetness is so great, that they instantly leave every pursuer far behind.

In shape, the Zebra rather resembles the mule than the horse or the ass. It is somewhat inferior in size to the former, but larger than the latter. Its ears are not so long as those of the ass, and yet not so small as in the horse kind. Like the ass, the head is large, the back straight, the legs finely placed, and the tail tufted at the end. Like

the horse, the skin is smooth and close; and the posteriors are round and fleshy. But its most distinguishing beauty lies in the amazing regularity and elegance of its colours: in the male, they are white and brown; in the female, white and black. These colours are disposed in alternate stripes over the whole body; and with such exactitude and symmetry, that they appear as if nature had employed the rule and compass to render them perfect. The stripes, which, like so many ribbands, are laid all over the body, are narrow, parallel, and distinct from each other. It is not here as in other party-coloured animals, where the tints are blended and confused: every stripe in the Zebra is perfectly separate; and preserves its colour round the body or the limb, without any diminution. In this manner are the head, the body, the thighs, the legs, and even the tail and ears, beautifully streaked; so that, at a little distance, a person unacquainted with the properties of this animal would be apt to suppose that it was dressed out by art, and not thus admirably adorned by nature.

In the male Zebra, the head is striped with fine bands of black and white, which in a manner center in the forehead; the ears are curiously variegated with white and dusky brown; and the neck has broad stripes of the same dark brown colour running round it, with narrow white stripes between. The body is also striped across the back with broad bands, having narrower spaces of white between them, and terminating in points at the sides of the belly, which is white, except a black line pectinated on each side, reaching from between the fore-legs, along the middle of the belly, about two-thirds of its length. There is a line of separation between the trunk of the body and the hinder quarters on each side; behind which, on the rump, there is a narrow plat of stripes united together by a stripe reaching down the middle to the extremity of the tail.

In the female Zebra, the colours are different; and in none do the stripes seem exactly to correspond in form, but in all they are equally distinct; the hair is equally smooth and fine; the white is bright and unmixed, and the black or brown thick and lustrous.

So remarkable is the beauty of this animal, and so excellently do all its parts seem adapted for utility and service, that it might be supposed calculated both to satisfy the pride and pleasure of man. Hitherto, however, it appears to have disdained servitude; and neither force, stratagem, nor clemency, have been able to wean it from its native independence and ferocity. But this disposition might in time be surmounted; for it is highly probable that the horse and the ass, when first taken under the protection of man, were equally fierce, obstinate, and ungovernable.

Buffon informs us, that the Zebra from which he borrowed his description could never be entirely mastered, notwithstanding all the repeated and assiduous efforts that were made to reclaim it. A man, indeed, was sometimes able to mount it, with the assistance of two more to hold the reins: but such was its extreme fierceness, that no person could ever consider himself as safe on its back; and even the approach of any of the human species always set it on exhibiting a determined resolution of resistance or annoyance.

An animal of the same kind, in the Queen's Menagerie near Buckingham Gate, is equally untractable and vicious. Yet, as the Zebra bears such a striking resemblance to the horse, it is probably endued with some similitude of manners; and though a series of years might be requisite to render it perfectly domestic and useful, there seems no reason to doubt but it might be added to the number of the servants of man.

Where these animals are most frequent, the human inhabitants themselves appear to be but a few degrees elevated above quadrupeds. The natives of Angola and Caffraria have no other idea of advantage to be derived from horses, but as they are proper for food. Neither the fine stature of the Arabian courser, nor the delicate colourings of the Zebra, furnish any allurements to a race of people who only consider the quantity of its flesh, and not its conformation. The delicacy of the Zebra's shape, or the painted elegance of its form, are no more regarded by such, than by the lion that attacks it as his prey. Hence we may reasonably conclude, that the Zebra has hitherto continued wild, because it is the native of a country where no successive and proper efforts have been used to reclaim it. All pursuits that have hitherto been instituted against it, respect its life rather than its liberty: the animal has thus been taught to consider man as its foe, not its protector; and it is not surprizing that it refuses to yield obedience where it has so seldom experienced mercy.

All animals have a kind of instinctive knowledge of their enemies, and take every precaution to avoid them. The deer avoids the lion, and the mouse the paws of the cat. Instinct warns these and other animals of their danger; and this cause may have prevented the Zebra, with many more, from resigning their liberty, where they had every thing to dread, and nothing to hope.

However, as a civilized people have been now a considerable time in the possession of the Cape

of Good Hope, where the Zebra is chiefly found; there seems some probability that it may yet be tamed and rendered serviceable. Nor is its extraordinary beauty the only motive we have for wishing this animal among the number of our dependents: its swiftness is said to surpass that of all others; so that the speed of the Zebra is become proverbial among some nations. It also stands better on its legs than a horse; and is consequently stronger in proportion.

The Zebra, besides inhabiting Caffraria and Angola, is said by Lopez to be a native of some provinces of Barbary. In those vast forests where it resides, it has nothing to abridge its freedom; it is too cautious to be caught in traps, and therefore is seldom taken alive. It would appear, indeed, that none of these animals have been ever brought into Europe, that were caught sufficiently young to be untinged with their original and native wildness: yet, if we may credit Dapper, the Portuguese have succeeded in taming a few, which were so far brought under subjection as to draw the king's coach at Lisbon. However, of those which were sent to Brazil, not one could be tamed; they would permit but one man to approach them; they were tied up very short, and secured with all imaginable care; nevertheless, one of them got loose, and bit his groom to death.

Though the Zebra is a native of Africa alone, being unknown to the other quarters of the globe, it is fed with ease, and appears capable of existing in any climate not intensely cold. One which was exhibited in England a few years ago, would eat bread, meat, and tobacco; or, as if regardless of such delicacies, would even feed on hay.

As this animal so nearly resembles the horse and the ass in its structure, it probably brings forth annually as they do; but of this we have no certain testimony. Its voice is neither like that of the horse nor the ass, but resembles in some measure the confused barking of a mastiff dog.

Attempts have been made to produce a breed between the Zebra and the ass, but without the least effect. The Zebra either disdained, or discovered no emotion for a she-ass that was presented to him. This coldness could not be ascribed to any other cause than an unsuitableness in the natures of the two animals, or to that untamed spirit which would not permit him to propagate in confinement.

These animals are often sent as presents to the Oriental princes: and we are told that one of the governors of Batavia presented a Zebra, which had been sent him from Africa, to the Emperor of Japan, for which he received, as an equivalent, about the value of sixty thousand crowns. Teller also relates, that the Great Mogul gave two thousand ducats for one of them: and it is common enough for the African ambassadors to the Ottoman court to bring some of these beautiful creatures with them, as introductory presents to the Grand Seignior.

Buffon seems to think the fertile mule of Tartary, called Czigithai, is an animal of the same species with the Zebra; for there seems to be no difference between them but in colour; and it is well known, that the differences in the colour of the hair or feathers are extremely slight, and frequently depend on the nature of the climate. The czigithai is found in the southern parts of Siberia, in

Thibet, and in Tartary. Gorbillon remarks, that these animals are common in the country of the Mongoux and Hakas; that they differ from domestic mules; and that they cannot be trained to bear burthens. Muller and Gmelin assure us, that they are numerous in the country of the Tongusians, where they are hunted like other game; that in Siberia, towards Borsja, they are very plenty, in dry seasons: and adds, that they resemble a bright bay horse in figure, size, and colour, except that they have very long ears, and a tail like that of a cow.

If those travellers who examined the czigithai, had at the same time compared it with the Zebra, they would probably have discovered a great number of relations. In the Petersburg cabinet there are stuffed skins both of the Zebra and the czigithai; and from these it appears, that though they differ in colour, they undoubtedly belong to the same, or a very neighbouring species. Time alone can remove or confirm these conjectures: but as all the other animals of Africa are likewise found in Asia, if the Zebra and czigithai are not of the same species, the Zebra alone would be an exception to this general rule.

Besides, if the czigithai is not the same with the Zebra, it may be the Asiatic animal called Onager, or wild ass. The onager certainly should not be confounded with the Zebra; but whether the same remark is applicable to the onager and czigithai, is a circumstance that cannot now be determined. However, we are well assured, from the concurrent testimony of every traveller and naturalist, that all these animals belong to the same genus, and constitute three, if not four, branches of the same family.

ZEBU. An appellation by which Buffon expresses the dwarf ox, or *Bos Indicus* of Linnæus. See Ox.

ZERDA. A Moorish name for an animal inhabiting the Defart of Zaara extending beyond Mount Atlas. Pennant classes it under the genus of dogs: and describes it as having a pointed visage; long whiskers; large, black, bright eyes; very large ears, of a rosaceous hue, internally lined with long hairs, and the orifice so small as scarcely to be visible. The legs and feet resemble those of a dog; and the tail is taper. The colour is between a straw and a pale brown. The length of the animal, from the nose to the tail, is ten inches; the ears are three inches and a half long; the tail is six; and the height is about five.

The Zerda burrows in the sandy ground; and is so excessively swift, that it is seldom taken alive. It feeds on insects, especially locusts; sits on it's rump; is extremely vigilant; barks like the dog, but with a shriller sound, and chiefly in the night; and seems of a melancholy and reserved disposition.

Buffon has given a figure of this animal, which still is very little known; but, on the doubtful authority of Bruce, ascribes to it a different place, and different manners from those it actually possesses. This elegant, and in general well informed naturalist, says that it is found to the south of the Palus Tritonides, in Lybia; that it has something of the nature of the hare, and somewhat of the squirrel; and that it lives in palm-trees, and feeds on fruits.

ZERTA. An Italian fish, of the figure of the chub; called also by ichthyologists *capito ana-*

dromus, and the blike. It seldom exceeds two pounds in weight; and sometimes lives in rivers, and at others in the sea. It's flesh is esteemed very delicate, particularly if caught a little before spawning time.

The Zerta is that species of cyprinus which Gesner has described under the appellation of *capito anadromus*.

ZEUS. A genus of fish, of the order of thoraici: the distinguishing characters of which are; that the head is compressed and declining; the upper lip is fornicated by means of a transverse membrane; the tongue is subulated; the branchiostege membrane has seven perpendicular rays, the lowest placed transversely; and the body is compressed.

There are four species; the vomer; the gallus, or abacatuia; the faber, or doree; and the aper.

ZIBET; the *Felis Zibethus* of Gesner, and the *Le Zibet* of Buffon. A variety of the civet, first distinguished by the last mentioned naturalist; a native of Mexico, and probably introduced there from the Philippines.

This creature belongs to the genus of *mustela*. The ears are short and rounded; the nose is long and sharp; the face is pale and cinereous; the head and lower part of the neck are mixed with dirty white, brown, and black; the sides of the neck are marked with stripes of black, beginning near the ears, and terminating at the breast and shoulders; from the middle of the neck, along the ridge of the back, extends a black line, reaching some way up the tail; and on each side there are two others. The sides are spotted with ash-colour and black; the tail is barred with black and white; and the black bars are broader on the upper side than the lower. See CIVET.

ZIFIUS. An appellation by which Albertus denominates the xiphias, or sword-fish.

ZIGURELLA. A name by which some ichthyologists express the julis; a small, but very beautiful fish, common about Genoa, in some degree approaching to the nature of the turdus or wrasse.

In the Artedian system, it is a species of labrus, distinguished by the name of the palmaris labrus, with two large teeth in the upper jaw.

ZIGRACH, or **ZIDRACH.** An appellation sometimes used for the syngnathus of Artedi, more commonly called the hippocampus.

ZISEL. A name by which Buffon expresses the earless marmot; the *Mus Citellus* of Linnæus.

ZIVOLO. A name given by some ornithologists to the smaller species of yellow-hammer; so called from it's constantly reiterated note, Zi, Zi.

This bird is about the size of the common sparrow. The beak is thick and short; the breast and belly are yellowish, spotted with brown; and there are some yellow spots on the neck and sides of the male, of which the female is destitute. The head, back, wings, and tail, are of a dusky brown colour; but two of the tail-feathers on each side have a variegation of white.

The Zivolo is generally seen on the ground; and feeds on seeds, and such other fare as the rest of it's kind shew a predilection for. Indeed, it does not essentially differ from the common yellow-hammer; and therefore Ray seems to question if they are two distinct species.

ZOOLOGY. A term by which we define a discourse

discourse or treatise on animals, or living creatures. It is derived from Zoon, Animal; and Logos, Speech.

Zoology forms the most important and entertaining article in natural history; comprehending whatever relates to the conformation, figure, method of living, feeding, and propagating, of the various species of existences, and the descriptions of every kind.

This constitutes one of the three kingdoms, as they are called, of natural history; the vegetable and the mineral forming the two others. In these, however, there is this distinction made by writers: that while vegetables and minerals are jointly treated of, as all of a piece in each; the subjects of Zoology are subdivided, and made, as it were, to compose several kingdoms.

A natural division, therefore, of the subjects of Zoology, will afford six several families: the hairy quadrupeds; the birds; the amphibious animals, such as serpents, lizards, frogs, and tortoises; the fishes; the insects; and, lastly, the lowest order of animated beings, the zoophytes. See **QUADRUPEDS, BIRDS, &c.**

ZOOPHYTE. A term compounded of Zoon, Animal; and Phuton, Plant: expressing a kind of intermediate body, supposed to partake both of the nature of an animal and a vegetable.

In the Linnæan system, the Zoophytes, which constitute the fifth order of worms, are composite animals, resembling a flower, and springing from a vegetating stem. This order contains fifteen genera, nine of which are fixed; the isis, or red coral; the gorgonia, or sea fan; the alcyonium; the sponge; the flustra; the tubularia; the corallines; the sertularia; and the vorticella. Others have a locomotive power; as the hydra, or polype; the pennatula, or sea-pen; the tœnia; the volvox; the furia; and the chaos, or an assemblage of chaotic and microscopic animals.

The species under this order are one hundred and fifty-six.

Zoophytes form the last link in the chain of animated nature: they are a class of beings so confined in their powers, and so defective in their formation, that some naturalists have acknowledged themselves at a loss, whether to consider them as a superior rank of vegetables, or the humblest order of the animated tribe. Indeed, in some of them, the marks of the animal are so few, that it is difficult to give them their place in nature with precision, or to tell whether it is a plant or an insect that is the object of our consideration.

Should it be enquired what constitutes the difference between animal and vegetable life; what line bounds the two great kingdoms from each other; it would be difficult, perhaps impossible, to return an explicit answer. The power of motion cannot alone constitute this distinction; since some vegetables are possessed of motion, and many animals are totally destitute of any. The sensitive plant has obviously a greater variety of motions than the oyster or the pholas. The animal that fills the acorn-shell is immoveable, and can only close it's lid to defend itself from external injury; while the flower which is vulgarly known by the appellation of the fly-trap, seems to close on such flies as alight upon it, and attempt to rise it of it's honey. The animal, in this instance, appears to have scarcely a power of self-defence;

the vegetable not only guards it's possessions, but seizes on the plunderer that would wish to invade them.

In like manner, the modes of propagation give no superiority to the lower ranks of animals: on the contrary, vegetables are frequently brought forth more conformably to the higher ranks of the creation; and though some plants are produced by cuttings from others, yet the generality of them are propagated from seeds, laid in the womb of the earth, where they are hatched into the similitude of the parent plant or flower. But a most extensive tribe of animals have been discovered, which are propagated by cuttings; and this in so extraordinary a manner, that though the original insect be divided into a thousand parts, each, however small, shall be formed into an animal, entirely resembling that from which it was separated. In this respect, therefore, certain races of animals seem to fall beneath vegetables, by their more imperfect propagation.

Where are we then to find the distinction between them; or are the orders so intimately blended, that a discrimination is impossible? On an attentive consideration of the subject, it would seem, that all animals enjoy one faculty of which vegetables are totally deficient; which is either the actual ability, or the awkward attempt at self-preservation. However vegetables may seem possessed of this important quality, it is with them but a mechanical impulse, resembling the elevating one end of the lever when the other is depressed. The sensitive plant contracts and hangs it's leaves, indeed, when touched; but this motion in no respect contributes to it's safety: the fly-trap flower acts entirely in a similar manner; and though it seems to seize the little animal that would annoy it, in reality it's closing is only a mechanical motion, and this inclosure neither contributes to it's preservation nor defence. But it is very different with insects, even of the lowest order. The earth-worm not only contracts, but hides itself in the earth, and escapes with some degree of swiftness from it's pursuers; the polypus withdraws it's horns; and the star-fish contracts it's arms on the appearance of the most distant danger. They not only hunt for their food, but provide for their safety; and however imperfectly they may be formed, yet still they are in reality placed many degrees above the highest vegetable of the earth, and are possessed of many animal functions adapted to their sphere of action in as perfect a manner as those existences which are more elaborately formed.

But though these are certainly superior to plants, they are removed to an infinite distance from the generality of animated beings. In the class of Zoophytes we may place all those animals which may be propagated by cuttings; or, in other words, which, if divided into two or more parts, each part in time becomes a separate and perfect animal; the head shoots forth a tail; and, on the contrary, the tail produces a head. Some of these will bear dissecting only into two parts, as the earth-worm; some may be divided into more than two, and of this kind are many of the star-fish; others still may be cut into a thousand parts, each becoming a perfect animal; they may be turned inside out; they may be moulded into all manner of shapes; yet still their vivacious principle remains; still every part becomes perfect in it's kind; and, after

Z O R

after a few days existence, exhibits all the arts and industry of it's humble parent!

Zoophytes may therefore be rationally arranged according to their different degrees of perfection: and, in a general view, the whole order may be reduced to the three subsequent genera; the worms, star-fish, and the polypi. See WORMS, ASTERIAS OR STAR-FISH, POLYPI, &c.

ZORILLE. An animal of the mustela kind, a native of Peru, and other parts of South America. It's back and sides are marked with short

Z U R

stripes of black and white, the last tinged with yellow; the tail is long and bushy, partly white, and partly black; and the legs and belly are black.

This creature emits such a pestilential vapour, that no other animal can approach it: it stupifies or disgusts the fiercest beasts of prey; and maintains a superiority as despicable as singular.

ZURNAPA. An appellation by which some authors have expressed the animal more usually denominated the camelopard. See CAMELO-PARD.

ALPHABETICAL ARRANGEMENT OF ANIMALS

Delineated in the Plates accompanying this Work,

ACCORDING TO THEIR RESPECTIVE CLASSES.

I. QUADRUPEDS.

	PLATE.	FIG.
A GOUTI	I	7
Ant-Eater, Great	III	5
— Lesser	—	6
Antelope, Common	—	7
— Royal	—	8
— White-footed	—	9
Ape, Large; or, Ourang Outang	IV	2
— Pigmy	—	3
— Tufted	—	4
— Long-armed	V	1
Armadillo	IV	7
Ars	V	2
Baboon, Brown	X	1
— Large	—	2
— Long-tailed	—	3
— Wood	—	4
Babyroussa	—	5
Badger, Common	—	6
Bat, Madagascar, Great	XII	1
— Horse-shoe	—	2
— Long-eared	—	3
— New York	—	4
— Spectre	—	6
Bear, Brown	XVIII	1
— White	—	2
Beaver	—	3
Bison, American	XIV	4
Boar, Wild	XXI	1
Buffalo, Indian, Little	XX	1
— Musk	—	2
Bull, Highland	XVII	1
Camel, Arabian	XXVIII	4
— Baetrian	—	5
Cavy, Patagonian	XXX	6
Cayopolin	—	7
Civet	—	8
Cougar	XXXVIII	1
Deer, Moose, Female	XXXVII	7
— Rein	—	8
Dromedary	XLI	7
Elephant	XLV	3
Ermine	—	4
Glutton	LI	8
Goat, Common	LIII	1
— Syrian	—	2
Hare, Alpine	LV	2
— Varying	—	3
Hedge-hog	LVII	3
Hyæna	—	9
Ichneumon, Indian	LXVI	1
Ifatis	—	3
Jerboa, Egyptian	—	8
Leopard, Hunting	LXIII	3
Lion	—	8
Lynx, Bay	LXIV	7
— Persian	—	8
Marmot, Maryland	LXIX	2
— Quebec	—	3
Marten	—	4
Maucauco, Black, or Ruffed	LXVII	1
— Ring-tailed	—	2
— Woolly	—	3
— Flying	LXIX	5
— Tail-less	—	6
Monkey, Negro	LXV	1
— Green	—	2
— Lesser, Cagui	—	3
— Timid	—	4
— Great-eared	LXVII	4
— Little Lion	—	5
— Full-bottomed	LXX	1
— Long-nosed	—	2
— Purple-faced	—	3
— Silky	—	4
— Tawny	—	5
Moufflon	LXXI	1
Musk	—	6
— Indian	—	7
Opossum	LXXIV	3
Otter	—	6
Puca	LXXIX	1
Panther, Male	—	2
Pecary	LXXXIV	1
Polecat	—	3
Porcupine	—	4
— Brazilian	—	5
Rhinoceros	LXXX	5
Roebuck	LXXXII	2
Sheep, African	LXXXVIII	2
— Many-horned	—	3
Seyah Ghush	—	5
Sloth	LXXXIX	2
Squirrel, Barbary	XCIII	2
— Flying	—	3
— Hudon's Bay	—	4
— Varied	—	5

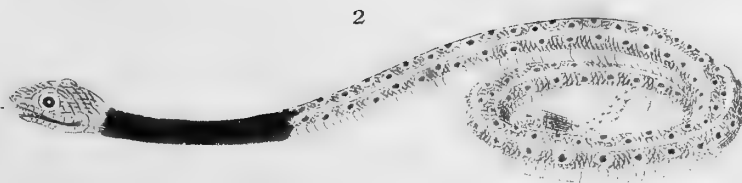
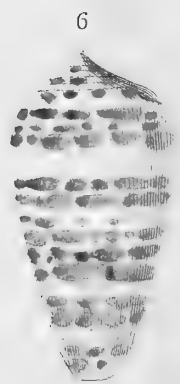
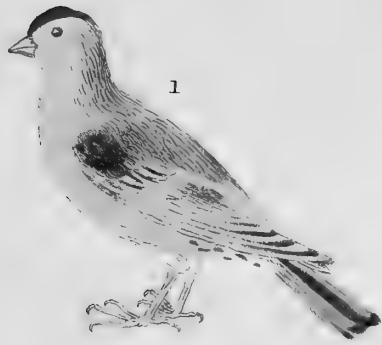
II. BIRDS.

	PLATE.	FIG.		PLATE.	FIG.
Squirrel, White-nosed	XCII	6	Demoiselle of Numidia	XLII	1
Weasel, Brazilian	C	1	Diver, Northern	—	4
Wolverene	—	2	— Purple-throated	—	5
Zebra	—	5	— Red-throated	—	6
Zerda	—	6	Dobchick, Black and White	—	7
			— North American, Horned	—	8
Aberdavine	I	1	Dodo	XLI	1
Albatross	—	8	Dotterel	—	4
Amadavade	II	2	Dove, Brown Indian	XXXV	1
Anhima	III	1	— Green	—	2
Anhinga	—	2	— Green-winged	—	3
Atragen	V	4	— Long-tailed	—	4
Avofet	—	5	— Transverse Striped	—	5
Auk, Common, or Razor-bill	—	6	— Violet, Red-headed	—	6
— Great	—	7	Duck, Great Black	XXXIX	1
— Little	—	8	— Grey-headed	—	2
Balearic Crane	XI	3	— Eider	—	3
Barbet, Red-crowned	—	6	— Ferruginous	—	4
— Yellow-checked	—	7	— Little Black and White	—	5
Bee-Eater, Indian	XVIII	4	— Little Brown and White	—	6
Bird of Paradise, Greater	XIII	1	— Dusky and Spotted	XL	2
— Green	—	2	— Summer, of Carolina	—	3
— Golden	—	3	— Red-billed, or Whistling	—	4
— King, of Edwards	—	4	— Velvet	—	5
— Magnificent	—	5	Ducker, or Loon	—	6
— Pyed	—	6	Eagle, Black-backed	XLIV	1
— Golden-throated	XIV	1	— Cinereous	—	2
— King, of Sonnerat	—	2	— Crowned	—	3
— Violet-throated	—	3	— Ring-tailed	—	4
Bittern	—	5	— Common	XLV	1
— Brazilian	XXVI	1	Egret	—	2
— Little Brown	—	2	Falcon, Gentle	XLVI	1
— North American	—	3	— Gyr	—	2
Blackbird, Cock	XXIV	1	— Spotted	—	3
— Red-breasted	—	2	— Peregrine	—	4
Blackcap, Ceylonese	—	3	Finch, Red and Blue, Brazilian	—	6
Blue Bird, Red-bellied	—	10	— Long tailed	—	7
Boat Bill	XXI	2	— Painted	—	8
Banana Bird	—	3	Fly-Catcher, Golden-winged	XLIII	1
Booby, New Guinea	—	4	— Green, Indian	—	2
— Papou	—	5	— Green, Black-throated	—	3
— White-collared	—	6	— Green, Blue-headed	—	4
Bullfinch, Greater	XVII	3	— Little, Blue-grey	—	5
— Little Brown	—	4	— Olive-coloured	—	6
— North American	—	5	— Yellow-breasted	—	7
Bunting, Green-headed	XVI	1	— Yellow-tailed	—	8
— Snow	—	2	— Yellow-vented	—	9
Bustard, Arabian	XV	1	Gallinule, Common	LI	1
— Common	—	2	Gambet	—	2
— Indian	—	3	Gannet	—	3
— Little	—	4	Garganey	—	4
Butcher Bird, Black and White	XVI	3	Goatfucker	LIII	3
— Indian Fork-tailed	—	4	— Lesser	—	4
— Least	—	5	Godwit, Cinereous	XLVII	1
— Red-crested	—	6	— Great American	—	2
Buzzard, Ash-coloured	XX	3	— Red	—	3
— Common	—	4	— Red-breasted	—	4
— Moor	—	5	Goiaver	—	5
Calandra	XXVIII	2	Goldfinch	XLVIII	1
Calao	—	3	— Green	XLVII	6
Cardinal, Crested	XXX	1	Goose, Blue-winged	XLVIII	2
— Dominican	—	2	— White-fronted	—	3
Cassowary	—	4	— White-winged, Antarctic	XLIX	5
Chaffinch	XXXI	2	— Canada	—	6
Chatterer, of Carolina	—	4	Goosander, Common	—	3
Cockatoo, Great Black	XXIX	1	— Red-breasted	—	4
— Greater	—	2	Gowry-Bird	XLVIII	4
— White, Red-vented	—	3	Grebe, Eared	—	6
— White, Yellow-vented	—	4	Greenfinch, Red-headed	XLVII	7
Coot	XXXVIII	2	— Indian	XLVIII	7
Crake	—	9	Grenadier	L	1
Crane, Balearic	XXXII	1	Grosbeak, Common	—	2
— Brown and Ash-coloured	—	2	— Blue	—	3
— Common	—	3	— Malacca	—	4
— Hooping	—	4	— Pine	—	5
Creepers, Black and Blue	XXXIII	1	Grouse, Black	—	6
— Black and Red, Indian	—	2	— Long-tailed	—	7
— Black and Yellow	—	3	— Pin-tailed	—	8
— Blue	—	4	— Wood	—	9
— Green	—	5	Guillemot, Spotted	LII	3
— Luçon	—	6	Guira Guacuberaba	—	4
— New Zealand	—	7	Gull, Common	—	1
— Purple, Indian	—	8	— Winter	—	2
Crossbill, Lesser	XXXVI	1	Hawk, Indian, Black and Orange	LV	4
Cuckoo, Great Spotted	XXXIV	1	— Marsh	—	5
— Green	—	2	— Ring-tailed	—	6
— Indian Black	—	3	Heathcock, Black and Spotted	LVI	1
— Indian, Brown and Spotted	—	4	— Ruffed	—	2
— Lark heeled	—	5	Heron, Common	—	5
— Little	—	6	— North American, Ash-coloured	—	6
Curlew	XXXVI	3	Hoopoe	—	7
— Speckled	—	4	Humming Bird, Crested	LIV	1
Curucui, Spotted	—	5	— Green, Black-bellied	—	2
Cushew Bird	—	6	— Little Brown	—	3
Daw, Black and Yellow	XXXVII	2	— Long-tailed, Black-cap	—	4
— Blue and Green	—	3	— Long-tailed, Green	—	5
— Surinam	—	4	— Red, Long-tailed	—	6

Humming-

ALPHABETICAL ARRANGEMENT OF ANIMALS DELINEATED.

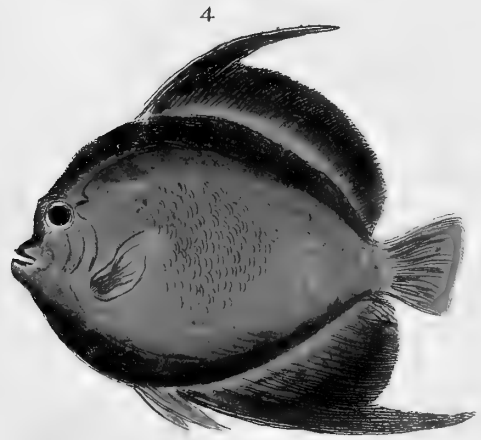
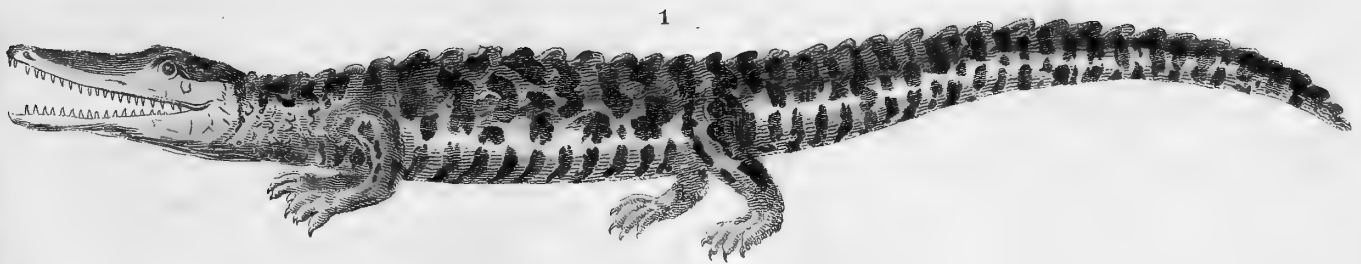
Humming-Bird, Red-throated	LIV	7	Redstart, Blue-throated	LXXX	2	IV. REPTILES, AND AMPHIBIOUS ANIMALS.	
— Ruby-crested	—	8	— Grey	—	3	Acontias	I 2
— White-bellied	—	9	— Indian	—	4	Alligator	II 1
Jacamacari	LXVI	5	Rice Bird	LXXXII	1	Blind-Worm	XXIV 12
Jacarini	—	4	Roller	—	3	Lizard, Great, Spotted	LXII 1
Jay, Blue	—	6	Ruff	—	5	— Brown	— 2
— Blue, East Indian	—	7	Sanderling	LXXXVI	2	— Large, Green and Spotted	— 3
Icterus, Black-headed	LXVI	2	Sandpiper, Red	—	3	— Scaly	— 4
Kingfisher, Black and White	LXI	1	— Red, Scollop-toed	LXXXV	1	— Thorny-tailed Indian	— 5
— Crested	—	2	Schomburger	—	6	— Warty	— 6
— Great	—	3	Secretary	—	5	Seal	LXXXV 3
— of Luçon	—	4	Serpent-Eater	LXXXVII	1	— Harp	— 4
— Little Green and Orange	—	5	Shag	—	2	Snake, Ringed	LXXXIX 4
— Spotted	—	6	Shirley	LXXXVIII	4	Viper	XCIX 7
— Surinam	—	7	Snipe	LXXXIX	5	V. INSECTS.	
— White-collared	—	8	Snow-Bird	—	6	Admirable	I 3
Lanner	LXIII	1	Sparrow, Chinese	XCI	1	— White	— 4
Lark, Red	—	2	— Common	—	2	Angle Shades	II 6
Linnet, Angola	—	4	— White-breasted, Indian	—	3	Ant, Common	III 3
— Black	—	5	— Yellow-tailed, Indian	—	4	— Neutral	— 4
— Olive-coloured	—	6	— Little	—	5	Ant-Eater Fly	IV 1
— Yellow-headed	—	7	— of Paradise	—	6	Asterias Lizard	— 8
Lory, Black-capped	LXII	2	— Solitary	—	7	— Ten-rayed	— 9
— Red-breasted	—	3	— Tree	—	8	Bees	XVIII 5
— Scarlet	—	4	Spoonbill	XCIII	1	Beetle, Elephant	XCIV 1
— Long-tailed, Scarlet	—	5	Starling, Black and White Indian	XC	1	— Stag	— 2
Macaw, Blue and Red	LXVIII	1	— Common	—	2	— Brafs	— 3
— Blue and Yellow	—	2	— Silky	—	3	— Green Tortoise	— 4
Man of War Bird	—	3	— Yellow Indian	—	4	— Shield	— 5
Manakin, Blue-backed	—	4	Swallow	XCH	1	— Seven-spotted Lady-cow	— 6
— Purple-breasted	—	5	Swan	—	2	— Two-spotted Lady-cow	— 7
— White-faced	—	6	— Wild	—	3	— Four-spotted Lady-cow	— 8
Minor, Greater	LXIX	7	Swift	—	4	— Capricorn	— 9
— Lesser	—	8	Teal, Chinese	XCIX	1	— Unicorn	— 11
Nightingale, American	LXXIV	1	Thrush, Golden	—	2	— Donr, or Chafer	— 12
Nutcracker	—	2	Timoufe, Golden	—	3	Butterflies XIX, XXIII, XXV, XXVII	
Oriole, Yellow-shouldered	—	4	Toucan, Red-beaked	—	5	Centipee	XXXI 1
Ostrich, Black	—	5	Vultures, King of	XCVIII	1	Chinch, Straw-coloured	— 5
Ouzel, Rose-coloured	—	7	— Crested, Black	—	2	— Tawny	— 6
Owl, Brown	LXXII	1	Wagtail, Grey	—	3	Day-Fly, Rock	XXXVII 5
— of Athens	—	2	Wall-Creeper	—	4	— White-winged	— 6
— Ceylonefe	—	3	Water-Hen, Purple	—	5	Dragon-Fly	XLI 5
— Great White	—	4	— Spur-winged	—	6	Moths	LVI, LVIII, LIX, LX
— Little	—	5	Woodpecker, Spotted Indian	C	3	Savage, Comb-footed	LXXXVI 4
— Little Hawk	—	6	— Yellow Spotted	—	4	— Turner	— 5
— Long-eared	—	7	III. FISHES.			Saw-Fly, Mottled	— 6
— Short-eared	—	8	Anchovy	II	3	— Mourning	— 7
Parroquet, Little Green and Red	VII	1	Angel-Fish	—	4	VI. CRUSTACEOUS AND TESTACEOUS ANIMALS.	
— Long-tailed	—	2	Angler, Common	—	5	Admiral	XCVI 6
— Lory	—	3	Argentine	IV	6	— Grand	I 5
— Red and Blue-headed	—	4	Atherine	V	3	— Rear	— 6
— Ring, Rose-headed	—	5	Balance-Fish	XI	1	Alphabet	XCVI 7
— Yellow-faced	—	6	Ballan	—	4	Anomia	II 7
— Blue winged	VIII	1	Barbel	—	5	Balanus	XI 2
— Brown-throated	—	2	Basse	—	8	Bivalves	XXVI 4
— Golden-crowned	—	3	Bat, Sea	XII	5	Buccina, or Whelks	XXII
— Little Green and Blue	—	4	Bib	XVIII	6	Bullæ	LVII 2
— East Indian	—	5	Bleak	XXIV	4	Chama, or Gaper	XCIV 9
— Smallest Red and Green	—	6	Blenny, Crested	—	5	Crab, Horned	XXXVIII 3
— Golden-winged	LXXV	1	— Gattorugine	—	6	— Indian Land	— 4
— Little Red-headed	—	2	— Smooth	—	7	— Indian Sea	— 5
— Ring	—	3	— Spotted	—	8	— Long-clawed	— 6
— Sapphire Crowned	—	4	— Viviparous	—	9	— Slender-legged	— 7
Parrot, Ash-coloured and Red	VI	1	Bream	—	11	— Spider	— 8
— Brazilian Green	—	2	Bull-Head	XVII	6	Cockle-Heart	XCIV 3
— Great Green	—	3	— Armed	—	7	— Multarticulate	— 4
— Lesser Green	—	4	Cachalot, Blunt-headed	XXVIII	1	— Truncated	— 5
— White-breasted	—	5	Carp	XXX	3	Cuttle-Fish	XXXVI 7
— White-headed	—	6	Cat-Fish	—	5	Cyprea	— 8
— Blue-breasted	IX	1	Charr	XXXI	3	Ducal Mantle	XL 1
— Blue-headed	—	2	Chub	—	7	Ear-Shell	XCVII 4
— Dusky	—	3	Coal-Fish	—	8	— White	— 5
— Little Dusky	—	4	Dab-Smear	XXXVII	1	Helmet-Shell	LVII 4
— Hawk-headed	—	5	Diodon, Globe	XLII	2	Limpet, Chambered	XCVII 6
— Little Green	—	6	— Short	—	3	— Goat's-Eye	— 7
— Black	LXXV	5	Dog-Fish	XLI	2	— Common	— 8
— Blue-faced Green	—	6	Doree	—	3	— Masked	— 9
Partridge, Mountain, of Jamaica	LXXIX	3	Dragonet	—	4	Lituus	XCVI 3
— Red-legged	—	4	Fatherlasher	XLVI	5	Melon	— 8
— White	—	5	Gattorugine	LI	5	Mouth-Shell	— 11
Peacock, Wild, of Sonnerat	LXXXVI	1	Gilthead, Lunulated	—	6	Murex Rhombi	LXXI 3
Pelican, African	LXXXIII	1	— Toothed	—	7	— Rock	— 4
— American	—	2	Goby, Black	LIII	5	— Winged	— 5
Penguin, Black-footed	—	3	— Spotted	—	6	Nautilus, Pearly	XCVI 2
— Northern	—	4	Gold-Fish	XLIX	8	Nerite, Magpye	XCVII 3
Petrel, Spotted	—	5	Goldfinny	—	2	Orthoceros	XCVI 4
— Manks	—	6	Grayling	XLVIII	5	Oyster, Pearly	XCIV 6
Phalarope, Red	LXXXVI	2	Gurnard, Grey	LII	5	— Hinge	— 8
Pheasant, Black and White Chinese	—	3	— Sapphirine	—	6	— Common	— 10
— Painted Chinese	—	4	— Streaked	—	7	— Pelucid	— 11
— Peacock	—	5	Gefiniad	—	8	Pholas, a Multivalve	XCVII 1
Pigeon, Great Crowned, Indian	LXXVIII	1	Hake, Forked	LV	1	Snail, Long-tubanded	XCIV 12
— Grey, of Luçon	—	2	Horned Fish	LVII	8	— Ram's-Horn	XCVII 1
— Pompadour	—	3	Launce	LXIV	1	— Short-tubanded	— 2
— Purple	—	4	Mango-Fish	LXIX	1	Solen, or Razor Shell	XCIV 1
— Triangular, Spotted	—	5	Mullet	LXXI	2	Spondyle	— 7
— of Nicobar	—	6	Perch	LXXXIV	2	Tellen	— 2
Plover, Black-breasted, Indian	LXXXIII	3	Pike	LXXXIII	1	Tiger, Yellow	XCVI 5
— Spotted American	—	4	Pilchard	—	2	Tooth-Shell, Green	XCVII 11
Pye, Crested, Long-tailed	LXXVII	1	Pipe-Fish	—	5	— Brown	— 12
— Green, of Ceylon	—	2	Rud	LXXXII	4	Tortoise, African	XCIX 4
— Grey of Brazil	—	3	Salmon	LXXXVI	1	Tun, Knobbed	XCVI 10
— Short-tailed	—	4	Scad	LXXXV	2	Turtle, Edible	XCIX 6
— Yellow-winged	—	5	Shark, Beaumaris	LXXXVII	3	Watering Pot Shell	XCVII 13
Rail, of Loten	LXXXI	1	— Long-tailed	—	4	Weaver's Shuttle	XCVI 13
Red Bird, Summer	—	2	— Smooth	—	5	Whelk, Beaked	— 9
— of Surinam	—	3	— Spotted	LXXXVIII	1	Worm Tubes	XCVII 10
Redbreast, Blue	—	4	Skate	LXXXIX	1		
Redpole	—	5	Smelt	—	3		
— Yellow	—	6	Surmullet	XC	5		
Redstart, American	LXXX	1	Sword-Fish	XCI	5		



1. ABERDAVINE. 2. ACONTIAS. 3. ADMIRABLE. 4. WHITE ADMIRABLE. 5. GRAND ADMIRAL.

6. REAR ADMIRAL. 7. AGOUTI. 8. ALBATROSS.

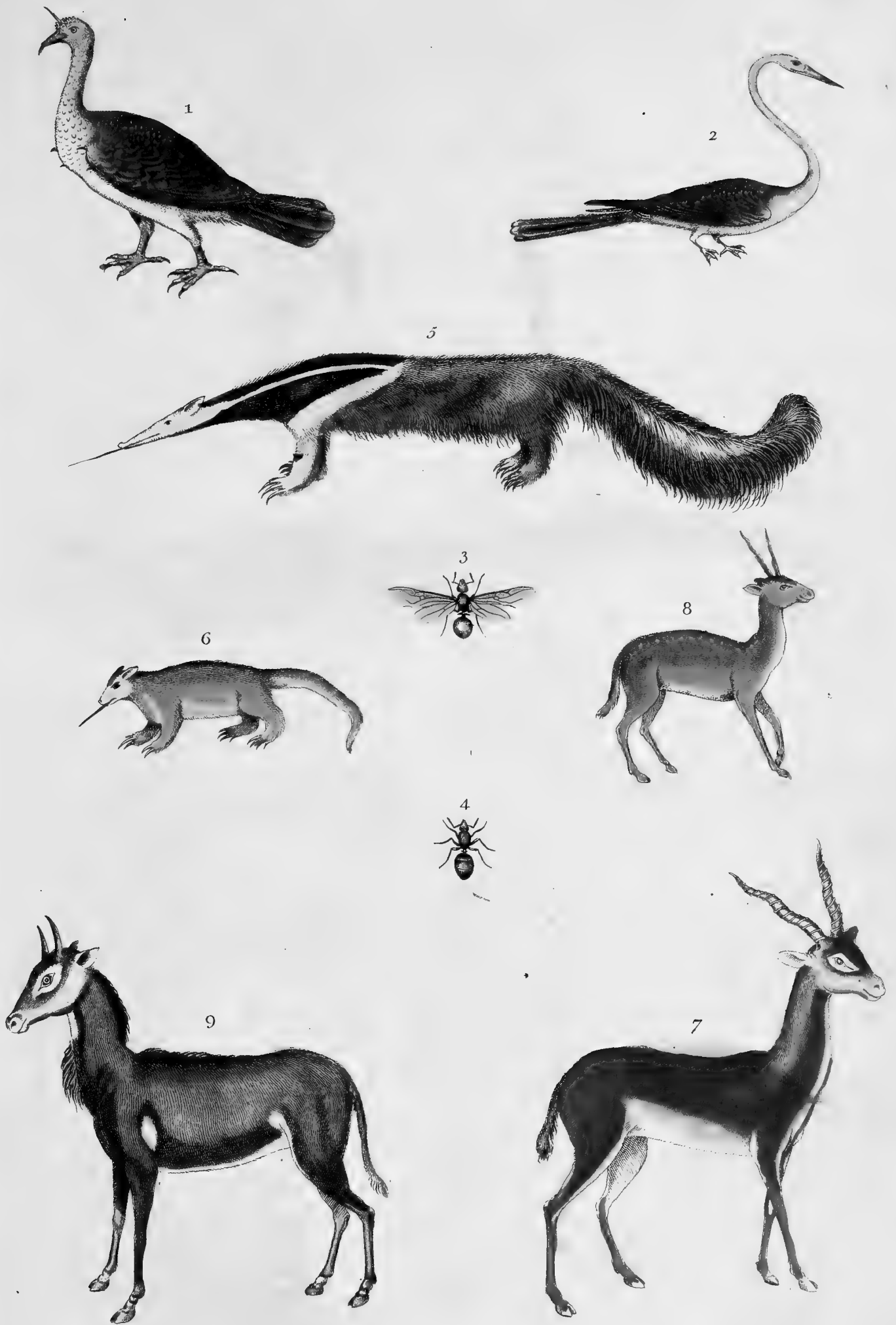




1. ALLIGATOR. 2. AMADAVADE. 3. ANCHOVY. 4. ANGEL FISH. 5. COMMON ANGLER.

6. ANGLE SHADES. 7. ANOMIA.





1. ANHIMA. 2. ANHINGA. 3. COMMON ANT. 4. NEUTRAL ANT. 5. GREAT ANT-EATER. 6. LESSER ANT-EATER.

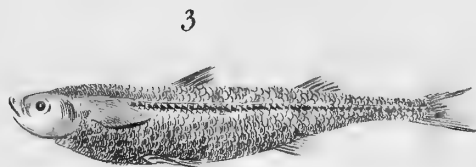
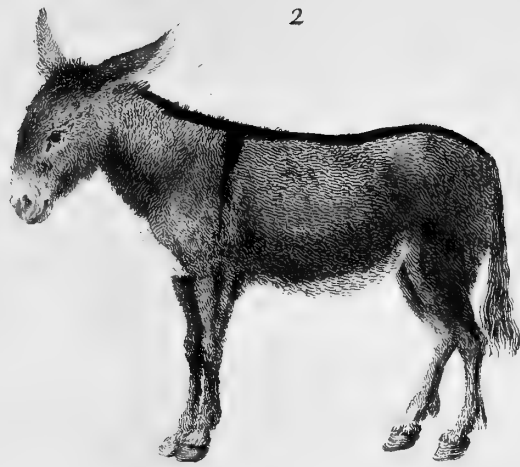
7. COMMON ANTELOPE. 8. ROYAL ANTELOPE. 9. WHITE-FOOTED ANTELOPE.





1. ANT-EATER FLY. 2. LARGE APE, OR OURANG OUTANG. 3. FIGMY APE. 4. TUFTED APE. 5. ARCTIC BIRD.
 6. ARGENTINE. 7. ARMADILLO. 8. LIZARD AST. 9. TEN-RAYED AST.





1. LONG-ARMED APE. 2. COMMON ASS. 3. ATHERINE. 4. ATTAGEN. 5. AVOSET.

6. COMMON AUK, or RAZOR BILL. 7. GREAT AUK. 8. LITTLE AUK.



5



2



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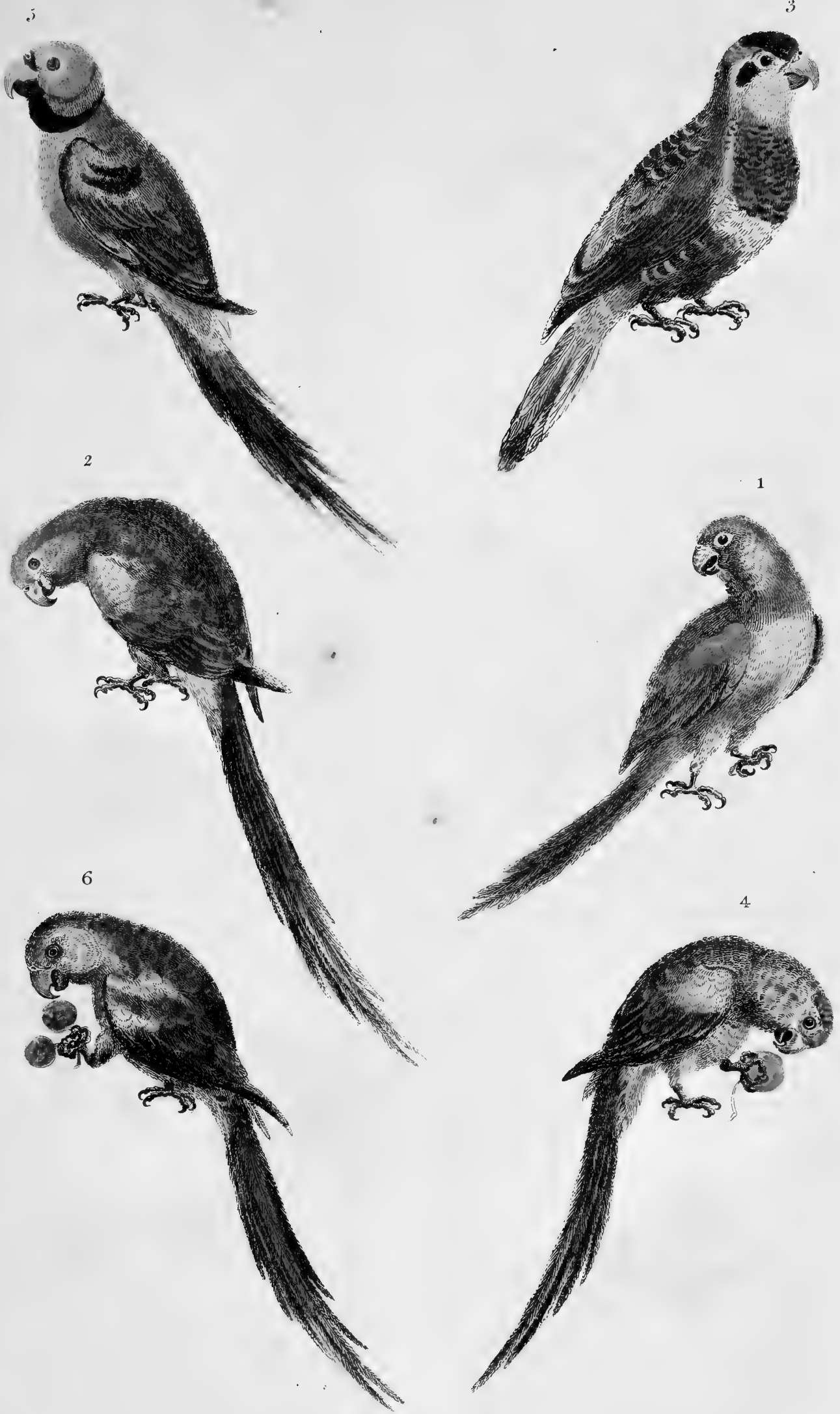
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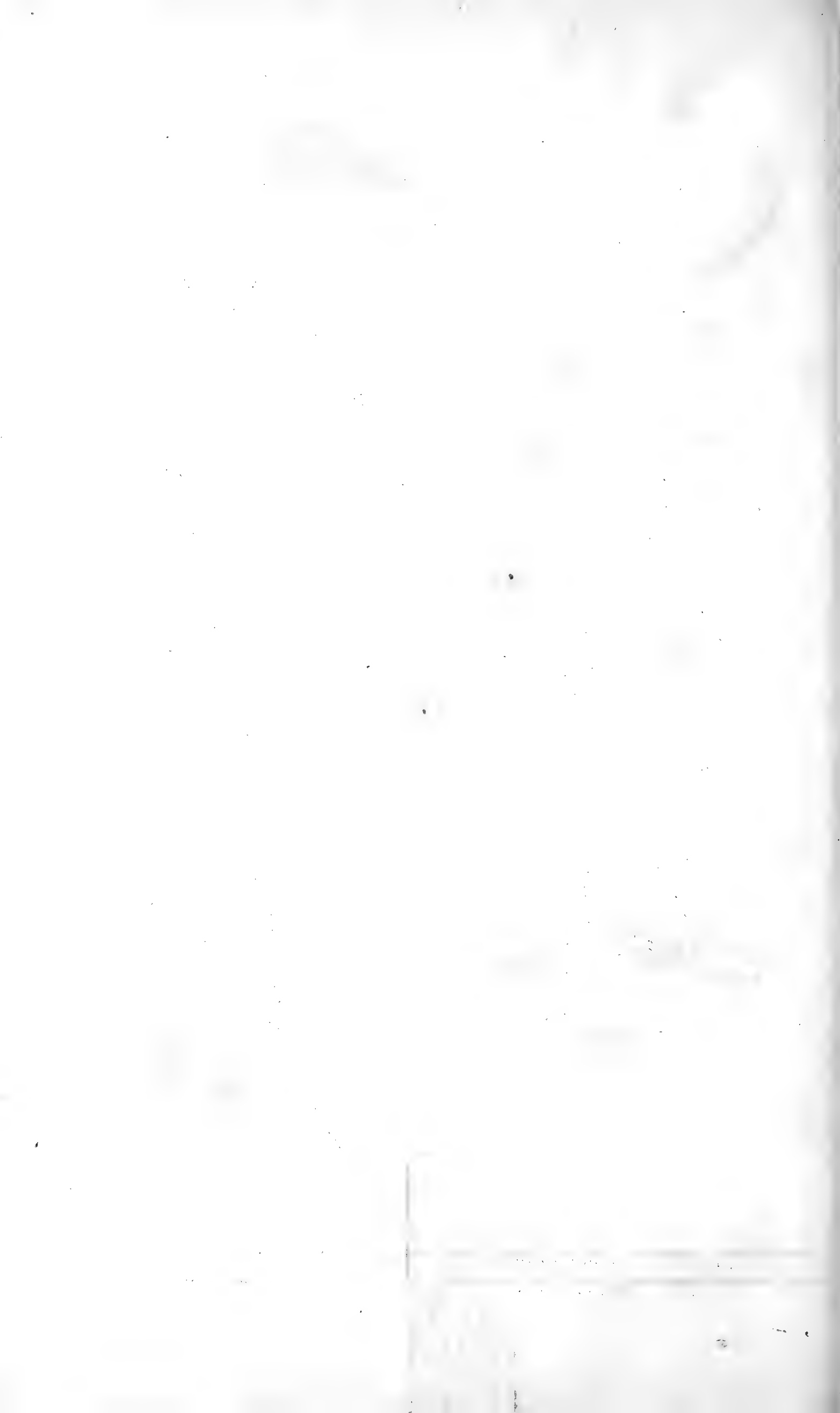
1. ASH-COLOURED and RED PARROT. 2. BRAZILIAN GREEN PARROT. 3. GREAT GREEN PARROT.

4. LESSER GREEN PARROT. 5. WHITE-BREASTED PARROT. 6. WHITE-HEADED PARROT.





1. LITTLE GREEN AND RED LONG-TAILED PARROQUET. 2. LONG-TAILED PARROQUET. 3. LORY PARROQUET.
4. RED AND BLUE-HEADED PARROQUET 5. ROSE-HEADED RING PARROQUET. 6. YELLOW-FACED PARROQUET.





1 BLUE-WINGED PARROQUET. 2. BROWN-THROATED PARROQUET. 3. GOLDEN-CROWNED PARROQUET. 4. LITTLE GREEN AND BLUE PARROQUET. 5. PARROQUET FROM THE EAST-INDIES. 6 SMALLEST RED AND GREEN PARROQUET.



6



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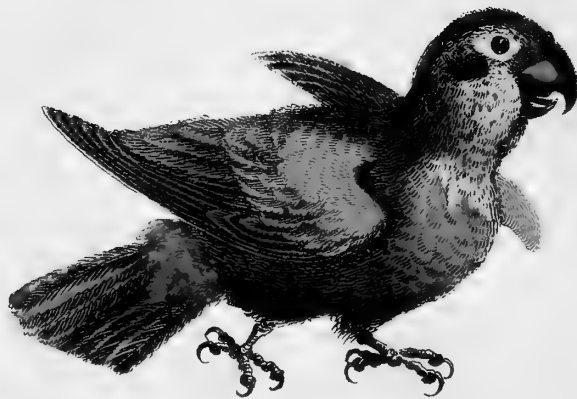
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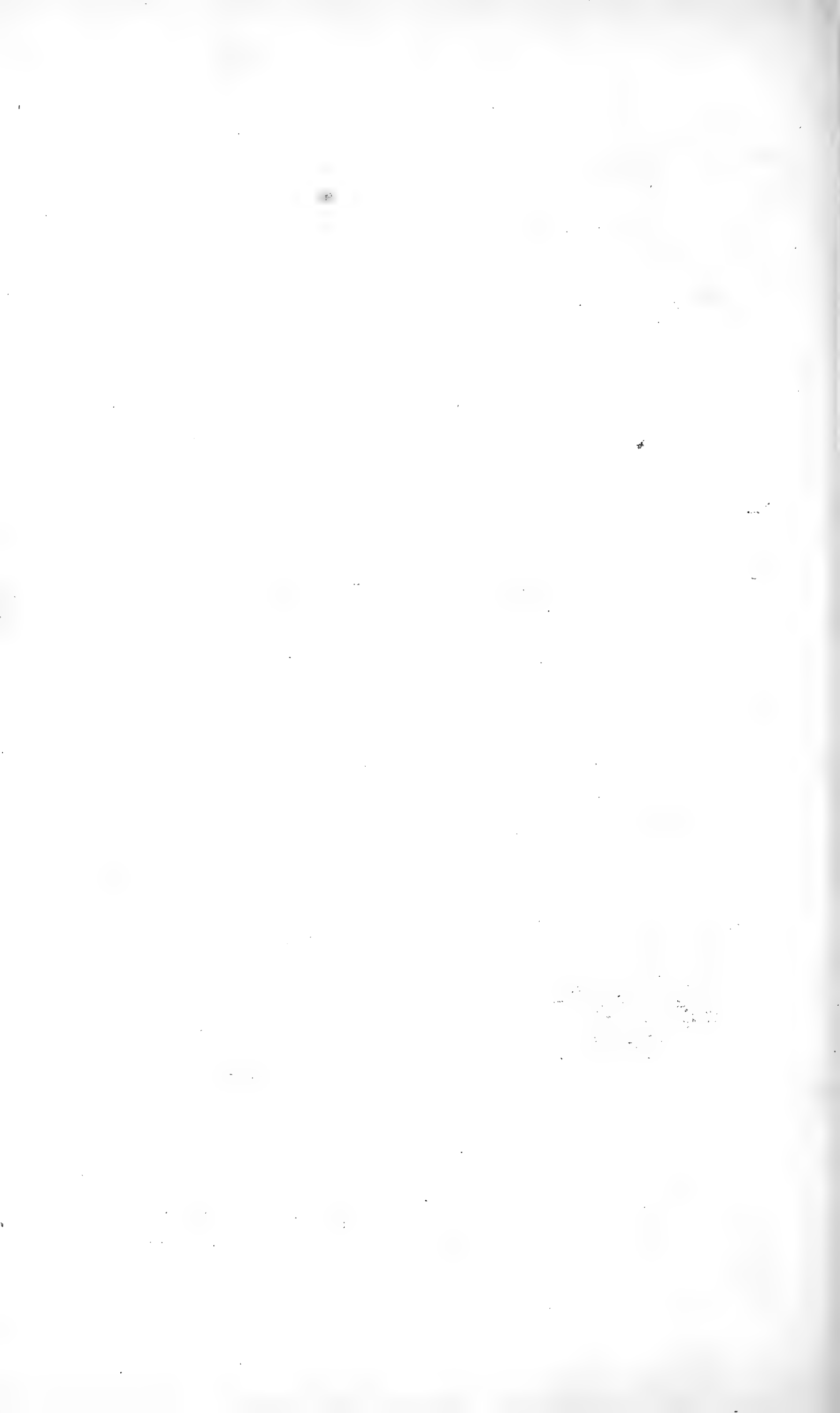
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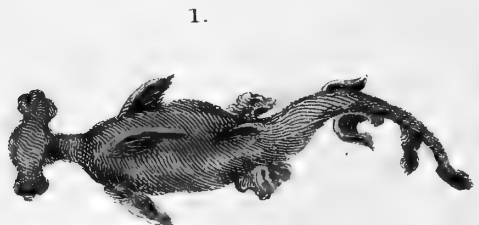
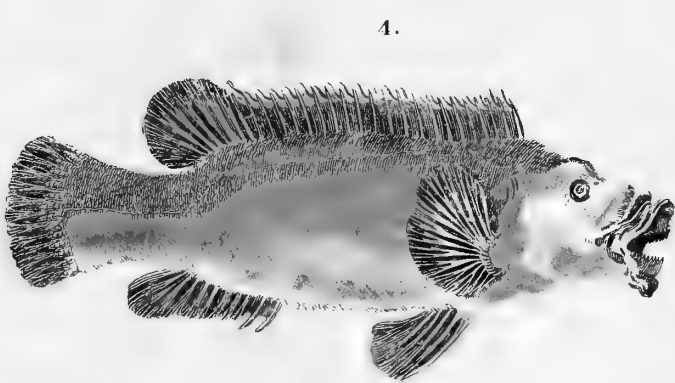
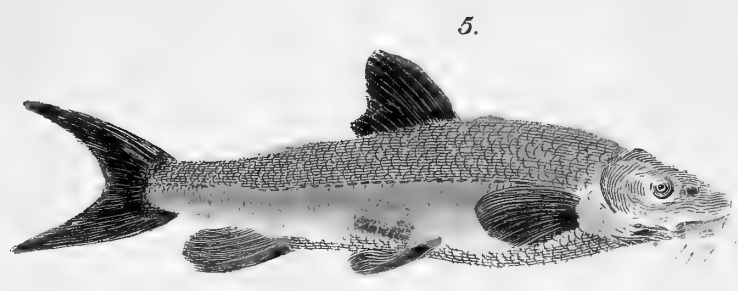


1. BLUE-BREASTED PARROT. 2. BLUE-HEADED PARROT. 3. DUSKY PARROT.
 4. LITTLE DUSKY PARROT. 5. HAWK-HEADED PARROT. 6. LITTLE GREEN PARROT.





1. BROWN BABOON. 2. LARGE BABOON. 3. LION-TAILED BABOON. 4. WOOD BABOON.
5. BABYROUSSA. 6. COMMON BADGER.



1. BALANCE-FISH. 2. BALANUS. 3. BALEARIC CRANE. 4. BALLAN. 5. BARBEL.
6. BARBET, RED-CROWNED. 7. BARBET, YELLOW-CHEEKED. 8. BASSE.



4.



2.



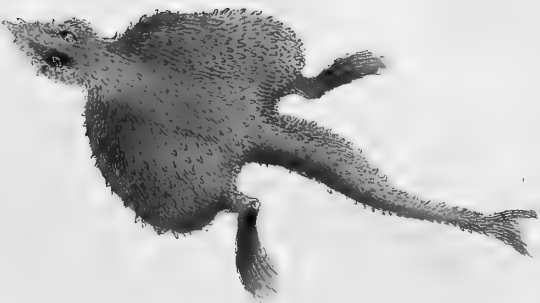
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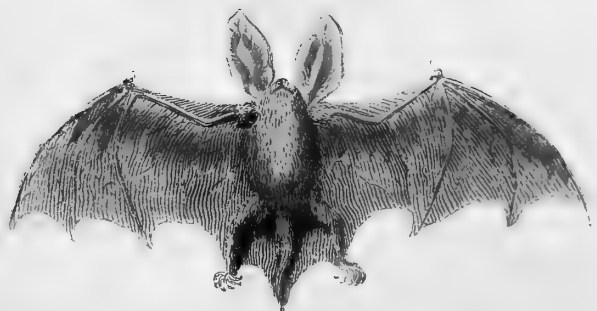
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3.



1. GREAT-MADAGASCAR BAT. 2. HORSE-SHOE BAT. 3. LONG-EARED BAT. 4. NEW-YORK BAT.

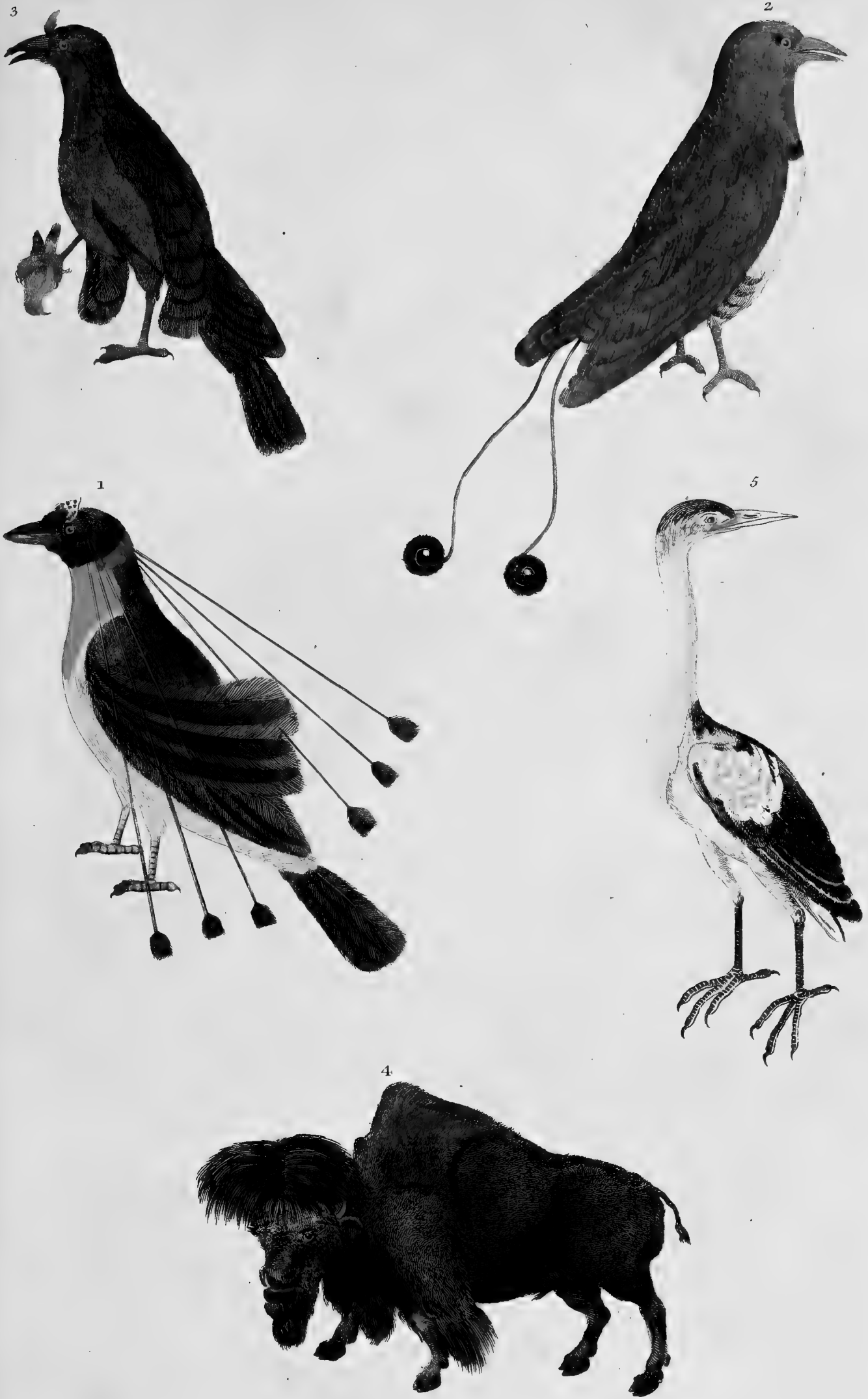
5. SEA BAT 6. SPECTRE BAT.





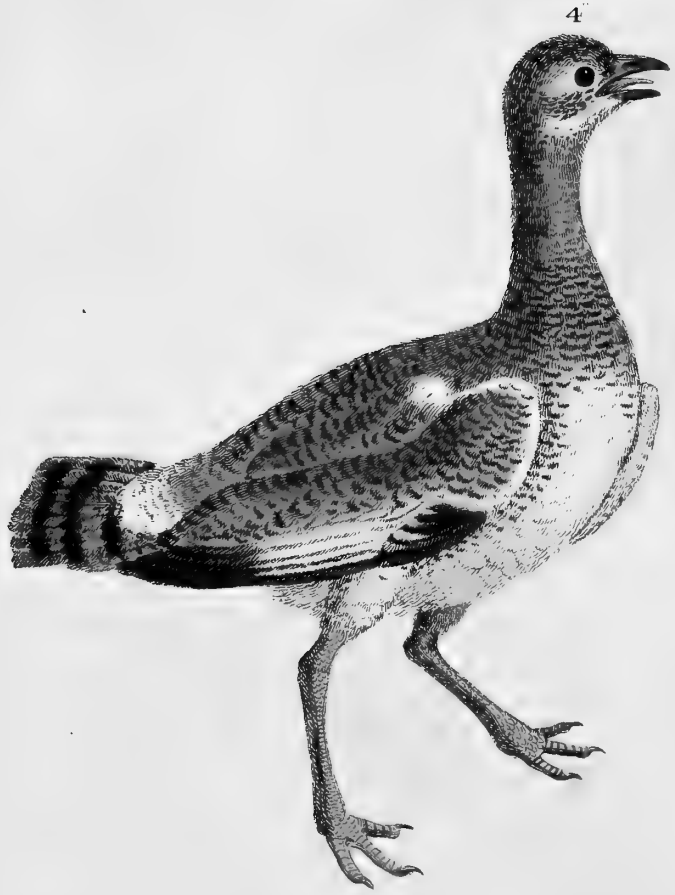
1. GREATER BIRD OF PARADISE. 2. GREEN BIRD OF PARADISE. 3. GOLDEN BIRD OF PARADISE.
 4. KING BIRD OF PARADISE OF EDWARDS.
 5. MAGNIFICENT BIRD OF PARADISE. 6. PYED BIRD OF PARADISE.





1. GOLDEN-THROATED BIRD OF PARADISE. 2. KING BIRD OF PARADISE OF SONNERAT.
 3. VIOLET-THROATED BIRD OF PARADISE. 4. AMERICAN BISON. 5. SMALL BITTERN.



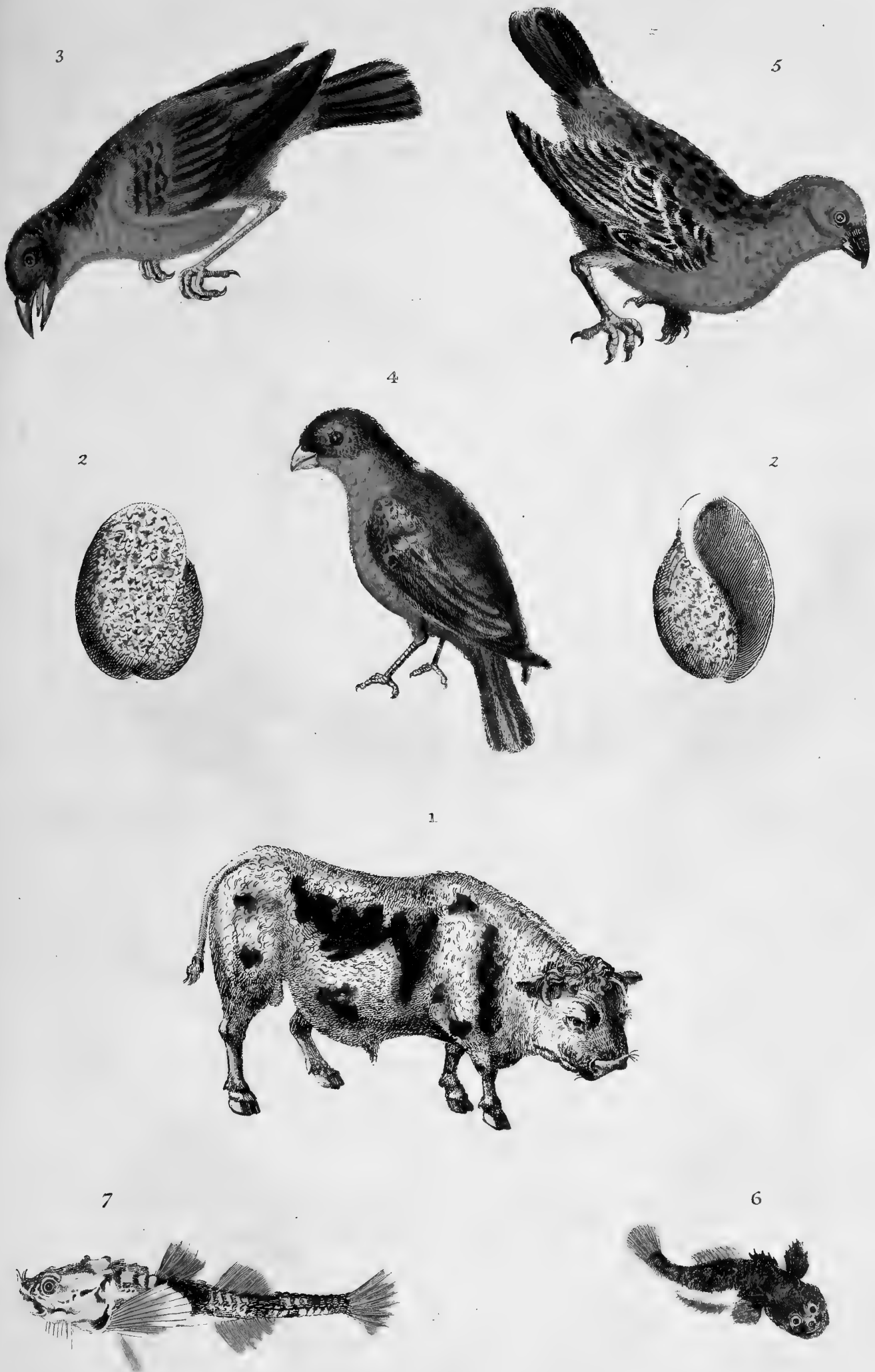


1. ARABIAN BUSTARD. 2. COMMON BUSTARD.
3. INDIAN BUSTARD. 4. LITTLE BUSTARD.



1. GREEN-HEADED BUNTING. 2. SNOW BUNTING. 3. BLACK AND WHITE BUTCHER-BIRD. 4. INDIAN FORK-TAILED BUTCHER-BIRD. 5. LEAST BUTCHER-BIRD. 6. RED-CRESTED BUTCHER-BIRD.





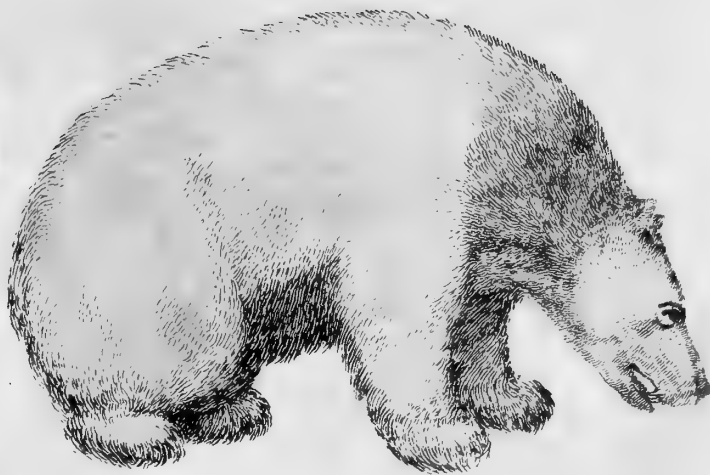
1. HIGHLAND BULL. 2. BULLÆ. 3. GREATER BULL-FINCH.
 4. LITTLE BROWN BULL-FINCH. 5. NORTH AMERICAN BULL-FINCH.
 6. BULL-HEAD. 7. ARMED BULL-HEAD.



1



2



4



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5



5



5



3

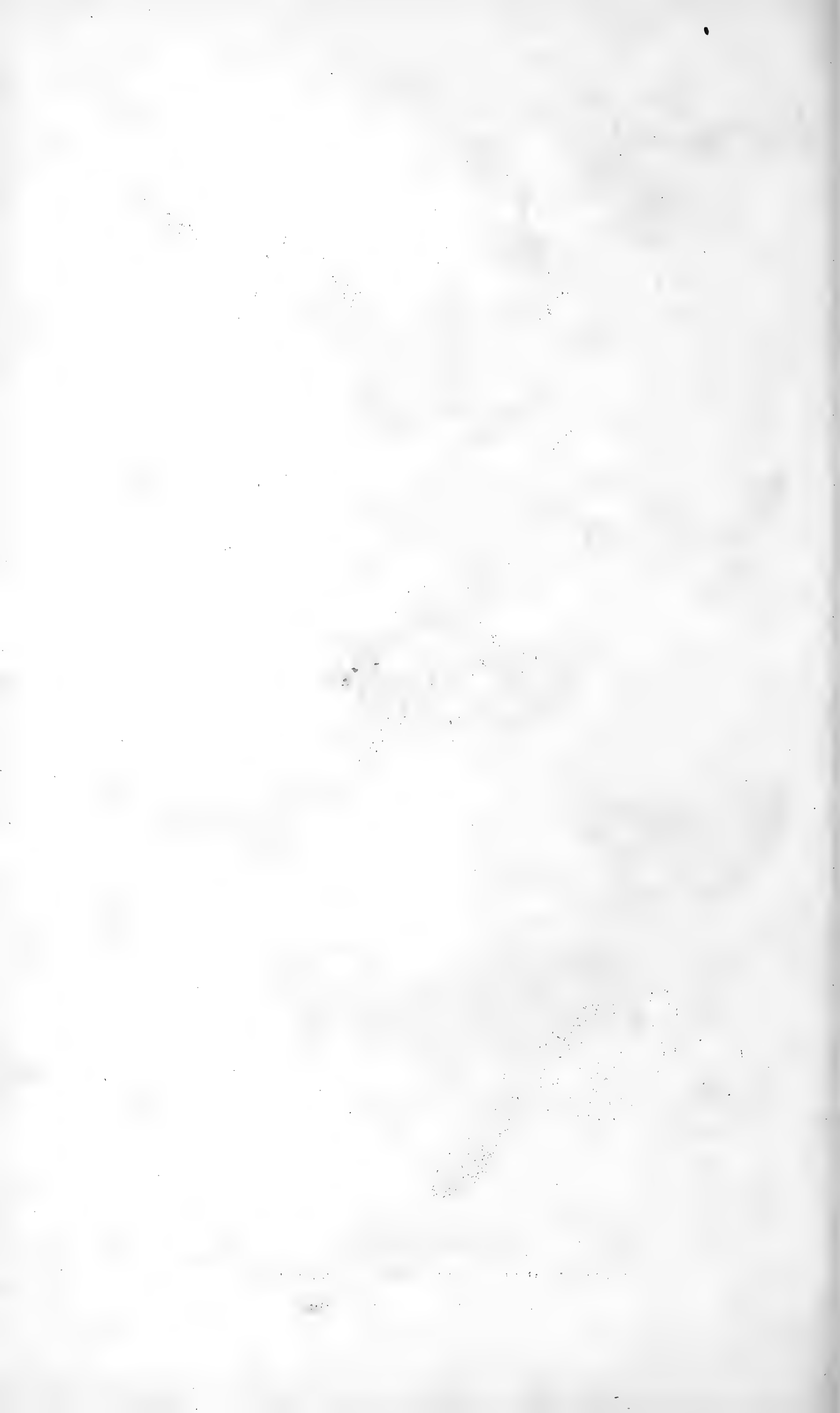


6



1. BROWN BEAR. 2. WHITE BEAR. 3. BEAVER.

4. INDIAN BEE-EATER. 5. BEES. 6. BIR.





BUTTERFLIES, Plate IV.



4



5



2



1



3



1. LITTLE INDIAN BUFFALO. 2. MUSK BUFFALO. 3. ASH-COLOURED BUZZARD
4. COMMON BUZZARD. 5. MOOR BUZZARD.



5



6



2



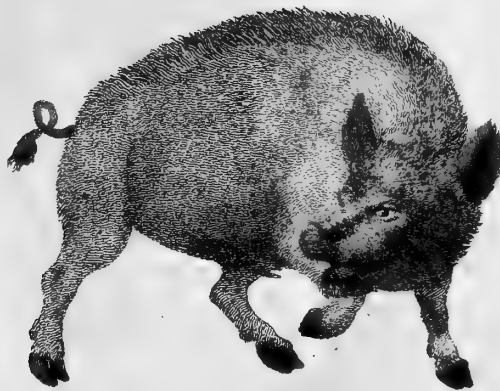
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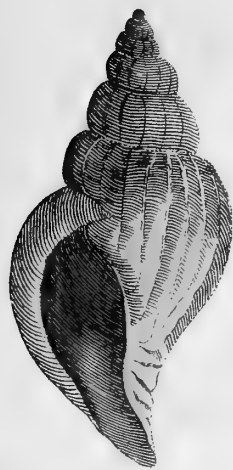
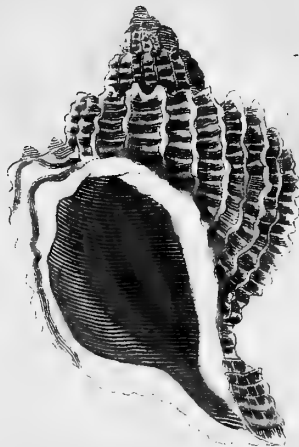
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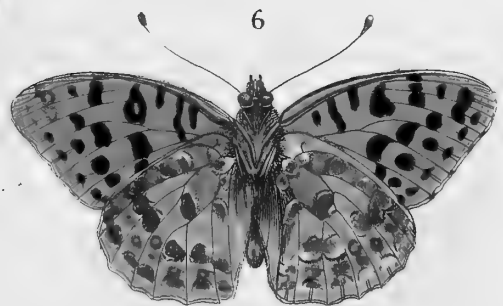
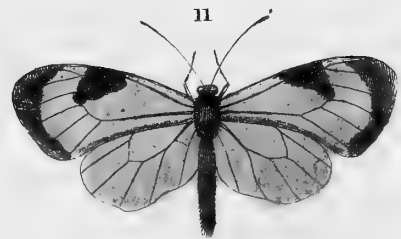
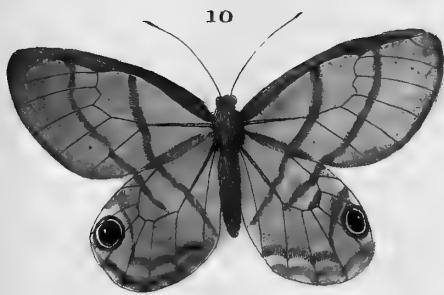
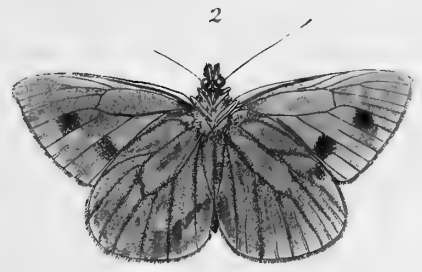
1. WILD BOAR. 2. BOAT BILL. 3. LESSER BONANA-BIRD 4 NEW GUINEA BOOBY.
5. PAPOU BOOBY 6. WHITE COLLARED BOOBY.



BUCCINA OR WHELKS.







BUTTERFLIES. Plate III.

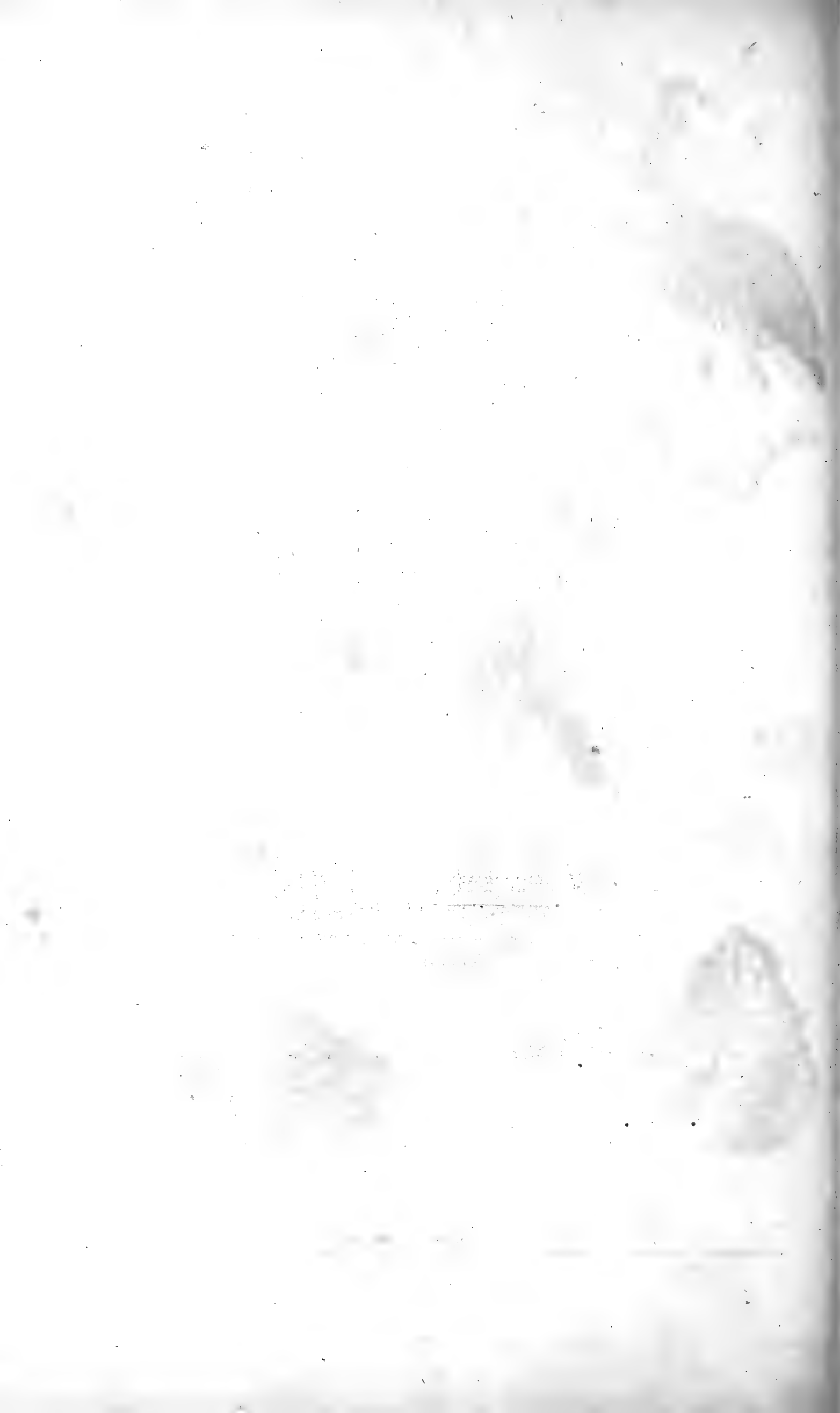


1. COCK BLACKBIRD. 2. RED - BREASTED BLACKBIRD. 3. CEYLONESE BLACK - CAP. 4. BLEAK.
 5. CRESTED BLENNY. 6. GATTORUGINE BLENNY. 7. SMOOTH BLENNY. 8. SPOTTED BLENNY.
 9. VIVIPAROUS BLENNY. 10. RED - BELLIED BLUE - BIRD. 11. BREAM. 12. BLIND - WORM.





BUTTERFLIES. Plate II.

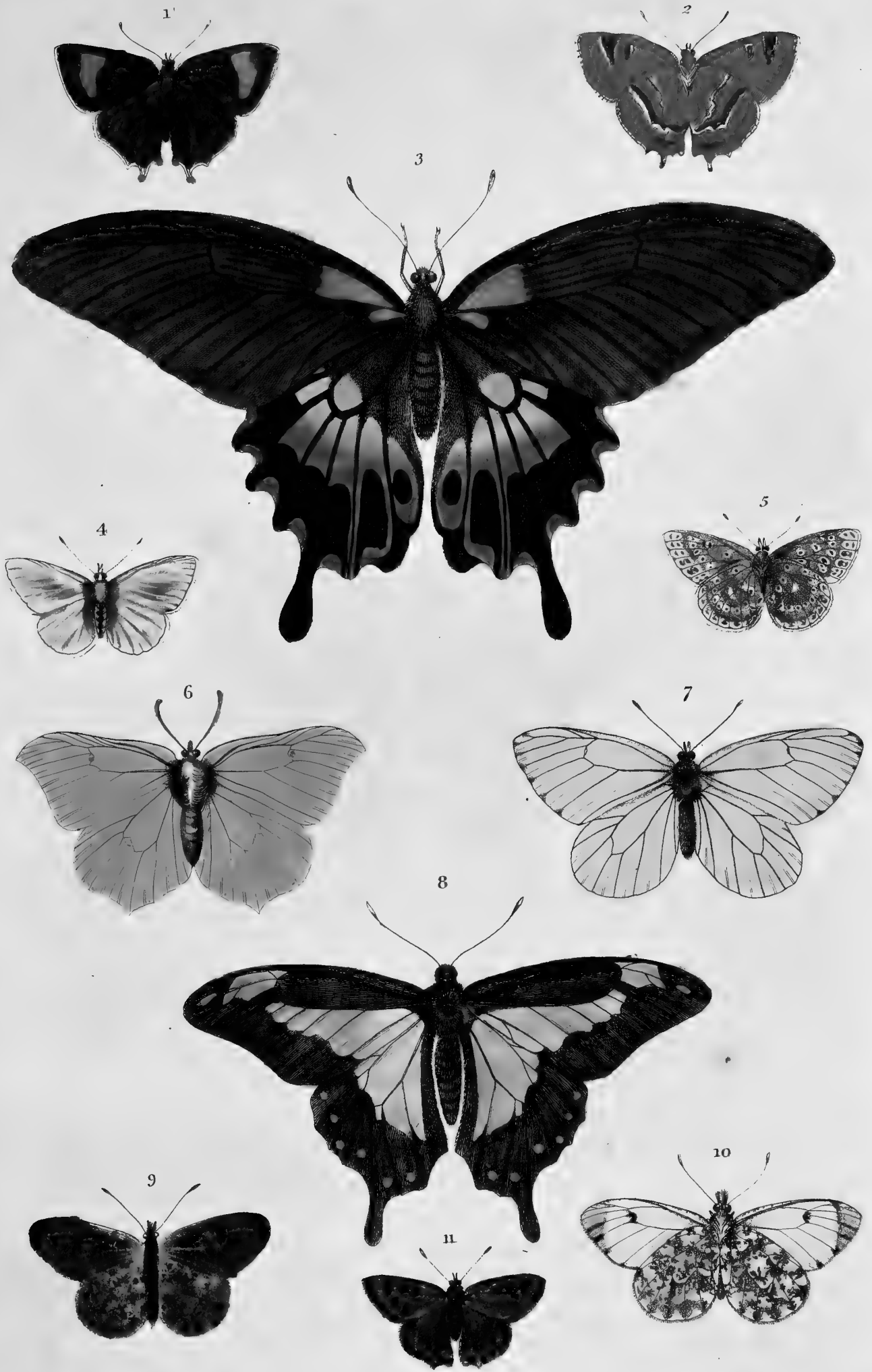




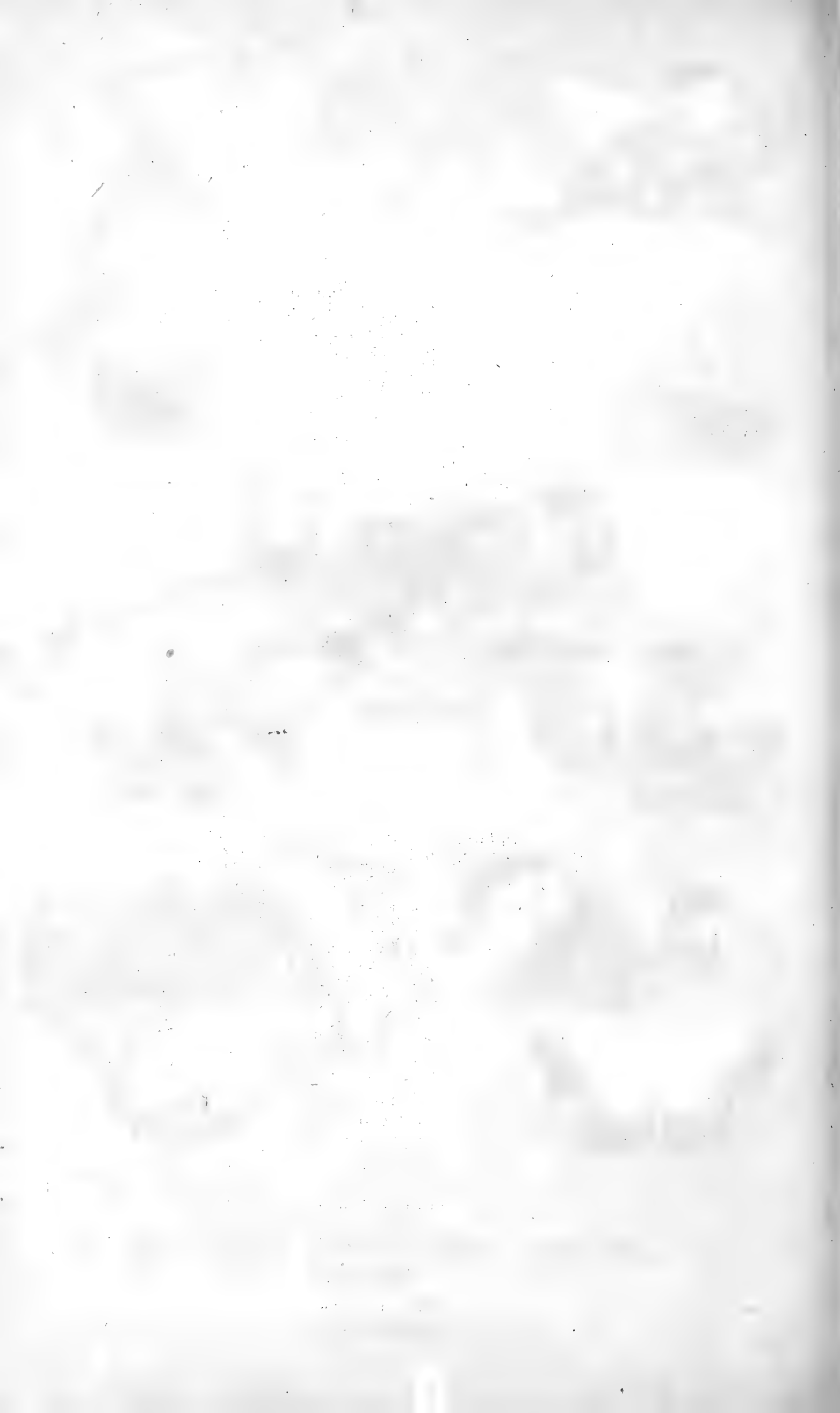
1. BRAZILIAN BITTERN. 2. LITTLE BROWN BITTERN. 3. NORTH - AMERICAN BITTERN.

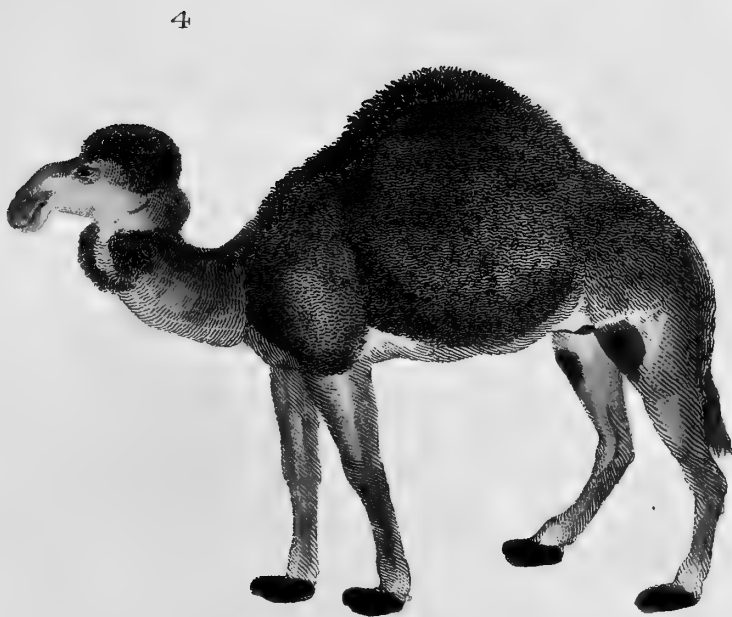
4. BIVALVES.





BUTTERFLIES. Plate I.





1. BLUNT - HEADED CACHALOT. 2. CALANDRA. 3. CALAO. 4. ARABIAN CAMEL.
5. BACTRIAN CAMEL.

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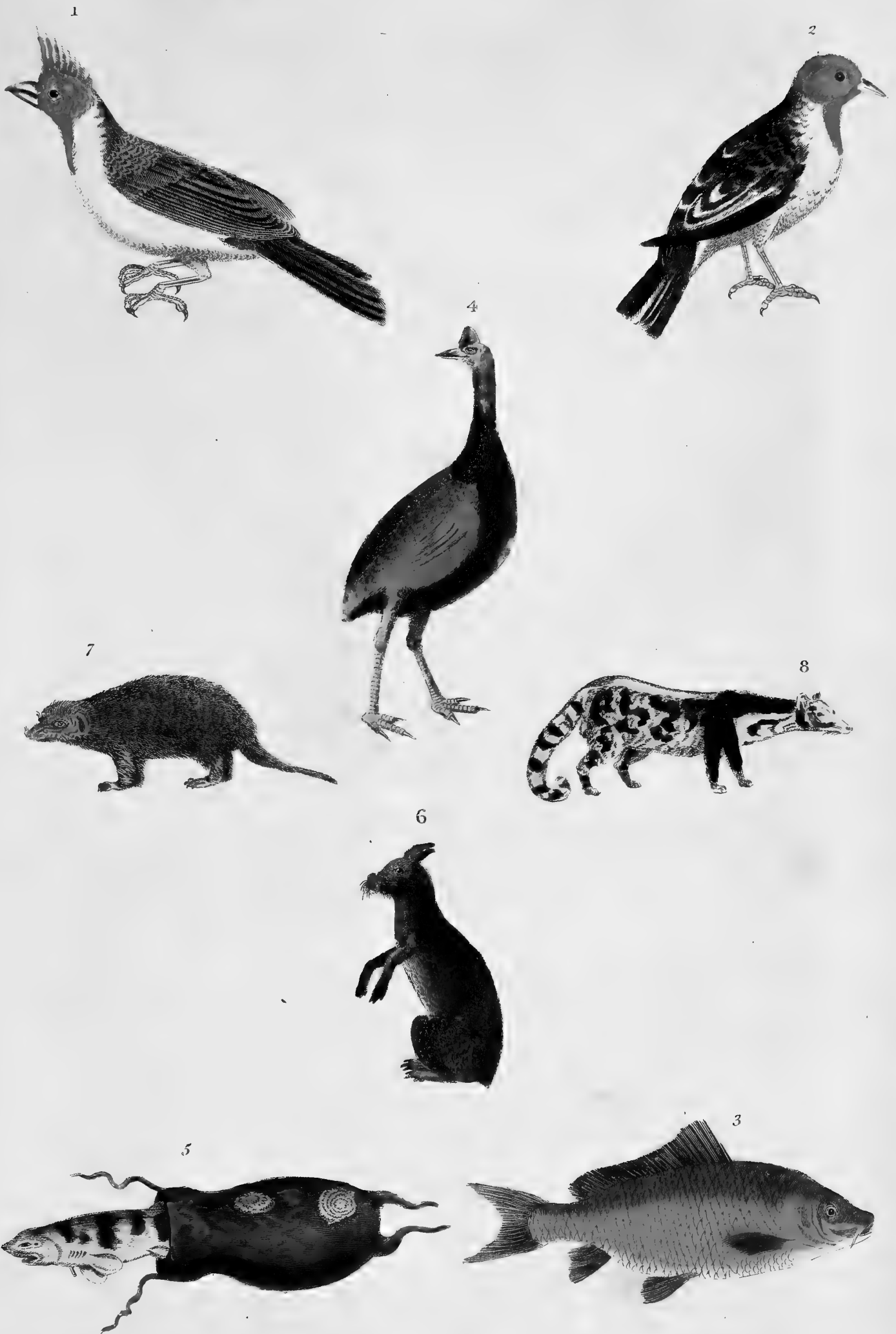
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1. GREAT BLACK COCKATOO. 2. GREATER COCKATOO. 3. WHITE RED-VENTED COCKATOO.

4. WHITE YELLOW-CRESTED COCKATOO.

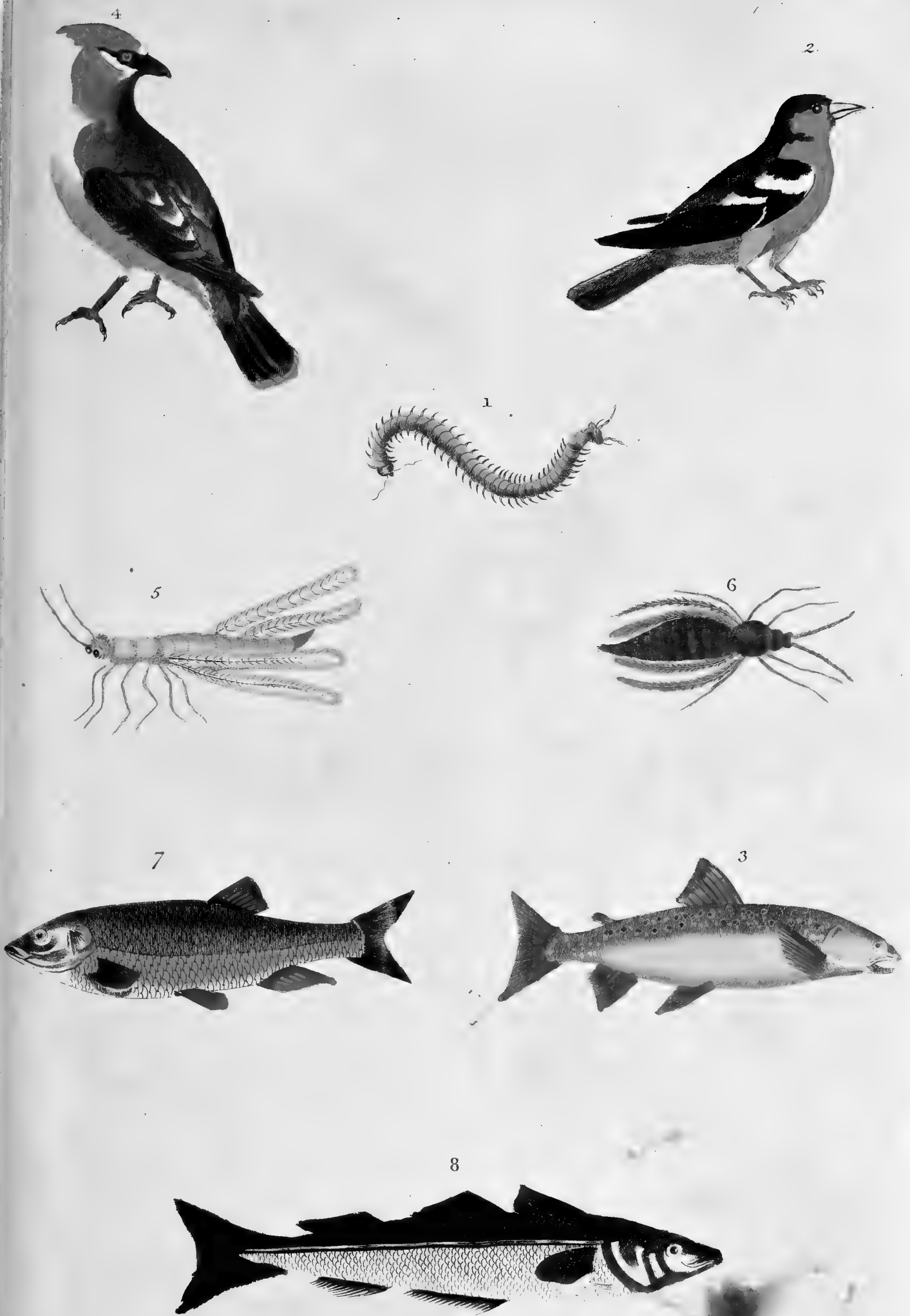




1. CRESTED CARDINAL. 2. DOMINICAN CARDINAL. 3. CARP. 4. CASSOWARY.

5. CAT-FISH. 6. PATAGONIAN CAVY. 7. CAYOPOLIN. 8. CIVET.





1. CENTIPEE. 2. CHAFFINCH. 3. CHARR. 4. CHATTERER OF CAROLINA.
5. STRAW-COLOURED CHINCH. 6. TAWNY CHINCH. 7. CHUB. 8. COAL-FISH.





1. BALEARIC CRANES. 2. BROWN AND ASH - COLOURED CRANE.

3. COMMON CRANE 4. HOOPING CRANE.



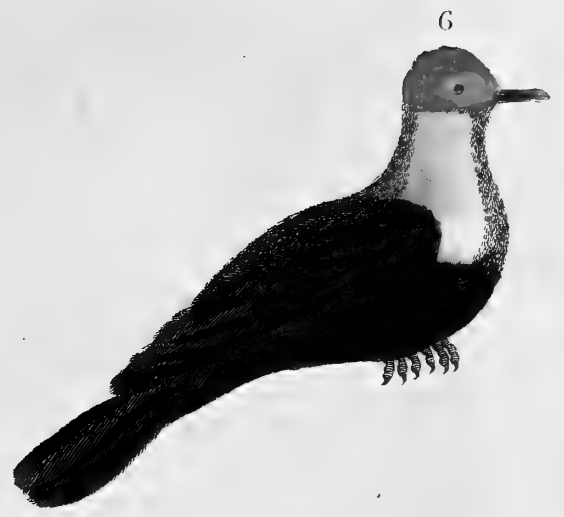


1. BLACK AND BLUE CREEPER. 2. BLACK AND RED INDIAN CREEPER. 3. BLACK AND YELLOW CREEPER. 4. BLUE CREEPER. 5. GREEN CREEPER. 6. LUCON CREEPER. 7. NEW-ZEALAND CREEPER. 8. PURPLE INDIAN CREEPER.



1. GREAT SPOTTED CUCKOW. 2. GREEN CUCKOW. 3. INDIAN BLACK CUCKOW.
 4. INDIAN BROWN AND SPOTTED CUCKOW. 5. LARK BEELED CUCKOW. 6. LITTLE CUCKOW.





1. BROWN INDIAN DOVE. 2. GREEN DOVE. 3. GREEN WINGED DOVE. 4. LONG TAILED DOVE.
5. TRANSVERSE STRIPED DOVE. 6. VIOLET RED HEADED DOVE.



1. LESSER CROSS-BILL. 2. CRUSTACEAN. 3. CURLEW. 4. SPECKLED CURLEW. 5. SPOTTED CURLEW.
6. CUSHEEW-BIRD. 7. CUTTLE-FISH. 8. CYPREA.

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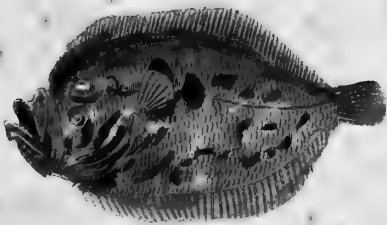


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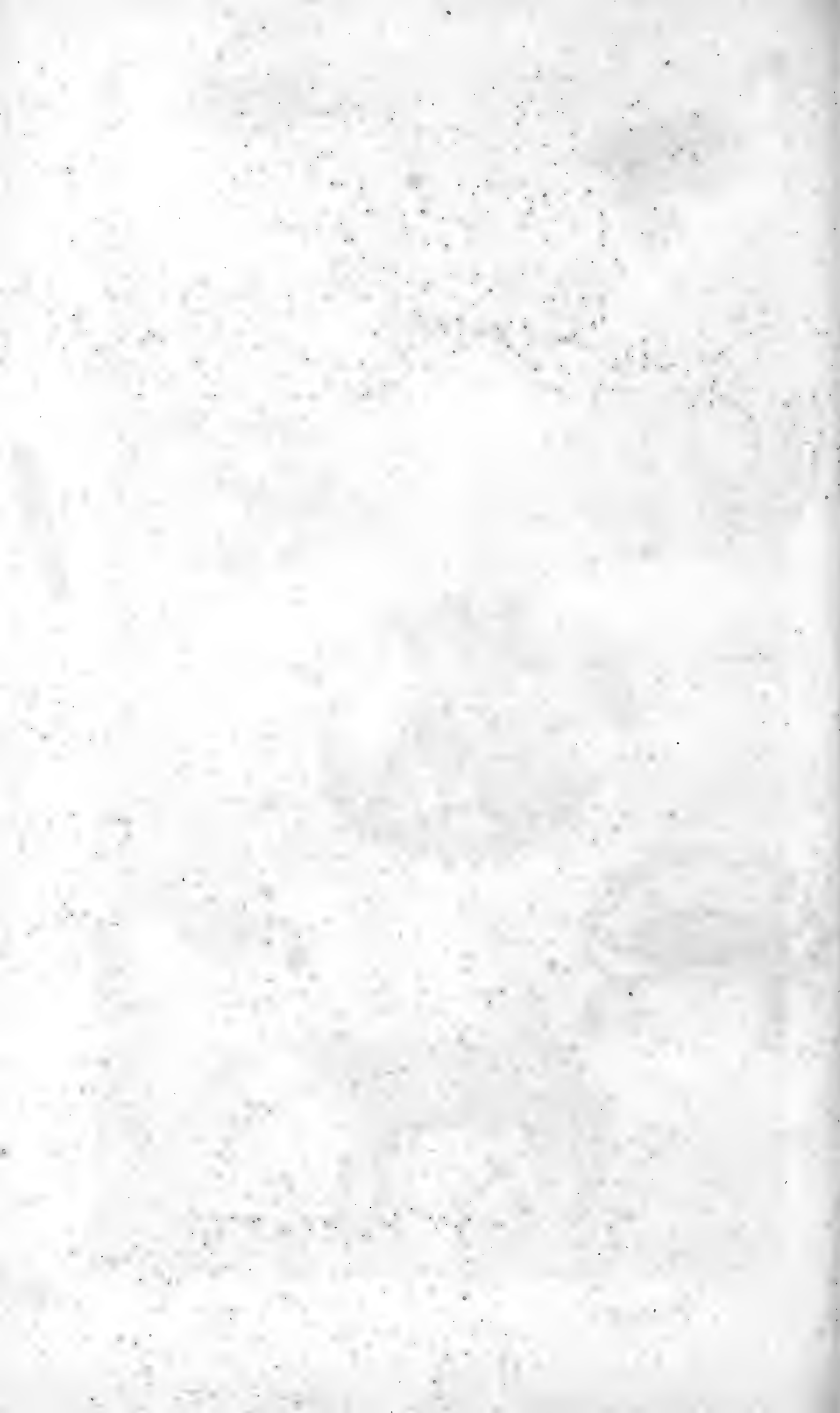


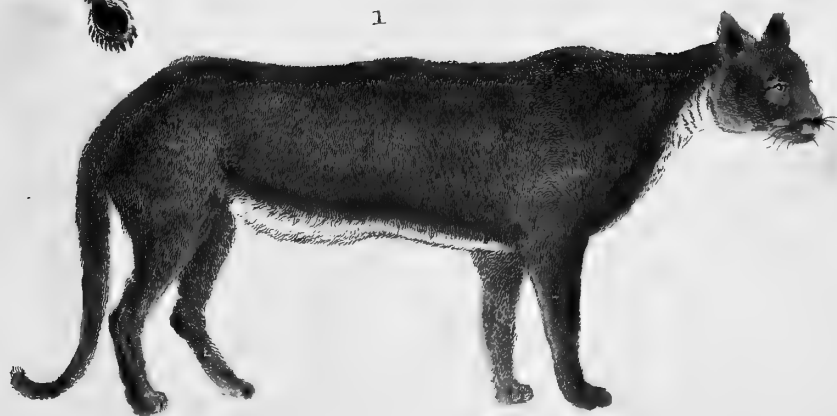
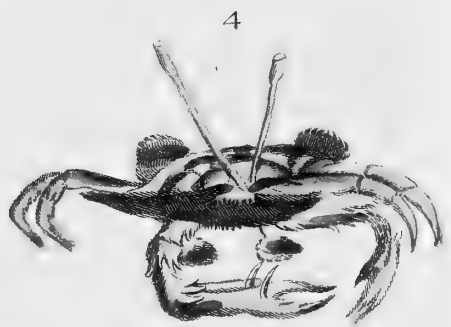
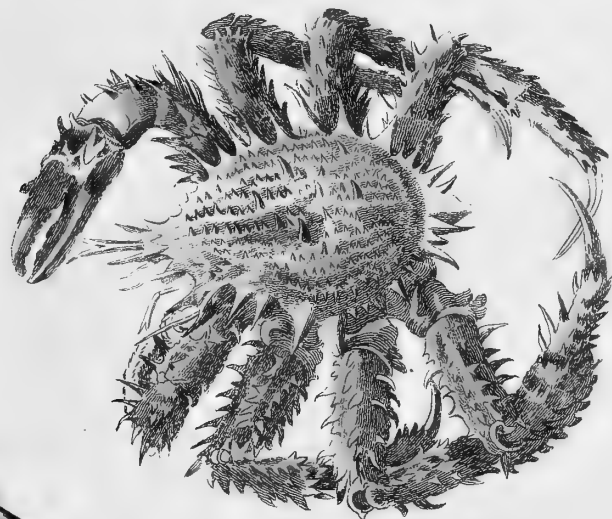
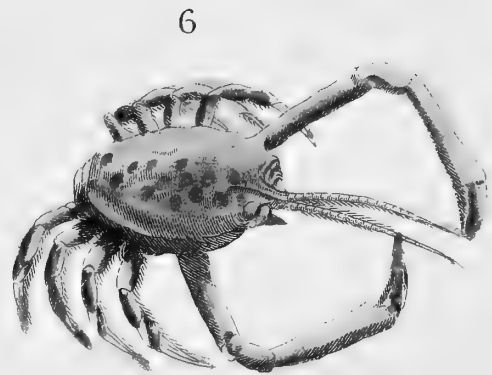
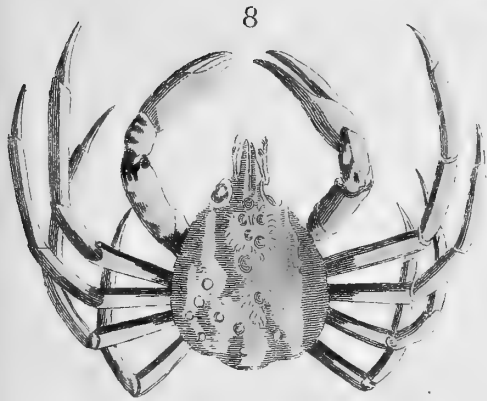
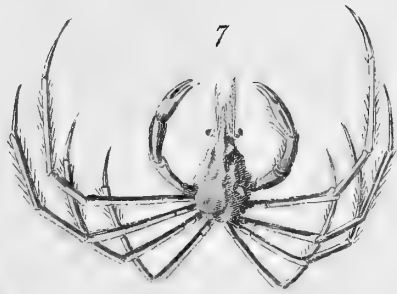
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1. SMEAR --DAB. 2. BLACK AND YELLOW DAW. 3. BLUE AND GREEN DAW. 4. SURINAM DAW.
5. ROCK DAY-FLY. 6. WHITE - WINGED DAY - FLY. 7. FEMALE MOOSE DEER. 8. REIN - DEER.





1. COUGAR. 2. COOT. 3. HORRID CRAB. 4. INDIAN LAND CRAB. 5. INDIAN SEA CRAB. 6. LONG CLAWED CRAB. 7. SLENDER LEGGED CRAB. 8. SPIDER CRAB. 9. CRAKE.



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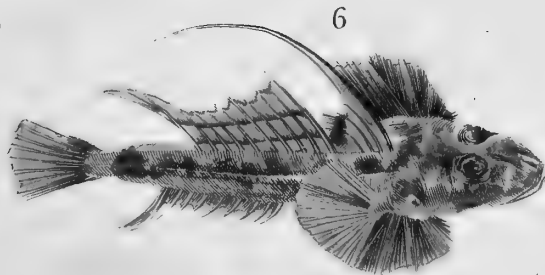
1. GREAT BLACK DUCK. 2. GREY-HEADED DUCK. 3. EIDER DUCK. 4. FERRUGINOUS DUCK.
5. LITTLE BLACK AND WHITE DUCK. 6. LITTLE BROWN AND WHITE DUCK.





1. DUCAL MANTLE. 2. DUSKY AND SPOTTED DUCK. 3. SUMMER DUCK OF CAROLINA.
4. RED-BILLED WHISTLING DUCK. 5. VELVET DUCK. 6. DUCKER OR LOON.



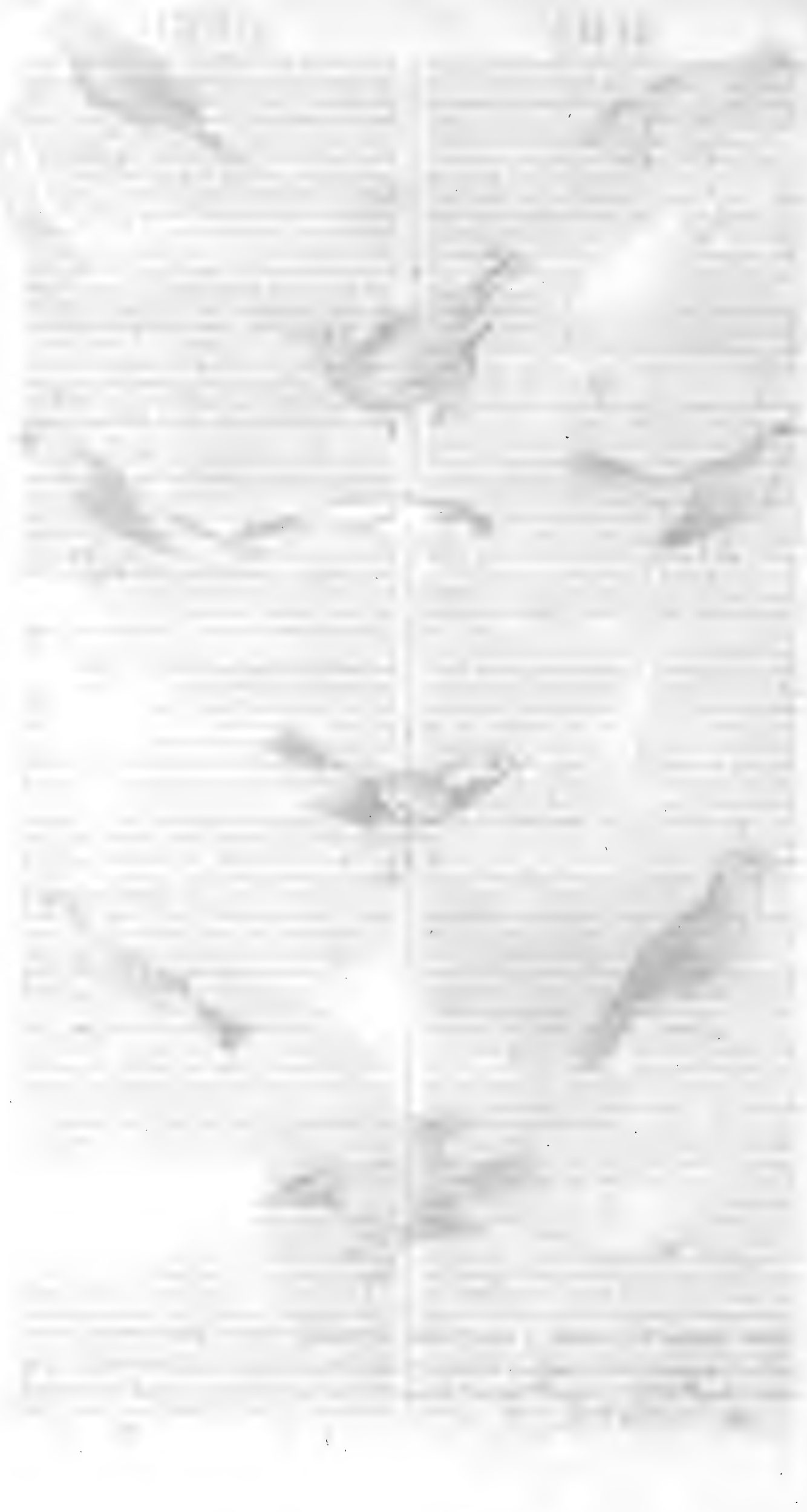


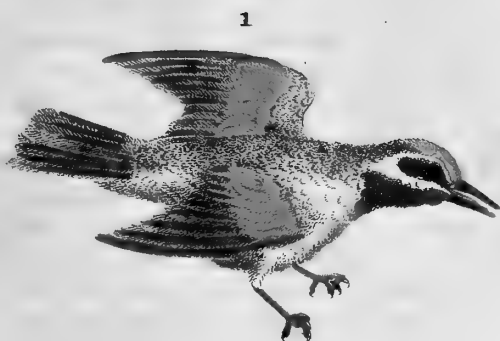
1. DODO. 2. DOG - FISH. 3. DOREE. 4. DOTTEREL. 5. DRAGON - FLY. 6. DRAGONET.
7. DROMEDARY.





1. DEMOISELLE OF NUMIDIA. 2. GLOBE DIODON. 3. SHORT DIODON. 4. NORTHERN DIVER. 5. PURPLE-THROATED DIVER. 6. RED-THROATED DIVER. 7. BLACK AND WHITE DOBCHICK. 8. NORTH-AMERICAN HORNED DOBCHICK.





1. GOLDEN-WINGED FLY-CATCHER. 2. GREEN INDIAN FLY-CATCHER. 3. GREEN BLACK-THROATED FLY-CATCHER.
 4. GREEN BLUE-HEADED FLY-CATCHER. 5. LITTLE BLUE-GREY FLY-CATCHER. 6. OLIVE-COLOURED FLY-CATCHER.
 7. YELLOW-BREASTED FLY-CATCHER. 8. YELLOW-TAILED FLY-CATCHER. 9. YELLOW-VENTED FLY-CATCHER.



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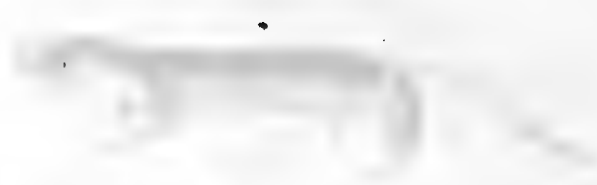
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1. BLACK-BACKED EAGLE. 2. CINEREOUS EAGLE. 3. CROWNED EAGLE.

4. RING-TAILED EAGLE.

NEW YORK

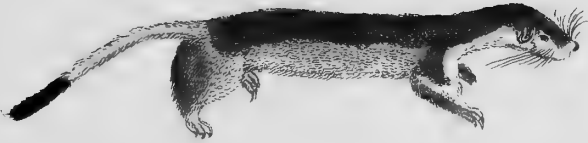


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4



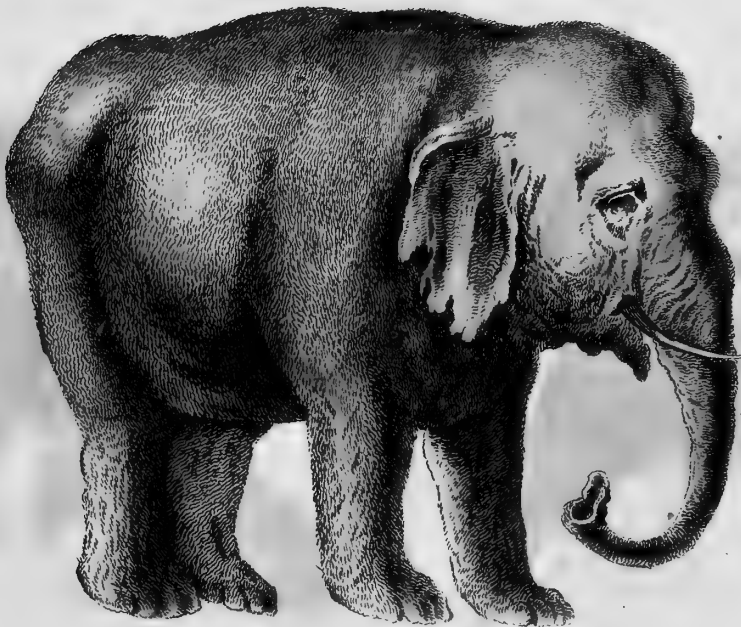
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1. COMMON EAGLE. 2. EGRET. 3. ELEPHANT. 4. ERMINE.

107

108



Faint, illegible text at the bottom of the page, possibly a caption or description of the sketches.



1. GENTLE FALCON. 2. GYR - FALCON. 3. SPOTTED FALCON. 4. PEREGRINE FALCON.
 5. FATHER LASHER. 6. BRAZILIAN RED AND BLUE FINCH. 7. LONG - TAILED FINCH.
 8. PAINTED FINCH.



Illustrations of various waterfowl species, including ducks and geese, shown in different poses and activities.

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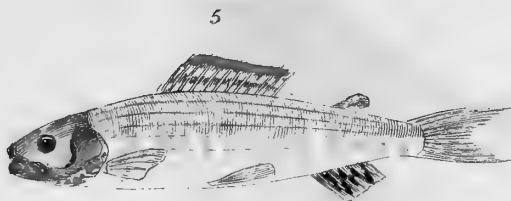


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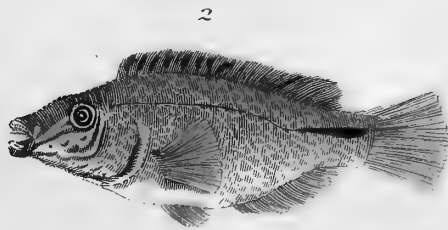
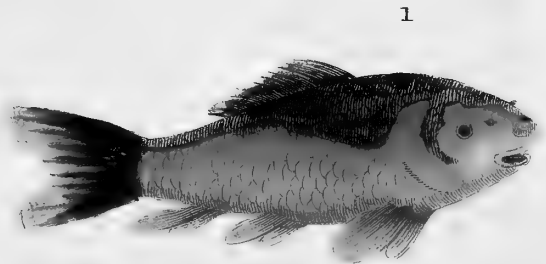
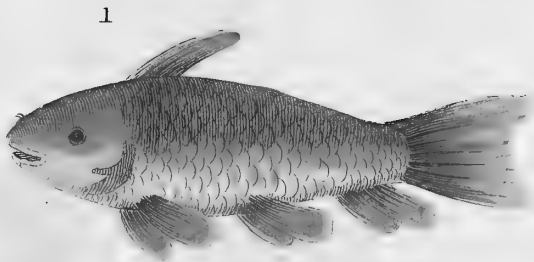
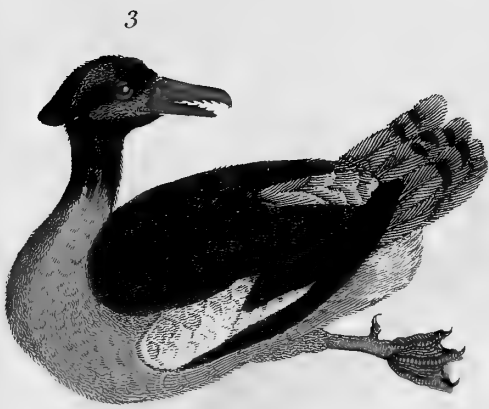
1. CINEREOUS GODWIT. 2. GREAT AMERICAN GODWIT. 3. RED GODWIT. 4. RED-BREASTED GODWIT. 5. GOLAIVER. 6. GREEN GOLDFINCH 7. RED-HEADED GREENFINCH.





1. GOLDFINCH. 2. BLUE - WINGED GOOSE. 3. WHITE - FRONTED GOOSE. 4. GOWRY - BIRD.
5. GRAYLING. 6. EARED GREBE. 7. INDIAN GREEN FINCH.





1. GOLD - FISH. 2. GOLDSINNY. 3. COMMON GOOSANDER. 4. RED - BREASTED GOOSANDER.
5. ANTARCTIC WHITE - WINGED GOOSE. 6. CANADA GOOSE.



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1. GRENADIER. 2. COMMON GROSS-BEAK. 3. BLUE GROSS-BEAK. 4. MALACCA GROSS-BEAK.
 5. PINE GROSS-BEAK. 6. BLACK GROUSE. 7. LONG-TAILED GROUSE. 8. PIN-TAILED GROUSE.
 9. WOOD GROUSE.





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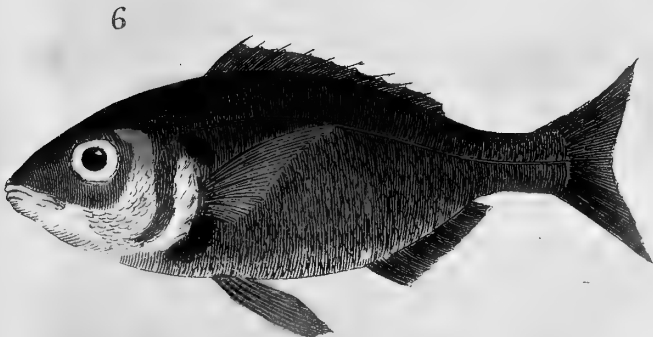
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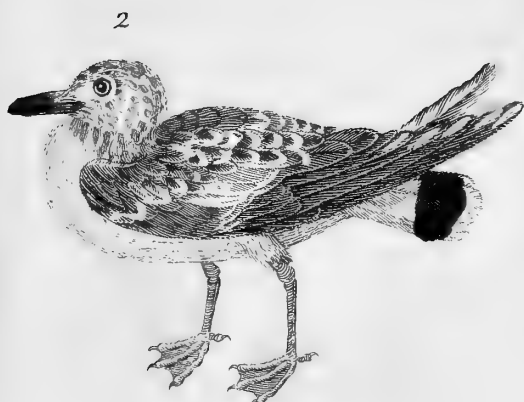
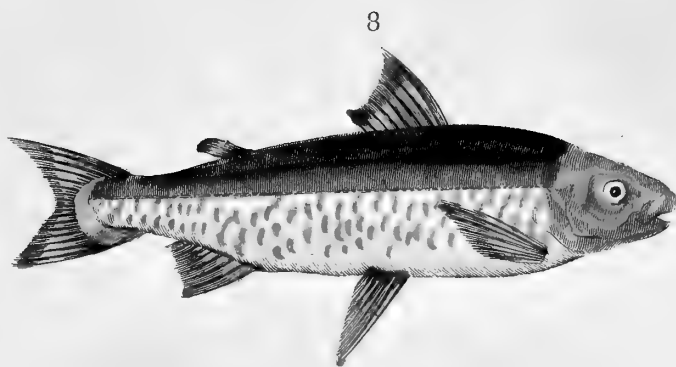
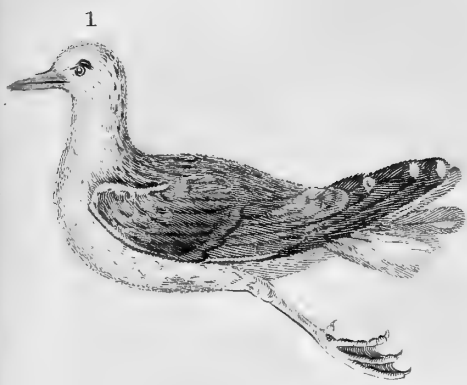
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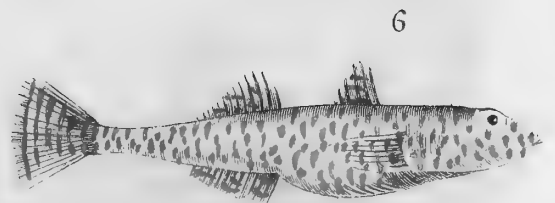
1. COMMON GALLINULE. 2. GAMBET. 3. GANNETT. 4. GARGANEY. 5. GATTORUGINE.
6. LUNULATED GILT - HEAD. 7. TOOTHED GILT - HEAD. 8. GLUTTON.



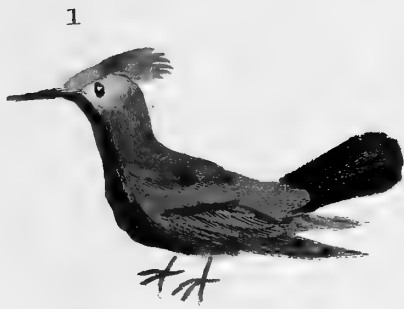
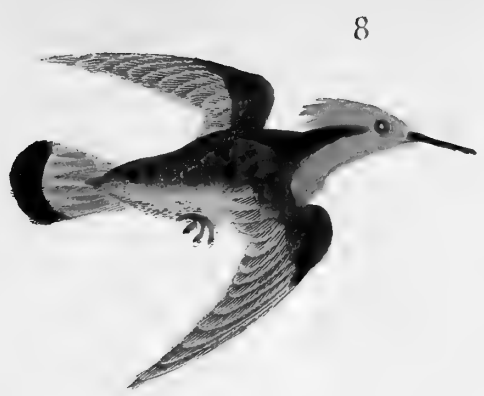


1. COMMON GULL. 2. WINTER GULL. 3. SPOTTED GUILLEMOT. 4. GUIRA - GUACUBERABA.
5. GREY GURNARD. 6. SAPPHIRINE GURNARD. 7. STREAKED GURNARD. 8. GWINIAD.

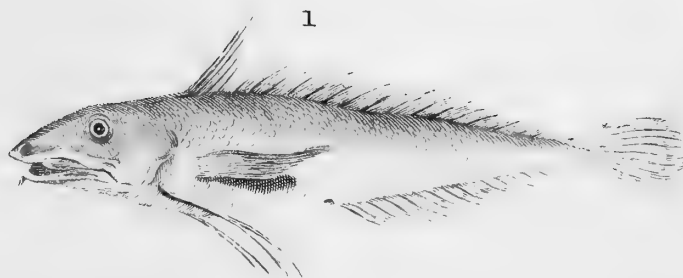




1. COMMON GOAT. 2. SYRIAN GOAT. 3. GOATSUCKER. 4. LESSER GOATSUCKER.
5. BLACK GOBY. 6. SPOTTED GOBY.

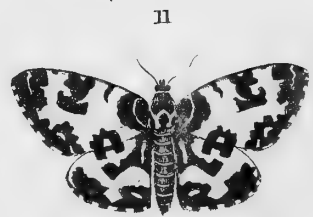
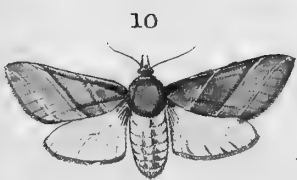
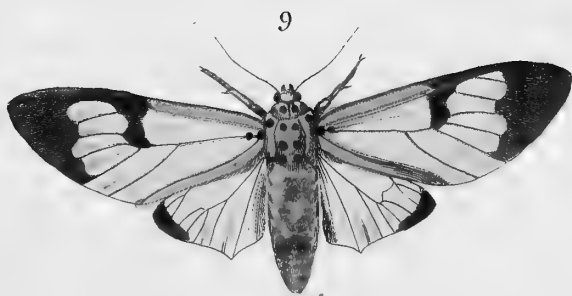
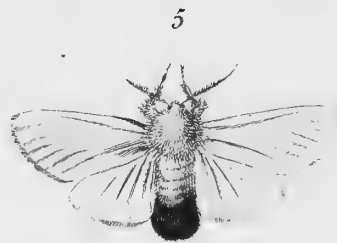


1. CRESTED HUMMING BIRD. 2. GREEN BLACK-BELLIED HUMMING BIRD. 3. LITTLE BROWN HUMMING BIRD.
 4. LONG-TAILED BLACK CAP HUMMING BIRD. 5. LONG-TAILED GREEN HUMMING BIRD. 6. RED LONG-TAILED HUMMING BIRD.
 7. RED-THROATED HUMMING BIRD. 8. RUBY-CRESTED HUMMING BIRD. 9. WHITE BELLED HUMMING BIRD



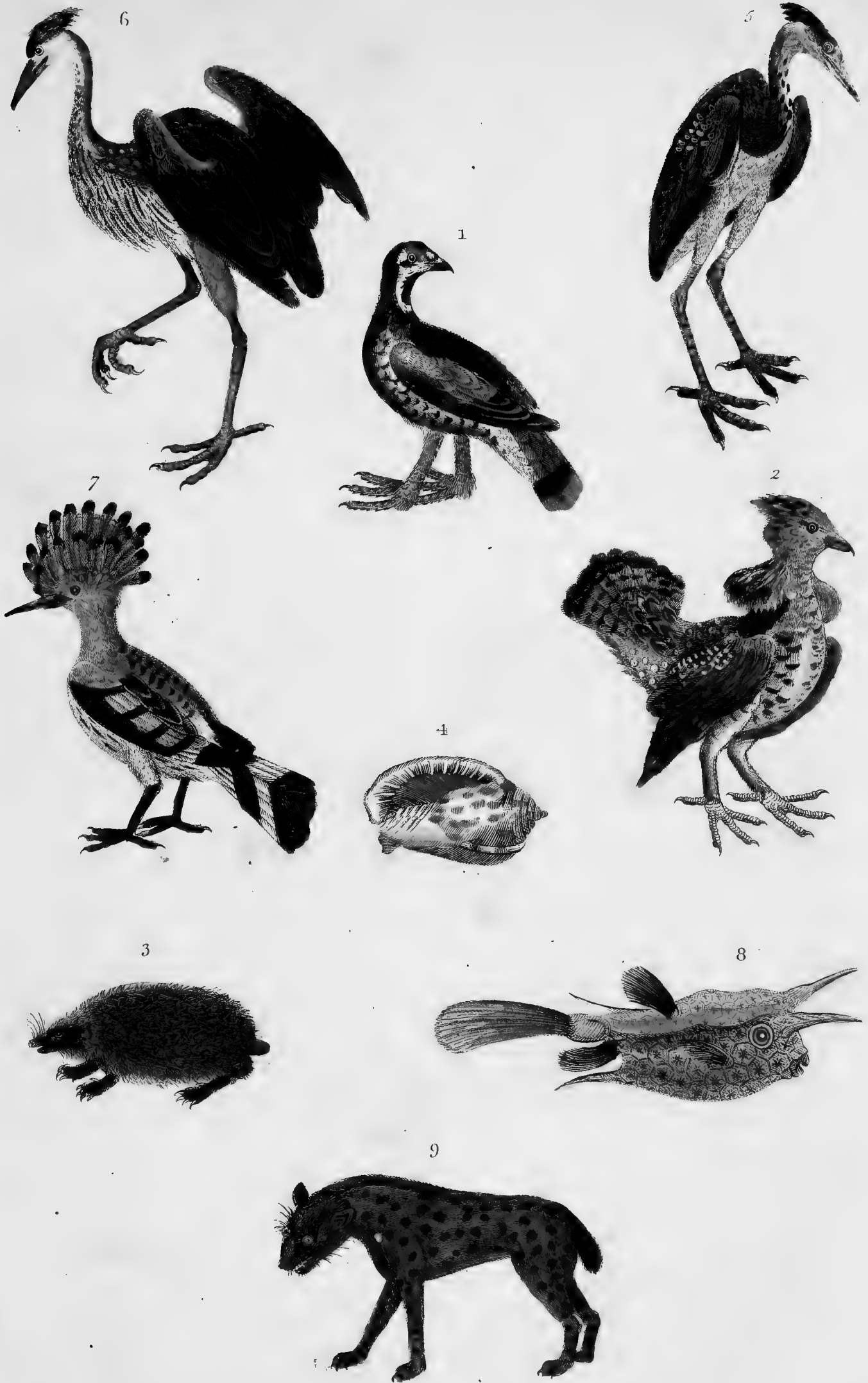
1. FORKED HAKE. 2. ALPINE HARE. 3. VARYING HARE. 4. BLACK AND ORANGE - COLOURED INDIAN HAWK. 5. MARSH HAWK. 6. RING - TAILED HAWK.





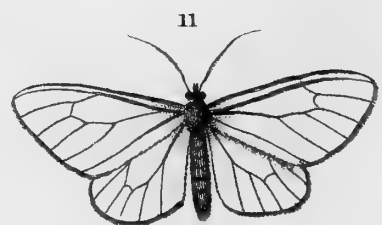
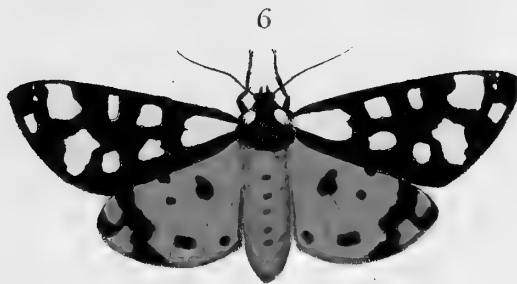
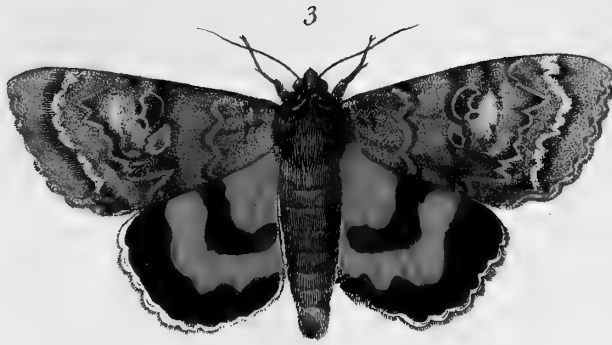
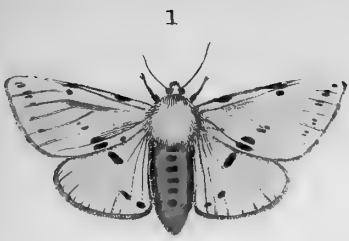
MOTHS. Plate I.



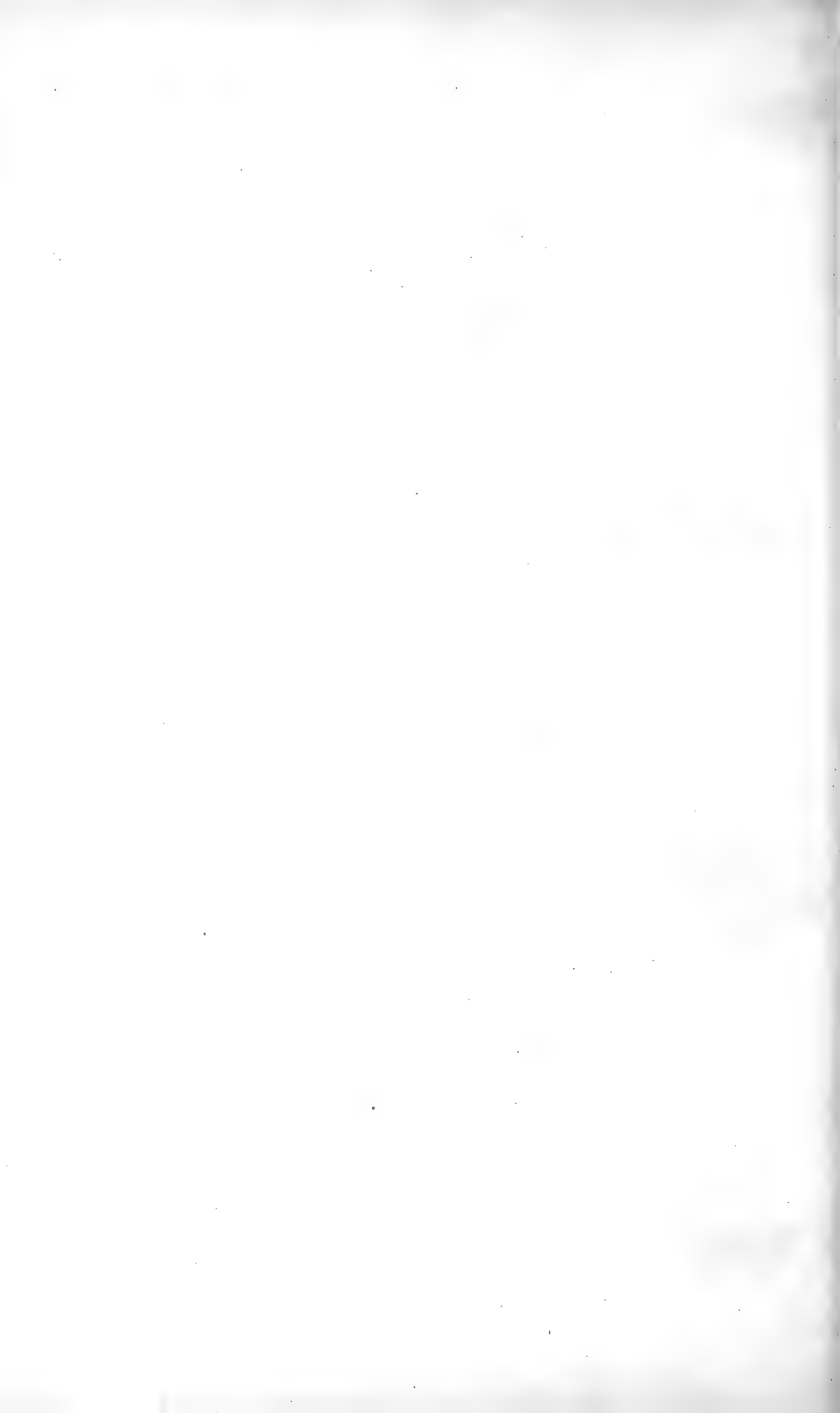


1. BLACK AND SPOTTED HEATH COCK. 2. RUFFED HEATH COCK. 3. HEDGE HOG. 4. HELMET SHELL.
 5. COMMON HERON. 6. NORTH AMERICAN ASH-COLOURED HERON. 7. HOOPOE. 8. HORNED FISH. 9. HYENA.





MOTHS. Plate II.



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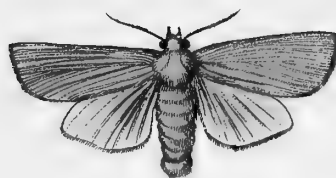
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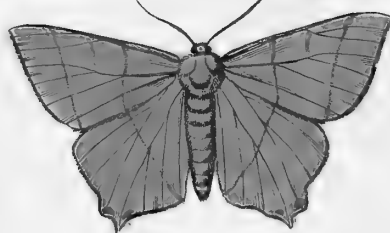
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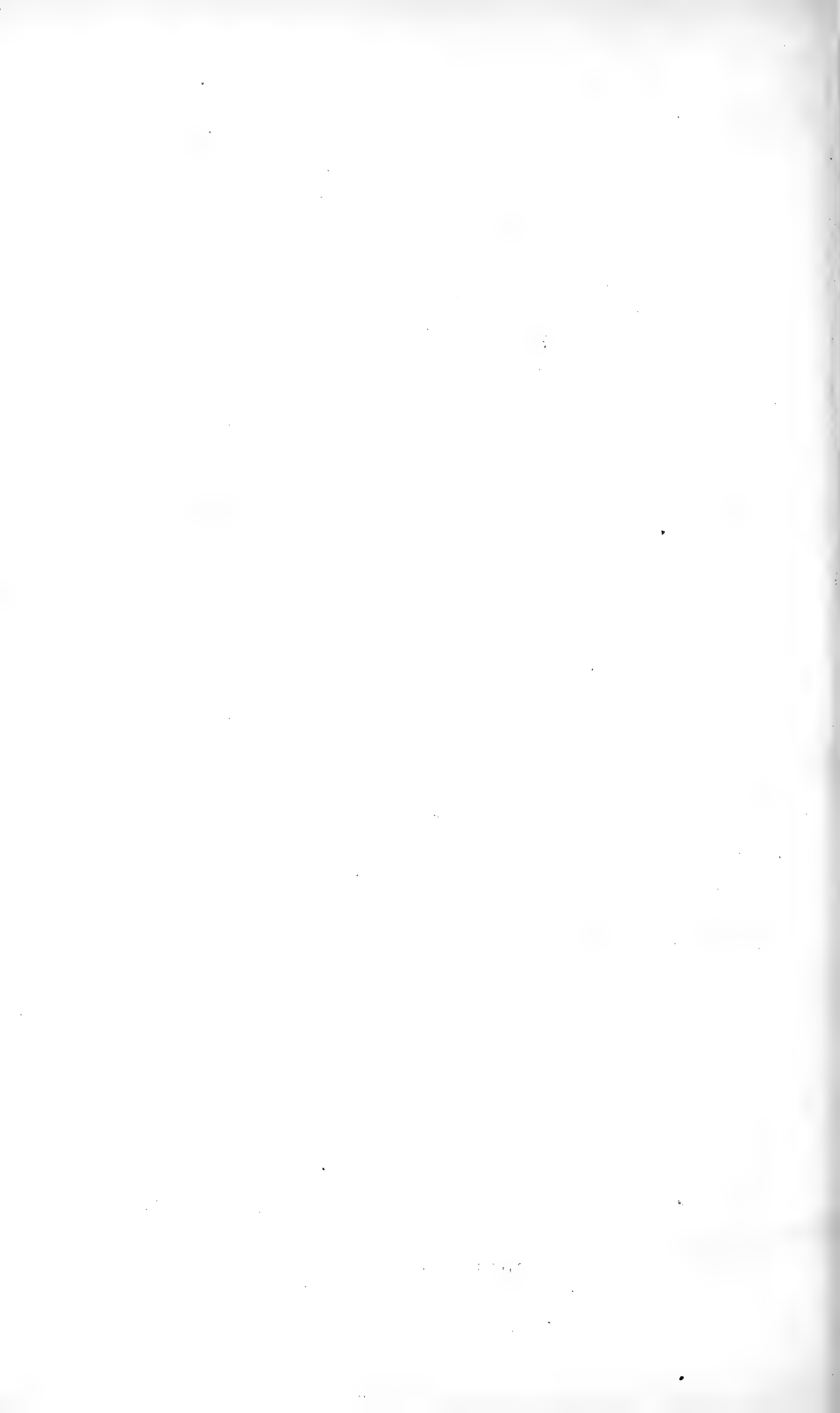
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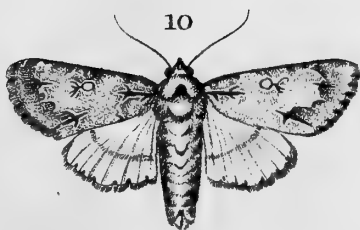
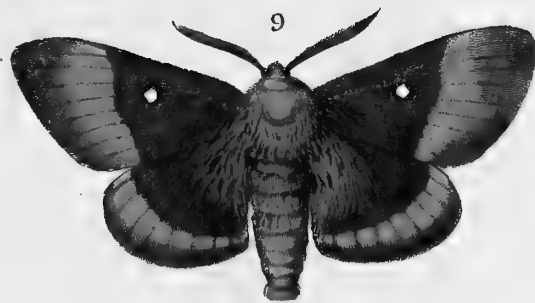
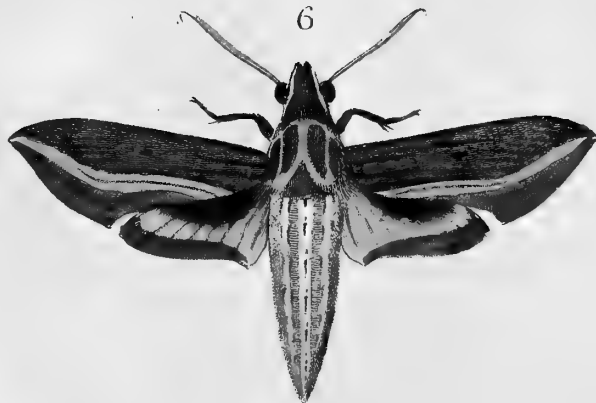
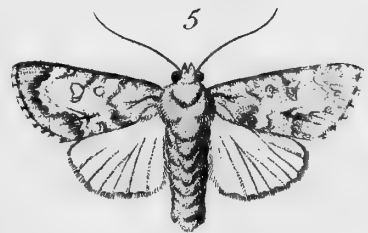
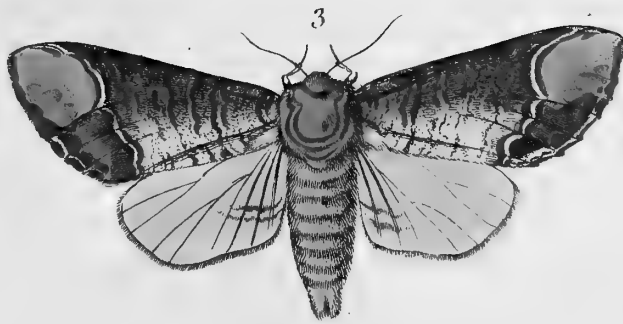


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MOTHS. Plate III.





MOTHS. Plate IV.





1. BLACK AND WHITE KING - FISHER. 2. CRESTED KING - FISHER. 3. GREAT KING - FISHER OF GAMBIA.
 4. KING - FISHER OF LUCQY. 5. LITTLE GREEN AND ORANGE - COLOURED KING - FISHER. 6. SPOTTED KING -
 FISHER. 7. SURINAM KING - FISHER. 8. WHITE - COLLARED KING - FISHER.

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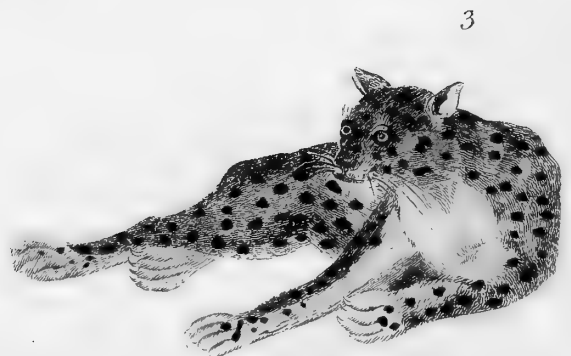


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1. GREAT SPOTTED LIZARD. 2. BLACK - CAPPED LORY. 3. RED - BREASTED LORY. 4. SCARLET LORY. 5. LONG - TAILED SCARLET LORY.





1. LANNER. 2. RED LARK. 3. HUNTING LEOPARD. 4. ANGOLA LINNET. 5. BLACK-LINNET. 6. OLIVE-COLOURED LINNET. 7. YELLOW-HEADED LINNET. 8. LION.





1. LAUNCE. 2. BROWN LIZARD. 3. LARGE GREEN AND SPOTTED LIZARD. 4. SCALY LIZARD.
 5. THORNY-TAILED INDIAN LIZARD. 6. WARTY LIZARD. 7. BAY LYNX 8. PERSIAN LYNX



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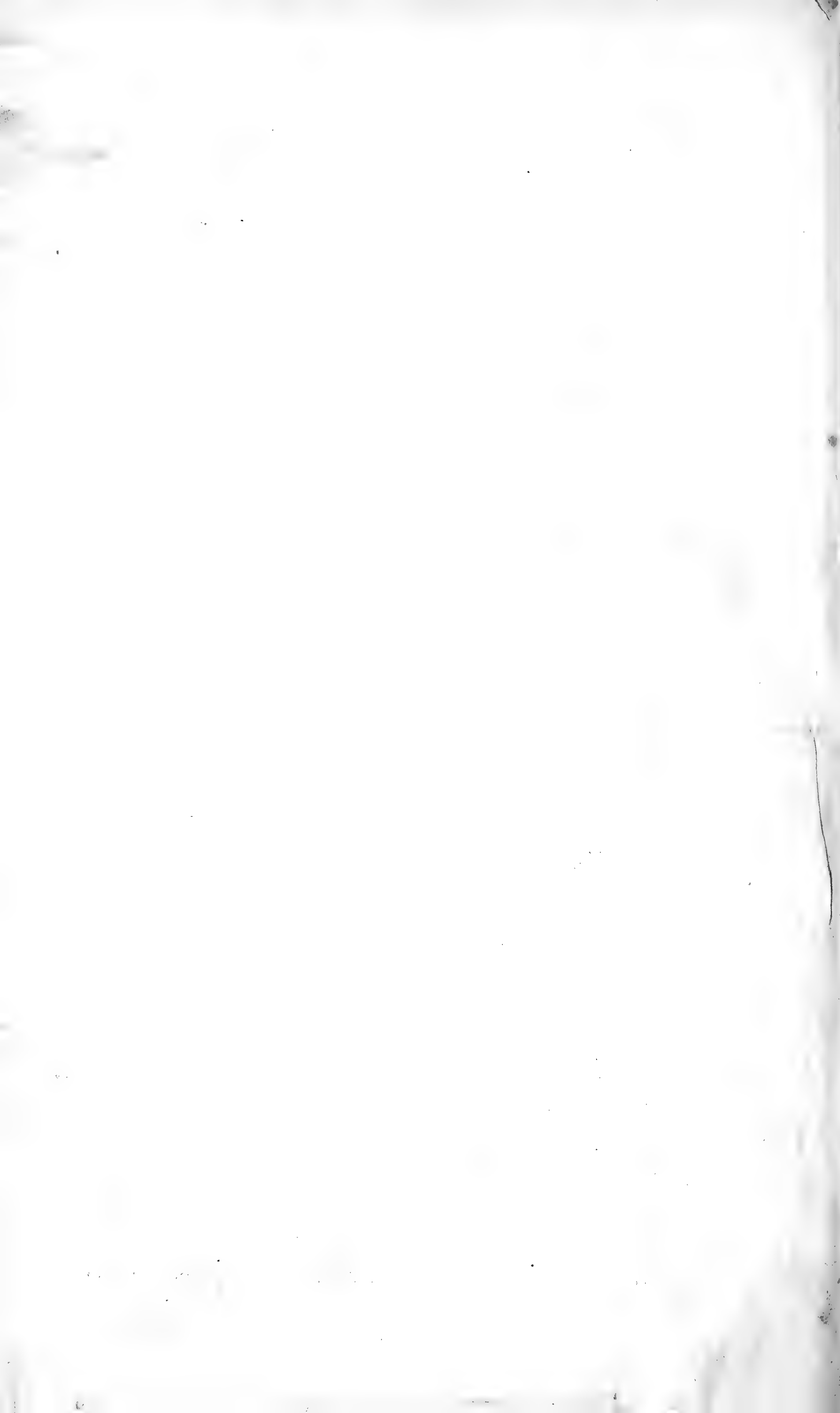
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1, NEGRO MONKEY. 2, GREEN MONKEY. 3, LESSER CAGUI MONKEY. 4, TIMID MONKEY.



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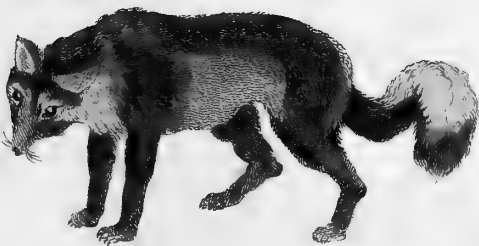
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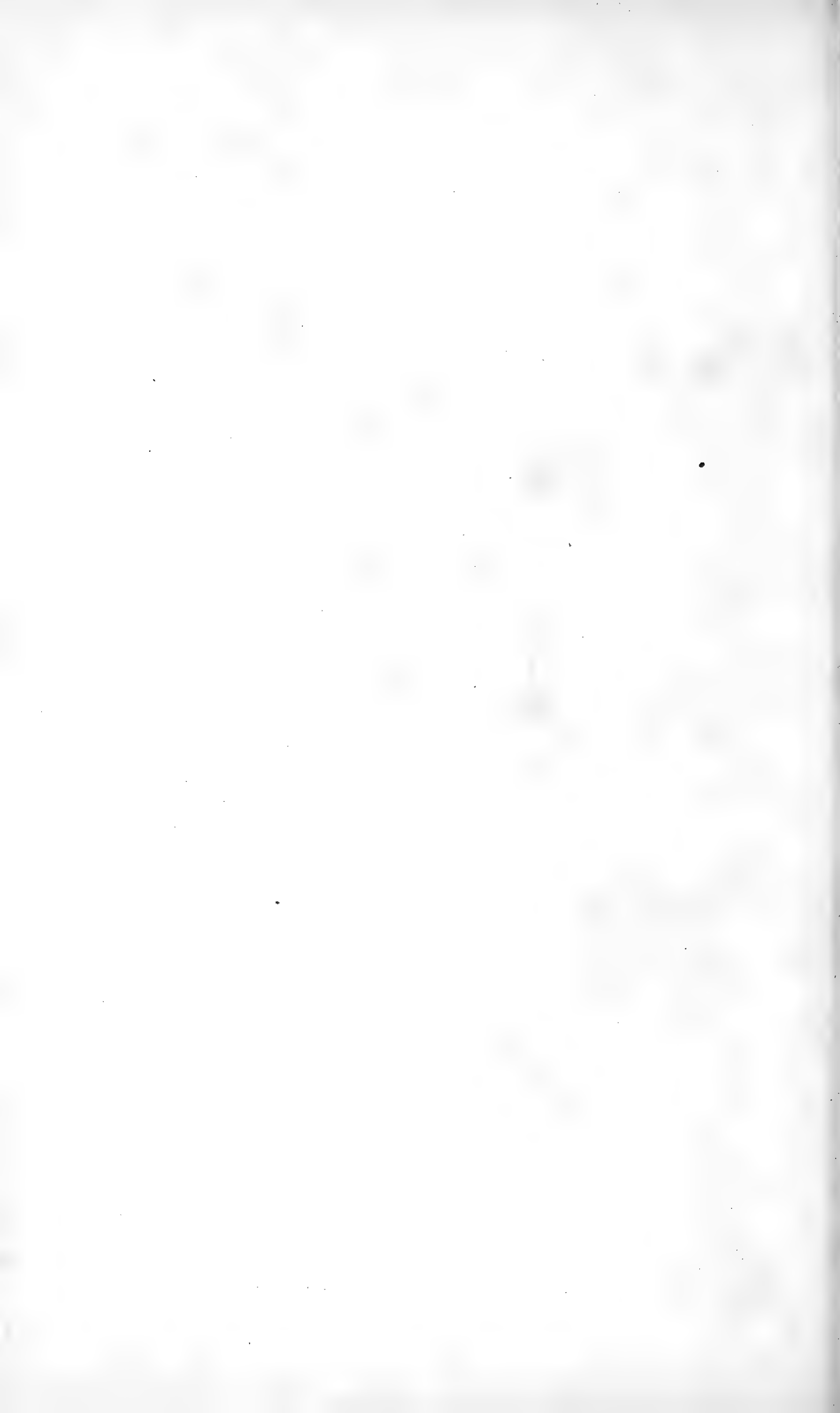


1. INDIAN ICHEUMON. 2. BLACK-HEADED ICTERUS. 3. ISATIS. 4. JACARINI. 5. JACAMACIRI.
6. BLUE JAY. 7. EAST-INDIA BLUE JAY. 8. EGYPTIAN JERBOA.





1. BLACK OR RUFFED MAUCAUCO. 2. RING-TAILED MAUCAUCO. 3. WOOLLY MAUCAUCO.
4. GREAT EARED MONKEY. 5. LITTLE LION MONKEY.



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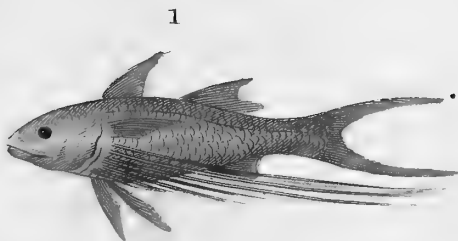
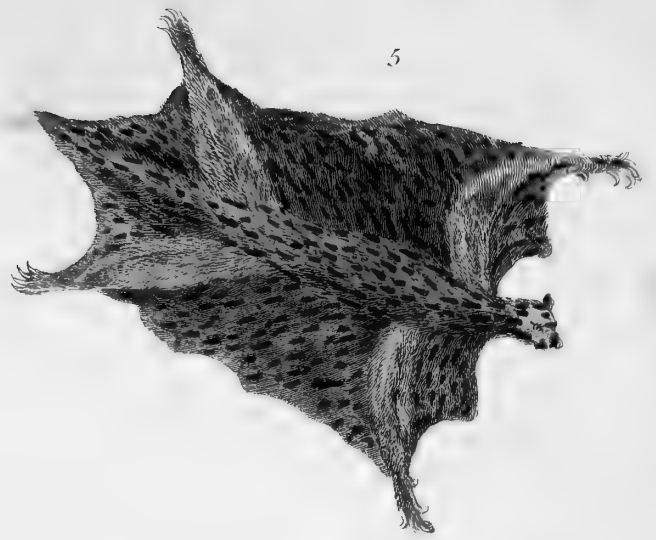


4



1. BLUE AND RED MACAW. 2. BLUE AND YELLOW MACAW. 3. MAN OF WAR BIRD.
 4. BLUE - BACKED MANAKIN. 5. PURPLE - BREASTED MANAKIN. 6. WHITE - FACED MANAKIN.

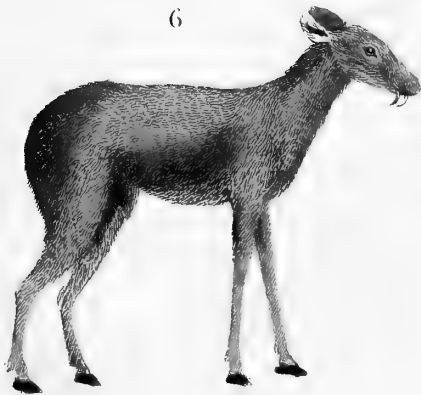
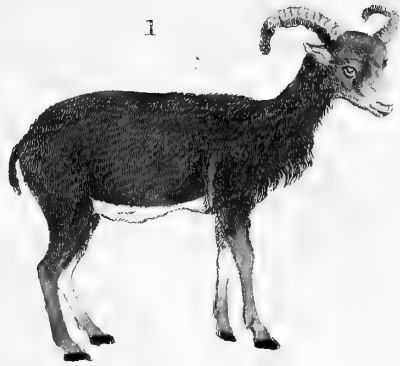
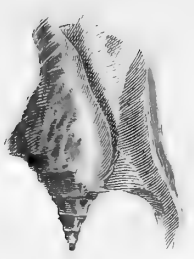
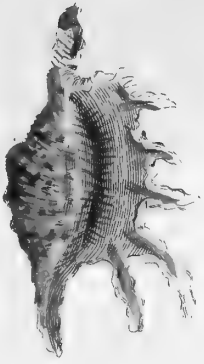




1. MANGO FISH. 2. MARYLAND MARMOT. 3. QUEBEC MARMOT. 4. MARTEN. 5. FLYING MAUCAUCO.
6. TAIL-LESS MAUCAUCO. 7. GREATER MINOR. 8. LESSEB MINOR.



1. FULL - BOTTOMED MONKEY. 2. LONG - NOSED MONKEY. 3. PURPLE - FACED MONKEY.
4. SILKY MONKEY. 5. TAWNY MONKEY.



1. MOUFFLON. 2. MULLET. 3. RHOMBI MUREX. 4. ROCK MUREX. 5. WINGED MUREX.
6. MUSK. 7. INDIAN MUSK.



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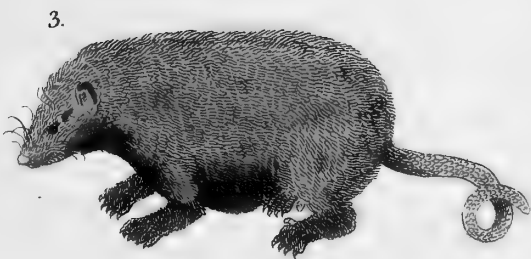


1. BROWN OWL. 2. OWL OF ATHENS. 3. CEYLONESE OWL. 4. GREAT WHITE OWL.
5. LITTLE OWL. 6. LITTLE OWL-HAWK. 7. LONG-EARED OWL. 8. SHORT-EARED OWL.

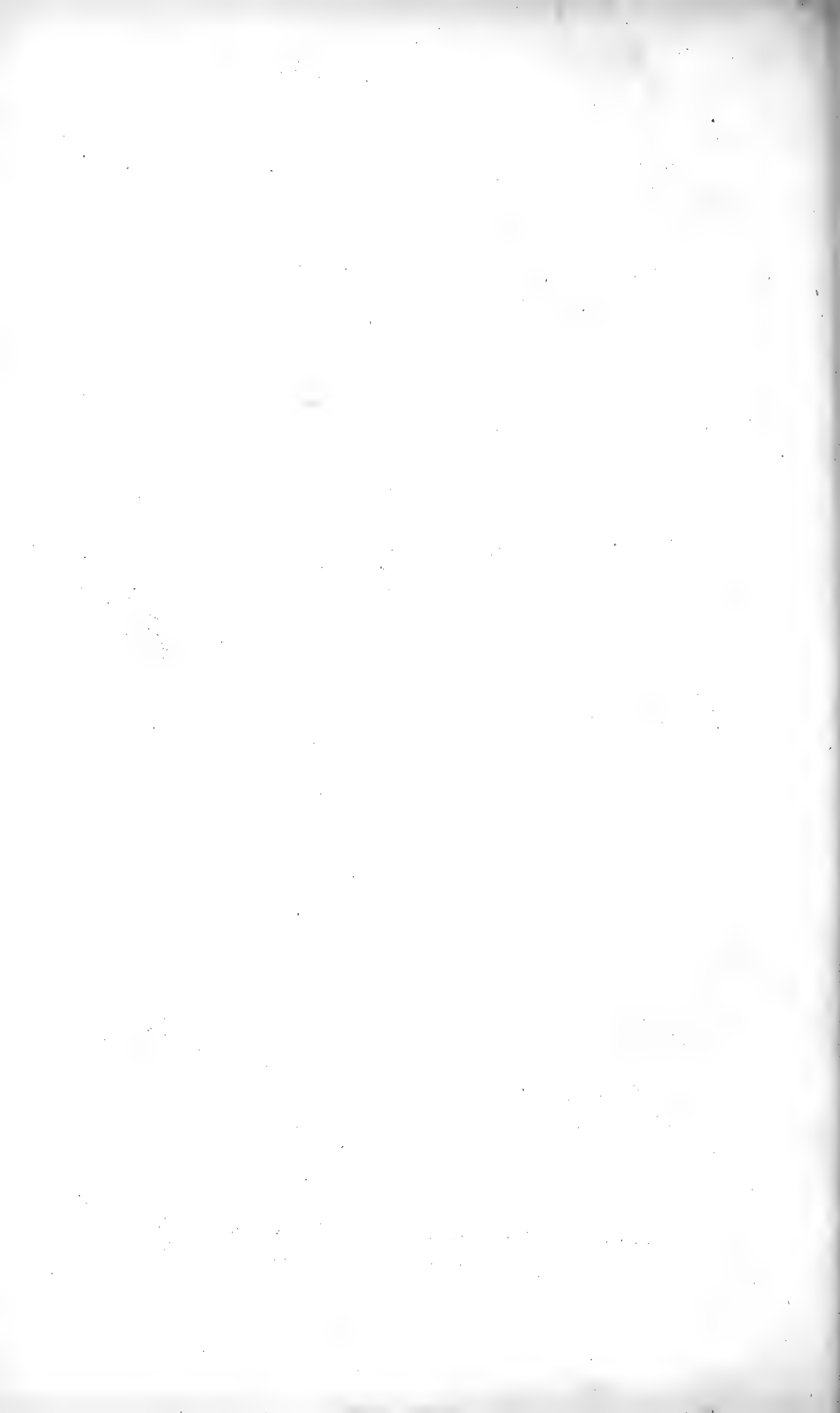


1. AFRICAN PELICAN. 2. AMERICAN PELICAN. 3. BLACK FOOTED PENGUIN.
4. NORTHERN PENGUIN. 5. SPOTTED PETREL. 6. MANKS PETREL.





1. AMERICAN NIGHTINGALE. 2. NUTCRACKER. 3. OPOSSUM. 4. YELLOW-SHOULDERED ORIOLE.
5. BLACK OSTRICH. 6. OTTER. 7. ROSE COLOURED OUZEL.



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1. GOLDEN - WINGED PARROQUET. 2. LITTLE RED-HEADED PARROQUET. 3. RING PARROQUET. 4. SAPPHIRE-CROWNED PARROQUET.
5. BLACK PARROT. 6. BLUE-FACED GREEN PARROT.



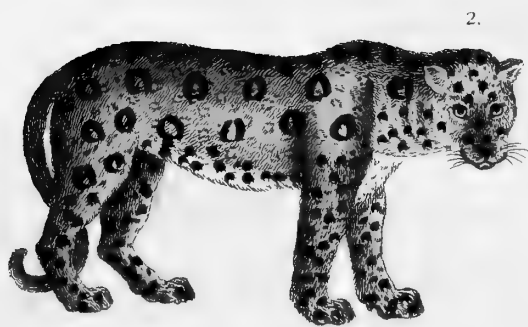
1. WILD PEACOCK OF SONNERAT. 2. RED PHALAROPE. 3. BLACK AND WHITE CHINESE PHEASANT.
4. PAINTED CHINESE PHEASANT. 5. PEACOCK PHEASANT.



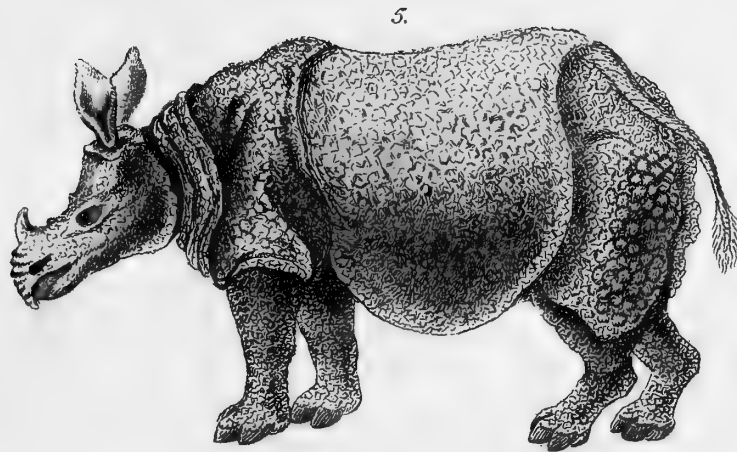
1. CRESTED LONG-TAILED PYE. 2. GREEN PYE OF THE ISLE OF CEYLON. 3. GREY PYE OF BRAZIL.
4. SHORT-TAILED PYE. 5. YELLOW-WINGED PYE.



1. GREAT - CROWNED INDIAN PIGEON. 2. GREY PIGEON OF THE ISLE OF LUÇON. 3. POMPADOUR PIGEON.
4. PURPLE PIGEON. 5. TRIANGULAR SPOTTED PIGEON. 6. PIGEON OF THE ISLE OF NICOBAR.



1. PACA. 2. MALE PANTHER. 3. MOUNTAIN PARTRIDGE OF JAMAICA.
4. RED-LEGGED PARTRIDGE. 5. WHITE PARTRIDGE.



1. AMERICAN REDSTART. 2. BLUE - THROAT REDSTART. 3. GREY REDSTART.

4. INDIAN REDSTART. 5. FEMALE RHINOSEROS.



1. RAIL OF ELOTEN. 2. SUMMER RED BIRD. 3. RED BIRD OF SERINAM. 4. BLUE RED BREAST

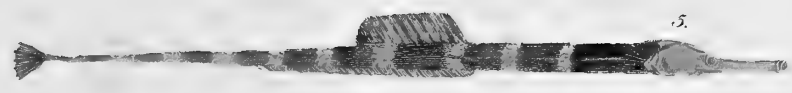
5. RED POLE. 6. YELLOW RED POLE.





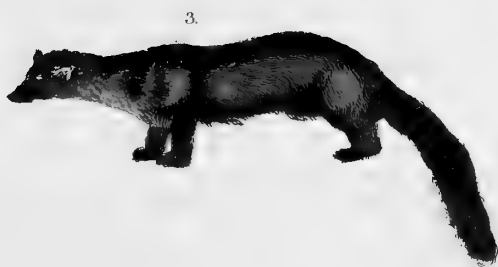
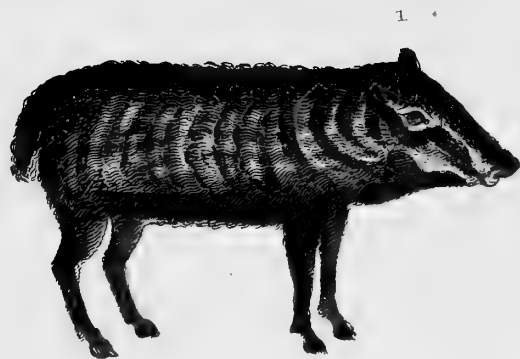
1. RICE BIRD. 2. ROE BUCK. 3. ROLLER.

4. RUD. 5. RUFF.



1. PIKE. 2. PILCHARD. 3. BLACK - BREASTED INDIAN PLOVER.
4. SPOTTED AMERICAN PLOVER. 5. PIPE FISH.

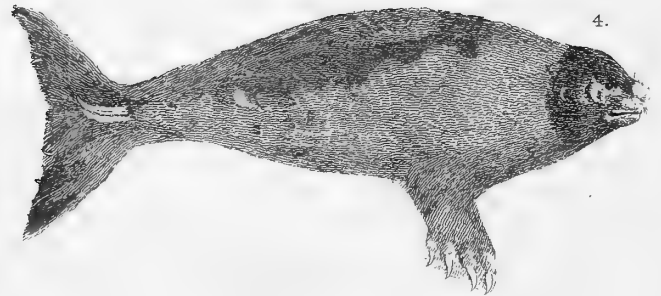




1. PICARY. 2. PERCH. 3. POLE-CAT. 4. PORCUPINE.

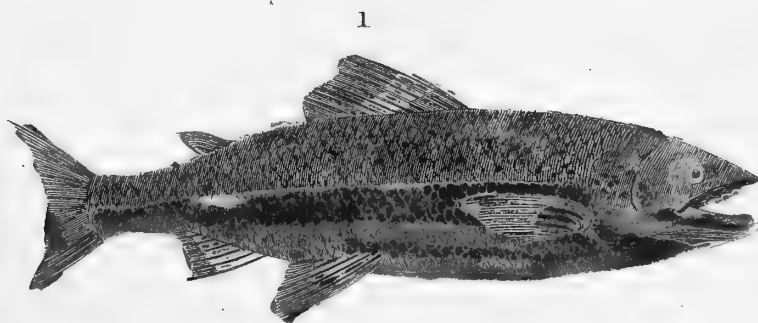
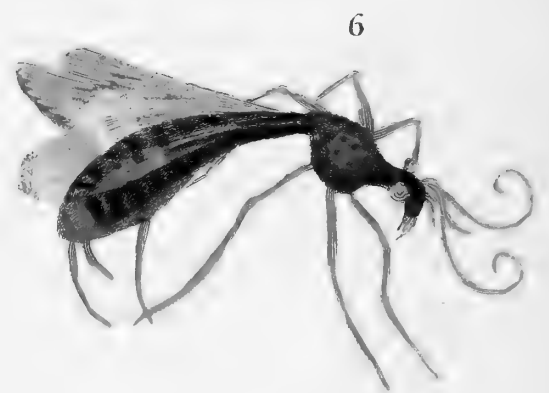
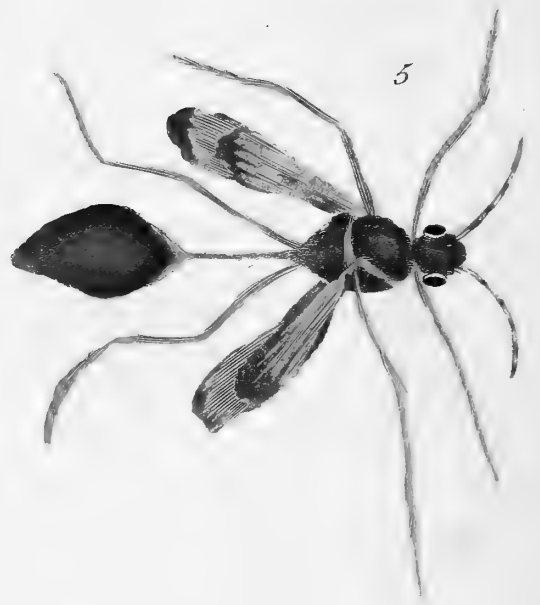
5. BRAZILIAN PORCUPINE.



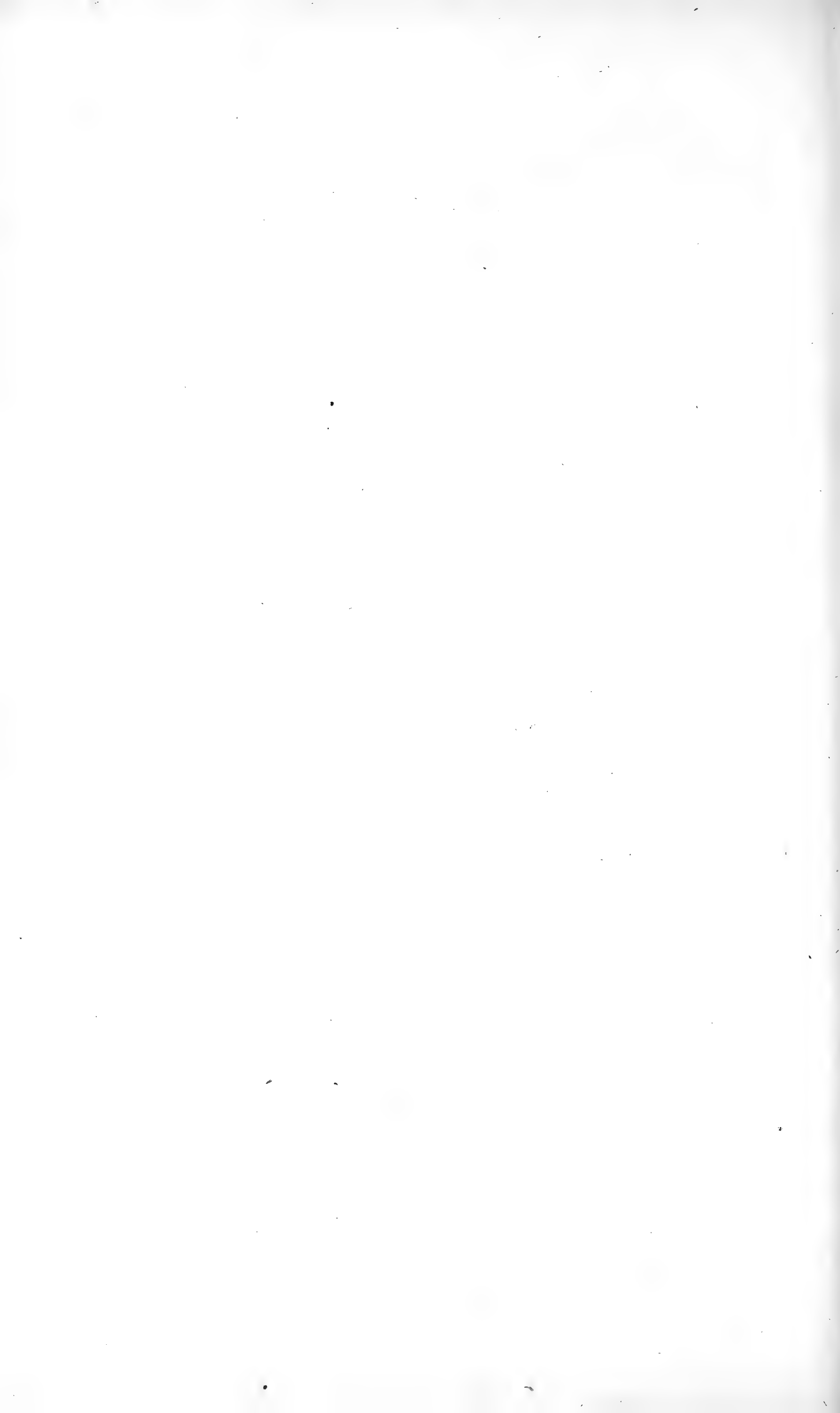


1. RED SCOLLOP-TOED SAND-PIPER. 2. SCAD. 3. SEAL. 4. HARP SEAL.

5. SECRETARY. 6. SHOMBURGER.



1. SALMON. 2. SANDERLING. 3. RED SAND PIPER. 4. COMB - FOOTED SAVAGE.
5. TURNER SAVAGE 6. MOTTLED SAW - FLY. 7. MOURNING SAW - FLY.



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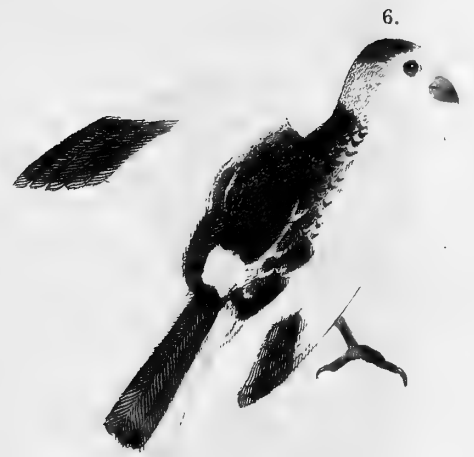
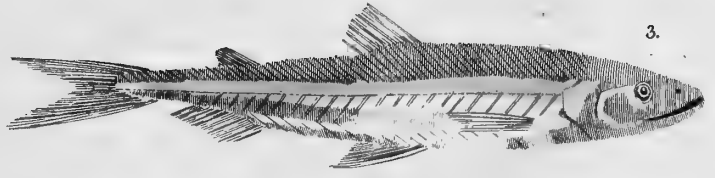


1. SERPENT EATER. 2. SHAG. 3. BEAUMARIS SHARK. 4. LONG - TAILED SHARK.
5. SMOOTH SHARK.



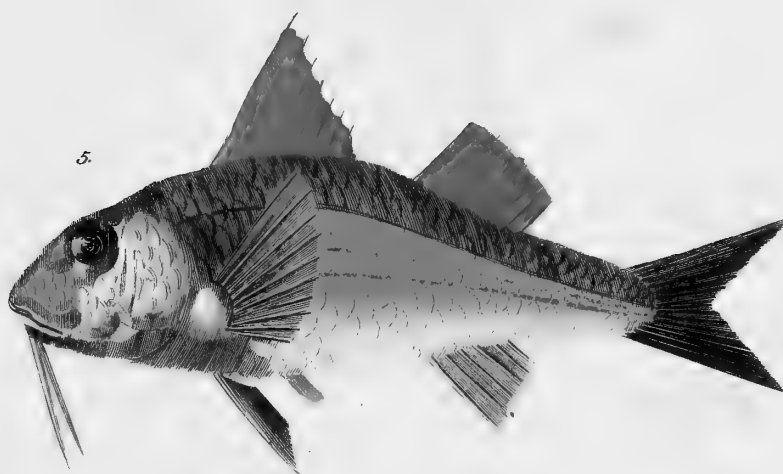


1. SPOTTED SHARK. 2. AFRICAN SHEEP. 3. MANY-HORNED SHEEP.
4. SHIRLEY. 5. SIYAH GHUSH.



1. SKATE. 2. SLOTH. 3. SMELT. 4. RINGED SNAKE. 5. SNIPE.
6. SNOW BIRD.





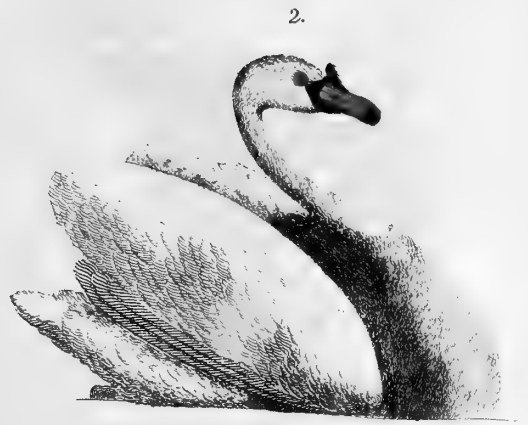
1. BLACK AND WHITE INDIAN STARLING. 2. COMMON STARLING. 3. SILKY STARLING.
4. YELLOW INDIAN STARLING. 5. STRIPED SURMULLET.





1 CHINESE SPARROW. 2 COMMON SPARROW. 3 INDIAN WHITE-BREADED SPARROW. 4 INDIAN YELLOW-TAILED SPARROW
 5 LITTLE SPARROW. 6 SPARROW OF PARADISE. 7 SOLITARY SPARROW. 8 TREE SPARROW.





1. SWALLOW. 2. SWAN. 3. WILD SWAN. 4. SWIFT.

5. SWORD FISH.

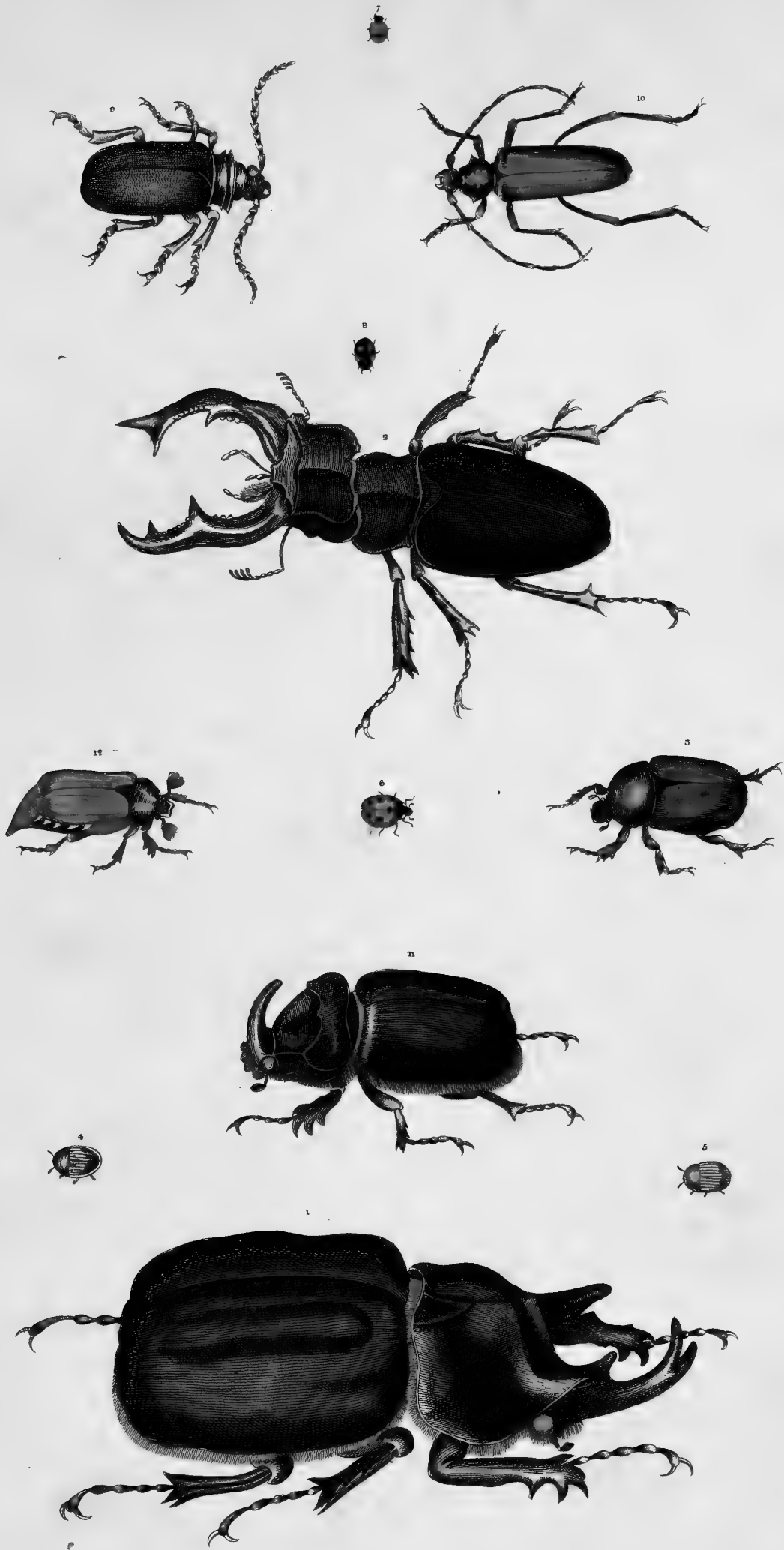




1. SPOON BILL. 2. BARBARY SQUIRREL. 3. FLYING SQUIRREL. 4. HUDSON'S BAY SQUIRREL.

5. VARIED SQUIRREL. 6. WHITE NOSED SQUIRREL.





1. ELEPHANT BEETLE. 2. STAG BEETLE. 3. BRASS BEETLE. 4. GREEN TORTOISE BEETLE. 5. SHIELD BEETLE. 6. SEVEN-
 SPOTTED LADY COW BEETLE. 7. TWO SPOTTED LADY-COW BEETLE. 8. FOUR SPOTTED LADY-COW BEETLE
 9. CARRICORN BEETLE. 10. MUSK BEETLE. 11. UNICORN BEETLE. 12. DORR BEETLE OR CHAFER.



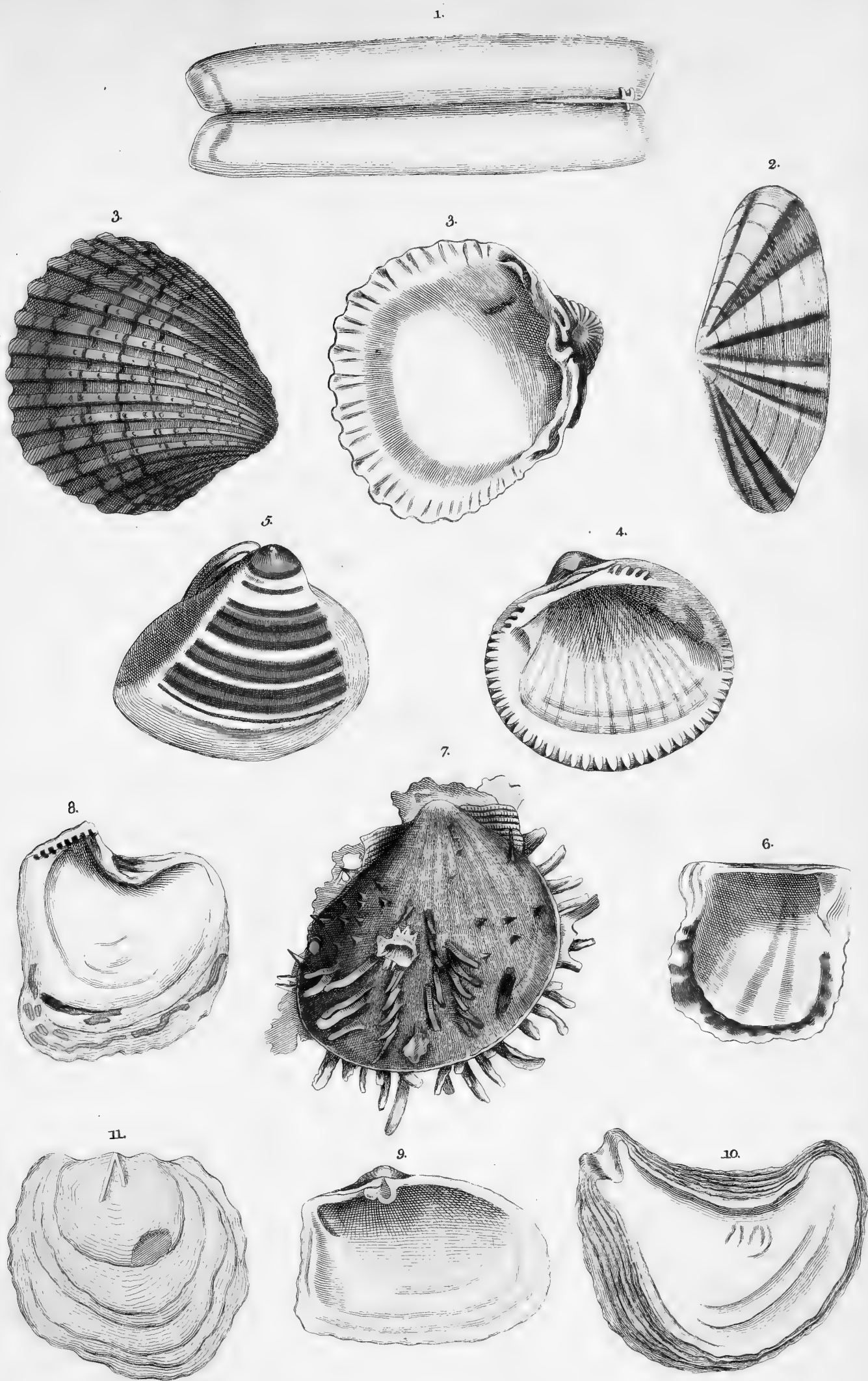


PLATE II. BIVALVES.

- 1. SOLEN, OR RAZOR SHELL.
- 2. TELLEN.
- 3. HEART COCKLE.
- 4. MULTARTICULATE COCKLE.

- 5. TRUNCATED COCKLE.
- 6. PEARL OYSTER.
- 7. SPONDYLE.
- 8. HINGE OYSTER.

- 9. CHAMA, OR GAPER.
- 10. COMMON OYSTER.
- 11. PELLUCID OYSTER.



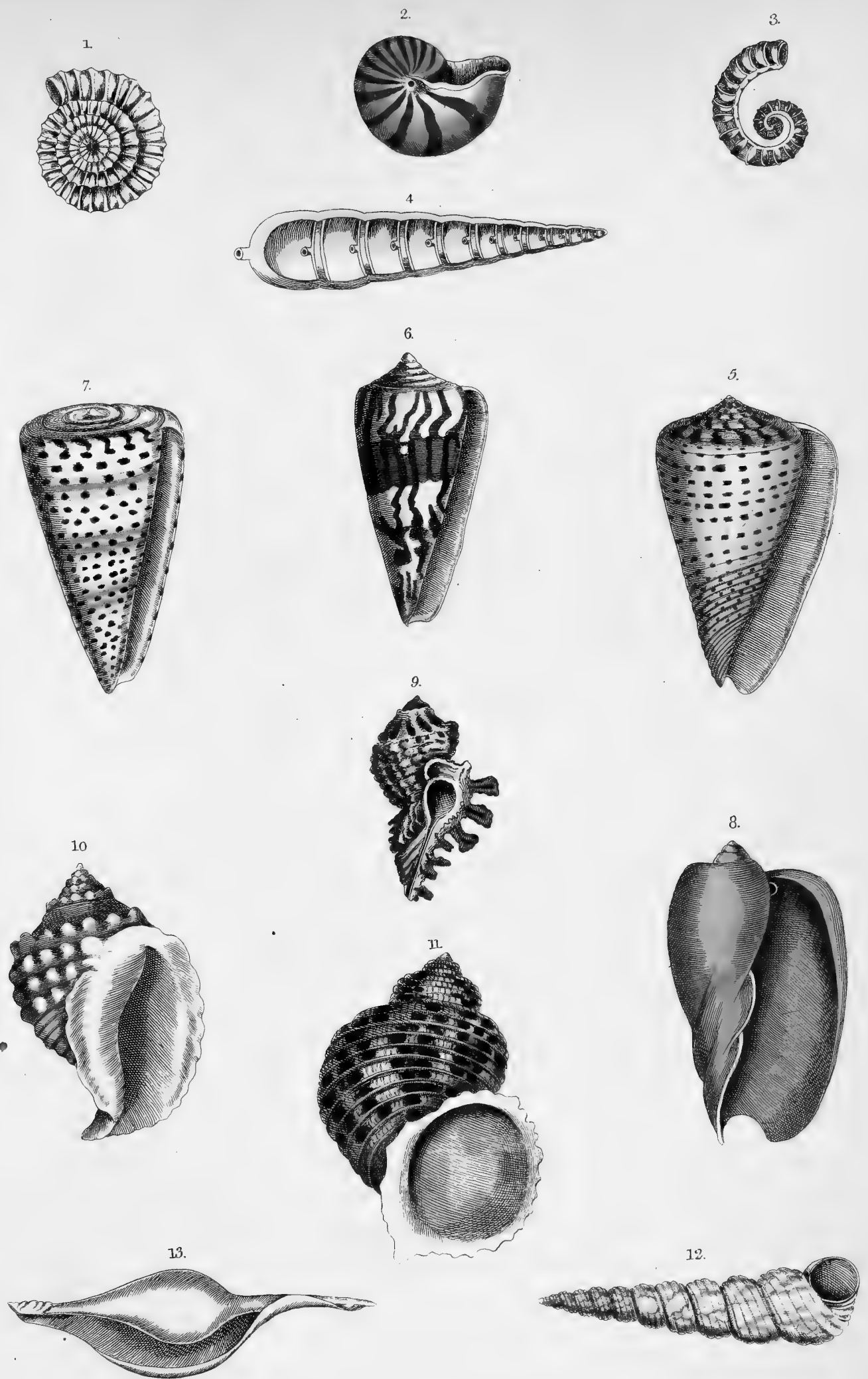


PLATE I. UNIVALVES.

1. CORNU . AMMONIS.
 2. PEARLY NAUTILUS.
 3. LITUUS.
 4. ORTHOCEROS.

5. YELLOW TIGER.
 6. ADMIRAL.
 7. ALPHABET.
 8. MELON.

9. BEAKED WHELK.
 10. KNOBBED TUN.
 11. SILVER MOUTH.
 12. LONG TURBANED SNAIL.
 13. WEAVERS SHUTTLE.



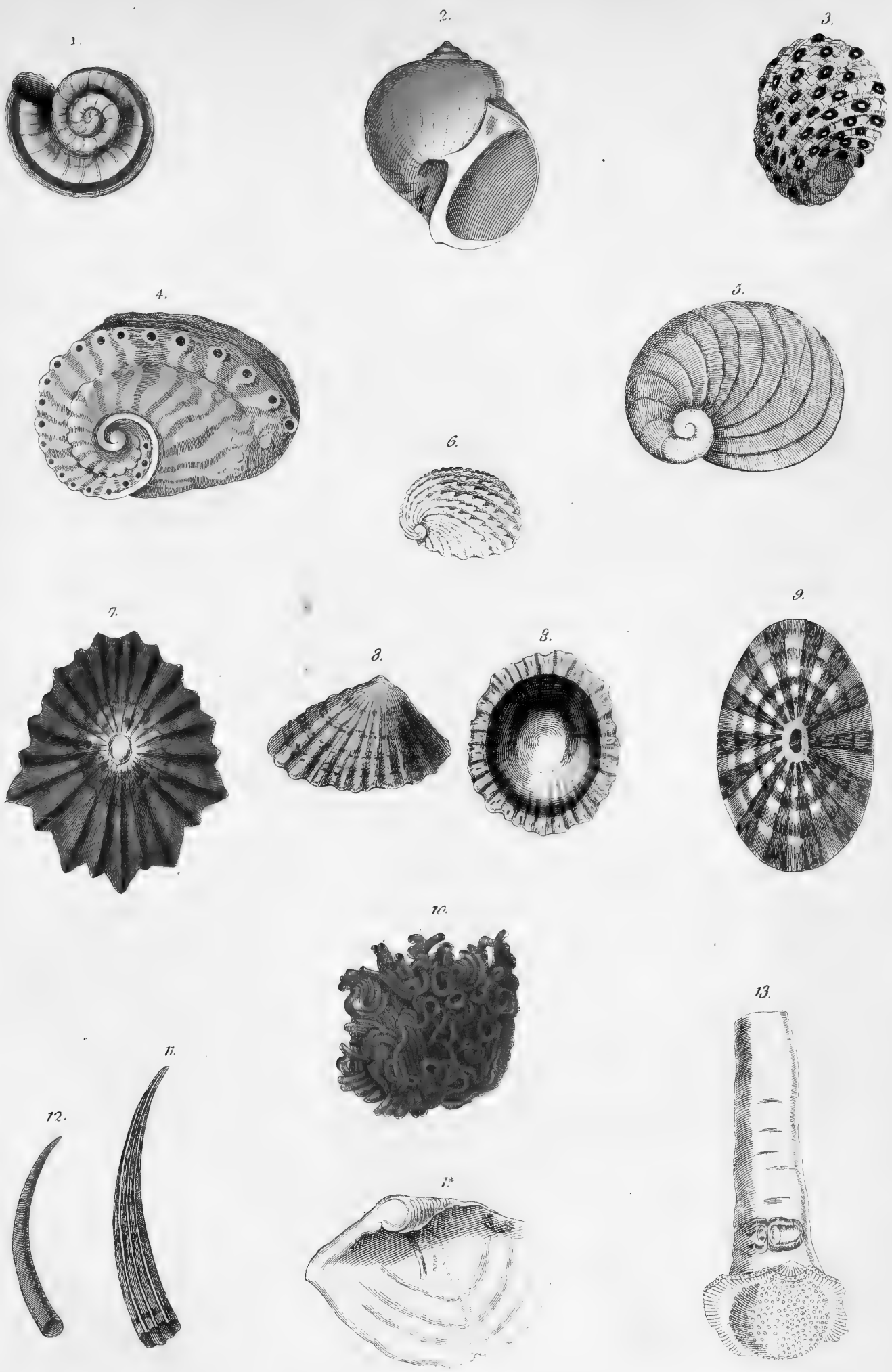


PLATE I. UNIVALVES

- 1. RAM'S HORN SNAIL.
- 2. SHORT-TURBANED SNAIL.
- 3. MAGPIE NERITE.
- 4. EAR-SHELL.
- 5. WHITE EAR-SHELL.

- 6. CHAMBERED LIMPET.
- 7. GOAT'S EYE LIMPET.
- 8. COMMON LIMPET.
- 9. MASKED LIMPET.

- 10. WORM TUBES.
- 11. GREEN-TOOTH-SHELL.
- 12. BROWN-TOOTH-SHELL.
- 13. WATTRING POT-SHELL.

MULTIVALVE.

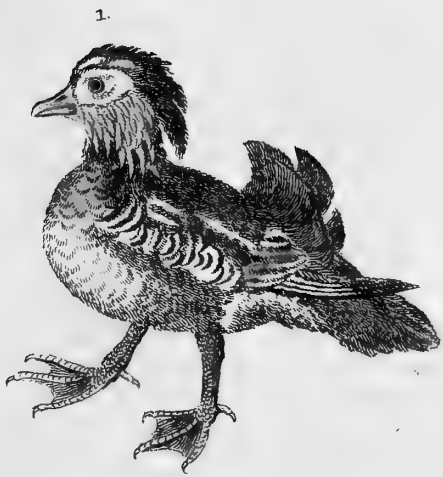
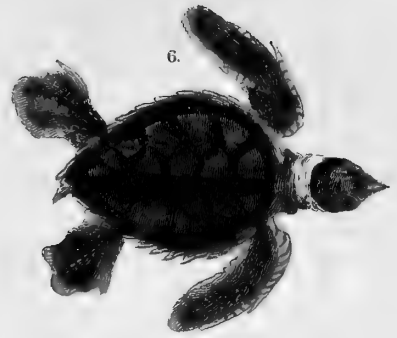
- 1. PHOLAS.



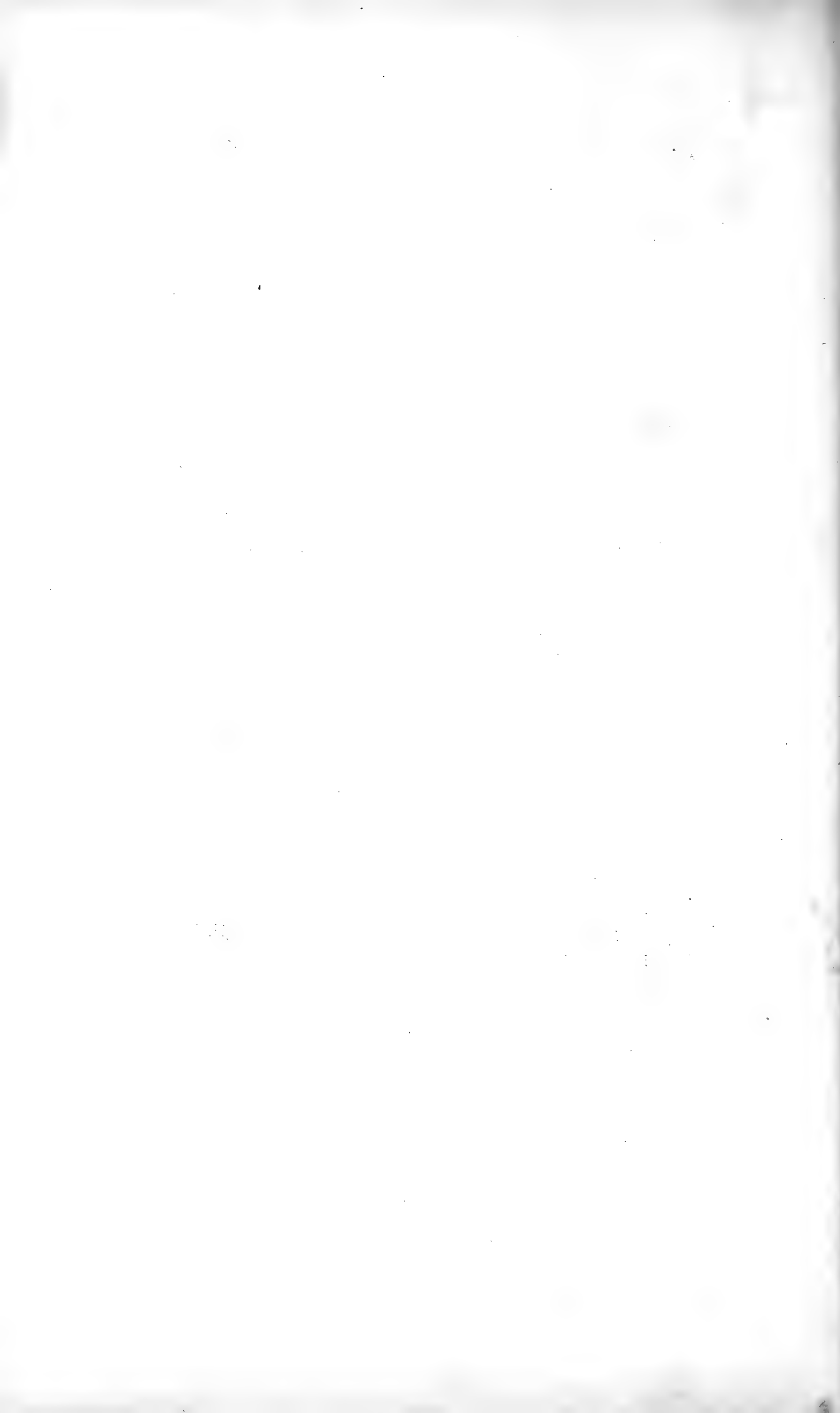
1. KING OF THE VULTURES. 2. CRESTED BLACK VULTURE. 3. GREY WAGTAIL. 4. WALL-CREEPER.

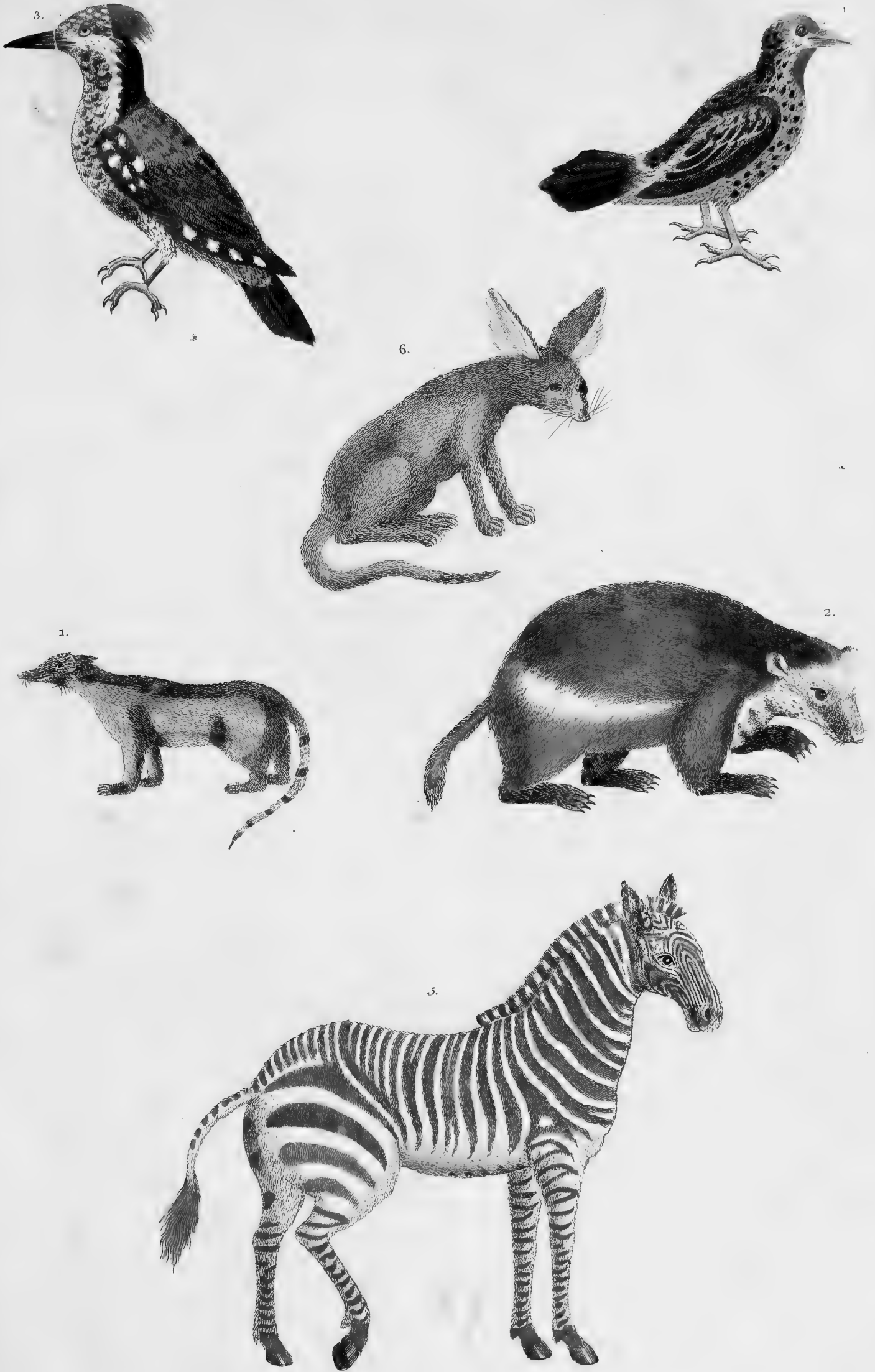
5. PURPLE WATER-HEN. 6. SPUR-WINGED WATER-HEN.





1. CHINESE TEAL. 2. GOLDEN THRUSH. 3. GOLDEN TITMOUSE. 4. AFRICAN TORTOISE. 5. RED-BEAKED TOUCAN.
6. EDIBLE TURTLE. 7. VIPER.





1. BRAZILIAN WEASEL. 2. WOLVERENE. 3. INDIAN SPOTTED WOODPECKER. 4. YELLOW SPOTTED WOODPECKER.

5. ZEBRA. 6. ZERDA.



