



# GENERAL ZOOLOGY

OF

## SYSTEMATIC NATURAL HISTORY

by

GEORGE SHAW, M.D. F. R.S. &c.

WITH PLATES

from the first Authorities and most select specimens

*Engraved principally by*

MR HEATH.



VOL. II. Part 1.

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# GENERAL ZOOLOGY.

VOLUME II.—PART I.

*MAMMALIA.*

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## GENERAL ZOOLOGY.

*VOL. III, or the next Volume, which will be published with all convenient expedition, will contain the WHOLE OF THE AMPHIBIA; and will, of course, comprise the Tortoise, Frog, Lizard, and Serpent Tribes.*



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ERRATA.—PART I.

- P. 28. l. 4. for *seven in circumference* read *seven inches in circumference*.  
 P. 11. l. 1. for *pentadactylis* read *pentadactylis*.

*Directions for placing the Plates in vol. II. part I.*



The Vignette to Part I. represents the Harvest Mouse of its natural size.—Page 62.

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French/1846

Illustration of a porcupine published by G. Agassiz, 1846.

**COMMON  
PORCUPINE.**

# QUADRUPEDS.

ORDER

GLIRES.

---

## HYSTRIX. PORCUPINE.

### *Generic Character.*

<i>Dentes Primores</i> duo, oblique scissi.	<i>Front-teeth</i> two, both in the upper and under jaw, obliquely cut.
<i>Molares</i> octo.	<i>Grinders</i> eight.
<i>Digiti pedum</i> 4—5.	
<i>Corpus spinis pilisque</i> tectum.	<i>Body</i> covered with spines intermixed with hairs.
	Four toes on the fore-feet; five on the hind.

### COMMON PORCUPINE.

*Hystrix Cristata.* *H. palmis tetradactylis, plantis pentadactylis, capite cristato, cauda abbreviata.* *Lin. Syst. Nat. p. 76.*

Long-spined Porcupine, with tetradactylous fore-feet, pentadactylous hind-feet, crested head, and short tail.

*Hystrix.* *Gesn. Quadr. p. 563. Aldr. dig. p. 471. fig. p. 474. Jonst. Quadr. p. 163. t. 68. Raj. Quadr. 206.*

Le Porc-Epic. *Buff. 12. p. 402. pl. 51, 52.*

Crested Porcupine. *Pennant Quadr. 2. p. 122.*

**W**E have before observed, that in an arrangement of quadrupeds, from their obvious external characters alone, without reference to the form

and disposition of the teeth, the Porcupine and the Hedgehog might be placed together ; but such is the dissimilarity of these organs, that the one must of necessity belong to the Linnæan order Feræ, and the other to that of Glires.

The singular appearance of the Porcupine, so different from that of the generality of quadrupeds, must in the earliest ages have attracted the attention even of the most incurious ; the variegated spines or quills with which it is covered naturally suggesting the idea of a fierce and formidable animal : it is, however, of a harmless nature, and the quills are merely defensive weapons, which, when disturbed or attacked, the animal erects, and thus endeavours to repel his adversary.

The general length of the Porcupine is about two feet from head to tail, and that of the tail about four inches. The upper parts of the animal are covered with long, hard, and sharp quills ; those towards the middle and hind part of the body being longer than the rest, and measuring from nine or ten to twelve or fifteen inches in length : they are very sharp-pointed, and are variegated with several alternate black and white rings : the root, or point of attachment, is small : the head, belly, and legs, are covered with strong dusky bristles, intermixed with softer hairs : on the top of the head the hairs are very long, and curved backwards in the manner of a ruff or crest : the ears are short and rounded : the nose blunt ; the upper lip divided by a strongly-marked furrow ; the two fore teeth, both above and below,

extremely large and strong: the fore feet have four toes; the hind feet five; all armed with strong crooked claws: the tail is covered with short and rather flattish quills, which are often abrupt or truncated, rather than pointed at the extremities. This animal is a native of Africa, India, and the Indian islands: it is also found in some of the warmer parts of Europe, and is said to be not very uncommon in Italy and Sicily; but is supposed to have been originally imported into those parts of Europe from other regions. Mr. Brydone, in his tour through Sicily, informs us, that in the district about Baiæ the Porcupine is frequently seen; and that in a shooting party on the Monte Barbaro he and his companions killed several, but that the novelty of the amusement was its chief merit, and that he would not at any time give "a day's partridge for a month porcupine-shooting." He adds, that the party dined on porcupine that day, but that it is "extremely luscious, and soon palls upon the appetite."

The power of darting its quills with great violence, and to a considerable distance, so confidently ascribed to the Porcupine by the writers of antiquity, as well as by some of the moderns, seems now pretty generally exploded: it perhaps originated from an accidental circumstance; and it is surely not improbable that the Porcupine possessing, like other quadrupeds, the power of corrugating or shaking the general skin of its body, may sometimes by this motion cast off a



few of its loose quills to some distance, and thus slightly wound any animal that may happen to stand in its way; and this may have given rise to the popular idea of its darting them at pleasure against its enemies. That it really does cast them off occasionally with some degree of violence there is no reason to doubt\*. “The strongest and shortest of the quills (say the anatomists of the French Academy) are most easily detached, and are those which the animals dart against the hunters, by shaking their skin as dogs do when they come out of the water. Claudian accordingly remarks, that the Porcupine is himself the bow, the quiver, and the arrow, which he employs against the hunters.” The Count de Buffon reproaches the gentlemen of the academy with their credulity on this subject, and observes, that they seem to have adopted the fable for no other purpose than that of quoting Claudian; since, by their own account, it appears that the Porcupine does not dart his quills to a distance,

\* “Upon the smallest irritation it raises its quills, and shakes them with great violence, directing them to that quarter from whence it is in danger of being attacked, and striking at the object of its resentment with its quills at the same time. We have observed, on an occasion of this sort, at a time when the animal was moulting or casting its quills, that they would fly out to the distance of a few yards, with such force as to bend the points of them against the board where they struck; and it is not improbable that a circumstance of this kind may have given rise to an opinion of its power to use them in a more effectual manner.”

*Bewick's Quadrupeds, ed. 2. p. 444.*

but that they only fall off when he shakes himself. The lines of Claudian are these :

*Ecce, brevis propriis munitur bestia telis,  
Externam nec quærit opem, fert omnia secum,  
Se pharetra, sese jaculo, sese utitur arcu!*

Arm'd at all points in Nature's guardian mail,  
See the stout porcupine his foes assail ;  
And, urg'd to fight, the ready weapons throw,  
Himself at once the quiver, dart, and bow !

Some authors have gone so far as to assert that the Porcupine can dart his quills with such force as to penetrate a plank of considerable thickness. It is agreed on all hands, however, that the animal, conscious of the power of his armour, generally pushes against his adversary when assaulted, and can thus sometimes wound pretty smartly with his spines, and this is said to be particularly the case with a small species found in North America, and known by the name of the Urson, or Canada Porcupine.

Dr. Patrick Brown, in his Natural History of Jamaica, speaking of the common Porcupine, which, he says, is sometimes brought into that island from the coast of Guinea in the African ships, observes, that “ the force and mechanism with which this animal darts its long thorns at its enemy, when it is enraged, is really admirable : nor are the infinitely small setæ these are beset with less remarkable, by which they stick in the flesh with more obstinacy than a simple body of the same form would do. These little setæ are

are very observable to the touch ; for, on holding a thorn in your hands, and endeavouring to pull equally with both, you will find the thickest end to glide with much more ease through your fingers than the other.”

The Porcupine feeds principally on roots, fruits, barks, and other vegetable substances : it inhabits holes or subterraneous retreats, which it is said to form into several compartments or divisions, leaving only a single hole or entrance. It sleeps much by day, and makes its excursions for food during the night. The female produces two young at a birth, and these, if taken early, are said to be easily tamed.

The Porcupine admits of considerable variety as to the length and proportion of the quills in different specimens and from different countries : the long crested bristles on the back of the head, in particular, are much more conspicuous in some than in others.



PREHENSILE PORCUPINE.



## PREHENSILE PORCUPINE.

*Hystrix Prehensilis. H. pedibus tetradactylis, cauda elongata prehensili seminuda. Lin. Syst. Nat. p. 76.*

Short-spined Porcupine, with tetradactylous feet, and long half-naked prehensile tail.

*Hystrix cauda longissima tenui, medietate extrema aculeorum experte. Briss. Quadr. p. 129.*

Le Coendou à longue queue. *Buff. suppl. 7. p. 305. pl. 78.*

Brasilian porcupine. *Pennant Quadr. 2. p. 124.*

THIS is an American species, and is found in many of the hotter parts of that continent; particularly in Brasil, where it inhabits woods, and climbs trees; clinging occasionally to the branches by its tail, in the manner of some of the Opossums and Monkeys. It is said to feed not only on fruits of various kinds, but also on birds. It sleeps during the greater part of the day, concealing itself in the hollows of trees, or beneath their roots. Its voice, according to Marcgrave, resembles the grunting of a pig. Its general length is about a foot, and the tail about eighteen inches. The whole animal, except on the belly and insides of the limbs, is covered with short, strong, and very sharp spines, of which the longest measure three inches, and are white, barred towards the points with black. The colour of the hair with which the under parts are covered is a dusky brown. The head is small; the nose extremely blunt; and the teeth very large and strong: the ears short, moderately large, and rounded: the feet have four toes each, with strong claws,

and a tubercle in place of a fifth toe: the tail is covered with spines for about a third part of its length; the remainder being nearly naked, and strongly prehensile. In the Leverian Museum is a very fine specimen of this animal.

## MEXICAN PORCUPINE.

*Hystrix Mexicana.* *H. pedibus tetradactylis, cauda mediocri.*

Short-spined Porcupine, with tetradactylous feet, and tail of moderate length.

*Hystrix Novæ Hispaniæ.* *H. aculeis apparentibus, cauda brevi, et crassa.* *Briss. Quadr. 127.*

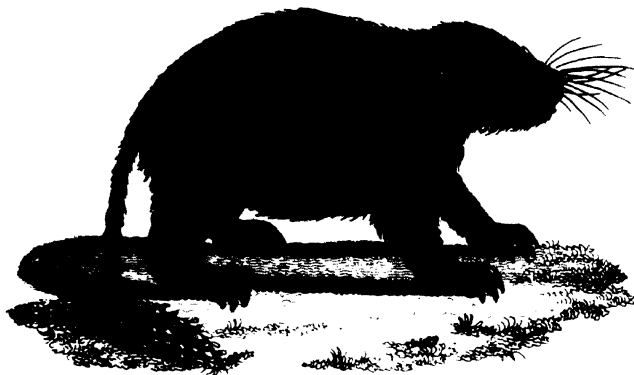
Le Coendou. *Buff. 12. p. 418. pl. 54.*

Mexican Porcupine. *Pennant Quadr. 2. p. 125.*

THE Mexican Porcupine, which is placed as a variety of the *Hystrix prehensilis* in the Gmelinian edition of the *Systema Naturæ*, seems to be justly considered by Mr. Pennant as a distinct species. It is as large, according to Hernandez, as a middle-sized dog, and is of a dusky brown colour, with very long bristles intermixed with the fur: the spines, with which the upper parts are covered, are about three inches long, slender, and varied with white and yellow, and are not very apparent through the hairs, except on the tail, which is much thicker and shorter in proportion than in the Brazilian Porcupine, and, like that, is naked, or without spines from the middle to the end. This animal inhabits the hilly parts of Mexico, residing in woods, and feeding,







IRIDESCENT PORCUPINE.



BRUSH-TAILED PORCUPINE.

like the former, on fruits, &c. It is said to be easily tamed. The Indians apply the quills to the forehead in cases of headach: they are said to adhere till they are filled with blood, and then to fall off; thus relieving the complaint in a most efficacious manner. Buffon seems to have considered this species as the same with the *Hystrix prehensilis*. It is said to have a strong and disagreeable odour. The female produces two young at a birth, in the hollows of trees.

## IRIDESCENT PORCUPINE.

*Hystrix Macroura*. *H. pedibus pentadactylis, cauda longissima, aculeis clavatis*. *Lin. Syst. Nat. p. 77.*

Short-spined Porcupine, with pentadactylous feet, and very long tail, tufted at the extremity with clavated bristles.

*Hystrix Orientalis*. *H. cauda longissima, aculeis undique obsita, in extremo paniculata*. *Briss. Quadr. 131.*

*Porcus aculeatus sylvestris, &c.* *Seb. 1. p. 84. pl. 52.*

The rice-tailed Porcupine.

Long-tailed Porcupine. *Pennant Quadr. 2. p. 123.*

THE iridescent Porcupine is an animal of a very extraordinary appearance. It is of a very thick form, and is coated with short, stiff, needle-like bristles, or small spines, which, according to the different directions of the light, exhibit changeable colours, appearing either of a gilded green, or of a reddish tinge. The head is thick and short; the snout blunt; the eyes large; the ears rather small, rounded, and smooth within; the whiskers long, and the upper lip divided like

that of a hare: the feet, according to Seba, are all furnished with five toes, of which the exterior is shortest: the claws are thick and strong: the tail is very long, and covered with short spiny hair, like that on the body, except at the extremity, which is tufted with a thick brush of quills of an extraordinary form, consisting each of a long slender stem, swelling out at intervals into knots resembling grains of rice, and tipped with a similar knot: this tufted extremity of the tail is of a silvery white colour, and the quills which compose it are of different lengths. It inhabits the islands of the Indian Archipelago, and resides in woods. It appears to have been first described by Seba, whose elegant figure has been generally copied by succeeding writers. If we except the gilded or Cape Mole, it seems to be almost the only quadruped yet known with changeable-coloured hair. Seba informs us that his figure of this animal was taken from a very fine and perfect specimen in the Museum of Mr. Vincent of Harlem, he having only a specimen of the tail in his own collection. He adds, that the species is mentioned by Bontius; and that others of good credit affirm that they have seen it in the Indian islands; and that in its gall-bladder is found a calculus which is esteemed equal in virtue to that of the Malacca Porcupine (Malacca Hedgehog), and is called by the Portuguese, *Piedra de Puerco*.

## BRUSH-TAILED PORCUPINE.

*Hystrix Fasciculata.* *H. palmis tetradactylis, plantis pentadactylis, cauda mediocri apice setis complanatis fasciculato.*

Porcupine with tetradactylous fore-feet, pentadactylous hind-feet, and tail terminated by a tuft of flattened bristles.

Le Porc-epic de Malaca. *Buff. suppl. 7. p. 303. pl. 77.*

THIS animal, which is described and figured in the 7th supplemental volume of the Count de Buffon's History of Quadrupeds, is a native of Malacca. It differs, according to that author, from the Common Porcupine in several particulars, and especially in the form and length of its tail, which is naked, scaly, about a third of the length of the body, and terminated by a tuft of long flat hairs, or rather small white laminæ, resembling strips of parchment. The body measures fifteen or sixteen inches, and is consequently less than that of the European Porcupine; the head also is longer in proportion, and the snout, which is covered with a black skin, is furnished with whiskers of five or six inches in length: the eyes are small and black: the ears smooth, round, and naked: there are four toes, united by a common membrane, on the fore feet, with only a tubercle in place of a fifth toe: the hind feet have five toes, united in a similar manner by a membrane somewhat smaller than that of the fore feet: the legs are covered with blackish hair: the flanks and upper parts of the body are whitish, and covered with spines shorter than those of the

Common Porcupine, and of a peculiar shape, being a little flattened, and channeled with a longitudinal furrow ; they are white at the point, and black in the middle, and many of them are black above and white below ; and from this mixture results a varying cast of black and white over the whole body of the animal.

This species, like others of its genus (which Nature seems to have provided with defensive weapons only), possesses a kind of instinctive fierceness : when approached it stamps with its feet, and appears to inflate itself, raising and shaking its quills. It sleeps much by day, and is active only by night. It eats in a sitting posture ; holding apples and other fruits between its paws, peeling them with its teeth : it is particularly pleased with stone fruits, and especially with apricots : it will also eat melons, and is never observed to drink. The above description was drawn up from two of these animals in a living state, at Paris, in the year 1777.





CANADA

PORCUPINE

*After John G. Leach, Published by G. Knapp, The Artist.*

## CANADA PORCUPINE.

*Hystrix Dorsata.* *H. palmis tetradactylis, plantis pentadactylis, dorso præcipue spinoso, cauda subabbreviata.*

Short-spined Porcupine, with very long fur, tetradactylous fore-feet, pentadactylous hind-feet, spiny back, and shortish tail.

*Hystrix Hudsonis.* *H. aculeis sub pilis occultis, cauda brevi et crassa.* *Briss. Quadr.* 128.

*Hystrix dorsata.* *Lin. Syst. Nat.* p. 76.

L'Urson. *Buff.* 12. p. 426. pl. 55

Canada Porcupine. *Pennant Quadr.* 2. p. 126.

THIS species is a native of the northern parts of America, and is not uncommon in Canada. It is a short thick-bodied animal, approaching somewhat to the form of a Beaver, and is remarkable for the length and fulness of its fur, which is soft, of a dusky brown colour, and intermixed with longer and coarser hairs with whitish tips: the head is short; the nose blunt, the ears small and rounded, the teeth very strong, the limbs short, the feet armed with strong, crooked, sharp-pointed claws, hollowed or channelled beneath: on the fore feet are four toes, and on the hind five: the general length, from nose to tail, is about a foot and half: of the tail six inches. Edwards compares the size to that of a fox, though the shape is widely different. The spines are nearly hid in the fur, and are only visible on a close inspection: they are situated on the head and upper parts, as well as on the tail: the longest are those on the back, which measure about three inches, while those on the other parts are proportionally shorter:



they are strong and sharp-pointed, and so formed as to appear, when examined with a magnifier, as if barbed at the tips with numerous, small, reversed points or prickles, and are so slightly attached to the skin as to be loosened with great ease: and the animal will sometimes purposely brush against the legs of those who disturb it, leaving several of the spines sticking in the skin.

The first figure of the Canada Porcupine seems to have been given by Edwards, from a specimen brought from Hudson's Bay. It is said to feed principally on the bark of the juniper tree. It drinks by lapping, in the manner of a dog. It resides in holes under the roots of trees, on which, like some others of this genus, it often climbs, and is thus killed by the American Indians, who consider it as a useful article of food: they also use the quills by way of fringes, and for the purpose of ornamenting their boxes, &c.

Though the natural or genuine colour of this animal is brown, yet it is sometimes found perfectly white, or cream coloured: two very elegant specimens in this state occur in the Leve-rian Museum.

The Count de Buffon, with peculiar absurdity, affects to entertain a doubt whether the *iridescent porcupine* (*H. macroura*. *Lin.*), described and figured by Seba under the title of *Histris Orientalis singularis*, may not in reality be this species, and observes, that this would not be the only instance in which Seba has exhibited American animals as

as belonging to the East Indies. He then goes on to say, that the resemblances are very great, and the differences but slight. On the contrary, whoever takes the pains to collate the two animals will readily perceive that hardly any quadrupeds of the same genus can exhibit more strikingly different characters.

## CAVIA. CAVY.

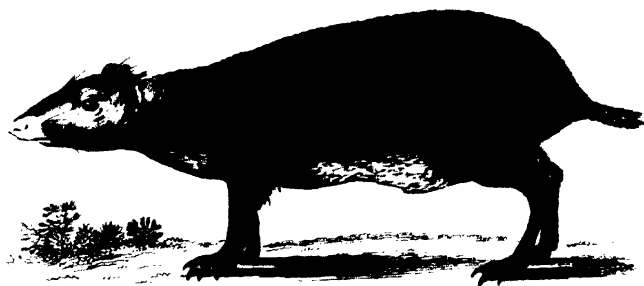
*Generic Character.*

<i>Dentes Primores</i> duo cuneati.	<i>Front-teeth</i> two, wedge-shaped.
<i>Molares</i> octo.	<i>Grinders</i> eight.
<i>Digiti</i> plantarum 3—5. palmarum 4—5.	<i>Toes</i> on the fore feet from four to five : on the hind feet from three to five.
<i>Cauda</i> abbreviata aut nulla.	<i>Tail</i> very short, or none.
<i>Clavicula</i> nullæ.	<i>Clavicles</i> , or Collar Bones, none.

**T**HE animals of this, as well as of some other lately instituted genera, in the present order *Glires*, were by Linnæus comprised under the genus *Mus* ; but since many animals of a very different habit, or general aspect, were thus crowded into one extensive genus, it was at length thought advisable, and even necessary, to divide them into distinct genera ; instituted from the structure of the feet, the proportion of the limbs, &c. the teeth being nearly the same in all. The animals of the genus *Cavia* have generally a slow, and sometimes a leaping pace : they live, like the rest of the *Glires*, on vegetable substances, and in their natural state inhabit excavations under ground, or beneath the roots of trees ; or other



VARIEGATED CAVY.



ACHOUCHI.



AGUTI.

recesses which they either find ready prepared, or form for themselves. The most familiar example of this genus is the well-known little animal, called the Guinea-Pig, or *Cavia Cobaya*.

VARIEGATED CAVY.

*Cavia Cobaya*. *C. ecaudata ex albo et rufo vel nigro variegata*.  
*Lin. Syst. Nat. Gmel. p. 122.*

Tailless Cavy, generally variegated either with black and white, or rufous, &c. &c.

*Mus Porcellus*. *M. cauda nulla, palmis tetradactylis, plantis tri-*  
*dactylis*. *Lin. Syst. Nat. p. 79.*

*Cuniculus Indicus*. *Nieremb. Hist. Nat. p. 160. Aldr. dig.*  
*p. 390, 391. Jonst. Quadr. 162.*

Le Cochon D'Inde. *Buff. 8. p. 1. pl. 1.*

Restless Cavy. *Pennant Quadr. 2. p. 89.*

THIS species, from the beauty and variety of its colours and the neatness of its appearance, must have early attracted the attention of those Europeans who first visited South America; even the wild or native specimens, being variegated with black, white, reddish, or yellow, in the same manner as those which are so frequently reared in Europe. This little animal is very easily rendered tame, but is seldom observed to shew any very lively attachment to its benefactors; and is not distinguished by any remarkable degree of docility: it is, however, cleanly, harmless, and of a timid disposition. In a state of confinement it breeds almost every two months; and often produces a

very numerous offspring at a birth\*. The young very soon acquire the necessary degree of strength and perfection of their species, though they continue to grow till seven or eight months. They, therefore, require but for a short time the attention of the parent, and even in the space of twelve hours can run about with as much agility as the full-grown animals. Since the female is furnished with only two teats, and yet produces a numerous offspring, it might at first appear as if Nature had but ill provided or proportioned the power of nourishment for the young; this, however, is by no means the case, since the young, in a few hours after birth, are capable of eating various vegetable substances, and consequently require but very little assistance on the part of the mother. In their native regions of South America they are chiefly found in Brasil. They willingly feed on a great variety of vegetable substances, and may be successfully reared on parsley, cabbage, sowthistles, &c. and if permitted to range in a garden, will readily support themselves, without any assistance. In winter they may be fed with bread, carrots, grain of various kinds, &c. They drink but very little, and, after eating, exhibit the appearance of rumination, in the same

\* From four to ten or twelve. According to the Count de Buffon, a single pair might produce 1000 in one year, since they produce at least every two months; go with young only three weeks; and have been known to bring forth young when only two months old.

manner as the Hare. They are very tender animals, and susceptible of cold, and should therefore be provided with warm receptacles to retire into in bad weather. If fed too long on very succulent food, as cabbage, sowthistle, &c. they receive injury by it, and should be relieved by allowing them more solid food, as bread, grain, &c. They have often been used as an article of food, and are in some place considered as a delicacy. In their habits they are extremely neat, and may be frequently observed in the act of smoothing and dressing their fur, somewhat in the manner of a Cat. In their quarrels they not only bite but kick each other, like horses, with their hind feet. It is observed, that the male and female seldom sleep at the same time; but seem alternately to watch each other; the one sleeping while the other is feeding, &c. Their general voice is a sort of grunting squeak, and sometimes a shriller or sharper cry.



## SPOTTED CAVY.

Cavia Paca. *C. condata, pedibus pentadactylis, lateribus flavescente-lineatis.* *Lin. Syst. Nat. Gmel. p. 120.*

Tailed Cavy, with pentadactylous feet, and sides marked by rows of yellowish white spots.

Mus Paca. *M. cauda abbreviata, pedibus pentadactylis, lateribus flavescente-lineatis.* *Lin. Syst. Nat. p. 81.*

Paca. *Buff. 10. p. 269. pl. 34. and Suppl. 3. p. 203. pl. 35.*

Spotted Cavy. *Pennant Quadr. p. 120.*

THIS is a large species, measuring near two feet in length. It is found in Guiana, Brasil, and other parts of South America; inhabiting holes formed under ground, and principally near the banks of rivers. It is of a thick, clumsy form, somewhat resembling that of a pig; for which reason it has been sometimes called the Hog-Rabbit. The head is round; the muzzle short and black; the upper jaw longer than the lower; the lip divided like that of a hare; the nostrils large; the whiskers long; the eyes large and prominent, and of a brown colour; the ears short, moderately large, round, and naked; the neck thick; the body very plump, larger behind than before, and covered with coarse, short, thinly-scattered hair of a dusky colour, deepest on the back: the throat, breast, insides of the limbs, and belly, are of a dingy white; and on each side the body run five rows of roundish, slightly angular spots, situated pretty near each other: the legs are short; and the feet have five toes, four of which are armed with strong and sharp



SPOTTED CAVY



CAPYBARA.



claws; that on the fifth toe being very small: the tail is scarce visible, being a mere small conical projection of scarce half an inch in length. The Spotted Cavy is a nocturnal animal, residing in a solitary manner in his hole during almost the whole day. In a domestic state it readily feeds on almost any kind of vegetable diet, and is particularly fond of sugar and fruits. It is much esteemed as an article of food by the South Americans. It is subject to some variety in point of colour, and has been sometimes seen quite white. Its general length, when full-grown, is about two feet. The female is said to produce but one young at a birth,

## CAPYBARA.

*Cavia Capybara. C. ecaudata, plantis tridactylis palmatis. Lin. Syst. Nat. Gmel. p. 123.*

Tailless Cavy, with tridactyle palmated hind-feet.

*Sus Hydrochæris. S. plantis tridactylis, cauda nulla. Lin. Syst. Nat. p. 103.*

Cabiai. *Buff. 12. p. 384. pl. 49.*

Thick-nosed Tapir. *Pennant Synops. p. 83.*

Capybara. *Pennant Quadr. 2. p. 88.*

THE characters of this animal are somewhat ambiguous, and it was formerly considered by Linnæus as a species of Hog, and was accordingly placed in that genus in the 12th edition of the *Systema Naturæ*, under the name of *Sus Hydrochæris*. Mr. Pennant, in his *Synopsis of Quadr-*

*peds*, placed it with the *Tapir*, though in his *History of Quadrupeds* he has stationed it among the rest of the *Cavies*. Dr. Pallas seems to have first ascertained its true situation in systematic arrangement, and has described it by the name of *Cavia Capybara*, the latter word being its Brazilian or native name.

The Capybara grows to the size of a hog of two years old, and is said to have been sometimes found of the weight of 100 pounds. It inhabits various parts of South America, though said to be more common in Brasil than in other regions. It feeds not only on various vegetables, and particularly on sugar canes, but also (contrary to the nature of most of the *Glires*) on fish; for which purpose, it frequents rivers, swimming with the same facility as the Otter, and, like that animal, dragging its prey out of the water, and eating it on the bank. These excursions in quest of prey are made principally during the night. The Capybara is, in general, considered as of a gentle disposition, and is readily tamed and made familiar: the female produces but one young at a birth. These animals are said to go in pairs, and are naturally shy and timid. Their voice resembles the braying of an ass. The Capybara runs but indifferently, on account of the length of its feet, and, therefore, commonly makes its escape by plunging into the water, and swimming to a great distance; and for this reason it is but seldom seen at any great distance from the banks of rivers.

A living specimen, in a half-grown state, was seen by the Count de Buffon, which had been brought into France from America. It was of a gentle disposition, and was fed with bread, milk, fruit, &c. From the number of teats, it should seem, according to that author, to be a very prolific animal: this, however, is contradicted by fact; since it is known to produce but one at a birth.

By some it is considered as a good article of food; but others assure us that it is of a rank and fishy taste: this may depend on the different age of the animal, as well as on the diet to which it has been accustomed.

The Capybara has a very large head, and a thick, divided nose, on each side are strong and large whiskers: the ears are small and rounded: the eyes large and black: the upper jaw longer than the lower: in each jaw are two very large and strong cutting teeth, and the grinders, which are eight in each jaw, are divided into three flat surfaces on the upper part: the neck is very short: the body short and thick, and covered with short, coarse, brown hair: the legs short; the feet long; the foremost being divided into four toes, connected to each other by a small web at the base, and tipped with thick claws, or rather small hoofs, at the extremities: the hind feet are formed in a similar manner, but are divided into three toes only: there is no appearance of a tail. Sometimes this animal, while feeding, sits up, in the manner of a squirrel, holding its

food between its paws. It is said sometimes to get into gardens by night, and commit great ravages among the esculent vegetables. According to Mr. Pennant, this species extends from the *Isthmus of Darien to Paraguay*.

## AGUTI.

*Cavia caudata, corpore ex rufo fusco, abdomine flavescente. Lin. Syst. Nat. Gmel. p. 121.*

Tailed Cavy, with the body rufous brown, and the abdomen yellowish.

*Mus Aguti. M. cauda abbreviata, palmis tetradactylis, plantis tridactylis, abdomine flavescente. Lin. Syst. Nat. p. 80.*

Aguti vel Acuti Brasiliensibus. *Marcgr. bras. p. 224.*

Agouti. *Buff. 8. p. 375. pl. 50.*

Long-nosed Cavy. *Pennant Quadr. 2. p. 94.*

THIS species is peculiar to the warmer parts of South America, and is extremely common in Guiana. Its general size is that of a rabbit: the body is plump, and thicker behind than before: the head is rather small, and somewhat compressed laterally: the snout long and sharpish; the nose divided at the tip, and the upper jaw longer than the lower: the eyes round and black; the ears very short, broad, naked, and rounded: the neck rather long, but thick: the legs thin, almost naked, and blackish: the hind legs are longer than the fore, and have only three toes: the tail is extremely short, naked, and sometimes scarce visible: the hair on the whole animal is hard, strong, and shining, and is brown with a

east of orange colour, with blackish freckles, being, in reality, a mixture of red, brown, and black : the rump is orange coloured. This animal's manner of moving resembles that of a hare, and its voice is like the grunting of a young pig. It feeds on various roots, nuts, fruit, &c. &c. and resides in woods, where it forms subterraneous burrows, and sometimes lodges in the hollows of trees.

According to Mons. de la Borde, a correspondent of the Count de Buffon, the Aguti is about the size of a hare : his skin is hard, and lasts very long when made use of as an upper-leather for shoes. His flesh is white, and nearly as good as that of the rabbit, having a similar taste and flavour ; and whether old or young, it is always tender ; but those which inhabit the sea-coasts are superior in this respect. They are taken in traps, or hunted with dogs. The Indians and negroes, who know how to allure them by whistling, or imitating their cries, kill as many as they please. When pursued, they conceal themselves, like rabbits, in the holes of old trees. They hold their food in their paws like squirrels. Their ordinary food, which they often conceal in the earth, to be used occasionally, are the nuts of the Maripa, the Tourlovri, the Corana, &c. and, after concealing these nuts, they often touch them not for six months. They multiply as fast as rabbits, producing three, four, and sometimes five young ones, during every season of the year. They live not in numbers in the same hole, but are either



found alone, or else the mother with her young. They are easily tamed, and will eat almost every thing. When in a domestic state, they remove not to any great distance, and always return to the house spontaneously; but constantly retain somewhat of their wild disposition. In general they remain in their holes during the night, unless the moon shines bright; but run about most of the day. There are some countries, as about the mouth of the Amazons, where these animals are so numerous as to be often met with in scores.

*Var. ?*

LEPORINE CAVY.,

*Cuniculus caudatus auritus, pilis ex rufo et fusco mixtis rigidis vestitus.* Briss. Quadr. 143.

*Cuniculus Americanus.* Seb. 1. p. 67. pl. 41. f. 2. ?

Java Hare. *Catesb. Carol. append. pl.* 18.

Javan Cavy. *Pennant Quadr. 2. p.* 95.

THIS is by Mr. Schreber considered as a variety of the Aguti, from which it differs in being of a reddish colour above, with the breast and belly white: the legs are long: the hind part large, and the tail very short. It is of the size of a hare, and is a native of Surinam, and other parts of South America. It is altogether an American animal, and notwithstanding its common title of the Java Hare, is not found either in that island or Sumatra, as erroneously supposed by some.

## ACOUCHY.

*Cavia Acuschy. C. caudata, corpore olivaceo. Lin. Syst. Nat.*

*Gmel. p. 121.*

Tailed Cavy, with olive-coloured body.

*Cuniculus minor caudatus olivaceus, Akouchy. Barr. Fr. equin.*

*p. 153.*

*Acouchy. Buff. 15. p. 58. and suppl. 3. p. 211. pl. 36.*

Olive Cavy. *Pennant Quadr. 2. p. 95.*

THIS animal, which is by some regarded as a variety of the Aguti, differs in being somewhat smaller, rather thinner, and entirely of an olive colour, paler or more inclining to whitish beneath: the tail is also longer than in the Aguti. It is a native of the same parts of South America with the Aguti, is of similar manners, and is also tamed with equal readiness. We are informed by Mons. de la Borde, that it does not attempt the water like the Aguti, but will rather suffer itself to be taken. Mons. de la Borde also adds, that it produces but one young at a time. Its voice resembles that of the *Cavia Cobaya* or Guinea-Pig.

## ROCK CAVY.

*Cavia Aperca. C. caudata, corpore ex cinereo rufo. Lin. Syst.*

*Nat. Gnal. p. 122.*

Tailless Cavy, with rufous-ash-coloured body.

*Cuniculus (Brasiliensis) Aperca dictus. Marcgr. Raj. Quadr. p. 206.*

*Cuniculus Indicus femina. Aldr. dig. p. 393.*

Rock Cavy. *Pennant Quadr. 2. p. 90.*

THIS animal (says the Count de Buffon), which is a native of Brasil, is neither a rabbit nor a rat, but seems to partake of both. It is a foot long by seven in circumference. Its general colour is the same with that of our hares, and its belly is white: its upper lip is divided in the same manner, and it has the same large cutting teeth, and whiskers round the mouth and on the sides of the eyes, but its ears are rounded like those of a rat, and so short that they exceed not a finger's breadth in height: the fore legs are not above three inches in length, and the hind legs are a little longer: the fore feet have four toes, covered with a black skin, and armed with small short claws: the hind feet have only three toes, and the middle one is the longest: it has no tail: the head is somewhat longer than that of a hare, and its flesh is like that of a rabbit, which it resembles in its manner of living: it likewise retires into holes: it does not, however, dig the earth

like the rabbit, but conceals itself in the clefts of rocks; and hence it is easily seized in its retreat.

The Rock Cavy is considered as an excellent article of food, and is even superior to the rabbit.

## CASTOR. BEAVER.

*Generic Character.*

<i>Dentes Primores superiores truncati, angulo transverso excavati.</i>	<i>Front-teeth</i> in the upper jaw truncated, and excavated with a transverse angle.
<i>Inferiores apice transversi.</i>	In the lower jaw transverse at the tips.
<i>Molares utrinque quatuor.</i>	<i>Grinders</i> on each side four.
<i>Cauda longa depressa squamosa.</i>	<i>Tail</i> long, depressed and scaly.
<i>Clavicule perfectæ.</i>	<i>Collar-bones</i> in the skeleton.

## COMMON BEAVER.

Castor Fiber. *C. cauda ovata plana calva.* *Lin. Syst. Nat. Gmel. p. 124.*

Chestnut-coloured Beaver, with flat ovate naked tail.

Castor castanei coloris, cauda horizontaliter plana. *Bris. Quadr. p. 133.*

Castor. *Gem. Quadr. 309. Aldr. dig. 277.*

Le Castor. *Buff. 8. pl. 36.*

Castor Beaver. *Pennant Quadr. 2. p. 114.*

**T**HE Beaver is a native of the most northern parts of Europe and Asia, but is found most plentifully in North America. It is readily distinguished from every other quadruped by the remarkable structure of its tail, which is of an oval form, nearly flat, but rising into a slight convexity on its upper surface, perfectly void of hair,

COMMON BEAVER.



Reynolds

1861. J. G. S. London. Published by G. Scamley Fleet Street.



except at the base, and marked out into scaly divisions like the skin of a fish. The general length of the Beaver is about three feet, and of the tail nearly one foot. The colour of the animal is a deep chesnut, and the hair is very fine, smooth, and glossy. The Beaver, like other quadrupeds, sometimes varies in colour, and is occasionally found perfectly black. Instances have also occurred in which it has been found entire white, cream coloured, or spotted (as in some specimens of the Leverian Museum).

Of all quadrupeds the Beaver is considered as possessing the greatest degree of natural or instinctive sagacity in constructing its habitation; preparing, in concert with others of its own species, a kind of arched caverns or domes, supported by a foundation of strong pillars, and lined or plastered internally with a degree of neatness and accuracy unequalled by the art of any other quadruped. It does not appear that this extraordinary sagacity of the Beaver was known to the ancients, though they were well acquainted with the animal, which they killed chiefly for the sake of the medical drug *castoreum* or *castor*. It should seem, however, that the architecture of the Beaver is no where so conspicuous as in the northern parts of America, and that those of Europe do not in general exhibit equal talents in preparing their mansions.

The favourite resorts of the Beaver are retired, watery, and woody situations. In such places the animals assemble, to the number of some



hundreds; living in a kind of families, and building their arched mansions or receptacles. The general method of preparing which is detailed in a very pleasing manner by the Count de Buffon, who seems to have collected the best and fullest information on the subject.

“ The Beavers (says this author) begin to assemble in the month of June or July, for the purpose of uniting into society. They arrive in numbers from all parts, and soon form a troop of two or three hundred. The place of rendezvous is generally the situation fixed for their establishment, and always on the banks of some water. If the waters be flat, and never rise above their ordinary level, as in lakes, the Beavers make no bank or dam; but in rivers or brooks, where the waters are subject to risings and fallings, they construct a bank, and by this artifice form a pond or piece of water, which remains always at the same height. The bank traverses the river, from one side to the other, like a sluice, and it is often from eighty to a hundred feet long, by ten or twelve broad at the base. This pile, for animals of so small a size, appears to be enormous, and supposes an incredible labour; but the solidity with which the work is constructed is still more astonishing than its magnitude. The part of the river where they erect this bank is generally shallow. If they find on the margin a large tree, which can be made to fall into the water, they begin with cutting it down, to form the principal part of their work. This tree is often thicker

than the body of a man. By gnawing the foot of the tree with their four cutting teeth they accomplish their purpose in a very short time, and always make the tree fall across the river. They next cut the branches from the trunk, to make it lie level. These operations are performed by the whole community. Several Beavers are employed in gnawing the foot of the tree, and others in lopping off the branches after it has fallen. Others, at the same time, traverse the banks of the river, and cut down smaller trees, from the size of a man's leg to that of his thigh. These they dress and cut to a certain length, to make stakes of them, and first drag them by land to the margin of the river, and then by water to the place where the building is carrying on. These piles they sink down, and interweave the branches with the larger stakes. This operation implies the vanquishing of many difficulties; for to dress these stakes, and to put them in a situation nearly perpendicular, some of the Beavers must elevate with their teeth the thick ends against the margin of the river, or against the cross-tree, while others plunge to the bottom, and dig holes with their fore feet to receive the points that they may stand on end. Whilst some are labouring in this manner, others bring earth, which they splash with their fore feet, and transport it in such quantities, that they fill with it all the intervals between the piles. These piles consist of several of stakes, of equal height, all placed opposite each other, and extend from

one bank of the river to the other. The stakes facing the under part of the river are placed perpendicularly; but the rest of the work slopes upwards to sustain the pressure of the fluid, so that the bank, which is ten or twelve feet wide at the base, is reduced to two or three at the top. It has, therefore, not only the necessary thickness and solidity, but the most advantageous form for supporting the weight of the water, for preventing its issue, and for repelling its efforts. Near the top or thinnest part of the bank they make two or three sloping holes, to allow the surface-water to escape, and these they enlarge or contract, according as the river rises or falls; and when any breaches are made in the bank by sudden or violent inundations, they know how to repair them as soon as the water subsides.

“ It would be superfluous, after this account of their public work, to give a detail of their particular operations, were it not necessary, in a history of these animals, to mention every fact, and were not the first great structure made with a view to render their smaller habitations more commodious. These cabins or houses are built upon piles near the margin of the pond, and have two openings, the one for going to the land, and the other for throwing themselves into the water. The form of the edifices is either oval or round, some of them larger, and some less, varying from four or five, to eight or ten feet diameter. Some of them consist of three or four stories, and their walls are about two feet thick, and perpendicular.

larly upon planks, or plain stakes, which serve both for foundations and floors to their houses. When they consist of but one story, the walls rise perpendicularly only a few feet, afterwards assume a curved form, and terminate in a dome or vault, which serves them for a roof. They are built with amazing solidity, and neatly plastered both without and within. They are impenetrable to rain, and resist the most impetuous winds. The partitions are covered with a kind of stucco, as nicely plastered as if it had been executed by the hand of man. In the application of this mortar their tails serve for trowels, and their feet for plastering. They employ different materials, as wood, stone, and a kind of sandy earth, which is not subject to dissolution in water. The wood they use is almost all of the light and tender kinds, as alder, poplar, and willow, which grow generally on the banks of rivers, and are more easily barked, cut, and transported, than the heavier and more solid species of timber. When they once attack a tree, they never abandon it till they cut it down, and carry it off. They always begin the operation of cutting at a foot or a foot and half above the ground. They labour in a sitting posture; and besides the convenience of this situation, they enjoy the pleasure of gnawing perpetually the bark and wood, which are most agreeable to their taste; for they prefer fresh bark and tender wood, to most of their ordinary aliment. Of these provisions they lay up ample stores, to support them during the winter;

but they are not fond of dry wood, and make occasional excursions during the winter season for fresh provisions in the forests. It is in the water, or near their habitations, that they establish their magazines. Each cabin has its own magazine, proportioned to the number of its inhabitants, who have all a common right to the store, and never pillage their neighbours. Some villages are composed of twenty or twenty-five cabins, but such establishments are rare; and the common republic seldom exceeds ten or twelve families, each of which has its own quarter of the village, its own magazine, and its separate habitation. They allow not strangers to settle in their neighbourhood. The smallest cabins contain two, four, or six; and the largest, eighteen, twenty, and, it is alleged, sometimes thirty, Beavers. They are almost always equally paired, there being the same number of females as of males. Thus, upon a moderate computation, the society is often composed of 150 or 200, which all, at first, laboured jointly, in raising the great public building, and afterwards in select tribes or companies, in making particular habitations. In this society, however numerous, an universal peace is maintained. Their union is cemented by common labours; and it is rendered perpetual by mutual convenience, and the abundance of provisions which they amass and consume together. Moderate appetites, a simple taste, an aversion against blood and carnage, deprive them of the idea of rapine and war. They enjoy every pos-

sible good, while man only knows how to pant after it. Friends to each other, if they have some foreign enemies, they know how to avoid them. When danger approaches, they advertise one another by striking their tail on the surface of the water, the noise of which is heard at a great distance, and resounds through all the vaults of their habitations. Each takes his part; some plunge into the lake, others conceal themselves within their walls, which can only be penetrated by the fire of Heaven or the steel of man, and which no animal will attempt either to open or overturn. These retreats are not only very safe, but neat and commodious. The floors are spread over with verdure: the branches of the box and the fir serve them for carpets, upon which they permit not the least dirtiness. The window that faces the water answers for a balcony to receive the fresh air, and to bathe. During the greatest part of the day they sit on end, with their head and anterior parts of the body elevated, and their posterior parts immersed in the water. This window is made with caution, the aperture being sufficiently raised to prevent its being stopped up with the ice, which, in the climates inhabited by the Beaver, is often two or three feet thick. When this happens, they slope the window, cut obliquely the stakes which support it, and thus open a communication with the unfrozen water. This element is so necessary, or rather so agreeable, to them, that they can seldom dispense with it. They often swim a long way under the ice;

and it is then that they are most easily taken, by attacking the cabin on one hand, and at the same time watching at a hole made at some distance, where they are obliged to repair for the purpose of respiration. The continual habit of keeping their tail and posterior part in the water, appears to have changed the nature of their flesh. That of their anterior parts, as far as the reins, has the taste and consistence of the flesh of land or air animals; but that of the tail and hinder parts, has the odour and all other qualities of fish. The tail, which is a foot long, an inch thick, and five or six inches broad, is even an extremity or genuine proportion of a fish attached to the body of a quadruped; it is entirely covered with scales, and with a skin perfectly similar to those of large fishes; they may be scraped off with a knife, and after falling, they leave an impression on the skin, as in the case with all fishes.

“It is in the beginning of summer that the Beavers assemble. They employ the months of July and August in the construction of their bank and cabins. They collect in September their provisions of bark and wood; after which they enjoy the fruits of their labours, and taste the sweets of domestic happiness: knowing and loving one another from habit, from the pleasures and fatigues of a common labour, each couple join not by chance, nor by the pressing necessities of nature, but unite from choice and from taste. They pass together the autumn and the winter. Perfectly satisfied with each other, they never

separate. At ease in their cabins, they go not out but upon agreeable or useful excursions, to bring in supplies of fresh bark, which they prefer to what is too dry or too much moistened with water. The females are said to go pregnant for four months: they bring forth at the end of winter, and generally produce two or three young. About this time they are left by the males, who retire to the country to enjoy the pleasures and the fruits of the spring. They return occasionally to their cabins, but dwell there no more. The mothers continue in the cabins, and are occupied in nursing, protecting, and rearing their young, which at the end of a few weeks are in a condition to follow their dams. The females, in their turn, make their excursions, to recruit themselves by the air, by eating fishes\*, crabs, and fresh bark, and in this manner pass the summer upon the waters and in the woods. They assemble not again till autumn, unless their banks or cabins be overturned by inundations; for when accidents of this kind happen, they suddenly collect their forces, in order to repair the breaches which have been made."

Besides the associated Beavers there are others that live solitary, and instead of constructing cabins, or vaulted and plastered receptacles, con-

\* This is a particular which seems to want confirmation, and it is now generally believed that the Beaver does not feed on fish, but merely on vegetable substances; yet Kalm assures us that he has seen tame Beavers which have been made use of for catching fish.



tent themselves with forming holes in the banks of rivers. The fur of these, which are commonly termed *terrier* beavers, is considered as far less valuable than that of the associated animals.

The Beaver, when taken young, may readily be tamed, and in that state appears to be an animal of a gentle disposition, but does not exhibit any symptoms of superior sagacity.

In Europe the favourite food of the Beaver is the bark of the poplar, the aspin, the birch, and other soft woods. In America, the *Magnolia glauca* and the *Fraxinus Americana* are said to be particularly selected. It also feeds on various roots, and especially on those of the *Acorus Calamus*, or *Calamus aromaticus*.

Beavers are said to make their principal excursions by night, and to sit by day near the mouths of their dwellings on sedges, &c. with their tails immersed in the water. They abound, according to Mr. Pennant, in the Asiatic part of the Russian empire; and are found in companies, or associated, about the Konda, and other rivers which flow into the Oby. They occur in a dispersed or *terrier* state in the wooded parts of independent Tartary, and in the chains of mountains which border on Siberia.

## CHILI BEAVER.

*Castor Huidobrius. C. cauda longa compresso-lanceolata, palmis lobatis, plantis palmatis. Molina. Hist. Chil. p. 253.*

Beaver with long compresso-lanceolate hairy tail, lobated fore-feet, and palmated hind-feet.

Guillino Beaver. *Pennant Quadr. 2. p. 120.*

THIS is a species peculiar to South America, and appears to have been first described by Molina in his natural history of Chili. He informs us that it is found in the very deep lakes and rivers of that country, and feeds principally on fish and crabs. Its length from nose to tail is about three feet; the head is of a squarish form; the eyes small; the ears rounded and short, and the snout obtuse: in each jaw are two sharp and strong cutting teeth, and the grinders are like those of the Common Beaver. The body is very broad, and covered, like the Common Beaver, with two sorts of hair; the shortest or softest of which is superior to that of most other quadrupeds, and is in high esteem with the manufacturers, being wrought into a kind of cloth, which has the softness of velvet; and is also used in the manufacture of hats. The colour of this animal is grey above, and whitish beneath; the toes of the fore feet are lobated, or bordered with a membrane, and the hind feet are webbed: the toes are five in number on all the feet. The tail is of a compressed lanceolate form and hairy. It is a bold and even fierce animal, and has the power of con-

tinuing a great while under water. It does not construct any regular habitation like the Common Beaver, nor does it afford any castor. The female is said to produce from two to three young at a birth. It is called in Chili by the name of *Guillino*.

## MUS. RAT.

*Generic Character.*

<i>Dentes Primores superiores</i>	<i>Upper Front-teeth</i>	wedge-shaped.
<i>'cuneati.</i>		
<i>Molares utrinque tres, rarius duo.</i>	<i>Grinders</i> on each side	three, sometimes only two.
<i>Clavicula perfectæ.</i>	<i>Clavicles,</i> or collar-bones	in the skeleton.

**T**HIS numerous tribe constitutes a formidable phalanx against which mankind finds it necessary to employ the various artifices of extirpation, in order to lessen the ravages occasionally suffered by its depredations. In our own island the black and the brown rats, the field and domestic mice are the principal destroyers; but in other parts of Europe, as well as in the hotter regions of Asia, Africa, and America, many other species still more noxious and formidable are found. The different kinds vary considerably in their manner of life, some confining themselves entirely to vegetable food; while others are polyphagous, destroying with indiscriminate avidity almost any animal or vegetable substance to which they can gain access. Their pace is, in general, rather quick, and their most usual residence is in obscure subterraneous retreats, from

which they principally emerge by night. They are of a prolific nature, and the females are furnished with numerous teats. Some species are migratory; others local or attached to the same residence. Lastly, some are of an uncouth form and disagreeable appearance, while others are remarkable for the elegance of their aspect and colours. In the 12th edition of the *Systema Naturæ*, Linnæus included in this genus the Jerboas, the Cavys, and several other animals which are now formed into distinct genera. This mode of distribution might perhaps be carried still farther; the habit or appearance of some species differing very considerably from that of the major part of the tribe.

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*With flattened Tails.*

MUSK RAT.

*Mus Zibethicus.* *M. cauda longa compresso-lanceolata, pedibus fissis.* *Lin. Syst. Nat. Gmel. p. 125.*

Ferruginous-brown Rat, with long compressed-lanceolate tail, and unwebbed feet.

Rat musqué. *Sarrazin act. Paris, 1725. p. 323. t. 11. f. 1, 2.*

*Castor sibiricus.* *Lin. Syst. Nat. ed. 12. p. 79.*

*Ondatra.* *Buff. 10. p. 1. pl. 1.*

Musk Beaver. *Pennant Quadr. 2. p. 119.*

In the Memoirs of the French Academy of Sciences for the year 1725 there is a complete and excellent description of this animal by Mons.



WATER RAT.



MUSK RAT.



Sarrazin \*, at that time King's Physician at Quebec. It is from the above description that the Count de Buffon has drawn up the major part of his own account, and indeed it does not appear possible to add any thing material to what Mons. Sarrazin has delivered. This animal is of the size of a small rabbit, and is extremely common in Canada. Its head is short, like that of a water-rat; the eyes large; the ears very short, rounded, and covered internally as well as externally with hair. It has, like the rest of this tribe, four very strong cutting teeth, of which those in the lower jaw are near an inch long; those in the upper somewhat shorter: the fur on the whole body is soft and glossy, and beneath is a fine fur, or thick down, as in the Beaver: the toes on all the feet are simple, or without membranes, and are covered with hair: the tail is nearly as long as the body, and is of the same form with that of the *Sorex moschatus* or Musk Shrew, being laterally compressed; it is nearly naked, and covered with small scales intermixed with scattered hairs. The general colour of the animal is a reddish brown; of the tail ash colour. In its general appearance this animal greatly resembles the Beaver, except in size, and in the form of its tail. It has also similar instincts and dispositions; living in a social state in the winter, in curiously-constructed huts or ca-

\* Sarrazin was also an excellent botanist, and the remarkable genus *Sarracenia* was instituted in honour of him by Tournesfort, to whom he had sent specimens from Canada.



bins, built near the edge of some lake or river. These huts are about two feet and a half or three feet in diameter, plastered with great neatness in the inside, and covered externally with a kind of basket-work, of rushes, &c. interlaced together so as to form a compact and secure guard, impermeable by water. During the winter these receptacles are generally covered by several feet of snow, and the animals reside in them without being incommoded by it, several families commonly inhabiting each cabin. It is added that the insides of the receptacles are furnished with a series of steps, to prevent them from being injured by inundations. These animals do not lay up a stock of provisions like the Beaver, but form subterraneous passages beneath and round their cabins, to give themselves an opportunity of procuring occasional supplies of roots, herbage, &c. According to Mons. Sarrazin the animal is particularly calculated by Nature for its subterraneous habits; having a great muscular force in its skin, which enables it to contract its body occasionally into a small volume: it has also a great suppleness in the false ribs, which easily admit of contraction, so that it is enabled to pass through holes impervious to much smaller animals than itself.

During the summer these creatures wander about in pairs, feeding voraciously on herbs and roots. Their odour, which resembles that of musk, is so strong as to be perceived at a considerable distance; and the skin, when taken from the body, still retains the scent: this musky odour

is owing to a whitish fluid deposited in certain glands situated near the origin of the tail. It has been supposed that the *Calamus aromaticus*, or sweet flag (*Acorus Calamus*. Lin.), which these animals select as a favourite food, may contribute to their fragrant smell. They walk and run in an awkward manner, like the Beaver, and they cannot swim so readily as that animal, their feet being unfurnished with webs. Their voice is said to resemble a groan. The females produce their young towards the beginning of summer, and have five or six at a time; and these, if taken early, are easily tamed, and become very sportive; and it is remarkable that the tail, which in the full-grown animal is as long as the body, is at that period very short.

The fur of this species is greatly esteemed as a commercial article, resembling that of the Beaver. Linnæus in the twelfth edition of the *Systema Naturæ* ranked the animal under the genus *Castor*; and Mr. Pennant has followed his example. Mr. Schreber, however, considers it as belonging in strict propriety to the present genus.

## COYPU RAT.

*Mus Coypus. M. cauda mediocri subcompressa pilosa, plantis palmatis. Lin. Syst. Nat. Gmel. p. 125.*

Brown Rat, with slightly compressed hairy tail of middling length, and webbed hind feet.

*Mus Coypus. Molina Hist. Chil. p. 255.*

Coypu Rat. *Pennant Quadr. 2. p. 177.*

THE first describer of this animal was Molina, who informs us that it is an inhabitant of the waters of Chili; that it has the general appearance of an Otter, being of the same size and colour; but that in its teeth it agrees with the rat tribe: the feet are each furnished with five toes; those of the hind feet being connected by a web: the ears are rounded, the nose longish and covered with whiskers, and the tail thick and flattish on the sides. This animal lives occasionally on land as well as water; sometimes frequenting houses, and is easily tamed. The female produces five or six young at a birth.

*With round naked Tails.*

*Mus Pilorides.* *M. cauda longiuscula squamata truncato-obtusa, corpore albedo.* *Lin. Syst. Nat. Gmel. p. 126.*

Whitish Rat, with longish, scaly, obtusely-truncated tail.

β. *Castor cauda lineari tereti.* *Brown Jam. p. 484. ?*

*Piloris.* *Buff. 10. p. 2.*

THIS species is found in India and the Indian islands, and in size nearly equals the Guinea-Pig. Its colour is whitish, with a cast of grey-ferruginous on the back, and of cinereous on the abdomen: the tail is longish, nearly naked, scaly, and obtuse at the extremity. A variety of this animal is found in the American islands, which seems to differ from the above in being of a darker colour on the back, and in having a much shorter tail. Perhaps it may be a distinct species, but the history of both seems at present not sufficiently clear to enable us to determine this point.

## CARACO RAT.

*Mus Caraco.* *M. cauda longa squamosa obtusiuscula, corpore grisco, plantis subsemipalmatis.* *Lin. Syst. Nat. Gmel. p. 126.*

Grey Rat, with long, scaly, somewhat obtuse tail, and slightly semipalmated hind feet.

*Mus Caraco.* *Pall. gir. p. 91. n. 39. p. 335. t. 23.*

American Rat. *Pennant Quadr. 2. p. 180.*

THE Caraco, first described by Dr. Pallas, so extremely resembles the brown or Norway rat, that at first sight it might be mistaken for that animal; but on an accurate survey, it will be found that the head is rather longer and sharper in proportion; the upper jaw much longer than the lower, and the lip very much divided: the teeth are not so strong as in the Norway rat, and the tail is considerably shorter. This species abounds in the eastern parts of Siberia, frequenting the banks of rivers, and swimming very readily, so that it may be considered as in a manner amphibious. Dr. Pallas supposes this species to have migrated from the southern parts of China. The length of the Caraco is six inches, and of the tail four and a half or rather more. Its colour is similar to that of the brown or Norway rat.

Mr. Pennant supposes his *American Rat* to be the same species with the Caraco. It inhabits North America, and in size, colour, &c. seems to agree with it. Mr. Pennant describes it from a specimen in the Leverian Museum.





BLACK RAT.



NORWAY RAT.

## NORWAY RAT.

*Mus Decumanus.* *M. cauda longissima squamata, corpore setoso griseo subtus albido.* *Lin. Syst. Nat. Gmel. p. 127.*

Grey stiff-haired Rat, with very long scaly tail, and body whitish beneath.

Surmulot. *Buff. 8. p. 206. pl. 27.*

Brown Rat. *Pennant Quadr. 2. p. 178.*

Norway Rat. *Brit. Zool. p. 102.*

THIS domestic species, which is now become the common rat of our own island, and is particularly known by the name of the Norway Rat, is supposed to be a native of India and Persia, from which countries it has been imported into Europe. In England it seems to have made a national conquest over the black rat, which is now become rare in comparison. The brown rat is larger than the black rat, measuring nine inches from the nose to the tail, which is of the same length, and marked into about two hundred rings or circular spaces: the colour of the animal is a pale tawny grey, whitish beneath: the fore feet have four toes, with a claw in place of a fifth. It is a bold and voracious animal, and commits great havoc in granaries, &c. Sometimes it takes up its residence in the banks of waters, and swims occasionally with almost as much facility as the water rat, or *Mus amphibius*. In its general manner of life it agrees with the black rat; and not only devours grain and fruits, but preys on poultry, rabbits, and various other animals. It is a very prolific species, and produces from ten



to twelve or fourteen, or even sometimes eighteen, young at a time \*. When closely pursued it will sometimes turn upon its adversary, and bite with great severity. It seems to have made its first appearance in England about seventy years ago, and is still much less frequent in France and some other parts of the continent than the black rat. In France, according to Buffon, it was first observed at Chantilly, Marly-la-Ville, and Versailles, where it committed great ravages. This author affirms that it breeds three times a year.

## BLACK RAT.

*Mus Rattus. M. cauda longissima squamosa, corpore atro subtus canescente. Lin. Syst. Nat. Gmel. p. 127.*

Blackish Rat, ash-coloured beneath, with very long scaly tail.

*Mus domesticus major. Gesn. Quadr. p. 731. Aldr. dig. p. 415.*

Rat. *Buff. 8. p. 278. pl. 36.*

Black Rat. *Pennant Quadr. 2. p. 176.*

THIS species, like the former, though now so common in most parts of Europe, is supposed to have been originally introduced from India and Persia. Its general length, from nose to tail, is seven inches, and of the tail eight inches: the colour of the head and whole upper part of the body is a dark iron or blackish grey: the belly is of a dull ash-colour: the legs are dusky, and

\* Pennant Brit. Zool.

very slightly covered with hair: the fore feet, as in the brown rat, have only four toes, with a small claw in place of a fifth: the tail is nearly naked, coated with a scaly skin, and marked into numerous divisions or rings. Like the former species this animal breeds frequently, and commonly brings about six or seven young at a time. Sometimes they increase so fast as to overstock the place of their abode, in which case they fight and devour each other. It is said that this is the reason why these animals, after being extremely troublesome, sometimes disappear suddenly. Various are the methods made use of for the expulsion of rats from the places they frequent; among which none is more singular than that mentioned by Gesner, who tells us he had been informed that if a rat be caught and a bell tied round its neck, and then set at liberty, it will drive away the rest wherever it goes. This expedient appears to be occasionally practised in modern times with success\*. Its

\* A gentleman travelling through Mecklenburgh about thirty years ago, was witness to the following curious circumstance in the post-house in New Stargard. After dinner the landlord placed on the floor a large dish of soup, and gave a loud whistle. Immediately there came into the room a Mastiff, a fine Angora Cat, an old Raven, and a remarkably large Rat, with a bell about its neck. The four animals went to the dish, and without disturbing each other, fed together; after which the Dog, Cat, and Rat, lay before the fire, while the raven hopped about the room. The landlord, after accounting for the familiarity which existed among the animals, informed his guest that the Rat was the most useful of the four, for the noise he made had completely freed the house from the rats and mice with which it was before infested.

greatest natural enemy is the weesel, which pursues it into all its recesses, and destroys it. A very small variety of this species, not much larger than a mouse, is said by Dr. Pallas to be found about the deserts in the lower parts of the Volga. Like many other quadrupeds, the rat is sometimes seen perfectly white, in which case it has red eyes. The white rat, however, as we are assured by Mr. Schreber, does not always produce young ones of a similar colour; so that such varieties can hardly be considered as permanent. This is proved from an observation of Professor Herman, who having kept a pregnant white rat for some time, found that the young ones were of the usual colour of their species.

The Rat is supposed to be a native of North America, as well as of Europe, but it is said that South America was entirely free from it, till it was imported there in ships from Europe, in the year 1554.

## BANDICOTE RAT.

*Mus Malabaricus.* *M. griseus, auriculis rotundatis nudis, digitis plantarum exterioribus brevioribus.*

Grey Rat, with naked rounded ears, and the two exterior toes of the hind feet shorter than the rest.

THIS is a very large species, being at least equal, if not superior, to a rabbit in size. In its shape and general appearance it seems most to resemble the Norway rat. Its colour is a pale

cinereous brown; the ears thin, nearly bare, and rounded; the snout rather long; the fore feet shaped like those of the Norway rat, with four toes, and a claw in place of a fifth: the hind feet have five toes, of which the two exterior are considerably shorter than the rest: the tail is above eleven inches in length. This species is said to be very common about the coasts of the Malabar country. At Pondicherry it is frequent, infesting houses like the brown rat. Its voice is said to resemble the grunting of a pig.

## PERCHAL RAT.

Mus Perchal. *M. fusco-ferrugineus, subtus cinereus, pedibus posterioribus majoribus.*

Ferruginous brown Rat, with the hind legs larger than the fore.

Le Rat Perchal. *Buff. suppl. 7. p. 276. pl. 69.*

This species is a native of India, and in its general appearance resembles the Norway rat, but is of a longer shape, with a thicker and shorter tail in proportion. It is of a deep subferruginous brown above, and of a greyish cast beneath: the hind legs are larger than the fore: the ears naked and rounded, and the nose rather blunt. This Rat is said to be very numerous about Pondicherry, infesting houses in the same manner as the rats of Europe. It seems to have been first described by Mons. Sonnerat, and is evidently allied to the Bandicote rat. Both species are said to be occasionally eaten by the natives.

## COMMON MOUSE.

*Mus Musculus*. : *M. cauda elongata subnuda, palmis tetradactylis, plantis pentadactylis, pollice mutico*. *Lin. Syst. Nat. p. 81.*

*Brown Mouse*, ash-coloured beneath, with tetradactylous fore-feet, pentadactylous hind-feet, and long nearly naked tail.

*Souris*. *Buff. 7. p. 309. pl. 39. and Suppl. 3. p. 181. pl. 30.*

*Common Mouse*. *Pennant Quadr. 2. p. 184.*

THE manners and appearance of this little animal are so universally known, that it seems almost unnecessary to particularise it by a formal description. It is a general inhabitant of almost every part of the old continent, but it is doubtful whether it be originally a native of America, though now sufficiently common in many parts of the new world, as well as in many of its scattered islands.

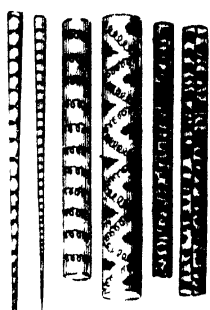
The Mouse, though wild and extremely timid, is not of a ferocious disposition, but may be easily tamed, and soon after it has been taken, will begin to feed without fear, in the immediate presence of its captors. The white variety is frequently kept in a tame state, and receives an additional beauty from the bright red colour of its eyes; a particularity which generally accompanies the white varieties, not only of this tribe, but of many other quadrupeds.

The Mouse is a prolific animal: the experiment of Aristotle is well known, and often quoted. He placed a pregnant mouse in a vessel of grain, and after a short space, found in it no less than

MINUTE MOUSE.



Hairs of *Micro*  
by the Microscope



COMMON MOUSE.

COMMON MOUSE, *white ear*

Bel Jan 1<sup>st</sup> Lond. Published by C. Kearney Fleet Street.



the number of 120, all which, he concluded, were the descendants of the mouse he had inclosed.

The fur of the Mouse is remarkably soft and elegant, and the structure of the hair in this animal, as well as in the rat, and probably of many others of this genus, is singularly curious; each hair, when microscopically examined, appearing internally divided into a kind of transverse partitions, as if by the continuation of a spiral fibre; a structure very different from that of the hair of most other animals, and of which the particular nature seems not very distinctly understood.

Derham, in his *Physico-Theology*, conceives that this mechanism of a spiral fibre may serve for the "gentle evacuation of some humour out of the body," and adds, that "perhaps the hair serves as well for the insensible perspiration of hairy animals as to fence against cold and wet." Whatever be the real nature or use of the above structure, its appearance cannot fail to excite astonishment in those who take the pains of examining it with a good microscope. In the annexed plate are introduced some figures of the hairs of a Mouse, highly magnified, in order to give a clear idea of this curious appearance.

In Aldrovandus, who relates the circumstance from Gesner, we meet with a direction for changing, as it were, a mouse into a cat, by making it the incessant persecutor and enemy of the rest of its species. This is to be effected by placing several mice together in a vessel, without food; when, after a certain space, they will be so stimu-



lated by hunger as to destroy each other: the surviving animal being then liberated, will, according to this author, become the most destructive enemy of his own tribe, and will kill every one he meets. Another singular and most cruel experiment is quoted by Aldrovandus from Mizaldus, who tells us, that if two or three mice are shut up in an earthen pot, and placed over a fire, the shrill cries which they utter will attract the mice in the other parts of the house, and cause them to precipitate themselves into the fire. Whatever truth there may be in this experiment, it is certain that, on the shrill cry of distress uttered by one of these animals kept with several others in a cage, the rest will frequently attack and destroy it.

## WOOD MOUSE.

*Mus Sylvaticus.* *M. cauda longa squamosa, corpore griseo-lutescente subtus lateribusque abrupte albo.* *Lin. Syst. Nat. Gmel.*  
p. 129.

Yellowish-brown Mouse, with long naked tail, and body white beneath, the colours being abruptly separated on the sides.

Field Rat. *Pennant Quadr.* 2. p. 184.

*Brit. Zool.* 1. p. 105.

Mulot. *Buff.* 7. p. 325. pl. 41.

THIS animal chiefly frequents dry and elevated grounds, and is found in woods and fields in great plenty. It appears to be common in all the temperate parts of Europe, and even in Russia. It sometimes varies in size, individuals being occa-



WOOD MOUSE.

*After Shaw's London Published by G. Knapp, Fleet Street.*



sionally met with which exceed the rest in magnitude, though differing in no other respect. Its general length is about four inches and a half from nose to tail, and the tail, which is slightly covered with hair, measures four inches. The colour of the animal is a yellowish brown above and whitish beneath; the colours being pretty distinctly marked or separated: the eyes are full and black, and the snout rather blunt. These animals retire into holes among brushwood, and under the trunks of trees, where they amass great quantities of acorns, nuts, and beech-mast. According to Buffon, a whole bushel has sometimes been found in a single hole. These holes are about a foot or more under ground, and are often divided into two apartments, the one for living in along with their young, the other for a magazine of provisions. Considerable damage is often done to plantations by these animals, which carry off new-sown acorns, &c. The Count de Buffon affirms, that in France more mischief is done by these creatures than by all the birds and other animals put together; and adds, that the only way to prevent this is by laying traps, at ten paces asunder, through the whole extent of the sown ground. No other apparatus, he says, is necessary than a roasted walnut, placed under a stone supported by a stick: the animals come to eat the walnut, which they prefer to acorns, and as the walnut is fixed to the stick, whenever they touch it the stone falls and kills them. The same expedient may be as successfully used for the

## 60 AMERICAN LONG-TAILED FIELD MOUSE.

destruction of the short-tailed field mouse, which likewise commits great havoc in fields and plantations. When the Count de Buffon first practised this experiment, he desired that all the field mice thus taken in traps might be brought to him, and found with astonishment, that above 100 were taken each day from a piece of ground consisting only of about forty French arpents. From the 15th of November to the 8th of December above two thousand were destroyed in this manner. When the frost becomes severe, they retire into their holes, and feed on the stores they have collected. They abound, like many other animals of this genus, chiefly in autumn, and are far less common in the spring; for if provisions happen to fail them in the winter, it is thought that they destroy each other; a circumstance which is known occasionally to take place in many other species.

The long-tailed field mouse is a very prolific animal, breeding more than once a year, and often producing litters of ten at a time. In one of their holes have been found two females, with twenty young. Specimens have sometimes been seen perfectly white, with red eyes.

*Var. ?*

## AMERICAN LONG-TAILED FIELD MOUSE.

Mr. Pennant adds this to the former species, imagining it to be a variety. It is similar in

most points to the European animal, but the hind legs are longer in proportion: a dark stripe runs down the back; the cheeks and sides are orange coloured, and the under parts are of a snowy whiteness; the ears are large, naked, and open; the whiskers very long, some of the hairs being white and some black; the tail dusky above, and whitish beneath. It is often found in the province of New York.

## RUSTIC MOUSE.

*Mus Agrarius. M. cauda longa squamosa, corpore lutescente, striga dorsali nigra. Lin. Syst. Nat. Gmel. p. 130. Pall. Glr. p. 95.*

Yellowish-brown Mouse, with long scaly tail and black dorsal streak.

Rustic Mouse. *Pennant Quadr. 2. p. 189.*

THIS species is found in Germany, as well as in Russia and the more temperate parts of Siberia, inhabiting corn-fields, and frequenting granaries, &c. in the manner of the common field mouse. It sometimes appears in immense multitudes in particular seasons, and devours great quantities of grain. It is often found in company with the *common mouse*, the *harvest mouse*, and the *wood mouse*, and sometimes gets into houses, where it becomes so bold as to seize the very bread from the table, without shewing any symptoms of fear. This species burrows under ground, and collects provision for its winter sustenance, which it de-

posits in the end or chamber of its burrow. It is found of a much larger size in the cultivated regions about the river Ob and Jenesei than elsewhere. In general it is rather less than the field mouse, and is of a ferruginous colour above, and whitish beneath: on the back is a dusky line: the head is oblong, the nose sharp, and the ears small and lined with fur: above each foot is a dusky circle, and the tail is only half the length of the body.

## HARVEST MOUSE.

*Mus Messorius. M. supra ferrugineus, subtus albus, cauda longa subpilosa, auriculis vellere longioribus.*

Ferruginous Mouse, white beneath, with long slightly hairy tail, and ears longer than the fur of the head.

Harvest Mouse. *Pennant Quadr. 2. p. 384.*

*Erit. Zool. 1. p. 107.*

*White's Selb. p. 33 and 39.*

THIS small species seems to have escaped the notice of British naturalists till it was observed by the late Mr. Gilbert White, of Selburne, in Hampshire, in which county it is frequent. Mr. White, in the year 1767, communicated the animal to Mr. Pennant, who introduced it into the *British Zoology*.

“These mice,” says Mr. White, “are much smaller and more slender than the *mus domesticus medius* of Ray, and have more of the squirrel or dormouse colour: their belly is white; a strait

line along their sides divides the shades of their back and belly. They never enter into houses; are carried into ricks and barns with the sheaves; abound in harvest; and build their nest amidst the straws of corn above ground, and sometimes in thistles. They breed as many as eight at a litter, in a little round nest composed of the blades of grass or wheat. One of these nests I procured this autumn (1767), most artificially platted, and composed of the blades of wheat; perfectly round, and about the size of a cricket ball; with the aperture so ingeniously closed, that there was no discovering to what part it belonged. It was so compact and well filled, that it would roll across the table without being discomposed, though it contained eight little mice that were naked and blind. As this nest was perfectly full, how could the dam come at her litter respectively, so as to administer a teat to each? Perhaps she opens different places for that purpose, adjusting them again when the business is over; but she could not possibly be contained herself in the ball with her young, which moreover would be daily increasing in bulk. This wonderful procreant cradle, an elegant instance of the effects of instinct, was found in a wheat field, suspended in the head of a thistle."

Mr. White adds, that "though these animals hang their nests for breeding up amidst the straws of standing corn, above ground, yet in the winter they burrow deep in the earth, and make warm beds of grass; but their grand rendezvous



seems to be in corn-ricks, into which they are carried in harvest." A neighbour of Mr. White's housed an oat-rick, in which were some hundreds assembled under the thatch. The measure of the animal is just two inches and a quarter from nose to tail, and the tail just two inches long. Two of them in a scale just weighed down a copper halfpenny, which is about the third of an ounce avoirdupois, so that they may be considered as the smallest of the British quadrupeds.

## MINUTE MOUSE.

*Mus Minutus.* *M. cauda longa squamosa, corpore supra ferrugineo subtus albido.* *Pall. Glir. p. 95. Lin. Syst. Nat. Gmel. p. 130.*

Ferruginous Mouse, whitish beneath, with long scaly tail.

Little Mouse. *Pennant Quadr. 2. p. 191.*

THIS species, according to Dr. Pallas, is frequent in the birch woods of Siberia, as well as in many of the temperate parts of Russia, frequenting corn-fields, and barns. Its general colour is a deep tawny above, and white below; the nose is sharpish and of a dusky colour, with a whiteness at the corners of the mouth: the ears are hid in the fur; the feet grey: the length from nose to tail is little more than two inches, and the weight not half a dram. Those found in Siberia are of a richer or more fulvous colour than those of other regions. This animal, Dr. Pallas says, is very frequent in autumn and winter in corn-



LINEATED MOUSE.



SORICINE MOUSE.



STRIATED MOUSE.



ricks and about granaries, and is often found intermixed with the *Mus agrarius*, inhabiting similar places. It seems extremely nearly allied to the harvest mouse, and it is not impossible that it may in reality be the same animal; the differences appearing almost too slight for a specific distinction.

## SORICINE MOUSE.

*Mus Soricinus. M. cauda mediocri subpilosa, rostro producto, auriculis orbiculatis vestitis, velleris dorso flavicante griseo, abdomine albido. Lin. Syst. Nat. Gmel. p. 130.*

Yellowish grey Mouse, with long snout, round furred ears, and hairy tail of moderate length.

THIS is an extremely small species, and has the general appearance of a *Sorex* or Shrew, having a long and slender or sharp-pointed snout. It is a native of Strasburg, where it was first discovered by Professor Herman: its colour is a pale yellowish or subferruginous brown, whitish beneath: the ears are short and rounded, and are covered with hair. It measures two inches from nose to tail, and the tail is nearly of similar length, or rather a trifle longer.

## WANDERING MOUSE

*Mus Vagus.* *M. cauda longissima nudiuscula, corpore cinereo, fascia dorsali nigra, auribus plicatis.* *Lin. Syst. Nat. Gmel.* p. 130.

Cinereous Mouse, with black dorsal band, very long naked tail, and plaited ears.

THIS, which was discovered by Dr. Pallas, is frequent throughout the whole Tartarian desert, and is of a migrating nature. It is a small species, scarce exceeding the *Mus minutus* in size, and measuring little more than two inches and a half from nose to tail, and the tail three inches. It is of a pale ash-colour above, slightly mixed or undulated with black, and marked with a black dorsal line: the ends of the limbs are whitish. This species wanders about in great multitudes, migrating from place to place chiefly by night. It is of a very tender or delicate nature, and even during the nights of June is often found rolled up, as if falling into a state of torpidity. It is said to inhabit chiefly the fissures of rocks, the cavities under large stones, or hollow trees.

WANDERING MOUSE.

DECONOMIC MOUSE.

BIRCH MOUSE



*After Jansz's, Londoners Published by G. Leventhal, Fleet Street*



## BIRCH MOUSE.

*Mus Betulinus.* *M. cauda longissima nudiuscula, corpore fulvo, fascia dorsali nigra, auriculis plicatis.* *Lin. Syst. Nat. Gmel.*  
p. 131.

Fulvous Mouse, with black dorsal band, plaited ears, and very long naked tail.

THIS is nearly allied to the *Mus vagus* that it might almost pass for the same species, or at least for a variety, but is still smaller than that animal, and scarcely exceeds two inches and a quarter in length; the tail being at least three inches, or longer in proportion than in the former. It inhabits the birch woods of Siberia, living in the hollows of decayed trees. Like the former, it is of a tender nature, and soon becomes torpid in cold weather. In ascending the branches of trees it is observed to coil round the twigs with its tail, in the manner of an opossum. Dr. Pallas has often observed it ascending the stems of some of the stronger grasses, which were scarcely bent with its weight. He also kept several of them a considerable time, which grew very tame, and delighted in being held in the hand. This species is of a rufous ash-colour above, and of a pale ash colour beneath, and along the back is a dusky line: the nose is pointed, and red at the tip: the ears small, brown, and bristled at the ends, and the limbs weak and slender.



## LINEATED MOUSE.

*Mus Pumilio.* *M. cauda mediocri nudiuscula, corpore ex fuscocinereo, fronte nigra et lineis quatuor dorsalibus nigris.* *Lin. Syst. Nat. Gmel. p. 131.*

Cinereous-brown Mouse, with black front, four black dorsal lines, and nearly naked tail of middling length.

THIS small and elegant species was first described by Sparman, and is a native of the forest regions on the Slangen river, a great way eastward from the Cape of Good Hope. It is one of the least of the genus, being little more than two inches long from nose to tail. Its colours and other particulars are sufficiently described in the specific character.

## STRIATED MOUSE.

*Mus Striatus.* *M. cauda longiuscula subnuda, corporis striis plurimis parallelis albo-guttatis.* *Lin. Syst. Nat. Gmel. p. 131.*

Rufous-brown Mouse, with longish naked tail, and the body marked by several longitudinal rows of white spots.

*Mus orientalis.* *Seb. 2. p. 22. t. 21. f. 2.*

*Mus cauda longa, striis corporis longitudinalibus ex punctis albis.* *Lin. Mus. Ad. Frid. 1. p. 10.*

THIS beautiful little animal was first described and figured by Seba, from whom other authors have taken their descriptions. It is about half the size of a common mouse, and is of a rufous or fulvous colour, with several parallel rows of

foundish white spots, disposed longitudinally along the upper parts of the body: the ears are short and roundish; the nose blunt; the tail thick and whitish, and of the same length with the body, and nearly naked. This species is, according to Seba, a native of India. He assures us that he purchased it alive of a sailor, who had brought it from India, and had tamed it to such a degree, that every day it would come out of its cage to be fed, and would sit on its master's shoulders, and even feed occasionally from his lips. Seba adds, that it continued equally tame while it lived with him; but, as if lamenting the loss of its former master, died in a short time. After this description, so particularly detailed by Seba, it seems strange that some authors have appeared to doubt the real existence of the animal as a genuine species. Dr. Pallas, however, seems to suspect that either the same, or a similar species, inhabits the regions about Mount Caucasus; having heard some reports of such an animal; yet confesses his doubt as to the specimen described by Seba, on account of his having discovered in Seba's collection a specimen inscribed *Mus striatus Indicus*, which was nothing more than the young of the *striped Barbary Squirrel* (*Sciurus Getulus*), with the tail still naked, or resembling that of a mouse.

## BARBARY MOUSE.

*Mus Barbarus.* *M. cauda mediocri, corpore fusco striis decem pallidis, palmis tridactylis, plantis pentadactylis* Lin. *Syst. Nat. tom. 1. p. 2. Addend.*

Brown Mouse, marked with ten pale streaks; with tail of middling length, tridactyle fore-feet, and pentadactyle hind-feet.

THIS appears, from the description of Linnæus, to be so nearly allied to the *M. striatus*, as scarce to be separated from it. It is, says Linnæus, smaller than a common mouse, and is brown above, pale or whitish beneath: on each side the back are ten pale stripes, and sometimes a scarce perceptible line occurs between the lateral stripes. The fore feet have three unguiculated toes, and an obscure appearance of a fifth toe: the tail is naked, obscurely annulated, and of the length of the body. The animal is a native of Barbary.

To the above division of long-tailed species must be referred two which are figured and slightly described by Seba. One of these is adopted by Mr. Pennant, in the last edition of his *History of Quadrupeds*, under the title of the *Virginian Mouse*. It is figured at pl. 47, fig. 4, of the first vol. of Seba, and is called *Mus agrestis Americanus albus*. Its size seems to be that of the *Wood Mouse*; its colour entirely white; the eyes very small; the head large; the snout short but pointed, and the tail very thick at the base, and gradually tapering at the point.

The other species is called by Seba, *Mus Mexicanus maculatus*, and appears by its figure, pl. 45, fig. 5, of that author, to be about the size of a common mouse, and of the same general proportions; and is of a white colour, with a broad ferruginous band in front, passing beyond the eyes on each side; and on each side the body is also a large oblong patch of a similar colour: the tail seems naked. This Mr. Pennant calls the *Mexican Mouse*.

There is still another white species figured by Seba, and termed *Glis seu Mus Avellanarum Americanus albus*. It appears to be about the size of a very small rat, and has the habit of a Sorex or Shrew, the snout being very long and sharp, with numerous strong vibrissæ; the tail very slightly haired. It is figured on pl. 31 of Seba.

*With hairy Tails, in general either of middling length, or short.*

## BLUE RAT.

*Mus Cyanus. M. cauda mediocri subpilosa, palmis tetradactylis, plantis pentadactylis, corpore caeruleo, subtus albido. Lin. Syst. Nat. Gmel. p. 132. Molina Chil. p. 266.*

Blue Rat, whitish beneath, with tetradactylous fore-feet, pentadactylous hind-feet, and slightly hairy tail of middling length. Sky-coloured Rat. *Pennant Quadr. 2. p. 183.*

THIS is a species described by Molina in his History of Chili, of which country it is a native, and is about the size of the wood rat (*M. Sylvatici*-

*cus*), and of a fine pale blue colour, with rounded ears. It inhabits subterraneous burrows, which it forms of the length of many feet, and on each side of which are several holes or receptacles in which it deposits its winter provisions, consisting chiefly of tuberous roots, &c. It is a timid animal, and is also said to be very cleanly. It breeds twice a year; producing six at a time. The peasants of Chili frequently rob the subterraneous retreats of this species of the hoards which they contain.

## ROCK RAT.

*Mus Saxatilis. M. cauda longiuscula, auribus vellere majoribus, palmis subtetradactylis. Lin. Syst. Nat. Gmel. p. 131.*

Greyish-brown Rat, with longish tail, ears longer than the fur, and subtetradactylous fore-feet.

Rock Rat. *Pennant Quadr. 2. p. 192.*

THE *Mus Saxatilis* or Rock Rat was first described by Dr. Pallas, and measures four inches, exclusive of the tail, which is an inch and half long. The head is oblong; the nose rather pointed; the ears rising above the fur; oval, downy, and brown at the edges; the whiskers short, and the limbs strong. The colour of the animal is brown above, slightly mixed with grey; the sides inclining still more to the latter colour; the belly light cinereous, and the snout dusky, surrounded by a white ring. It is a native of Siberia, and is principally found beyond Lake Bai-

kal, and the Mongolian desert. It makes its burrows in a wonderful manner, considering the weakness of its feet, between the fissures of rocks which have been forced open either by the violence of frost, or the insinuation of the roots of plants. It chuses its situation amidst the rudest rocks, forming a large oblique or winding passage through which it flings out the earth, and from this passage proceeds another hole (and sometimes there are two), pointing downwards, and winding among the rocks, and in the bottom is situated the nest, composed of soft herbs. The principal food of this species, according to Dr. Pallas, consists of the seeds of various species of *Astragalus* or Milk-Vetch.

## WATER RAT.

*Mus Amphibius.* *M. cauda longitudine dimidia corporis, auribus vir vellere prominulis, pedibus subtetradactylis.* *Lin. Syst. Nat. Gmel. p. 132. Pall. glir. p. 80.*

Blackish-brown Rat, ash-coloured beneath, with ears scarce projecting from the fur, subtetradactyle fore-feet, and tail about half the length of the body.

*Mus cauda elongata pilosa, plantis palmatis.* *Lin. Syst. Nat. p. 82.*

*Mus agrestis major.* *Gess. Quadr. p. 733.*

Le Rat d'eau. *Buff. 7. p. 368. pl. 43.*

Water Rat. *Pennant Quadr. 2. p. 182.*

THE Water Rat is a general inhabitant of the temperate, and even the colder parts of Europe and Asia, and occurs also in North America; fre-

quenting rivers and stagnant waters, and forming its burrows in the banks. It is of a thicker and shorter form than many others of this genus, and has somewhat of the shape of a beaver. Mr. Ray, following an error of Willoughby, describes it as having the fore feet webbed; and Linnæus, in his *Systema Naturæ*, characterizes it from that very circumstance, but acknowledges that he had not himself examined the animal. In reality, however, there is no such appearance in the feet of the Water Rat, and the notion seems to have been hastily adopted from observing the facility with which it swims and dives. The general length of the Water Rat is about seven inches, and the tail about five. Its colour is blackish ferruginous above, and deep cinereous beneath: the nose is thick and blunt; the eyes small; the ears rounded and hid in the fur. In colour it appears to vary in different regions, being sometimes nearly black, and sometimes paler than usual. It also varies as to size, and the varieties have been mistakenly considered as distinct species. This animal never frequents houses, but confines itself to the banks of waters, and is supposed to live on fish, frogs, &c. and probably on various roots and other vegetable substances. Dr. Pallas, however, is unwilling to admit that it preys at all upon fish, though reported so to do by the Count de Buffon and others. At some seasons of the year it is observed to have a musky scent. The female produces her young in April, and generally brings about five or six at a time.

The measures of this species, as given by Mr Schreber, are as follow, viz. from nose to tail six inches and a half; and of the tail three inches. The figure engraved in Count de Buffon's Natural History is excellent, and is copied in the present publication.

## SCHERMAN RAT.

Mus Scherman. *M. cauda mediocri subpilosa, corpore supra fusco, subtus cinereo, pedibus parvis, auriculis velle breviaribus.*

Deep-brown Rat, cinereous beneath, with slightly hairy tail of moderate length, small feet, and ears shorter than the fur.

Scherman Rat. *Pennant Quadr. 2. p. 182.*

THIS species is said to be common about the neighbourhood of Strasburg, and appears to have been first described by Mr. Hermann, who in the year 1776 communicated a specimen to Count de Buffon. The length of the animal from nose to tail is six inches; of the tail about two inches and three quarters: the head is rather short; the snout thick; the eyes small, and the ears almost as short as those of a mole, and concealed beneath the fur. The general colour of the fur is a blackish brown, mixed with grey tawny; the hair being blackish at the root, and tawny towards the tip: the edges of the mouth are bordered with short white hairs, and the whiskers are black: the under parts of the body are of a mouse grey; the legs, which are short, are covered with dusky hair, as are also the feet, which are very small: the tail is



hairy, but not so well covered as that of the water rat. This animal resides in watery places and about gardens at Strasburgh, and is said to be very destructive to the plants in cultivated grounds. It swims and dives extremely well, and also burrows occasionally under ground.

## LEMMING RAT.

*Mus Lemmus. M. brachyurus, auriculis vellere brevioribus, palmis pentadactylis, corpore fulvo nigro alboque vario, subtus albo. Lin. Syst. Nat. Gmel. p. 136.*

Short-tailed Rat, with ears shorter than the fur, pentadactylous fore-feet, and body white beneath, variegated above with black, white, and fulvous.

*Mus cauda abbreviata, pedibus pentadactylis, corpore fulvo nigro-vario. Lin. Syst. Nat. p. 80.*

Lemmus. *Gen. Quadr. p. 731.*

Bestiola Leem dicta. *Aldr. dig. p. 436. Jonst. p. 168.*

Leming. *Buff. 13. p. 314.*

Lemmus. *Pennant Quadr. 2. p. 198.*

THE wonderful migrations of this species have long rendered it celebrated in the annals of natural history: it is remarkable, however, that no accurate figure of it was published till Dr. Pallas caused it to be engraved in his excellent work on the *Glires*.

The first describer of the Lemming seems to have been Olaus Magnus, from whom several of the older naturalists have copied their accounts. Afterwards Wormius gave a more particular description; since which, Ricaut, in the Philosophical

COLLARED MOUSE.

LEMNING RAT.



*After James's, London, in the gift of Dr. Anagnostis, Milan, 1866.*

*H. B. S. P.*



Transactions, Linnæus, in the Acta Holmiensia, and Dr. Pallas, in his publication before mentioned, have still farther elucidated its history and manners.

The Lemming differs in size and colour according to the regions it inhabits: those which are found in Norway being almost as large as a water rat, while those of Lapland and Siberia are scarce larger than a field mouse; the Norwegian measuring more than five inches from nose to tail, while those of Lapland and Siberia scarce exceed three. The colour of the Norway kind is an elegant variegation of black and tawny on the upper parts, disposed in patches and clouded markings: the sides of the head and the under parts of the body being white; the legs and tail greyish. In the Lapland kind the colour is chiefly a tawny brown above, with some indistinct dusky variegations; and beneath of a dull white: the claws are also smaller than in the Norwegian animal. The head of the Lemming is large, short, thick, and well furred; the snout very obtuse; the ears very small, rounded, and hid in the fur; the eyes small; the neck short and broad; the body thick; and the limbs short and stout, especially the fore legs: the fore-feet are broad, furnished with five toes, which have strong, compressed, and somewhat crooked claws, of which the three middle ones are longer than the rest: on the hind-feet are also five toes, with smaller claws than those of the fore-feet: the tail is very short, thick, cylin-

dric, obtuse, and covered with strong hairs, disposed like those of a pencil at the tip.

The natural or general residence of the Lemming is in the Alpine or mountainous parts of Lapland and Norway, from which tracts, at particular but uncertain periods, it descends into the plains below, in immense troops, and by its incredible numbers becomes a temporary scourge to the country; devouring the grain and herbage, and committing devastations equal to those caused by an army of locusts. These migrations of the Lemming seldom happen oftener than once in ten years, and in some districts still less frequently, and are supposed to arise from an unusual multiplication of the animals in the mountainous parts they inhabit, together with a defect of food; and, perhaps, a kind of instinctive prescience of unfavourable seasons; and it is observable that their chief migrations are made in the autumn of such years as are followed by a very severe winter. The inclination, or instinctive faculty which induces them, with one consent, to assemble from a whole region, collect themselves into an army, and descend from the mountains into the neighbouring plains, in the form of a firm phalanx, moving on in a strait line, resolutely surmounting every obstacle, and undismayed by every danger, cannot be contemplated without astonishment. All who have written on the subject agree that they proceed in a direct course, so that the ground along which they have passed appears at a distance as

if it had been ploughed ; the grass being devoured to the very roots, in numerous stripes, or parallel paths, of one or two spans broad, and at the distance of some ells from each other. This army of mice moves chiefly by night, or early in the morning, devouring the herbage as it passes, in such a manner that the surface appears as if burnt. No obstacles which they happen to meet in their way have any effect in altering their route ; neither fires, nor deep ravines, nor torrents, nor marshes, or lakes : they proceed obstinately in a strait line ; and hence it happens that many thousands perish in the waters, and are found dead by the shores. If a rick of hay or corn occurs in their passage, they eat through it ; but if rocks intervene, which they cannot pass, they go round, and then resume their former strait direction. If disturbed or pursued while swimming over a lake, and their phalanx separated by oars or poles, they will not recede, but keep swimming directly on, and soon get into regular order again ; and have even been sometimes known to endeavour to board or pass over a vessel. On their passage over land, if attacked by men, they will raise themselves up, uttering a kind of barking sound, and fly at the legs of their invaders, and will fasten so fiercely at the end of a stick, as to suffer themselves to be swung about before they will quit their hold ; and are with great difficulty put to flight. It is said that an intestine war sometimes takes place in these armies during their migrations, and that the animals thus destroy each other.

The major part, however, of these hosts is destroyed by various enemies, and particularly by owls, hawks, and weesels, exclusive of the numbers which perish in the waters ; so that but a small number survive to return, which they are sometimes observed to do, to their native mountains.

In their general manner of life they are not observed to be of a social disposition, but to reside in a kind of scattered manner, in holes beneath the surface, without laying up any regular provision, like some other animals of this tribe. They are supposed to breed several times in a year, and to produce five or six at once. It has been observed that the females have sometimes brought forth during their migrations, and have been seen carrying some in their mouths, and others on their backs. In some parts of Lapland they are eaten, and are said to resemble squirrels in taste.

It was once believed that these animals fell from the clouds at particular seasons, and some have affirmed that they have seen a Lemming in its descent ; but an accident of this kind is easily accounted for, on the supposition of a Lemming escaping now and then from the claws of some bird which had seized it, and thus falling to the ground ; a circumstance which is said not unfrequently to take place when the animals are seized by crows, gulls, &c.







MEADOW MOUSE.

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## MEADOW MOUSE.

*Mus Arvalis.* *M. cauda unciali, auriculis vellere prominulis, palmis subtetradactylis, corpore fusco.* *Lin. Syst. Nat. Gmel.* p. 134. *Pall. Glir.* p. 74. No. 19.

Dusky-ferruginous short-tailed Rat, deep ash-coloured beneath, with ears longer than the fur, and subtetradactylous feet.

*Mus gregarius.* *Lin. Syst. Nat. ed. 12. p. 85.*

Short-tailed Field Mouse. *Brit. Zool. No. 31.*

Meadow Mouse. *Pennant Quadr. 2. p. 205.*

*Le Campagnol.* *Buff. 7. p. 369. pl. 47.*

THIS species, which is very common in our own island, is readily distinguished from the rest of the British species by the shortness of its tail; measuring, according to Mr. Pennant, six inches from nose to tail; the tail being only an inch and half long. The colour of the animal is dusky ferruginous above, and deep ash-coloured beneath. It is a general inhabitant of Europe, and even extends to Siberia. It is also found in equal plenty in many parts of North America. In its manners it resembles the *Mus sylvaticus* or long-tailed Field Mouse; but is more commonly found in moist rather than dry situations. It makes its nest in meadows, and produces a litter of about eight at a time. Its favourite food is corn, which it amasses during harvest-time. It is frequently found in corn-ricks and barns, and often in company with the harvest mouse (*M. minutus*?) as well as with the long-tailed field mouse (*M. sylvaticus*). I know not how to reconcile the difference between the measures attributed to this

species by the Count de Buffon and Mr. Pennant; the former fixing its length at three inches, and the latter at six. It probably varies much in different climates, and accordingly the Count de Buffon tells us, that he had seen some which measured four inches and three lines from nose to tail. He also records a specimen, taken in the park of Versailles, which was entirely of a blackish ash-colour, and which had a tail of greater length than usual. Perhaps this dark-coloured variety may be the same with the *Mus (agrestis) cauda abbreviata, corpore nigro-fusco, abdomine cinerascete*, described by Linnæus, in the 2d edition of his *Fauna Suecica*.

Mr. Pennant has recorded a remarkable instance of attachment in the Meadow Mouse to its young. One which had been seduced into an iron trap by placing its brood in it, was so intent on fostering them as to appear quite insensible to its own state of captivity.

## COLLARED MOUSE.

*Mus Torquatus.* *M. brachyurus, auribus vellere brevioribus, palmis pentadactylis, corpore ferrugineo vario, torque interrupta albida, linea spinali nigra.* *Lin. Syst. Nat. Gmel. p. 136. Pall. Glir. p. 206.*

Short-tailed ferruginous Mouse, with dusky variegations, ears shorter than the fur, pentadactyle fore-feet, interrupted white collar, and black spinal stripe.

Ringed Mouse. *Pennant Quadr. 2. p. 201.*

IN shape and general appearance this species is much allied to the Lemming, but differs in the disposition of its colours, as well as in size; being smaller than the Siberian and Lapland varieties of that animal. It is a native of those parts of Siberia which border on the river Oby, where it is more common than the Lemming, and makes occasional migrations, which are said to happen in the same year with those of the Lemming. The size of this species is that of a large meadow mouse: its colour on the upper parts is an elegant ferruginous, variegated with numerous small dusky undulations; and round the neck is a white collar, while the forehead and top of the head are dusky, which colour curves down beyond the cheeks on each side, so as to form a dusky collar next to the white one: the cheeks are white, as is also the belly: the breast and sides are tinged with light orange-colour: the tail is extremely short, and is brown, tipped with white hairs. This species is said to feed chiefly on the reindeer lichen (*Lichen rangiferinus*) and the vivipa-

rous Bistort (*Polygonum viviparum*), the roots of which are often found in its holes or burrows, which are formed with several passages which it digs under the turfy soil.

## HARE-TAILED MOUSE.

*Mus Lagurus. M. brachyurus, auriculis velleræ brevooribus, palmis subtetradactylis corpore cinereo, linea longitudinali nigra. Lin. Syst. Nat. Gmel. p. 135. Pall. Går. p. 218.*

Short-tailed cinereous Mouse, white beneath, with ears shorter than the fur, subtetradactylous fore-feet, and black dorsal line.  
Hare-tailed Rat. *Pennant Quadr. 2. p. 202.*

THIS species, which is also of the migratory kind, is considerably smaller than the Lemming, but of nearly similar shape, and of a fine pale brown above, with blackish hairs intermixed, and has a black dorsal line or stripe running from the nose to the tail, which is extremely short and villose, so as to resemble the scut of a hare in miniature: the throat, belly, and feet, are white. This little animal delights in dry, sandy plains of the harder kind, where it can form its burrows: it feeds chiefly on the roots of the dwarf Iris (*Iris pumila*), as well as on grain and several other plants and seeds, even such as are bitter, as the Pontic and sea Wormwood. It is an animal of a fierce disposition, and makes a considerable resistance when taken. The length of this species is between three and four inches. It inhabits Siberia, and particularly the parts above the Yaik,

Irtish, and Jenesei. It is an animal that sleeps much; rolling itself up like the marmot, and sometimes migrates, in great troops, from one part of the country to another.

ÆCONOMIC RAT.

*Mus Æconomus. M. cauda subsesquiuinciali, auriculis nudis invellere molli latentibus, palmis subtetradactylis, corpore fusco. Lin. Syst. Nat. Gmel. p. 134. Pall. Glir. p. 79. No. 15.*

Short-tailed tawny Rat, whitish beneath, with naked ears concealed by the fur, and subtetradactyle fore-feet.

Æconomic Rat. *Pennant Quadr. 2. p. 194.*

THE Æconomic Rat, so named from its provident disposition and the skill with which it collects its provisions, is a native of Siberia, inhabiting that country in vast abundance, and even extending as far as Kamtschatka. Its curious history has been given with great exactness by Dr. Pallas, who informs us that these little animals make their burrows with wonderful skill immediately below the surface in soft turfy soils, forming a chamber, of a flattish arched form, of a small height, and about a foot in diameter, to which they sometimes add as many as thirty small pipes or entrances, and near the chamber they frequently form other caverns, in which they deposit their winter stores; these are said to consist of various kinds of plants, even of some species which are poisonous to mankind. They gather them in summer, harvest them with great care, and even

eyes small, its ears naked, very short and round, and almost hid beneath the fur of the head.

This animal is also supposed to be an inhabitant of Iceland; at least a species which must be greatly allied to it is found in that country, and is said to be particularly plentiful in the wood of Husafels. In that country, where berries are but thinly dispersed, the little animals are obliged to cross rivers to make their distant foraging excursions; and in their return are obliged to re-pass the stream; their manner of performing which is thus related by Mr. Olaffen, from the accounts of others, communicated to himself:

“ The party, consisting of from six to ten, select a flat piece of dried cow-dung, on which they place the berries they have collected, in a heap, on the middle; and then, by their united force, drawing it to the water's edge, launch it, and embark, placing themselves round the heap, with their heads joined over it, and their backs to the water, their tails pendent in the stream, and serving the purpose of rudders.”

*Var. ?*

*Mus Glareolus. Schreber, p. 679. pl. 190. B.*

THIS, from Mr. Schreber's figure, appears to be about the size of a common mouse, and of an uniform pale ferruginous colour, whitish beneath: the head seems very large, and without any visible distinction of neck; the body tapering from

the shoulders : the limbs small and slender, and the tail about an inch long : the eyes very small ; the ears entirely hid in the fur, and the nose rather inclining to a sharp form. It was observed by Mr. O. F. Müller, in the year 1777, in the island of Laland, among some sea lyme-grass (*Elymus arenarius*), growing on the sand near the shore. Nothing particular is known of its manners, and it remains doubtful whether it be a distinct species or a variety of the œconomic mouse.

## GARLIC MOUSE.

*Mus Alliaris. M. cauda unciali, auribus majusculis subpilosis, corpore cinereo subtus albido. Lin. Syst. Nat. Gmel. p. 133. Pall. Glir. p. 252.*

Cinereous Mouse, whitish beneath, with rather large slightly hairy ears, and tail about an inch in length.

Garlic Mouse. *Pennant Quadr. 2. p. 197.*

THE Garlic Mouse was first described by Dr. Pallas, who informs us that it is a native of Siberia, where it is chiefly found about the Jenesei and Lena, and is frequent in the subterraneous magazines of bulbous roots, especially the *Allium angulatum*, or angular garlic, formed by the Siberian peasants. It is very nearly allied to the meadow mouse, but the ears are larger, and the body is of a cinereous colour above, and whitish beneath ; it measures somewhat more than four inches from nose to tail, and the tail about an



inch and half; the tail is also marked along the top with a dusky line, the remainder being white.

## RED MOUSE.

*Mus Rutilus. M. cauda unciali, auriculis vellere longioribus, palmis subtetradactylis, corpore supra fulvo subtus cano. Lin. Syst. Nat. Gmel. p. 133. Pall. Glir. p. 246.*

Fulvous Mouse, ash-coloured beneath, with tail about an inch long, ears longer than the fur, and subtetradactyle fore-feet.

Red Mouse. *Pennant Quadr. 2. p. 196.*

THE length of this species is not quite four inches, and the tail is somewhat more than one inch long, and very hairy: the nose and face are bristly, the ears very small, but longer than the fur; bare, but edged at the tips with reddish hairs. The colour of the animal on the upper parts is a pleasant tawny red; the sides tinged with light yellowish-grey, and the under parts are whitish. It is a native of Siberia, and is found from the Oby eastward to Kamtschatka, in woods and mountains; and also within the arctic circle. It sometimes frequents houses and granaries; and is often found under logs of wood, trunks of trees, &c. It is said to wander about during the whole winter; seemingly unaffected by the severity of the season. A variety somewhat smaller has been found about Casan, having a longer and thinner tail. It is also said to have been discovered in the neighbourhood of Gottingen.

## WOOLLY MOUSE.

*Mus Laniger.* *M. cauda mediocri, palmis tetradactylis, plantis pentadactylis, corpore cinereo lanato.* *Lin. Syst. Nat. Gmel.* p. 134. *Molin. Hist. Chil.* p. 267.

Ash-coloured Woolly Mouse, with tetradactyle fore-feet, pentadactyle hind-feet, and tail of middling length.

Woolly Rat. *Pennant Quadr.* 2. p. 196.

The Woolly Mouse is a South American species, and is a native of Chili, where it resides in subterraneous retreats, in a gregarious manner, and feeds on various kinds of roots. It breeds twice a year, bringing five or six at a time. It is said to be an animal of a very mild and gentle disposition, very easily tamed, and often rendered domestic. The ancient Peruvians are said to have manufactured various valuable articles from its fur, which is of a woolly nature, long, and of exquisite fineness. This species is of a cinereous colour, and measures about six inches: the ears are very small; the nose short, and the tail of middling length.

## BAIKAL MOUSE.

*Mus gregalis*. *M. cauda sesquianciali, auriculis vellere longioribus, palmis subtetradactylis, corpore cinerascete.* *Lin. Syst. Nat. Gmel. p. 133. Pall. Gär. p. 238.*

Grey Mouse, with ears shorter than the fur, subtetradactyle forefeet, and tail about an inch and half long.

Baikal Rat. *Pennant Quadr. 2. p. 204.*

THIS species is a native of Siberia, and forms its nest beneath turfy ground, with several minute entrances. It is supposed to feed chiefly on the roots of the *Lilium pomponium*, and *Allium tenuissimum*, which it collects for its winter provision. The male and female, together with the young of one year's age, reside in the same retreat. This species is not observed to migrate. It varies in size, and the males are in general much smaller than the females. The usual length seems to be about four inches, and the tail about an inch and half; but some of the males do not exceed three inches from nose to tail.

## SOCIAL MOUSE.

*Mus Socialis. M. cauda semiunciali, auriculis orbiculatis brevissimis, palmis subtetradactylis, corpore pallido subtus albo. Lin.*

*Syst. Nat. Gmel. p. 135. Pall. Glir. p. 705.*

Pale-grey Mouse, white beneath, with very short rounded ears, subtetradactyle fore-feet, and tail of half an inch in length.

Social Rat. *Pennant Quadr. 2. p. 203.*

The Social Mouse is a native of the Caspian deserts between the Volga and the Yaik, and the country of Hircania. It lives in low sandy situations, in large societies; the ground in many places being covered with the little hillocks formed by the earth cast out in forming the burrows, which are said to be about a span deep, with eight or more passages. The animals are always observed to live in pairs, or with a family; they are fond of tulip-roots, which form a principal article of their food. They appear chiefly in the spring, when they are very numerous, but are rarely seen in autumn, and are supposed either to migrate in autumn or to conceal themselves among the bushes, &c. and in the winter to shelter themselves in hay-ricks. The head in this species is thick, and the nose blunt; the whiskers white; the ears oval and naked; the limbs short and strong, and the tail slender. The upper parts are of a light grey, and the under, white.

HAMSTER RAT .



*Mr. J. J. Linnell, London. Published by H. S. G. & Co., 1850.*

*With Cheek-pouches for the temporary Reception of their Food.*

HAMSTER RAT.

*Mus Cricetus. M. buccis sacculiferis, corpore subtus aterrimo, cicatriculis lumbaribus detonsis. Lin. Syst. Nat. Gmel. p. 137. Pall. Glir. p. 83.*

Reddish-brown pouched Rat, with three white spots on each side, and deep black abdomen.

*Mus cauda mediocri, auriculis rotundatis, corpore subtus nigro, lateribus rufescentibus, maculis tribus albis. Lin. Syst. Nat. p. 82.*

Hamster. *Buff. 13. p. 117. pl. 14. and Suppl. 3. p. 183.*

Hamster Rat. *Pennant Quadr. 2. p. 206.*

OF the pouched rats the Hamster is the most remarkable, and indeed is the only European species provided with those peculiar receptacles, which are situated on each side the mouth, and when empty are so far contracted as not to appear externally, but when filled resemble a pair of tumid bladders, having a smooth veiny surface; concealed, however, under the fur or skin of the cheeks \*, which bulge out extremely in this state. They are so large as to hold the quantity of a quarter of a pint, English measure.

The general size of the Hamster is nearly that of a brown or Norway rat, but it is of a much

\* In the figure of these parts engraved in Buffon's Natural History, Vol. XIII. pl. 16, they are represented as situated under the skin of the cheeks, which has been divided in order to display them; and in Daubenton's accurate description they are expressly said to be covered by the common integuments.

thicker form, and has a short tail. Its colour is a pale reddish brown above, and black beneath. The muzzle is whitish, the cheeks reddish, and on each side the body are three moderately large oval white spots, of which those on the shoulders are the largest: the ears are moderately large and rounded, and the tail almost bare, and about three inches long: on the fore-feet are four toes, with a claw in place of a fifth; and on the hind-feet are five toes. Sometimes the Hamster varies in colour, being found either black with a white muzzle, or of a pale yellowish white. The male is always much larger than the female. On each side the lower part of the back is an almost bare spot, covered only with very short down.

The Hamster inhabits Siberia and the south of Russia. It is also found in Poland, as well as in many parts of Germany. They are very destructive in some districts, devouring great quantities of grain, which they carry off in their cheek-pouches, and deposit in their holes in order to devour during the autumn. The habitations which they dig, to the depth of three or four feet, consist of more or fewer apartments, according to the age of the animal: a young Hamster makes them hardly a foot deep; an old one sinks them to the depth of four or five feet, and the whole diameter of the residence, taking in all its habitations, is sometimes eight or ten feet. The principal chamber is lined with dried grass, and serves for a lodging; the others are destined for the preservation of provisions, of which he amasses

a great quantity during the autumn. Each hole has two apertures, the one descending obliquely, and the other in a perpendicular direction, and it is through this latter that the animal goes in and out. The holes of the females, who never reside with the males, are somewhat different in their arrangement, and have more numerous passages. The female breeds two or three times a year, producing five or six, and sometimes as many as sixteen or eighteen\*. The growth of the young is rapid, and they are soon able to provide for themselves.

The Hamster feeds on all kinds of herbs and roots, as well as on grain, and even occasionally on the smaller animals. "In harvest time (says Mr. Allamand) he makes his excursions for provision, and carries every article he can find into his granary. To facilitate the transportation of his food, Nature has provided him with two pouches in the inside of each cheek. On the outside these pouches are membranous, smooth, and shining, and in the inside are a great many glands, which continually secrete a certain fluid, to preserve their flexibility, and to enable them to resist any accidents which may be occasioned by the roughness or sharpness of particular grains."

On the approach of winter the Hamster retires into his subterraneous abode, the entry of which he shuts up with great care; and thus remaining

\* Allamand's Buffon.



in a state of tranquillity, feeds on his collected provision till the frost becomes severe; at which period he falls into a profound slumber, which soon grows into a confirmed torpidity, so that the animal continues rolled up, with all its limbs inflexible, its body perfectly cold, and without the least appearance of life. In this state it may even be opened; when the heart is seen alternately contracting and dilating, but with a motion so slow as to be scarce perceptible, not exceeding fifteen pulsations in a minute, though in the waking state of the animal it beats a hundred and fifty pulsations in the same time. It is added, that the fat of the creature has the appearance of being coagulated, that its intestines do not exhibit the smallest symptoms of irritability on the application of the strongest stimulants, and the electric shock may be passed through it without effect. This lethargy of the Hamster has been generally ascribed to the effect of cold alone; but late observations have proved, that unless at a certain depth beneath the surface, so as to be beyond the access of the external air, the animal does not fall into its state of torpidity, and that the severest cold on the surface does not affect it. On the contrary, when dug up out of its burrow, and exposed to the air, it infallibly awakes in a few hours. The waking of the Hamster is a gradual operation: he first loses the rigidity of his limbs, then makes profound inspirations, at long intervals; after this he begins to move his limbs, opens his mouth, and utters a sort of un-

pleasant rattling sound. After continuing these operations for some time, he at length opens his eyes, and endeavours to rise, but reels about for some time, as if in a state of intoxication, till at length, after resting a small space, he perfectly recovers his usual powers. This transition from torpidity to activity requires more or less time, according to the temperature of the air, and other circumstances. When exposed to a cold air he is sometimes two hours in waking; but in a warmer air the change is effected in half the time.

The manners of the Hamster are generally represented as far from pleasing. No society appears to exist among these animals. They are naturally very fierce, and make a desperate defence when attacked; they also pursue and destroy every animal which they are capable of conquering, not excepting even the weaker individuals of their own species. They are said to be particularly fond of the seeds of liquorice, and to abound in the districts where that plant is cultivated. According to Mr. Sultzer, they abound to such a degree in Gotha, that in one year 11,564, in another 54,429, and in a third 80,139 of their skins were delivered in the Hotel de Ville of that capital, where the Hamster is proscribed on account of the devastations it commits among the corn.

## CANADA RAT.

*Mus Bursarius. M. cinereus, cauda tereti brevi subnuda, genis  
saccatis, unguibus palmarum maximis fossoribus.*

Ash-coloured Rat, with short nearly naked tail, pouched cheeks,  
and the claws of the fore-feet very large, and formed for bur-  
rowing in the ground.

*Mus Bursarius. Lin. Trans. vol. 5. p. 227. pl. 8.*

THIS, which is a species but lately discovered, seems to be the most remarkable of all the pouched rats for the proportional size of the receptacles. It is a native of Canada, and the individual here figured was taken by some Indians in the year 1798, and afterwards presented to the lady of Governor Prescott. It is about the size of a brown or Norway rat, and is of a pale greyish-brown colour, rather lighter beneath: the length to the tail is about nine inches, and that of the tail, which is but slightly covered with hair, about two inches: the legs are short; the fore-feet strong, and well adapted for burrowing in the ground, having five claws, of which the three middle ones are very large and long; the interior much smaller, and the exterior very small, with a large tubercle or elbow beneath it. The claws on the hind-feet are comparatively very small, but the two middle are larger than the rest, and the interior one is scarce visible: the teeth are extremely strong, particularly the lower pair, which are much longer than the upper: the ears are very small. This species is described in the 5th

volume of the Transactions of the Linnæan Society, but I must observe, that, by some oversight in the conduct of the figure there given, the claws on the fore-feet are represented as only three in number, and are somewhat too long, weak, and curved. The engraving in the present plate is a more faithful representation, and is accompanied by an outline of the head, in its natural size, as viewed in front, in order to shew the teeth and cheek-pouches. The manners of this species are at present unknown; but it may be concluded that it lays in a stock of provisions, either for autumnal or winter food. The pouches of the individual specimen above described, when first brought to Governor Prescott, were filled with a kind of earthy substance: it is, therefore, not improbable that the Indians who caught the animal might have stuffed them thus, in order to preserve them in their utmost extent.

## YAIK RAT.

*Mus Accedula. M. buccis sacculiferis, auriculis sinuatis, corpore griseo subtus albido. Lin. Syst. Nat. Gmel. p. 137. Pall. Glir. p. 257.*

Yellowish-grey Rat, whitish beneath, with pouched cheeks and sinuated ears.

Yaik Rat. *Pennant Quadr. 2. p. 210.*

THIS species is a native of Siberia, and particularly of the deserts about the Yaik. It is much smaller than the Hamster, measuring only four

inches; and the tail about three quarters of an inch: the upper parts of the body are of a cinereous yellow mixed with brown, and the under parts whitish: the face also is whitish: the snout is blunt, the ears moderately large, the eyes full, and the body short and thick. On the fore-feet are four toes, and on the hind-feet five, all furnished with claws of moderate strength. This animal is said to make its excursions for food chiefly by night, confining itself during the greatest part of the day to its burrow.

## SAND RAT.

*Mus Arenarius.* *M. buccis sacculiferis, corpore cinereo lateribus subtusque albo, cauda pedibusque albis.* *Lin. Syst. Nat. Gmel. p. 139. Pall. Glir. p. 265.*

Cinereous pouched Rat, with the feet, sides of the body, abdomen, and tail, white.

Sand Rat. *Pennant Quadr. 2. p. 211.*

THE Sand Rat is about four inches in length, with a tail about one inch or rather more: the head is longish and the snout sharp; the cheek-pouches large, the ears large and oval, and the eyes rather small: the colour of the upper part of the body is hoary or cinereous, and of the under pure white; the tail is also white. It is an inhabitant of the sandy plains of Baraba, near the Siberian river Irtish, where it forms deep burrows, at the bottom of which is a nest com-

posed of the sea lyme-grass and other plants. It is said to be chiefly a nocturnal animal, and of a fierce, untameable disposition.

## ASTRACAN MOUSE.

*Mus Phæus. M. buccis sacculiferis, corpore caudaque fusco-cinereascentibus subtus albis. Lin. Syst. Nat. Gmel. p. 138.*

Ash-brown pouched Rat, white beneath.

Zarizyn Rat. *Pennant Quadr. 2. p. 211.*

THIS species measures about three inches and a half in length, exclusive of the tail, which is about three quarters of an inch long: the forehead is elevated; the edges of the eyelids black; the ears naked and oval; the colour of the animal on the upper parts is pale cinereous or hoary, with a dusky streak along the back: the sides are whitish; and the circumference of the mouth, under side of the body, and the extremities of the limbs, milk white. It is an inhabitant of the desert of Astracan, and particularly about Zarizyn, where it is occasionally taken in the winter season in places about stables and out-houses. It is also found about the Persian villages in the Hyrcanian mountains, and seems to have been first distinctly described by Dr. Pallas.

## SONGAR RAT.

*Mus Sogarus.* *M. buccis sacculiferis, dorso cinereo, lineâ spinali nigra, lateribus albo fuscoque variis, ventre albo.* *Lin. Syst. Nat. Gmel. p. 138. Pall. Går. p. 261.*

Cinereous pouched Rat, white beneath, with black spinal line and the sides patched with white.

Songar-Rat. *Pennant Quadr. 2. p. 212.*

THE Songar Rat is a native of Siberia, where, like others of this tribe, it forms its burrows in dry sandy places. Its length is about three inches, and its tail scarce more than a quarter of an inch. It is an animal of a thick shape, with a large head, blunt nose, small eyes, and large oval ears, which are but very slightly covered with hair. Its colour on the upper parts is pale grey, with a black dorsal line, and the sides marked with some large white spots or patches which are confluent in some parts, and in others bounded with brown: the under parts and legs are white. This elegant species appears to have been first discovered by Dr. Pallas, who observes, that it makes a nearer approach to the Hamster in its form, and in the disposition of its colours, than the rest of this tribe: Dr. Pallas, in one of the nests, which was formed of dried herbs, found seven young, which were still blind: these he preserved, and they soon grew perfectly tame, and would feed from his hand, lap milk, and, when placed on a table, shewed no desire to escape: they were kept in a box, with sand, in which they delighted to burrow. They frequently eat in a sitting posture,



CANADA RAT.

*See also: London Published by G. Knapp's Fine Arts*





like a squirrel; and washed their faces with their paws: they generally wandered about during the day, and slept all night rolled up: their voice resembled that of a bat.

## BARABA RAT.

Mus Furunculus. *M. buccis sacculiferis, corpore supra griseo, striga dorsali nigra, subtus albido.* *Lin. Syst. Nat. Gmel. p. 139. Pall. p. 273.*

Yellowish-grey pouched Rat, whitish beneath, with black dorsal streak.

Baraba Rat. *Pennant Quadr. 2. p. 213.*

THIS species, which inhabits the sandy plain of Baraba, towards the river Ob, is about the same length with the preceding, but the tail is much longer, measuring near an inch: the snout is of a sharper form, and the body more slender. It is of a yellowish grey colour above, and white beneath: along the back, from the neck almost to the tail, runs a black stripe. Nothing particular is known of its way of life, the specimens from which Dr. Pallas drew up his description, having been taken running about the plain, and their skins brought to him in a dried state.

*Subterranean or Ground-Rats, resembling Moles  
in Habit and Manner of Life.*

COAST RAT.

*Mus Maritimus. M. brachyurus, dentibus primoribus superioribus sulcatis, auriculis nullis, pedibus pentadactylis, corpore supra albido flavescente mixto, ad latera et subtus ex albo cinereo. Lin. Syst. Nat. Gmel. p. 140.*

Pale yellowish-brown Rat, whitish beneath, with very large and long naked teeth, pentadactyle feet, no external ears, and short tail.

La Grande Taupe du Cap. *Buff. suppl. 6. p. 255. pl. 38.*  
African Rat. *Pennant Quadr. 2. p. 217.*

OF all the subterraneous species this is the largest yet discovered, being of the size of a rabbit, and measuring a foot from nose to tail, which is about two inches long, flattish, and covered with long bristly hair horizontally disposed on each side. The colour of the animal is a cinereous brown, paler beneath: the head is large, the nose black, the end somewhat flattened and wrinkled: the eyes very small and hid in the fur: there is no appearance of external ears, the foramina alone being discoverable: the front-teeth are very large; the upper pair are the third of an inch long, and are furrowed lengthways; the lower pair are an inch and quarter long, and naked, or naturally exposed to view, the lip not closing over them: these lower teeth it has the power of separating or divaricating at pleasure, in the manner of the Kangaroo: on the fore-feet

SONGAR RAT.



BARABA RAT.

MUS GLAREOLUS, SCHREB.

*Mus. Lond. Lond. Published by a Engraver Plate No. 1*



are five toes, of which the interior is the longest; the claws very long and sharp; that on the thumb being shorter than the rest: the hind-feet, which are very long, large, and naked, have also five toes, with much shorter and weaker claws than those of the fore-feet: the hair on the sides of the feet is very strong and bristly. This large species is a native of the Cape of Good Hope, and is there known by the name of the Sand Mole, being chiefly found in the neighbourhood of the shores, and never in the interior parts of the country. It renders the ground, in the places it frequents, so hollow, by flinging up the earth in forming its burrows, as to be highly inconvenient to travellers; breaking every six or seven minutes under the horses' feet, and letting them in up to the shoulders. It is supposed to feed principally on the bulbous *Ixiæ* and *Antholyzæ*. From the frequency of this species about the Cape, it is supposed to be an animal of a prolific nature.

## BLIND RAT.

*Mus Typhlus.* *M. caudatus, palmis pentadactylis, incisivibus supra infraque latis, oculis auriculisque nullis.* *Lín. Syst. Nat. Genl. p. 141. Pall. Glir. p. 76.*

Short-tailed rufous-brown Rat, dusky beneath, with pentadactyle fore-feet, broad front-teeth, and without eyes or external ears.

*Spalax major.* *Erzl. mamm. p. 337.*

Blind Rat. *Pennant Quadr. 2. p. 214.*

NEXT to the sand rat, above described, this is perhaps the largest and most remarkable of its tribe; measuring between seven and eight inches in length, and being entirely destitute both of eyes and tail: the defect of the former is a very singular circumstance, and the animal perhaps affords the only instance of a truly blind or eyeless quadruped. In the mole, the eyes, however small and deeply seated, are yet perfect in their kind, and though not calculated for acute vision, still enable the animal to avoid the danger of exposure; but in the quadruped now under consideration, there are merely a pair of subcutaneous rudiments of eyes, smaller than poppy-seeds, and covered with a real skin. It is probable, however, that even these minute organs are sufficient to give an obscure perception of light, and to enable the animal to consult its safety by generally continuing beneath the surface. The external ears are also wanting, and the foramina leading to the internal organs are very small, entirely hid by the fur, and situated at a great distance

CAPE RAT.



COAST RAT.



*1860 Jan 's, London: Published by G. B. Shaw and Sons, Fleet Street.*





backward. There is scarce any distinction between the head and neck, and the whole form of the animal, like that of the mole, is calculated for a subterraneous life; the body being cylindric, the limbs very short, and the feet and claws, though small and weak in comparison with those of moles, yet calculated for digging or burrowing in the ground. The colour of the animal is a greyish brown; the fur, which is very thick, soft, and downy, being dusky toward the roots, and greyish toward the tips: the head is lighter, and the abdomen darker than the other parts: the lower lip is also whitish, and sometimes a white mark extends along the forehead: the front-teeth are very large, and are naturally bare or exserted: the lower pair being much longer than the upper. This singular species is a native of the southern parts of Russia, where it burrows to a great extent beneath the surface, forming several lateral passages, by which it may pass in quest of roots, &c. It is said to feed in particular on the roots of the *Cherophyllum bulbosum*. In the morning hours it sometimes quits its hole to bask in the sunshine, and if disturbed, instantly takes refuge beneath the surface; burrowing with great agility, and frequently in a perpendicular direction. Its bite is very severe when attacked. It has no voice, but emits a kind of snorting sound, and gnashes its large teeth in a menacing manner, raising its head at the same time. The female is said to produce from two to four young.

## DAURIAN RAT.

*Mus Aspalax. M. brachyurus, incisarius supra infraque canestis, auriculis nullis, unguibus palmarum elongatis. Lin. Syst. Nat. Gmel. p. 140. Pall. Gär. p. 165.*

Short-tailed, earless, yellowish-cinereous Rat, with large cuneated front-teeth, and long claws on the fore-feet.

Daurian Rat. *Pennant Quadr. 2. p. 216.*

THIS species in form and manner of life agrees with the *Mus Typhlus* or Blind Rat, but is, in general, of smaller size, and of a yellowish ash-colour; and in some specimens a whitish line or longitudinal streak appears on the top of the head: the upper fore-teeth are naked, but the lower are covered with a moveable lip: there is no appearance of external ears, and the eyes are extremely small and deeply seated: the head is flat and blunt, the body short and somewhat depressed, the limbs very strong, especially the fore-legs, the feet of which are large, naked, and well adapted for burrowing in the ground, having five toes, the three middle of which are furnished with long and strong slightly-curved claws: the hind-feet are also naked, and have five toes with small claws: the tail is very short.

This animal burrows, like the rest of this division, raising numerous hillocks in its progress. It is a native of the Altaic mountains, and of the country beyond Lake Baikal. It differs considerably in size in different regions; those of the Altaic mountains sometimes measuring near nine inches in length.

TALPINE RAT



BLIND RAT.

*Illustrated from a drawing by A. Murray, F.R.S.*



## CAPE RAT.

*Mus Capensis*. *M. brachyurus*, *dentibus primoribus supra infraque cuneatis, auriculis nullis, palmis pentadactylis, ore albo.*

*Lin. Syst. Nat. Gmel. p. 140. Pall. Glir. p. 172.*

Short-tailed rufo-cinereous Rat, paler beneath, with very large naked front-teeth, pentadactyle feet, and white muzzle.

Taupe du Cap de bonne Esperance. *Buff. Suppl. 3. p. 193. pl. 33. and Suppl. 6. p. 251. pl. 36.*

Cape Rat. *Pennant Quadr. 2. p. 218.*

IN its general shape this animal is not unlike the great sand rat first described, and is equally common about the Cape of Good Hope, but it is far inferior in size, measuring about seven inches to the tail, which is very short, nearly white, and flattish. The general colour of this species is a dusky rufous ash-brown, paler or more inclining to whitish beneath: the end or tip of the nose is naked and black; the remainder white, and on each side are several strong white bristles: the chin, lower sides of the cheeks, and spaces round the eyes, are also white, and on the hind part of the head is an oval white spot; the teeth are naturally exerted or naked, and are similar in form to those of the great sand rat. In its manners and way of life the animal is also similar to that species, and is very destructive to gardens, flinging up hillocks, and eating various kinds of roots. The best figure of this animal seems to be that in Mr. Brown's Illustrations of Zoology, for which reason it is introduced into the present work.

Dr. Pallas's representation is also added, though less expressive of the remarkable appearance of the teeth.

## TALPINE RAT.

*Mus Talpinus.* *M. brachyurus fuscus, dentibus primoribus supra infraque cuneatis, auriculis nullis, palmis pentadactylis fossoribus.*  
*Lin. Syst. Nat. Gmel. p. 139. Pall. Glir. p. 176.*

Short-tailed brown Rat, with large cuneated front-teeth, no external ears, and pentadactyle fore-feet, formed for burrowing.

*Spalax minor. Erxleb. mamm. p. 379.*

Talpine Rat. *Pennant Quadr. 2. p. 219.*

THIS species is much allied to the *Mus Campensis* in shape and in its large teeth, but is of a smaller size, measuring scarcely four inches in length. Its colour is subferruginous brown above, paler or more inclining to whitish beneath: the tail is very short: the body plump; the head rather large, and the snout thick: the eyes small, and the foramina of the ears scarcely visible: the legs short; the feet naked, with five toes on each, furnished with moderately strong claws. This species is common in the temperate parts of Russia, and in some parts of Siberia, burrowing in black turfy ground, and especially in places where the *Phlomis tuberosa* and *Lathyrus esculentus* grow. In the winter it makes a nest beneath some shrub or hay-rick, at a considerable depth below the ground, lining it with soft grass,

but is not observed to become torpid. The female is said to produce three or four young. This animal sometimes varies in colour, and has been found totally black. It was first distinctly described by Dr. Pallas.



## ARCTOMYS. MARMOT.

*Generic Character.*

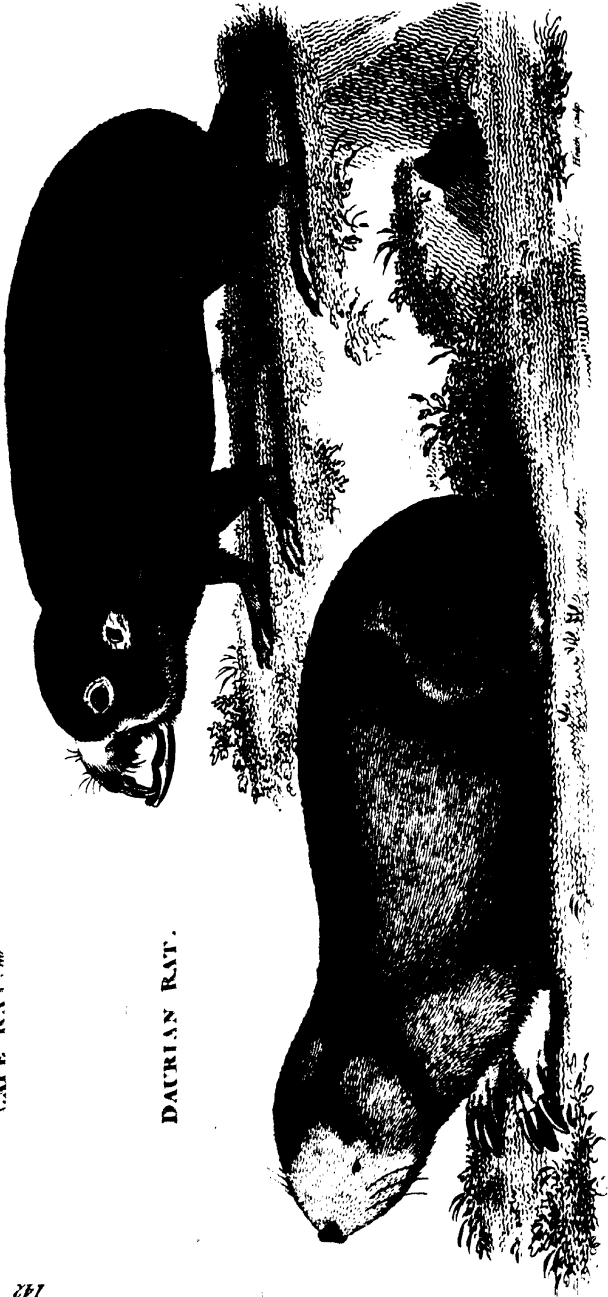
<i>Dentes Primores</i> cuneati, duo in utraque maxilla.	<i>Front-teeth</i> two in each jaw, strong, sharp, and cuneat- ed.
<i>Molares superiores</i> utrinque quinque, inferiores qua- tuor.	<i>Grinders</i> in the upper jaw five on each side, in the lower jaw four.
<i>Clavicule</i> perfectæ.	<i>Clavicles</i> or collar-bones in the skeleton.

THE genus *Arctomys* or *Marmot* differs from that of *Mus* in so few particulars as to make it somewhat doubtful whether it ought to be kept separate or not. These animals are of a thick form, with large, roundish, and somewhat flattened heads, small mouths, the fissure having a somewhat perpendicular appearance; ears very short, and sometimes none; a short villous tail; tetradactyle fore-feet with a very small thumb, and pentadactyle hind-feet: the skeleton is furnished with clavicles or collar-bones; and the cæcum or appendicular intestine is very large. They are diurnal animals; feed on roots, grain, &c. which they often collect into heaps. They reside in subterraneous holes or burrows, and sleep during the winter.



CAPE RAT. *ms*

DAURIAN RAT.



*Uromys capensis* (Linn.) *Uromys dauricus* (Bl.)

## ALPINE MARMOT.

*Arctomys Marmota. A. capite auriculato, corpore fuscis subtus rufescente. Lin. Syst. Nat. Gmel. p. 141.*

Brown Marmot, rufous beneath.

*Mus Marmota. M. cauda abbreviata subpilosa, auriculis rotundatis, buccis gibbis. Lin. Syst. Nat. p. 81.*

*Mus Alpinus Gen. Quadr. p. 743. Aldr. dig. p. 445.*

La Marmotte. *Buff. 8. p. 219. pl. 28.*

Alpine Marmot. *Pennant Quadr. 2. p. 128.*

THIS species is a native of the Alps and of the Pyrenean mountains, and is most frequent in those of Savoy and Switzerland, inhabiting the higher regions, and feeding on various roots, plants, insects, &c. It climbs readily, and can ascend the rocky eminences and fissures with great facility. Its general size is somewhat larger than that of a rabbit; measuring about sixteen inches to the tail, which is about six inches long. The colour of the Marmot, on the upper parts, is a brownish or rather tawny ash-colour; the legs and under parts being of a bright tawny or ferruginous tinge: the head is rather large, and flattish; the ears short and hid in the fur, and the tail thick and bushy. The account of this species, as given by Gesner, and copied by Buffon and others, with the addition of a few particulars, will be sufficient for its general history. It is an animal which delights in the regions of frost and snow, and is found only on the tops of high mountains. In such situations several individuals unite in forming a place of retreat, which

is contrived with great art, and consists of an oval cavity or general receptacle, large enough to contain several of the animals, and having a large canal or passage, which divaricates in such a manner as to present two outlets to the surface of the ground. These recesses are prepared on the declivities of elevated spots, and the cavern or receptacle is well lined with moss and hay, which they prepare during summer, as if conscious of the necessity of providing for their long hybernal sleep. In fine weather they are seen sporting about the neighbourhood of their burrows; and delight in basking in the sunshine; frequently assuming an upright posture, sitting on their hind-feet. When assembled in this manner, it is observed, that one of the exterior number seems to act as a centinel, and on the approach of any danger, alarms the fraternity by a loud and shrill whistle, on which they instantly retire to their cavern. These animals make no provision for winter; but as soon as the autumnal frosts commence, they carefully stop up the entrances to their mansions, and gradually fall into a state of torpidity, in which they continue till the arrival of spring, when they again awake, and recommence their excursions. Before they retire to their winter quarters they are observed to grow excessively fat; and, on the contrary, appear greatly emaciated on first emerging from them. If carefully dug up during the winter, from their holes, they may be conveyed away in their sleeping state; and when brought into a warm cham-

ber, gradually awaken, nearly in the same manner as the Hamster. If kept in a warm situation, they do not become torpid in winter. They breed early in the summer, and the litter commonly consists of three or four, the growth of which is observed to be very rapid.

When taken young, the Marmot may be easily rendered domestic, and is often taught to perform various gesticulations. In a domestic state it will also eat almost any kind of animal or vegetable food, and is extremely fond of milk. In feeding it generally sits in an upright position, making use of its paws in the manner of a squirrel.

## MARYLAND MARMOT.

*Arctomys* Monax. *A. capite auriculato, rostro cærulescente, cauda longiuscula villosa, corpore griseo.* *Lin. Syst. Nat. Gmel. p. 142.*

Ferruginous-brown Marmot, with blueish-grey snout and longish villose tail.

*Mus* Monax. *M. cauda mediocri pilosa, corpore cinereo, auriculis subrotundis, palmis tetradactylis, plantis pentadactylis.* *Lin. Syst. Nat. p. 81.*

The Monax, or Marmot of America. *Edw. 104. Buff. suppl. 3 p. 157. pl. 28.*

Maryland Marmot. *Pennant Quadr. 2. p. 130.*

THE Maryland Marmot is a North American animal, and is principally found in Virginia and Pennsylvania. It also occurs in the Bahama islands; and in its way of life resembles the European or Alpine Marmot, living on vegetable substances,

retiring into hollows under the roots of trees, &c. in winter, and falling into temporary state of torpidity: it is doubtful, however, whether this is the case in those which are found in the Bahama islands. The size of this species is nearly that of the rabbit: its colour is a ferruginous brown above, and paler or inclining to whitish beneath: the muzzle, as far as the eyes, is of a pale blueish ash-colour; the ears are short and rounded; the eyes are rather large and black, and the snout sharpish: the tail is longer than in others of this genus, being nearly half the length of the body, and covered with longish or rather bushy hair of a deep brown or blackish colour: the feet are blackish, and are furnished with large and sharp claws. A good figure of this animal has been given by Edwards, from a specimen which was long kept in a domestic state by Sir Hans Sloane. Edwards informs us, that "by being fed with soft meats, and disuse to gnaw, its teeth grew so long and crooked that it could not take its food, so to preserve its life they were obliged to break them out." This elongation of the teeth in various animals, when kept in similar circumstances, is a well-known occurrence, having been observed in rabbits, squirrels, &c.

## QUEBEC MARMOT.

*Arctomys Empetra*. *A. capite auriculato, cauda villosa, corpore supra vario subtus rufo.* *Lin. Syst. Nat. Gmel. p. 143.*

Grey Marmot, undulated with darker and lighter variegations, rufous beneath, with dusky tail.

*Mus Empetra*. *M. capite gibbo auriculato, cauda villosa brevi, palmis tetradactylis, corpore supra vario, subtus rufo.* *Pall. Glir. p. 75.*

Quebec Marmot. *Pennant Quadr. 2. p. 129.*

THE Quebec Marmot is said to be found in various parts of North America, but it appears to be most frequent in Hudson's Bay and Canada. Its size is that of a rabbit, or rather larger, and its colour is brown on the upper parts, undulated with whitish or pale grey, the tips of the hairs being of that colour: the legs and under parts of the body are rufous or ferruginous: the face is dusky; the nose black and obtuse, the cheeks grey, and the tail short and dusky, especially at the tip. In its manners it is supposed to resemble the rest of its congeners.



## BOBAC.

*Arctomys Bobac*. *f. capite cariculato, cauda villosa, palmarum ungue pollicis, corporis gravis subter latic.* *Lin. Syst. Nat. Gmel. p. 143.*

Grey Marmot, rufous beneath, with a thumb-claw on the fore-foot.

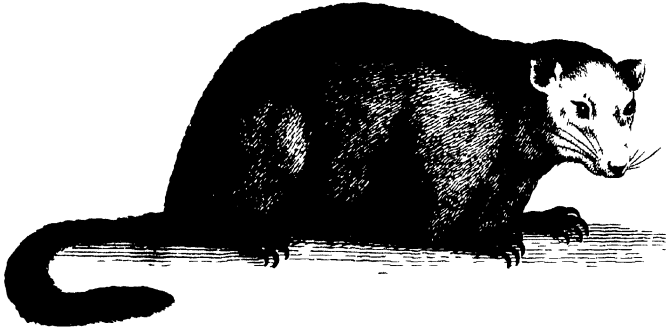
*Mus Arctomys.* *Bull. Göt. p. 75. t. 18.*

Le Boback. *Buff. 13. p. 136. pl. 18.*

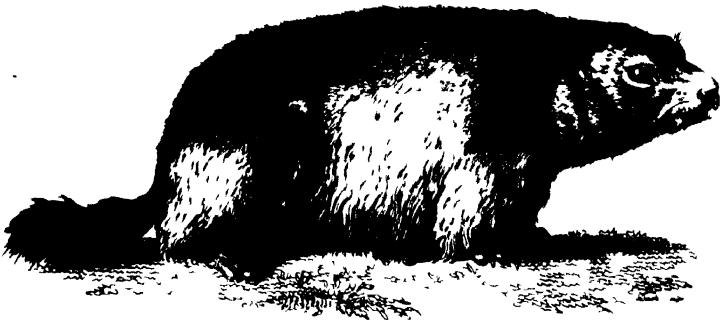
Bobak Marmot. *Penant Quadr. 2. p. 131.*

THE Bobac is of the size of the Alpine Marmot, and, according to Dr Pallas, is a native of "the high, but milder and sunny sides of mountainous countries, which abound with fissile or free-stone rocks, where it is found in dry situations, and such as are full of springs, woods, or sand. It abounds in Poland and Russia, among the Carpathian hills: it swarms in the Ukraine, about the Boristhenes, especially between the Sula and Supoy; and again between the Boristhenes and the Don, and along the range of hills which extend to the Volga. It is found about the Yaik and the neighbouring rivers: inhabits the southern desert in great Tartary, and the Altaic mountains, east of the Irtis. It ceases to appear in Siberia, on account of its northern situation, but is found again beyond lake Baikal, and about the river Argun and lake Dalay; in the sunny mountains about the Lena; and very frequently in Kamtschatka, but rarely reaches as high as lat. 55."

The colour of the Bobac is grey above, with the throat, insides of the limbs, and under parts



MARMOT.



ALPINE MARMOT.



of the body, fulvous or ferruginous; the tail is short, rather slender, and full of hair. Its manner of life extremely resembles that of the common or Alpine Marmot, with which, indeed, it appears to have been sometimes confounded by naturalists. The holes or receptacles of these animals are lined with the finest hay, and it is said that the quantity found in one nest is sufficient for a night's provender for a horse. They are fond of sporting about in the sunshine near their holes, like the common Marmot, set up a similar whistle when disturbed, and retire with precipitation to their receptacle. They may be easily rendered domestic, like that species, and are of a mild and gentle disposition. In winter they lie torpid, unless kept in warm rooms. They breed early in the spring, and are said to produce six or eight young.

## HOARY MARMOT.

*Arctomys Pruinosa.* *A. capite auriculato, cauda pedibusque nigris, dorsi, laterum et abdominis pilis duris longis, basi cinereis, medio nigris, apice albidis.* *Lin. Syst. Nat. Gmel. p. 144.*

Hoary Marmot, with black legs and tail.

Hoary Marmot. *Pennant Quadr. 2. p. 144.*

THIS species was first described by Mr. Pennant, from a specimen in the Leverian Museum. It is about the size of the *Monax*, or Maryland Marmot, and is of a hoary ash-colour, the hair, which is long and rather coarse, being cinereous

at the roots, black in the middle, and white at the tips: the tip of the nose, legs, and tail, are black: the cheeks whitish, and the top of the head dusky with a ferruginous cast. It is a native of North America.

## MAULINE MARMOT.

*Arctomys Maulina. A. cauda mediocri pilosa, auriculis acuminatis, pedibus pentadactylis.*

Marmot, with tail of middling length, sharp-pointed ears, and pentadactyle feet.

*Mus Maulinus. Lin. Syst. Nat. Gmel. p. 137. Molina. Hist. Chil. p. 268.*

Mauline Marmot. *Pennant Quadr. 2. p. 135.*

THIS animal was discovered by Molina in the province of Maule, in Chili, where it inhabits woods. It is said to be about twice the size of the common or Alpine Marmot, nearly of the same colour, but has pointed ears, lengthened nose, four rows of whiskers, and a longer tail than the common Marmot. On each foot are also said to be five toes. It is represented as a strong animal, and not easily conquered by dogs which happen to attack it.



BOBAC.



## GUNDI MARMOT.

*Arctomys Gundi*. *A. capite auriculato, corpore tigrato rufescente.* *Lin. Syst. Nat. Gmel. p. 145.*

Roddish Marmot, with abruptly terminated ears.

Gundi Marmot. *Pennant Quadr. 2. p. 145.*

THIS species is a native of Barbary, towards Mount Atlas, near Masuffin, and was first described by a Mr. Rothman, a Swede. It is about the size of a small rabbit, and is entirely of a testaceous red colour: the ears are truncated, with large apertures; the tail short, the upper teeth truncated, and the lower slender and pointed. It is called by the Arabs *Gundi*. Its particular history seems as yet to be not fully understood.

## VARIEGATED MARMOT.

*Arctomys Citillus*. *A. auriculis nullis, cauda villosa, corpore vario.* *Lin. Syst. Nat. Gmel. p. 144. Schreb. saeugeth. 4. p. 746. t. 211. A. B.*

*Mus Citillus*. *M. capite gibbo, auriculis nullis, cauda brevi villosa, corpore vario.* *Pall. Glir. p. 76. and p. 129.*

Variogated earless Marmot, with villous tail.

La Zizel. *Buff. 15. p. 139. and Le Soult. p. 144. and Suppl. 3. p. 191. pl. 31.*

Earless Marmot. *Pennant Quadr. 2. p. 145*

Of all the Marmots this is the most elegant in its appearance, exhibiting generally a beautiful



variegation of yellowish-brown and white, the former constituting the ground colour, and the latter the variegations, which are sometimes in the form of spots, and sometimes of transverse undulations : the legs and under parts of the body are of a yellowish white : the tail is short, but well covered with hair, and is brown above and ferruginous beneath : there is scarce any appearance of external ears, but merely an edging to the auditory canal. The length of the animal is about a foot, and of the tail four inches and a half ; but this species varies as much in size as in colours, and we are assured by Dr. Pallas, that some of the varieties are scarce larger than a water rat, while others are nearly equal in size to the Alpine Marmot.

The Variegated Marmot inhabits Bohemia, Austria, Hungary, and from the banks of the Volga to India and Persia ; through Siberia and Great Tartary, to Kamtschatka ; some of the intervening isles, and even the continent of America. It is sometimes found in woods, but seems principally to delight in dry hilly places, where the herbage is of short growth. They form subterraneous burrows, in which they deposit heaps of grain, roots, nuts, &c. for their winter food ; for it does not appear that they sleep during that period, like some others of this genus : at least we are assured by Dr. Pallas, that those which occasionally inhabit granaries are seen in motion during the winter season. They breed in the spring, and produce from five to eight at a time. They

are sometimes seen in considerable numbers basking near the entrances of their holes, and when disturbed utter the same kind of shrill whistle as the common Marmot. They are said to be very irascible and quarrelsome among themselves; and their bite is very severe. They feed not only on vegetable but also on animal food, and are observed to destroy small birds and other animals. Notwithstanding their native wildness, hardly any animal is more easily tamed. Even those which are full grown, will grow tolerably familiar in the space of a single day. The females, however, which are fiercer than the males, are much less readily tamed, especially if taken at an advanced age. They are of an extremely cleanly disposition, and, after feeding, generally wash their faces in the manner of cats, and clean their fur with the greatest diligence. Dr. Pallas kept several for a considerable time, and had thus an opportunity of observing with peculiar exactness their habits and manner of life: like other domestic animals, they were fond of being caressed, and would readily feed from the hand: their sleep was extremely profound, and commenced very early in the evening, continuing during the whole night; and even during a good part of the day, if the weather happened to be cold or rainy.

## SCIURUS. SQUIRREL.

*Generic Character.*

<i>Dentes Primores superiores</i>		<i>Upper front-teeth</i> cuneated,
cuneati, inferiores acuti.		lower sharp.
<i>Molares ad utrumque latus</i>		<i>Grinders</i> in the upper jaw
superiores quinque, inferiores quatuor.		five on each side, in the lower four.
<i>Clavicule perfectæ.</i>		<i>Clavicles</i> in the skeleton.
<i>Cauda disticha.</i>		<i>Tail</i> (in most species) spreading towards each side.

**T**HE animals composing this elegant genus are remarkable for the liveliness of their disposition, the celerity of their motions, and the general beauty and neatness of their appearance. They inhabit woods, live entirely on vegetable food, and take up their residence in the hollows of trees, where they prepare their nests. Some species are furnished with an expansile lateral skin, reaching from the fore legs to the hind; by the help of which they are enabled to spring to a greater distance than the rest of the genus, and to transport themselves occasionally from tree to tree; but this momentary support in air is all that they are capable of, and though called, from this circumstance, *flying squirrels*, they are unable to





VARIEGATED MARMOT.

continue that action in the manner of bats. The species of Squirrels enumerated in the twelfth edition of the *Systema Naturæ* of Linnæus amounted to no more than eleven; but such has been the spirit of research among modern naturalists, that the number is now increased to near thirty.

## GREAT SQUIRREL.

*Sciurus Maximus. S. ferrugineus, subtus flavescens, artubus extus caudaque nigris.*

Ferruginous Squirrel, yellowish beneath, with the outsides of the limbs and tail black.

*Sciurus maximus. Linn. Syst. Nat. Gmel. p. 149.*

Le grand Ecureuil de la côte de Malabar. *Sonnerat, Voy. 2. p. 139. pl. 87.*

Of all the species yet discovered, this is the largest, being equal in size to a cat. It is a native of India, and was first described by Mons. Sonnerat, who informs us that it is found in the Malabar country, and especially about the mountains of Cardamone, where it feeds on fruits, and is particularly fond of the milk of the cocoa-nut, which it pierces, when ripe, in order to obtain to the liquor. The fur on the whole animal is long and full: the top of the head, ears, back, and sides, are ferruginous, and a small band of a similar colour commences beneath each ear, passing along the neck towards the sides. Part of the neck in front, the beginning of the body, and outsides of the shoulders and thighs, are black:

the tail is also black : the head, under part of the neck, insides of the limbs and belly, are yellowish ferruginous, somewhat paler on the breast : the iris of the eye is of a pale yellow : the fore-feet have four toes with crooked claws, and a very small thumb or fifth toe, with a small rounded nail : the hind-feet have five toes, with strong crooked claws on all : the tail is longer than the body, and appears equal to it in size when fully expanded. This animal, according to Sonnerat, is easily tamed, and is called about the coasts of Malabar of the name of the *Great Wood Rat*.

## MADAGASCAR SQUIRREL.

*Sciurus Madagascariensis. S. niger, subtus, naso auriculisque albedo-flavescentibus, cauda longissima angustata.*

Black Squirrel, with the nose, ears, and under parts, yellowish-white, and very long tapering tail.

L'Ecureuil de Madagascar. *Buff. Suppl. 7. p. 356. pl. 63.*

THIS which, from Mr. Cepede's description, given in the 7th supplemental volume of Buffon, should seem equal in size to the preceding, is said to measure seventeen inches to the tail, which is still longer, and of a dissimilar appearance to that of other squirrels ; and rather resembling that of a cat, but feathering towards each side, and terminating in a very taper point. The whole upper parts and tail are of a deep black, and the nose, ears, and whole under parts, yellowish white :

the ears are plain or not tufted. It is a native of Madagascar.

## LONG-TAILED SQUIRREL.

*Sciurus Macrourus. S. fuscus, subtus albido-flavesces, cauda corpore duplo longiore.*

Dark-brown Squirrel, yellowish white beneath, with the tail twice the length of the body.

*Sciurus Macrourus. S. cauda corpore duplo longiore grisea. Lin. Syst. Nat. Gmel p. 148.*

*Sciurus zeylonicus, &c. Rukkaia dictus. Raj. Quadr. p. 215. Long-tailed Squirrel. Penn. Ind. Zool. pl. 1.*

THIS was first described by Mr. Pennant in the Indian Zoology, and is said to be thrice the size of the common European Squirrel, with the crown of the head and the back black, and the cheeks, legs, and belly, of a dull yellow: between the ears is a yellow spot, and from each ear is a bifurcated black line pointing down the cheeks: the feet are black above, and red and naked beneath: the tail is near twice the length of the body, very full of hair, and of a light ash-colour: at the part next the body the hairs surround it, but on the remainder they flatten or spread on each side.

There is some reason for doubting whether this animal be really distinct from the preceding species. It is said to be found in Ceylon and Malabar. Mr. Pennant's description was made from the drawing engraved in the Indian Zoology, and upon the fidelity of the drawing must depend that of the description.



## VAR. ?

Abyssinian Squirrel. *Pennant Quadr. 2. p. 140.*

*Sciurus Abessinicus. Lin. Syst. Nat. Gmel. p. 149.*

AN obscure animal, known only from the description of Thevenot, who says it is thrice the size of a common squirrel, and of a rusty black above, with the belly and fore-feet grey, and the tail a foot and a half long. Thevenot adds, that it was purchased at Moco of an Abyssinian.

## JAVAN SQUIRREL.

*Sciurus Bicolor. S. supra niger, infra fulvus, auriculis acutis imberbibus, palmarum ungue pollicari magno rotundato. Lin. Syst. Nat. Gmel. p. 148.*

Blackish Squirrel, fulvous beneath, with pointed beardless ears, and large rounded thumb-claw.

Javan Squirrel. *Pennant Quadr. 2. p. 142.*

THIS also is a large species, measuring twelve inches to the tail, which is of the same length. The whole upper parts of the animal, with the outsides of the limbs, are of a dark or blackish brown, and the whole under parts, from the chin to the tail, of a bright fulvous or fox-colour: the tail is fox-coloured, with a cast of brown on its upper surface: the ears are short and hairy, but not furnished with long pencil-like hairs at the tips: the fore-feet are similar in structure to those of the Great Squirrel, first described, hav-

ing a very short thumb or interior toe, with a small rounded nail-shaped claw. It is said to be an inhabitant of Java, where it was observed by Mr. Sparrman.

## GEORGIAN SQUIRREL.

*Sciurus Anomalus.* *S. supra flavus fusco mistus, subtus obscure fulvus, cauda concolore, auriculis imberbibus rotundatis.* *Lin. Syst. Nat. Gmel. p. 148.*

Dusky-ferruginous Squirrel, with tail and under parts fulvous, and rounded beardless ears.

*Sciurus Anomalus.* *Guldenstedt. Schreber. p. 781. t. 115. C.*

THIS species is said by its describer, Mr. Guldenstedt, to be a native of Georgia in Asia, and to be larger than a common squirrel. Its colour on the upper parts of the head, body, and limbs, is dusky ferruginous, and of the under parts and tail, bright ferruginous, the breast and belly being paler than the other parts; the ears are small and slightly sharpened at the tips\*.

\* In the figure published by Mr. Schreber in his History of Quadrupeds, and which, he tells us, was communicated by Dr. Pallas, the ears are represented rather sharp-pointed; yet in the specific character, given by Dr. Gmelin, they are said to be rounded.

## RUDDY SQUIRREL.

*Sciurus Erythræus. S. supra ex flavo et fusco mistus, infra ex sanguineo-fulvus, auriculis ciliatis, cauda ex sanguineo fulva.*

*Lin. Syst. Nat. Gmel. p. 148. Pall. Glir. p. 377.*

Yellowish-brown Squirrel, with the under-parts and tail red-ferruginous, and ciliated ears.

Ruddy Squirrel. *Pennant Quadr. 2. p. 143.*

THE size of this species is said to be somewhat larger than that of a common squirrel. Its colour above is dusky ferruginous or yellowish brown, and beneath of the brightest deep ferruginous, or inclining to a sanguine red, and its tail is of the same colour, with a blackish stripe running down it: the fore-feet have four toes, with a rounded or wart-like protuberance in place of a thumb: the hind feet have five toes; the ears are slightly bearded. It is said to be a native of India. Upon the whole, I cannot but think that this animal is in reality no other than a variety of the *Javan Squirrel*. Yet Dr. Pallas, who mentions it in his *Glires*, seems to consider it as distinct.

## BOMBAY SQUIRREL.

*Sciurus Indicus. S. cauda longitudine corporis apice aurantia.*  
*Lin. Syst. Nat. Gmel. p. 149.*

Purple-brown Squirrel, yellow beneath, with the tip of the tail orange-coloured.

Bombay Squirrel. *Pennant Quadr. 2. p. 143.*

THIS species appears to have been first described by Mr. Pennant, from a specimen preserved in the Museum of Dr. William Hunter. Its length is sixteen inches to the tail, which measures seventeen inches. The head, back, sides, upper parts of the legs and thighs, together with the tail, are of a dull purple; the lower part of the legs and thighs and the belly yellow; the end of the tail orange-coloured: the ears are tufted. It is a native of India, and is found about Bombay; but, according to Mr. Pennant, extends to Belisere, the opposite part of the peninsula of Hindostan. The species described and figured in the 7th supplemental volume of the Count de Buffon's Natural History, under the name of *Le Grand Ecureuil de la côte de Malabar*, is suspected by Mr. Pennant to be no other than a variety of the above. Should this be the case, it follows that the Bombay Squirrel is in reality the same with the *Great Squirrel* (*Sciurus Maximus*) first described.

## COMMON SQUIRREL.

*Sciurus Vulgaris. S. auriculis apice barbatis, cauda dorso concolore. Linn. Syst. Nat. Gmel. p. 145.*

Reddish-brown Squirrel, white beneath, with pencilled ears.

*Sciurus vulgaris rufus, &c. Briss. Quadr. 150. n. 1.*

*Sciurus. Gesn. Quadr. 845. Aldr. dig. 396. Jonst. 163.*

*L'Ecureuil. Buff. 7. p. 253. pl. 32.*

Common Squirrel. *Pennant Quadr. 2. p. 139.*

THE general appearance and manners of this species are so well known that it might seem almost unnecessary to particularize them. It is a native of almost all parts of Europe as well as of the northern and temperate parts of Asia, but is observed to vary in the cast of its colours in different climates, and in the northern regions becomes grey in winter\* : it also varies occasionally in size. The general measure of the European Squirrel seems to be about eight inches from nose to tail, and of the tail about seven. The colour is

\* This change of colour in the northern squirrels is not altogether owing to the severity of the cold, but takes place even in such as are kept in a warm room. Dr. Pallas had one brought to him on the 12th of September, which was then entirely red, or of the usual bright ferruginous colour ; but, about the 4th of October, many parts of the body began to grow hoary ; and at the time of its death, which happened on the 4th of November, the whole body had attained a grey colour, and the legs alone with a small part of the face, retained their original tinge. The furs of the northern squirrels, in their grey or winter state, are extremely fine and soft, and are known to the furriers by the name of *Petit-Gris* ; by which title according to the Count de Buffon, those belonging to the Grey Squirrel of America, or following species, are also called.

a bright reddish brown, except on the breast and belly, which are nearly white: these colours are brightest in summer, and on the approach of winter change to a greyer or browner tinge: the eyes are large, black, and lively: the ears upright, and ornamented with long tufts or pencils of hair of a richer colour than that of the body: the legs are short and muscular; the toes strong and divided to their origin; the claws strong and sharp; so that the animal can readily climb the smoothest trees: on the fore-feet are only four toes, with a claw in the place of a thumb or inner toe: on the hind-feet are five toes: the tail is covered with very long hair, so disposed as to turn towards each side. In the spring these animals seem peculiarly active, pursuing each other among the trees, and exerting various efforts of agility. During the warm summer nights they may be also observed in a similar exercise. They seem, as Buffon observes, to dread the heat of the sun, for during the day they remain commonly in their nests, making their principal excursions by night. Their habitation is so contrived as to be perfectly clean, warm, and impenetrable by rain, and is composed of moss, dried leaves, &c. and situated between the fork of two branches: it has only a small aperture near the top, which is of a conical form, so as to throw off the rain. The young are generally three or four in number, and are produced about the middle of summer, or sometimes earlier.

The Squirrel feeds on the buds and young shoots of trees, and is said to be particularly fond of those of the fir and pine : it also collects great quantities of nuts, which it deposits in the hollows of trees for its winter food, together with beech-mast, acorns, &c. Dr. Pallas also assures us, that those of Siberia collect various kinds of fungi for this purpose. In a state of captivity, nuts form its principal food, but it will also eat a great variety of fruits and other vegetable substances, and is delighted with sugar and various sweets.

In some parts of Siberia the Squirrel is found entirely white, with red eyes. About lake Baikal it is often entirely black, or black with the belly white : and in some parts of Europe, and particularly in our own country, it is occasionally found with the tail milk-white, and all the other parts of the usual colour.

The Squirrel is an animal which in a state of nature can seldom have occasion to visit the water for the purpose of drinking, like other quadrupeds, and can obtain a sufficient supply of dew and rain from the leaves and the hollows of trees. It has even been supposed to have a dread of water, and it is affirmed by Gesner, from Olaus Magnus and others, that when it wishes to pass a river or lake, in order to reach the trees that lie beyond, instead of swimming, it gets on a piece of bark, or other convenient substance, and elevating its tail to catch the wind, is thus transported to the opposite side. Some writers have affirmed that the





GREAT SQUIRREL.





BLACK SQUIRREL.



GREY SQUIRREL.

Lapland Squirrels sail over the lakes of that country in large parties, each mounted on his piece of bark, and fanning the air with his tail to promote the progress of his vessel. These tales, which do not appear very probable, must rest on the faith of their recorders.

## GREY SQUIRREL.

*Sciurus Cinereus. S. cinereus, ventre albo, auriculis imberbilis.*  
*Lin. Syst. Nat. Gmel. p. 147.*

Ash-coloured Squirrel, white beneath, with beardless ears.

*Sciurus Virginianus cinereus, &c. Raj. Quadr. 215.*

Grey Squirrel. *Pennant Quadr. 2. p. 144. Catesb. Carol. 2. p. 74. pl. 74.*

Le Petit-Gris. *Buff. 10. p. 116. pl. 25.*

THIS species is confined to North America, in many parts of which it is extremely common, and in its general form, as well as in its way of life, resembles the European Squirrel. It is a large and elegant animal, being of the size of a half-grown rabbit, and measuring about twelve inches to the tail: different individuals, however, vary somewhat in point of size. The whole animal is of an elegant pale grey, with the insides of the limbs and the under parts of the body white: the ears and tail are sometimes tinged with black, and a yellowish cast prevails in some particular specimens. This animal is said to be found in Canada, Pennsylvania, Virginia, and other American districts; though, according to Mr. Pennant, it scarce extends farther north than New England.

Mr. Pennant also allows that it is a native of South as well as North America. In the latter it is in some years so extremely numerous as to do incredible damage to plantations, especially those of maiz or Indian corn; for which reason it is one of the proscribed animals among the colonists. A reward of no less than three pence per head having been sometimes given for every one killed; and this, says Mr. Pennant, "proved such an encouragement, as to set all the idle people in the province in pursuit of them. Pennsylvania alone paid, from January, 1749, to January, 1750, no less a sum than 8000*l.* of their currency; but, on complaint being made to the deputies, that their treasuries were exhausted by these rewards, they were reduced to one half." "How improved," adds Mr. Pennant, "must the state of the Americans be, in thirty-five years, to wage an expensive and successful war against its parent country, which before could not bear the charges of clearing the provinces from the ravages of these insignificant animals!" This species resides principally among trees, in the hollows of which it makes its nest, with straw, moss, &c. feeding on acorns, fir-cones, maiz, &c. as well as on fruits of various kinds. It is said to amass great quantities of provision for winter, which it deposits in holes which it prepares beneath the roots of trees, &c. It is a difficult animal to kill; changing its place on the trees with such expedition, as generally to elude the shot of the quickest marksman. It is said to be easily

tamed, and in that state will readily associate with other domestic animals.

## BLACK SQUIRREL.

*Sciurus Niger.* *S. niger, auriculis imberbibus.* *Lin. Syst. Nat. Gmel. p. 147.*

Black Squirrel, with beardless ears.

Black Squirrel. *Catesb. Carel. 2. p. 73. pl. 73. Pennant Quadr. 2. p. 145.*

THIS is so much allied to the preceding, that it might be considered as a variety rather than a distinct species, were we not assured that it never associates with the grey squirrel; from which it also differs in having a somewhat shorter tail. It is entirely of a shining coal-black colour, except that the muzzle and the tip of the tail are sometimes white: specimens have also been seen with a white ring round the neck. In its manners it perfectly resembles the grey squirrel, inhabiting similar places, and committing equal depredations.

*Var. ?*

## CAT SQUIRREL.

THIS is said to be equal in size to the grey squirrel, but to have a coarse fur, mixed with dingy white and black; the throat, insides of the legs, and thighs, black; the tail much shorter

than in other squirrels, and of a dull yellow mixed with black. It is a native of Virginia, and was described by Mr. Pennant from a specimen in the collection of Mr. Knaphan. The figure given by Mr. Schreber, in his work on quadrupeds has every appearance of a mere variety of the grey squirrel; the tail being of similar length, and differing only in having a ferruginous cast. Perhaps the tail in the specimen described by Mr. Pennant might have been accidentally mutilated.

#### HUDSON'S BAY SQUIRREL.

*Sciurus Hudsonius. S. auriculis imberbibus, dorso glanco, ventre cinereo, cauda brevior ex rufescente glanca nigro marginata. Lin. Syst. Nat. Gmel. p. 147.*

Iron-grey Squirrel dashed with ferruginous, whitish beneath, with dusky side-stripe, and lanceolated tail edged with blackish.

Hudson's Bay Squirrel. *Pennant Quadr. 2. p. 147.*

THE Hudson's Bay Squirrel is a native of the colder parts of North America, and more particularly of the region from whence it takes its name. It resides in the pine-forests of that country, and feeds chiefly on the cones. It is smaller than the common European squirrel, and the tail is neither so long in proportion, nor so full of hair. The colour of the upper parts is palish iron-grey, with a cast of ferruginous down the back, and of the under parts whitish or pale ash-

colour; the colours being pretty distinctly separated down the sides by a dusky line: the beginning of the tail is ferruginous, gradually sinking into iron-grey, and is of a narrow lanceolate form, with a sharp termination. This species is said not to alter its colour during the whole year. In winter it keeps in its nest, and makes its appearance on the return of the warm season.

*Var. ?*

## CAROLINA SQUIRREL.

THIS, though stationed as a distinct species by Mr. Schreber, is considered by Mr. Pennant as a variety only of the preceding. Its size is the same, but the disposition of the colours different: the head, back, and sides, being grey, white, and ferruginous, intermixed; the belly white, and the colour divided from that of the sides by a rust-coloured line: the lower part of the legs is red; the tail brown, mixed with black, and edged with white. It is found in Carolina.



## PERSIAN SQUIRREL.

*Sciurus Persicus.* *S. obscurus, lateribus albis, subtus flavus, auriculis imberbibus, cauda ex atro cinerea annulo albo.* *Lin. Syst. Nat. Gmel. p. 148.*

Dusky Squirrel, yellow beneath with white sides, beardless ears, and blackish-grey tail with a white band.

IN its general appearance and way of life this is said to resemble the common squirrel, but differs in colour, and in having plain or untufted ears: the upper parts are dusky, with the parts about the eyes black; the throat, breast, and belly, yellow, and the sides white: the tail blackish-grey, marked beneath, about the middle, with a white band; the feet reddish. It is an inhabitant of the mountainous parts of Persia.

## FAIR SQUIRREL.

*Sciurus Flavus.* *S. auriculis subrotundis, pedibus pentadactylis, corpore luteo.*

Yellow Squirrel, with roundish ears and pentadactyle feet.

Fair Squirrel. *Pennant Quadr. 2. p. 148.*

THIS small species is said by Linnæus to be half the size of a common squirrel, and of a yellow colour, with the hairs tipped with white: the thumb of the fore-feet consists of little more than a very small claw. It is, according to Linnæus, an inhabitant of Carthage in America, but it has likewise been supposed a native of India, and

is an animal not very distinctly known. Mr. Schreber seems to entertain some doubt whether it properly belongs to this genus.

## BRASILIAN SQUIRREL.

*Sciurus Æstuans. S. griseus, subtus flavescens. Lin. Syst. Nat. Gmel. p. 151.*

• Dusky Squirrel, yellow beneath, with longitudinal white stripe in the middle.

Brasilian Squirrel. *Pennant Quadr. 2. p. 149.*

THE first describer of this species was Mr. Pennant, who was presented with two specimens brought from South America. The head, body, and sides, are covered with soft dusky hairs tipped with yellow: the ears are plain, or without tufts; the tail rounded, and the hairs annulated, with black and yellow: the throat cinereous, the inside of the legs and the belly yellow, the latter divided down the middle by a white line, interrupted for a small space, and then continued to the tail. The length of the animal is eight inches and a quarter to the tail, and the tail ten.

*Varied or Striped Squirrels.*

## COQUALLIN.

*Sciurus Variegatus.* *S. corpore supra nigro albo fuscoque variegato.* *Lin. Syst. Nat. Gmel. p. 151.*

Subferruginous Squirrel, orange-tawny beneath, with the upper parts varied transversely with black brown and whitish undulations.

*Le Coquallin.* *Buff. 13. p. 109. pl. 3.*

Varied Squirrel. *Pennant Quadr. 2. p. 147.*

The title of Coquallin, applied to this animal, was instituted by the Count de Buffon, as an elegant abbreviation of the sesquipedalian name *Quauhtecollotlquapachtli*, by which it is said to have been called by the Mexicans. It is about twice the size of a common squirrel, and is transversely variegated on the upper part of the body with numerous undulations of black, white, and orange-brown, the under part being orange-tawny: the head, tail, and limbs, are dusky, and the ears and muzzle whitish. The manners of this species are somewhat different from those of the generality of Squirrels, since it does not reside on trees, but in holes under their roots, where it brings forth its young, and deposits a magazine of grain and fruits for winter use. It is a native of Mexico, and is said to vary in size, being sometimes scarce larger than a common squirrel. It also varies as to the distinctness or intensity both of the ground colour and variegations, and sometimes exhibits only an appearance of brown streaks on a ferruginous or reddish-

brown ground-colour, somewhat in the manner of a cat.

## MEXICAN SQUIRREL.

*Sciurus Mexicanus*. *S. cinereo-fuscus*, *striis 5—7 albidis longitudinalibus*.

Ash-brown Squirrel, with five or seven longitudinal white stripes.

*Sciurus rarissimus ex Nova Hispania*. *Seb. 1. p. 76. t. 47. f. 2, 3.*

Mexican Squirrel. *Pennant Quadr. 2. p. 149.*

THIS animal is known only from the figures and description of Seba. It is considerably smaller than a common squirrel, and is of a mouse-colour, with seven white lines or streaks on the back, extending to some distance down the tail. The female has five streaks only. Seba's figure of the male represents it with the tail, as if furcated at the end into four parts, and in the description this remarkable circumstance is commemorated; but as the tail of the female exhibits no such appearance, we may conclude that the individual above mentioned was marked by some singular *lusus naturæ*. Seba also figures another, of a plain colour, but which seems either the same species or greatly allied to it.

## BARBARY SQUIRREL.

*Sciurus Getulus. S. fuscus, striis quatuor albidis longitudinalibus.*

*Lin. Syst. Nat. Gmel. p. 150.*

Brown Squirrel, with four longitudinal white stripes.

*Sciurus Getulus. Aldr. dig. 405. Gen. Quadr. 112.*

Le Barbaresque. *Buff. 10. p. 126. pl. 27.*

Barbarian Squirrel. *Edw. p. 198.*

White-striped Squirrel. *Pennant Quadr. 2. p. 150.*

THIS species is of the size of a common squirrel, and of a reddish brown colour, with the legs somewhat paler, and the belly white: the body is marked on each side with longitudinal white stripes, and the tail is barred or shaded with alternate dark and light stripes: the ears are plain or without tufts, and are whitish, as are likewise the orbits of the eyes. It is a native of Barbary.

## PALM SQUIRREL.

*Sciurus Palmarum. S. subgriseus, striis tribus flavicantibus, cauda albo nigroque lineata. Lin. Syst. Nat. Gmel. p. 149.*

Brown Squirrel, pale beneath, marked above with three longitudinal yellowish stripes, and the tail with blackish ones.

*Mustela Africana. Clus. exot. p. 112.*

Le Palmiste. *Buff. 10. p. 126. pl. 26.*

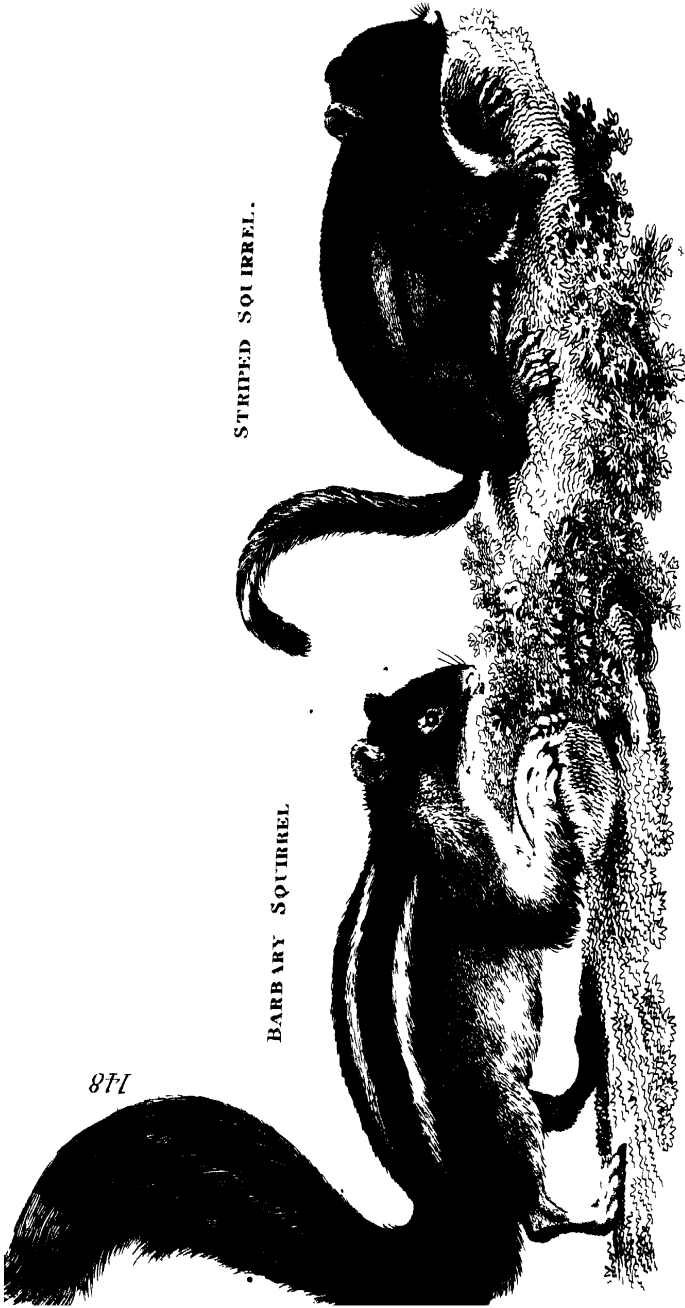
Palm Squirrel. *Pennant Quadr. 2. p. 149.*

The Palm Squirrel is somewhat larger than a common squirrel\*, and is very nearly allied to

\* The measures given by Daubenton of the specimen described by Buffon, were from the young animal, and consequently fall short of the proper size.

STRIPED SQUIRREL.

BARBARY SQUIRREL.



*After Audin's Description of the S. B. in the 'L' and 'M' series.*



the preceding species; but is of a deeper colour, and is marked by five stripes instead of four. The head and upper parts are of a very dark ferruginous brown, palest on the limbs; the throat, breast, and belly, are pale yellow; on the back is an obscure pale yellow stripe, and on each side the body are two of a similar colour, of which the lower are far less distinctly marked than the upper: the tail is of a dull or dingy yellow, barred or rather striped in a longitudinal direction with blackish bands. In some specimens the two lowest side-stripes are scarce distinctly perceptible; so that the species is more securely described in its specific character, by particularizing three stripes only. This animal is an inhabitant of the hotter parts of Asia and Africa, frequenting palm-trees, and in its liveliness and general habits much resembles the common European squirrel.

## GINGI SQUIRREL.

*Sciurus Ginginianus. S. griseus, fascia utrinque longitudinali alba, cauda nigricante.*

Grey-brown Squirrel, with a longitudinal white stripe on each side, and blackish tail.

*Sciurus Dschinschicus. S. testaceus, fasciis lateralibus orbitisque albis, cauda nigra. Lin. Syst. Nat. Gmel. p. 151.*

THIS species is described by Sonnerat, who informs us that it is rather larger than the European squirrel, and of a brownish grey colour, lighter on the belly, legs, and feet: on each side



the belly is a white band, reaching from the shoulders to the thighs; the eyes are also encircled with white, and the tail is black, with whitish hairs intermixed. It is an inhabitant of Gingi in the East Indies.

## VAR. ?

Plantane Squirrel. *Pennant Quadr. 2. p. 151.*

THIS, says Mr. Pennant, much resembles the common squirrel, but is lighter coloured, and has a yellow line extending along the sides from leg to leg. It is common in Java and Prince's Island, and is called by the Malayee, Ba-djing: it lives much on plantanes; is very shy; retreats at the sight of mankind, and clatters over the leaves of the plantanes with vast noise. It is also common on the tamarind trees.

## CHILIAN SQUIRREL

*Sciurus Degus. S. fusco-flavescens, linea humerali nigra. Lin. Syst. Nat. Gmel. p. 152. Molin. Chil. p. 269.*

Yellowish-brown Squirrel, with a black stripe on each shoulder.

THIS species is mentioned by Molina in his Natural History of Chili. It is somewhat larger than a black rat, and is of a yellowish brown colour, with a black stripe on each shoulder: the nose is sharp, the ears rounded, and the tail flocky towards the tip, and of the same colour with the body. It is a gregarious animal, and

inhabits holes in shrubby places, feeding on roots and fruits, of which it collects a magazine for food.

## STRIPED SQUIRREL.

*Sciurus Striatus. S. fusco-flavescens, striis quinque longitudinalibus nigricantibus.*

Yellowish-brown Squirrel, with five longitudinal blackish stripes.

*Sciurus flavus, striis quinque fuscis longitudinalibus. Lin. Syst.*

*Nat. p. 87.*

Ground Squirrel. *Catesb. Car. 2. pl. 75. Laws. Car. p. 124.*

*Edu. pl. 181.*

L'Ecureuil Suisse. *Buff. 10. p. 126. pl. 28.*

Striped Dormouse. *Pennant Quadr. 2. p. 157.*

THE Striped Squirrel is a native of the northern regions of Asia, and of several of the colder parts of North America : it has also been found, though very rarely, in some parts of Europe, and differs from the major part of the squirrel tribe in its manner of life, which rather resembles that of the dormouse, being chiefly passed in subterraneous retreats or burrows, the apartments of which are filled with various stores of acorns, nuts, grain, &c. collected for winter use. It also resembles some of the murine tribe, in being provided with cheek-pouches, for the temporary reception of food : a particularity not to be found in any other species of squirrel. Its general length is about five inches and a half, and of the tail rather more. Its colour on the upper parts is a reddish brown, and on the under white : down the ridge of the

back runs a black streak ; and on each side the body are two others, the included space between each being of a pale yellow tinge : the tail is marked with annuli or circular spaces, like that of a mouse, but the fur spreads slightly on the sides, as in the rest of the squirrels, though in a much less conspicuous manner ; and the tips of the hairs, being blackish, give the appearance, when the tail is spread, of three lines or streaks through its whole length.

These animals are, according to the observations of Dr. Pallas, extremely common in Siberia, inhabiting the maple and birch woods of that country, and generally forming their nests or burrows near the root of some tree : they are never known to ascend trees in the manner of other squirrels, unless suddenly surprised or pursued, when they climb with great expedition, and conceal themselves among the branches : they collect their stores during the autumnal season, and on the setting in of winter conceal themselves in their burrows, the entrances of which they stop ; and pass the greatest part of the rigorous season in sleep, and in feeding on their collected stores ; but if, by an unusual continuance of severe weather, their provisions happen to fail, they then sally out in quest of fresh supplies, and occasionally make their way into granaries, and even into houses. In the choice of their food they are remarkably nice, and have been observed, after filling their pouches with rye, to fling it out on meeting with wheat, and replace it with the su-





COMMON FLYING SQUIRREL.

perior grain. They are of a wild nature, and are by no means easily reconciled to a state of captivity; continuing timid, and shewing no symptoms of attachment to their owners. They are taken merely on account of their skins, which, though forming but a slight or ordinary fur, have a very pleasing appearance when properly disposed, and are said to be chiefly sold to the Chinese. It has been doubted whether those found in America be really of the same species with the European or Asiatic kind; but the differences are by no means such as to justify a specific distinction; consisting merely in a very trifling variation of size and colours.

### *Flying Squirrels.*

#### COMMON FLYING SQUIRREL.

*Sciurus Volans.* *S. canus, subtus albus, hypochondrius dilatatis, cauda rotundata.*

Pale-grey Squirrel, white beneath, with the side-skin dilated into a flying membrane.

*Sciurus hypochondrius prolixis volitans, cauda rotundata.* *Lin. Syst. Nat. Gmel. p. 154.*

*Sciurus volans.* *Klein. act. angl. 1733.*

*Mus Ponticus, &c. Gesn. Quadr. 743.*

European Flying Squirrel. *Pennant Quadr. p. 155.*

THIS highly elegant animal is the only Flying Squirrel yet discovered in Europe, where it is extremely rare, being found chiefly in the most northern regions, as in Finland, Lapland, &c. It

also occurs in some districts of Poland. In many parts of Asia it is far more common, and abounds in the birch and pine woods of Siberia in particular. It appears to have been confounded by authors with the Virginian Flying Squirrel (*S. Volucella*), but is a totally distinct species. Its colour on the upper parts is an elegant pale or whitish grey, and on the under parts milk-white. Its general size is inferior to that of a common squirrel, measuring about six inches\* and a quarter to the tail, which is shorter than the body, thickly furred, of a slightly flattened form, and rounded at the extremity. It is to Dr. Pallas that we owe the history of this animal's manners; little more being known to preceding naturalists than its general form and manner of flight, or rather springing, which is performed by means of an expansile furry membrane, reaching from the fore-feet to the hind. In order the better to manage this part, the thumb of the fore-feet is stretched out to a considerable length within the membrane, so as to appear in the skeleton like a long bony process on each of the fore-feet. The Flying Squirrel generally resides in the hollows of trees towards the upper part; preparing its nest of the finer mosses. It is a solitary animal, and is only seen in pairs during the breeding season. It rarely makes its

\* The specimen in the Leverian Museum measures about seven inches to the tail, which is about four inches long. There appears to be some mistake in the measures given of this species in Mr. Pennant's *History of Quadrupeds*, where it is said to measure four inches and a quarter from nose to tail, and the tail five inches.

appearance by day, emerging only at the commencement of twilight, when it may be seen climbing about the trees, and darting with great velocity from one to the other. The colour of its upper part so much resembles that of the pale silvery bark of the birch-trees which it frequents, that it is by no means easy to distinguish it, while engaged in climbing about during its evening exercise. It feeds chiefly on the young shoots, buds, and catkins of the birch, as well as on those of the pine, &c. In winter it continues in its nest; coming out only in mild weather; but does not become torpid during that season.

This animal readily springs to the distance of twenty fathoms or more, and by this motion conveys itself from the top of one tree to the middle part of that to which it directs its flight, which is always slightly downwards. It very rarely descends to the surface, and, when taken, and placed on the ground, runs or springs somewhat awkwardly, with its tail elevated, and as soon as it gains a tree, instantly begins to climb it with great activity, sometimes elevating, and sometimes depressing its tail. If thrown from the top of a tree, it immediately spreads its membranes, and, balancing itself, endeavours to direct its motion by the assistance of the tail. The young are produced about the beginning or before the middle of May, and are two, three, and sometimes four, in number: they are at first blind, and nearly void of hair; and the parent fosters them by covering them with her flying-membrane;



leaving her nest only at the approach of evening, and carefully concealing the young with the moss of the nest. The young begin to acquire their fur at six days old; and at the same time the front teeth are visible: they continue blind, however, for the space of about thirteen days.

These animals are very difficultly supported in a state of confinement, and, from want of proper food, &c. are rarely preserved for any considerable length of time. In their manner of sitting and feeding, as well as in the action of washing their face with their paws, &c. they resemble the common squirrel. Their colour continues the same through the whole year. The tail, which in the full-grown animal is broad and very full of hair, is in the young of a round or cylindric form. Their voice resembles that of a mouse. The fur of this species, though soft and beautiful, is but little esteemed, on account of the slighthness of the skin, and its want of durability.





VIRGINIAN FLYING SQUIRREL.

## VIRGINIAN FLYING SQUIRREL.

*Sciurus Volucella. S. fuscus, subtus albido-flavesceus, hypochondriis dilatatis, cauda lanceolata.*

Brown Squirrel, yellowish-white beneath, with the side-skin dilated with a flying membrane.

*Sciurus hypochondriis extensis volitans, cauda elongata villosa.*

*Lin. Syst. Nat. Gmel. p. 153.*

*Mus volans. Lin. Syst. Nat. p. 75.*

*Sciurus Americanus volans. Raj. Quadr. 215.*

*Le Polatouche. Buff. 10. pl. 21.*

Flying Squirrel. *Catesb. Car. 2. pl. 76. Edw. pl. 191. Pennant Quadr. 2. p. 153.*

THIS species is much smaller than the preceding, from which it also differs in colour, being of an elegant brown or subferruginous mouse-colour above, and yellowish white beneath: the edges of the flying-membrane are of a darker or blacker tinge than the rest of the fur, contrasting with the white border of the under part: a few dusky undulations also take place about the back and shoulders: the tail is of a similar colour to the body, and of a flattened shape, or with the hair spreading towards each side, and the extremity somewhat sharpened: the eyes are large, and the ears rather short, almost naked, and slightly rounded. Its general length is five inches to the tail, which measures about four inches. It is a native of the temperate parts of North America, and has been found also in some of the southern parts of the American continent. It is an animal of great beauty, and is frequently kept

in a state of captivity, being readily tamed, feeding on various fruits, nuts, almonds, walnuts, &c. &c. and shewing a considerable degree of attachment to its possessor. Mr. Schreber assures us, that he saw one, which, on being held for some time in the hand of a stranger, would spring the length of a large room to the person to whom it had been most accustomed. It is naturally of a gregarious disposition, in which particular it differs widely from the preceding species, and may be seen, according to Mr. Catesby, flying, to the number of ten or twelve together, from tree to tree. Like the former species, it is chiefly a nocturnal animal, lying concealed during the day, and commencing its activity in the evening. It prepares its nest in the hollows of trees, with leaves, moss, &c. and it is said that several often inhabit the same nest, sometimes as many as twelve.

These animals reside constantly on the upper parts of trees, and never willingly quit them for the ground. They are said to be capable of swimming, in case of necessity; during which exercise they do not spread their membrane, but swim in the manner of other quadrupeds, and, after leaving the water, can exert their power of flight as readily as before. They are said to produce three or four young at a time.

## SEVERN RIVER FLYING SQUIRREL.

*Sciurus Sabrinus. S. volitans, supra ex rubicundo fuscus, subtus ex flavescente albidus, cauda villosa planiuscula.*

Ferruginous-brown Flying Squirrel, yellowish white beneath, with slightly flattish villose tail.

*Sciurus Hudsonius. Lin. Syst. Nat. Gmel. p. 153.*

Greater Flying Squirrel. *Phil. Trans. vol. 62. p. 379.*

Severn River Squirrel. *Pennant Quadr. 2. p. 153.*

THIS is said to be at least equal in size to a common English squirrel, and is of a ferruginous ash-colour on the upper parts, and yellowish-white beneath: the flying-skin is disposed from leg to leg, as in the common flying squirrel, and the fur on the whole body is long and full: the tail also is well haired, but has less of the flat appearance than that of the European flying squirrel. It is found in the southern parts of *Hudson's Bay*, in the forests bordering on *Severn* river in *James's Bay*, and seems to have been first described by Dr. Forster in the Philosophical Transactions. I have given this species a new trivial, in order to avoid the repetition of the title *Hudsonius*, which takes place, through oversight, in the Gmelinian edition of the *Systema Naturæ*.

## HOODED FLYING SQUIRREL.

*Sciurus Sagitta?* *S. hypochondrius prolixis volitans, cauda plano-pinnata lanceolata.* *Lin. Syst. Nat.* p. 88.

Ferruginous-brown Flying Squirrel, pale ferruginous beneath, with the flying-membrane commencing on each side the head.

*Sciurus Virginianus volans.* *Seb. mus.* 1. p. 72. t. 44. f. 3.

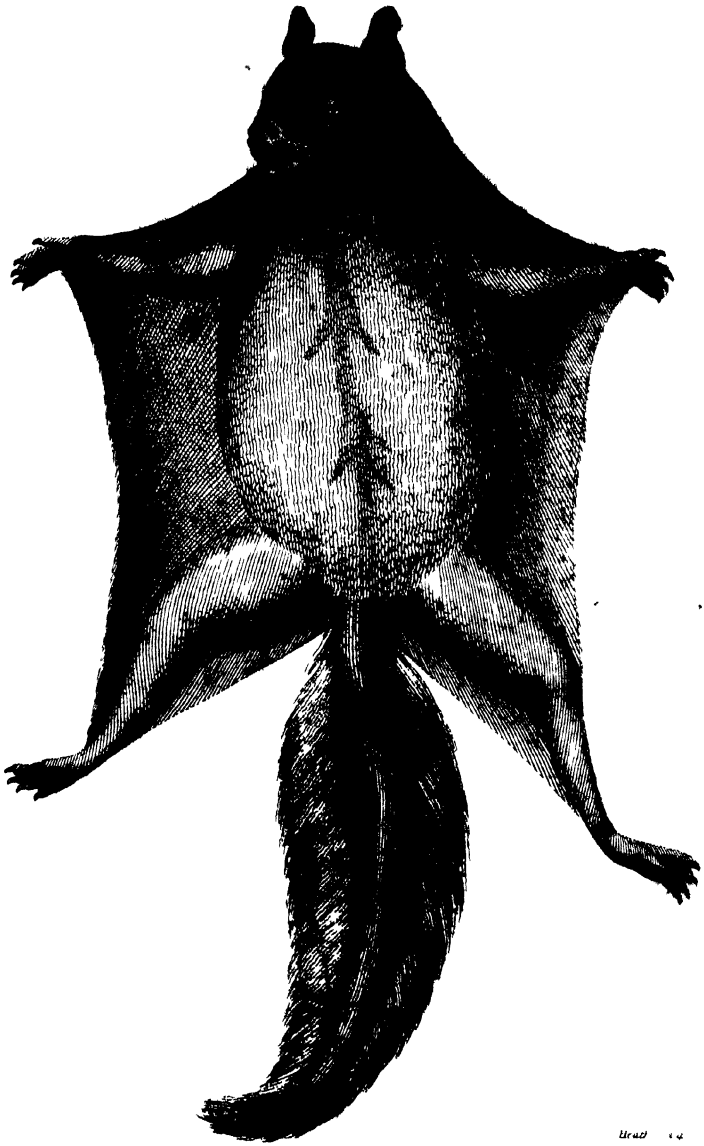
*Sciurus cute a capite ad caudum relaxata volans.* *Lin. Syst. Nat.* ed. 2. p. 46.

Hooded Squirrel. *Pennant Quadr.* 2. p. 155.

Das Kappen Eichhorn. *Schreb.* p. 822.

THIS, which appears to have been confounded by some authors with the *Taguan* or Great Flying Squirrel, is described by Linnæus, in the *Systema Naturæ*, where it is said to be of the size of a common squirrel, and of a dark ferruginous-brown above, and pale-ferruginous beneath: the tail is described as of the flatly-pinnated form, or with the hairs spreading towards each side, and the flying membrane is said to be extended from the head to the fore-feet, which is not the case in any species yet known, except in one described by Seba, and which has been named by Mr. Pennant the *Hooded Squirrel*. I am, therefore, strongly inclined to believe, that the animal described and figured by Seba is in reality the *Sciurus Sagitta* of Linnæus.

Seba describes the animal as rufous above and pale yellow-cinereous beneath, with feet resembling hands, and furnished with sharp crooked claws; the flying membrane commencing at the head, stretching along the neck, meeting under



HOODED FLYING SQUIRREL.





the throat, and thence extending to the fore and hind feet, and continued up the latter to the origin of the tail, which is rather long, and well covered with hair, so disposed as to spread on each side. He adds, that three specimens were in the cabinet of Mr. Vincent, one of which he was permitted to copy for his publication. His figure is about the size of a common squirrel, and is accurately represented, on a reduced scale, in the present work.

The only particular which appears to contradict the supposition above mentioned is the anomalous appearance of the teeth in the figure given by Seba, which do not resemble those of other squirrels, but rather those of the order *Feræ*. It is probable, however, since no mention is made of any such particular in the description, that this circumstance may have been merely owing to inattention on the part of the artist, and to that inaccuracy in minute particulars so common at the period of Seba's publication.

On the other hand, supposing the teeth to be accurately represented in Seba's figure, it is but just to allow that it may be really a distinct species, or may even form a separate genus, as distinct from that of *Sciurus* as the *Colugo* is from that of *Lemur*.

It is a native of Java, according to Linnæus, but Seba (perhaps erroneously) calls it a Virginian Squirrel.

## TAGUAN.

*Sciurus Petaurista. S. hypochondriis proliris volitans, supra suturatissime ex castaneo, subtus dilute ferrugineus, vel supra niger subtus canus, cauda corpore longiore, villosissima, tectis nigricante, media ferruginea. Lin. Syst. Nat. Gmel. p. 155. Pall. Miscell. Zool. p. 54. t. 6.*

Chesnut-coloured Squirrel (sometimes blackish), pale ferruginous beneath (sometimes whitish), with very long, round, tapering, villose tail, and side-skin dilated into a flying membrane.

Taguan, ou Grand Ecureuil Volant. *Buff. Suppl. 3. p. 150. pl. 21. and 7. p. 265. pl. 67.*

Sailing Squirrel. *Pennant Quadr. 2. p. 152.*

THE Taguan is by far the largest of all the flying squirrels, measuring eighteen \* inches to the tail, which is nearly of similar length, and instead of the flattened or spreading appearance exhibited in most of the squirrels, is of a cylindric form, or like that of a cat: the head is rounded, rather small in proportion, and somewhat flattened on the top: the muzzle blunt, the ears very small and without tufts, the limbs stout, the fore-feet armed with four claws, and the hinder with five: the colour on all the upper parts is chesnut, brighter or darker in different individuals, and having commonly a hoary or greyish cast on the back and shoulders: the limbs and the sides of the flying-membrane are darker than the other parts,

\* In the 3d supplemental volume of Buffon we have an account of a skin which measured twenty-three inches from nose to tail









TAGUAN. var.

and the tail is still deeper or more inclining to black : the breast and all the under parts are yellowish white, sometimes inclining to ferruginous. The disposition of the flying-membrane is similar to that of the common flying squirrel : it is extremely thin towards the middle, and gradually thickens as it approaches the limbs and border, where the dark colour of its upper part is contrasted with that of the white edge or verge.

The Taguan is a native of India and the Indian isles, residing in woods, and springing to a vast distance from tree to tree. It is said to be more frequent in Java than in other parts.

The difference of colour in different specimens, some being dusky above and whitish beneath, others ferruginous above and yellowish beneath, may be owing perhaps to the difference between the male and female.

It may be added, that a strong general similarity takes place between this animal and the Petaurine Opossum (*Didelphis Petaurus*), which, in all probability, is also a native of many of the Indian isles, as well as of New Holland, and may have been sometimes confounded by travellers with the Taguan.



## MYOXUS. DORMOUSE.

*Generic Character.*

<i>Dentes Primores</i> duo : superiores cuneati : inferiores compressi.	<i>Front-teeth</i> two : the upper cuneated : the lower compressed.
<i>Molares</i> utrinque quatuor.	<i>Grinders</i> four in each jaw.
<i>Mystaces</i> longæ.	<i>Vibrissæ</i> long.
<i>Cauda</i> villosa, teres, versus apicem crassior.	<i>Tail</i> cylindric, villose, thicker towards the end.
<i>Pedes</i> æqualis longitudinis, anteriores tetradactyli.	<i>Legs</i> of equal length : fore-feet tetradactylous.

## FAT DORMOUSE.

*Myoxus* Glis. *M. canus, subtus albidus.* *Lin. Syst. Nat. p. 155.*

Grey Dormouse, whitish beneath.

*Sciurus* Glis. *Lin. Syst. Nat. p. 87.*

*Mus* Glis. *Pall. Glir. p. 88.*

Glis. *Plin. Hist. Nat. lib. 8. c. 57. Gesn. Quadr. 619.*

*Aldr. dig. 407.*

Le Loir. *Buff. 8. p. 158. pl. 24.*

Fat Dormouse. *Pennant Quadr. 2. p. 158.*

**T**HIS species, the *Glis* of Pliny and the old naturalists, is a native of France and the South of Europe. It also occurs in Russia, Austria, &c. residing on trees, and leaping from bough to bough in the manner of a squirrel, though with a



FAT DORMOUSE.



less degree of agility. It feeds on nuts, acorns, fruit, &c. and during great part of the winter remains torpid in its nest, which is prepared in the hollows of trees, with dried leaves, moss, &c. During its state of torpidity it is said to grow very fat, contrary to the nature of most of the hibernating or sleeping animals; which are observed, on their first emerging from that state, to be far leaner than before its commencement. It is probable, however, that this animal awakes at intervals, and indulges in the use of its collected stores of provision; and the epigram of Martial must consequently be received with a proper degree of allowance for the popular belief of the ancients on the subject.

Tota mihi dormitur hiems; et pinguior illo  
Tempore sum quo me nil nisi somnus alit.

Nurs'd by a long hibernal sleep,  
I fatten by repose:  
Nor food the nourishment can give  
Which abstinence bestows.

It is but just to observe, that the Count de Buffon has very properly exposed the absurdity of the ancient notion; and has observed that the animal occasionally wakes, and makes use of its stock of provision. The truth is, that it is at all times fat, and appears as much so in spring as in autumn. By the ancient Romans it was numbered among the articles of luxury, and was fattened in proper receptacles, called *Gliraria*.

The size of this elegant species is not very far

short of that of a squirrel, measuring from nose to tail near six inches, and the tail four and a half. It is an animal of a much thicker form in proportion than a squirrel, and is of an elegant ash-colour, white on the under parts and insides of the limbs: the tail is very villose or furry, and of a slightly spreading form, like that of a squirrel: the eyes are large and black; the ears thin, rounded, and very slightly haired. Sometimes the upper parts of the body have a slight dusky and sometimes a ferruginous tinge. Its general manners resemble those of a squirrel; but it is not easily tamed. The young are produced about the middle of summer, and are four or five in number.

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GARDEN DORMOUSE.

*Myoxus Nitela.* *M. rufus, subtus ex albo cinereus, macula nigra circa oculos et pone auriculas.* *Lin. Syst. Nat. Gmel. p. 156. Schreb. sacugh. p. 833. t. 226.*

Rufous Dormouse, greyish-white beneath, with a black mark about the eyes and behind the ears.

*Mus quercinus.* *M. cauda elongata pilosa, macula nigra sub oculis.* *Lin. Syst. Nat. p. 156.*

*Mus Nitedula.* *Pall. Ghr. p. 88.*

*Mus avellanarum.* *Gen. Quadr. 833. Aldr. dig. 439.*

Le Lerot. *Buff. 8. p. 181. pl. 25.*

Greater Dormouse, or Sleeper. *Ray Quadr. 219.*

Garden Dormouse. *Pennant Quadr. 2. p. 159.*

THE Garden Dormouse is a native of the temperate and warmer regions of Europe and Asia,

GARDEN DORMOUSE



WOOD DORMOUSE





and is commonly found in gardens, feeding on various kinds of fruit; particularly peaches and apricots. It makes its nest, like the rest of this genus, in the hollows of trees, and sometimes in those of walls, or even in the ground about the roots of trees, &c. collecting, for this purpose, dried leaves, grass, mosses, &c. In autumn it collects a quantity of nuts, mast, &c. and deposits it in its hole; and during the greatest part of the winter remains in a state of torpidity, awaking only at distant intervals. Its general length is about four inches and a half, and the tail rather less. It is of an elegant rufous or ferruginous colour above, and yellowish white beneath: the eyes are imbedded in a large black patch or spot, which extends to some distance beyond each ear: the tail is somewhat wider towards the end, and sharpens at the extremity, and is marked on that part by a longitudinal black stripe, having the edges white. These animals produce their young about the middle of summer, which are about five or six in number, and are said to be of very quick growth.



## WOOD DORMOUSE.

*Myoxus Dryas. M. ex griseo rufus, subtus sordide albus, linea nigra recta utrinque per oculos ad auriculas ducta. Lin. Syst. Nat. Gmel. p. 156. Schreb. saeugeth. p. 831. t. 225. B.*

Greyish-rufous Dormouse, whitish beneath, with a strait black stripe across the eyes to the ears.

THIS species is much allied to the preceding, but has a less sharpened visage, and a much shorter tail; and its general proportions bear a greater resemblance to those of the fat dormouse. Its length to the tail is about four inches, and the tail, about three inches. Its colour on the upper parts and tail is greyish ferruginous, and of the under parts yellowish white: the patch or black mark on each side the head is much narrower than in the preceding species, and extends only to the ears: the tail is very furry, the hair spreading as in that of a squirrel. It is said to be a native of Russia, Georgia, &c. inhabiting woods, &c.

## COMMON DORMOUSE.

*Myoxus Muscardinus. M. rufus, gula albicante, plantarum pollicibus muticis. Lin. Syst. Nat. Gmel. p. 156.*

Rufous Dormouse, with whitish throat, and the thumbs of the hind-feet without claws.

*Mus avellanarius. Lin. Syst. Nat. p. 83.*

*Mus avellanarum minor. Aldr. dig. 439. Jonst. Quadr. 168.*

Dormouse or Sleeper. *Ray syn. Quadr. 220.*

*Le Muscardin. Buff. 8. p. 193. pl. 26.*

Dormouse. *Brit. Zool. 1. p. 95. Hist. Quadr. 2. p. 161. Edw. pl. 266.*

THE size of this animal is nearly equal to that of a mouse, but it is of a more plump or rounded form, and the nose is more obtuse in proportion: the eyes are large, black, and prominent; the ears broad, thin, and semi-transparent: the fore-feet have four toes, and the hind-feet five, but the interior of these latter are destitute of nails: the tail is about two inches and a half long, and closely covered on all sides with hair, which is rather longer towards the tip than on the other parts: the head, back, sides, belly, and tail, are of a tawny red colour; the throat white: the fur is remarkably soft, and the whole animal has a considerable degree of elegance in its appearance. It sometimes happens that the colour is rather brown than reddish.

Dormice, says Mr. Pennant, inhabit woods or very thick hedges; forming their nests in the hollows of some low tree, or near the bottom of a close shrub. As they want much of the spright-

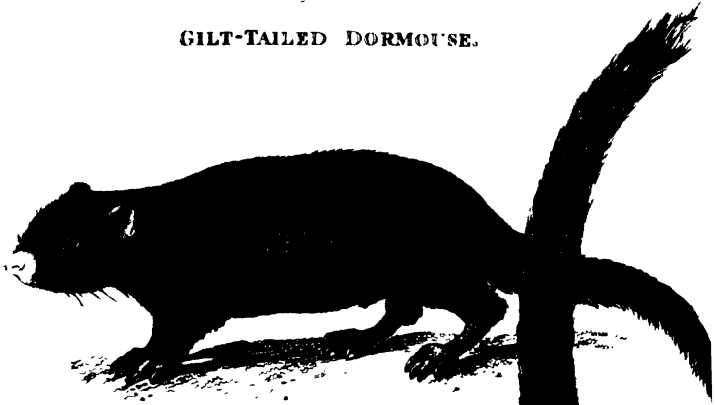
liness of the squirrel, they never aspire to the tops of trees, or attempt to bound from spray to spray. Like the squirrel, they form little magazines of nuts, &c. for their winter provision, and take their food in the same upright posture. The consumption of their hoard during the rigour of winter is but small, for they sleep most part of the time, retiring into their holes on the approach of winter, and, rolling themselves up, lie torpid during the greatest part of the gloomy season. Sometimes they experience a short revival in a warm sunny day; when they take a little food, and then relapse into their former state.

These animals seldom appear far from their retreats, or in any exposed situations; for which reason they seem less common in this country than they really are. They make their nest of grass, moss, and dead leaves. According to the Count de Buffon it consists of interwoven herbs, and is six inches in diameter, open only above, and is situated between the branches of hazel and brushwood. The number of young is generally three or four.





GILT-TAILED DORMOUSE.



GUERLINGUET, var.



GUERLINGUET.

*Beath. var.*

## GILT-TAILED DORMOUSE.

*Myoxus Chrysurus. M. purpureo-ferrugineus, stris capitis longitudinali caudæque medietate postica luteis.*

Purplish brown Dormouse, with the hind part of the tail and longitudinal stripe on the head gold-yellow.

Le Lerot à queue dorée. *Buff. Suppl. 7. p. 283. pl. 72.*

*Hystrix chrysurus. Schreb. sæugth. suppl.*

Gilt-tailed Dormouse. *Pennant Quadr. 2. p. 162.*

THIS singular species, though considered by its first describer, Mr. Allamand, as well as by Mr. Pennant in his History of Quadrupeds, as a species of Dormouse, is allied in perhaps an equal degree to the Porcupines, among which it is placed by Mr. Schreber. It is supposed to be a native of Surinam, and is remarkable for the beauty of its colours; being of a fine purplish brown above, rather paler beneath; the tail is brown at its base, black for half its length, and the remainder of a bright gold-yellow, and on the top of the head is a longitudinal stripe, of that colour. The head is large in proportion to the body; the eyes small; the ears moderately large, short, and rounded; the upper lip divided; the front teeth white and short; those of the lower jaw being the largest: on each side the nose are long vibrissæ or whiskers; the legs are short; the feet divided into four toes, with weak crooked claws; and in place of the thumb a small tubercle. On the hind part of the head, and along the back, are scattered several hairs much longer than the rest, and of a very different form and substance, being flat, stiff, and

rough to the touch : they seem to arise from small transparent sheaths, and their conformation is highly singular, each hair, or rather quill, being cylindric and very small near the body, growing flat towards the middle part, where it is half a line broad ; and thence gradually diminishing to a very fine point : along the middle runs a channel or gutter, which if examined with a glass, appears yellow, while the sides, which are elevated, are of a brown colour, and thus a sort of double reflexion of light takes place, causing the purplish tinge above mentioned : these singular hairs or quills become gradually smaller as they approach the sides of the body, and quite disappear towards the abdomen. It seems to be an animal formed for climbing trees, and from the description given above it will appear that Mr. Schreber's opinion is just, and that it should in reality be considered, notwithstanding its diminutive size, as a species of Porcupine. Its length, from nose to tail, is five inches, and of the tail six inches and nine lines.

## GUERLINGUET.

*Myoxus* Guerlingus. *M. ferrugineus subtus flavo-rufescens, cauda longa subdepressa attenuata.*

Ferruginous Dormouse, yellowish-rufous beneath, with long, subdepressed, tapering tail.

Le Grand Guerlinguet. *Buff. Suppl. 7. p. 261. pl. 65.*  
*Pennant Quadr. 2. p. 162.*

THIS animal is described in the 7th supplemental volume of the Count de Buffon's Natural History, and is said to be of the size of a squirrel, but of a longer form, and of the colour mentioned in the specific character accompanying the present article. It is a native of Guiana, and resides on trees in the manner of a squirrel; feeding on fruits, &c. Its general residence is on palm trees. Its teeth resemble those of squirrels, and it has the same method of elevating its tail, which is longer than the body, and obscurely annulated with numerous alternate brown and yellowish bands, the tip itself being black. This animal measures between seven and eight inches to the tail, which is of equal length.

*Var. ?*

## SMALL GUERLINGUET.

Le Petit Guerlinguet. *Buff. suppl. 7. p. 263. pl. 66.*

THIS, which is supposed by the author to be a variety of the preceding, resembles it in almost every particular except size, measuring only four



inches and three lines from nose to tail, which is but three inches and three lines in length. The colour of this kind is also less brown than the former, and has a cast of cinereous olive-colour on the upper parts. It may be doubted whether it does not constitute a distinct species from the former; but the full history of these animals does not yet appear to be clearly understood. Mr. Pennant places them in the genus Dormouse; and at present we cannot do better than follow the example of that judicious author, who is emphatically termed by Dr. Pallas *Primus post immortalem Rajum Anglorum solidus Zoologus*. The Guerlinguets are said to be easily tamed, and to produce two young at a birth, which they bring forth in the hollows of trees.

## AFRICAN DORMOUSE.

*Myoxus Africanus. M. griseus subtus albidus, linea superciliari & laterali albidis, cauda medio nigra, unguibus palmarum longissimis.*

Ferruginous-grey Dormouse, whitish beneath, with a white superciliary and lateral line, tail black in the middle, and claws on the fore-feet very long.

Earless Dormouse. *Pennant Quadr. 2. p. 161.*

THIS species was communicated to Mr. Pennant by Sir Joseph Banks, and is said to be found about the mountains of Sneeburgh, above 800 miles above the Cape of Good Hope. Its size is that of a squirrel, but its shape much broader and

flatter: its colour on the upper parts pale ferruginous; on the under whitish: above each eye is a white line, and on each side the body another: the head is flat; the nose obtuse; the eyes full and black; the whiskers long; the upper lip bifid; the auricles scarce apparent; the toes long and distinct; the knob on the fore-feet large, and the claws very long: the tail black in the middle, and hoary on each side. Whether it be really a species of Dormouse may perhaps be doubted.

## DIPUS. JERBOA.

*Generic Character.*

<i>Dentes Primores</i> utrinque duo.		<i>Front-teeth</i> two above and below.
<i>Pedes anteriores</i> brevissimi ; <i>posteriores</i> longissimi.		<i>Fore-legs</i> very short; <i>hind-legs</i> very long.
<i>Clavicule</i> perfectæ.		<i>Clavicles</i> in the skeleton.

## COMMON JERBOA.

*Dipus Sagitta.* *D. cauda longissima, apice subpennata nigro-alba, pedibus posticis longissimis tridactylis.* *Pall. Gër. p. 87. and p. 306. Mus.*

Pale-brown Jerboa, white beneath, with extremely long tridactyle hind feet, and very long tail with subpennated black-and-white tip.

*Egyptian Jerboa.* *Pennant Quadr. 2. p. 164. Edw. pl. 219.*

**T**HIS is the species which seems to have been known to the ancients under the name of *μῦς δίπους*, or two-footed mouse, and which is represented, though with no great degree of exactness, on some coins of Cyrene, where it was anciently found in great abundance, and where it still continues. It is by some supposed to be the *Saphan* of the sacred writings. It is about the size of a rat, and is of a very pale tawny-brown above, and white beneath; and across the upper part



COMMON JERBOA.

*1863. Jan. 1. J. May. 1. No. 11. New York. 1. 1. 1. 1.*



of the rump runs an obscure dusky band, which is probably not a permanent character, since it appears to be more or less distinct in different individuals. The head is short; the ears thin, broad, upright, and rounded: the eyes large, round, and dark coloured: the fore legs about an inch long, with five toes to each foot, the inner toe very small, but furnished with a sharp crooked claw, like the rest: the hind legs are extremely long, thin, sparingly covered with short hair, and very much resemble those of a bird: the hind feet have three toes each, the middle of which is somewhat longer than the rest, and all are furnished with sharp and strong claws: there is also a very small spur or back toe, with its corresponding claw; but this spur or back toe is so small, that it seems to have been generally overlooked by the describers of the animal; and it is highly remarkable, that neither Edwards nor Pennant, who both examined this species in a living state, nor even Dr. Pallas, whose accuracy in description is extreme, and who examined a great number of specimens, make the least mention of this part; nor does any vestige of it appear in the figure given by Dr. Pallas of the skeleton. We must, therefore, suppose either that the animal varies in this respect, or that it may perhaps constitute a sexual distinction, and may consequently be found only on some individuals. It may also occur in those which inhabit Barbary, Egypt, and Arabia; but not in those which are found in the sandy deserts between the Tanais

and the Volga, where Dr. Pallas examined his specimens; for this animal, like the Alagtaga or next described species, appears to inhabit very distant and dissimilar regions, occurring not only in many parts of Africa, but in the eastern parts of Siberia, &c. &c. It also appears from the observations of Dr. Pallas, that the two species, viz. the Common Jerboa and the Alagtaga, never inhabit the same spots, or intermix, but keep perfectly distinct or separate from each other.

The usual length of the common Jerboa, from nose to tail, is about seven inches and a quarter: the tail is about ten inches long, of a form rather inclining to square than cylindric, and of the same colour with the body, but terminated by an elegant, flattish, oval tuft of black hair, with a white tip. On each side the nose are situated several very long hairs or whiskers, as is usual in most animals of this tribe: the cutting-teeth are sharp and strong, and resemble those of a rat. In its attitudes and manner of progression this animal resembles a bird; generally standing, like the Kangaroo, on its hind feet, and leaping with much celerity, and to a great distance: but sometimes it sets its fore feet to the ground for a moment or two, and then recovers its former attitude. It principally uses the fore legs in feeding; pulling to its mouth the ears of corn, and various other vegetable substances on which it feeds. It inhabits subterraneous holes, which it either prepares itself, or finds ready excavated, in the dry, stony, and sandy deserts in which it resides.

During the day it commonly remains in its hole ; coming out at night for food and exercise. On the approach of cold it is said to grow torpid for some time, reviving on the change of weather.

This animal has frequently been brought into Europe, and in a state of confinement has been known to burrow almost through a brick wall. It has been well figured by Edwards, who did not observe any appearance of a spur or back toe. It is possible, however, that from its minuteness it might have escaped his attention.

The measurements of this species are differently given by authors, and it appears clearly to vary somewhat in size in different countries ; those of Siberia, described by Dr. Pallas, being smaller than those of Africa ; and, after all, it is not impossible that they may in reality be distinct, though so nearly resembling each other as to make the distinction very difficult : in Dr. Pallas's specimens a white transverse band runs across the upper part of the thighs, whereas in that of Edwards a black or dusky band passes across the lower part of the back, without any appearance of the white one. It is difficult to determine whether the kind described and figured by Mr. Bruce should be considered as a variety of the present species or of the *Alagtaga* ; since it agrees with the Common Jerboa, in having the black dorsal band or crescent, while, on the contrary, in the number of its toes on the hind-feet it seems to differ from both ; the author expressly declaring



that there are four toes forwards, exclusive of a very short one or spur behind.

Mons. Sonnini, in his Egyptian travels, assures us, that he never was able to find any difference either in the form or colour of the Egyptian Jerboa. Mons. Sonnini considers the Jerboa as constituting a link between quadrupeds and birds. In this idea he is by no means singular; the same sentiment naturally suggesting itself to the mind of every philosophical observer. Mons. Sonnini adds, that though the transition from quadrupeds to birds has not yet been investigated, we have nevertheless reason to consider the connexion as existing. We have the beginning of it in the Jerboa, and the last link of it in the Bat. We have every reason to believe, that the series of gradations will develop itself in proportion as good observers shall carry their researches into countries the natural history of which is still unexplored\*.

M. Sonnini describes the Egyptian Jerboa as follows :

“ Its size is nearly equal to that of a large rat : its head is broad, large in proportion to the body, the upper part flat, and of a light fawn-colour, striped with black : the upper jaw projects beyond the lower : they are both provided with two incisors ; the upper ones broad, square, flat, and

\* The Platypus or Duck-Bill, from New Holland, is a striking instance of the truth of this remark.

divided lengthwise by a groove in the middle; the lower ones longer, convex externally, pointed at their extremity, and bent inwards: the muzzle is short, wide, and obtuse; a number of stiff hairs grow out on each side, and form long whiskers: the nose is white, bare, and cartilaginous: the iris of its large and projecting eye is brown: the ears long, large, and covered with hair, so short that they appear naked except on very close inspection: externally they are white in the lower part, and grey upwards: the middle, as well as the sides of the head, is of a very light fawn-colour, mixed with grey and black: they entirely surround the meatus auditorius for about a third of their length, so that they exactly resemble the larger end of a cone: this conformation must encrease the animal's faculty of hearing, and is particularly well calculated to defend the inner part of the organ from the extraneous substances that might lodge there: the body is short; well provided with long, soft, silky hair: that which covers the back and sides is of an ash-colour throughout almost the whole of its length, and of a light fawn-colour where it approaches the points, which are black; but as the ash-coloured part is not visib'le, it may be said that the fur is fawn-coloured, with blackish zigzag stripes: these tints, which are somewhat dusky, form an agreeable contrast with the fine white of the belly: the fore-legs are so short that they scarcely extend beyond the hair: they are white, and have five toes; the inner one of which is short, rounded at

the end, and has no nail : the four other toes, the second outer one of which is the longest, are long, and armed with great hooked nails : the heel is very high, and the middle of the foot is naked and of a flesh-colour. These fore-feet are of no use to the animal in walking, but serve him only to lay hold of his food, and to carry it to his mouth, as also to dig his subterraneous abode. The hind legs are covered with long hair, fawn-coloured and white : its long feet are almost entirely bare, especially on the outside, which must necessarily be the case ; since the animal, whether in motion or at rest, constantly leans on that part. These feet, so exceedingly long, have each three toes ; the middle one something longer than the other two : they are all provided with nails, which are short, but broad and obtuse : they have also at the heel a kind of spur, or rather a very small rudiment of a fourth toe, which gives the Jerboa of Egypt some resemblance to the Alagtaga of Tartary described by Gmelin in the Petersburg Transactions, and which part probably escaped Hasselquist, as well as many others. The toes and the heel are furnished below with long grey hairs tinged with yellow, except that at the origin of the toes, which is of a blackish cast : the nails, both of the fore and hind feet, are of a dirty white. According to Hasselquist the tail of the Jerboa is three times the length of the body ; I never found it, however, much more than half that length : it scarcely exceeds the circumference of a goose-quill, but is of a quadrangular and not

a round shape : it is of a deeper grey above than below, and is furnished with short hair as far as the extremity, which ends in a tuft of long silky hair, half black and half grey."

The following is, according to Mons. Sonnini, the average size of the Egyptian Jerboa : it was taken from female specimens, because they happened first to be met with, but M. Sonnini assures us, that the difference of size between the sexes is but very slight.

" Length of the body, from the tip of the nose to the origin of the tail, five inches six lines.

" That of the head, measured in a strait line from the tip of the nose to the nape of the neck, one inch eight lines.

" Breadth of the muzzle at its extremity, four lines. That of the opening of the mouth, measured from one angle of the jaw to the other, three lines and a half. The upper jaw projects beyond the under three lines and a quarter.

" Length of the upper teeth, two lines : of the under, three.

" Distance between the nostrils, one line : between the tip of the nose and the anterior angle of the eye, ten lines. Between the posterior angle of the eye to the ear, two lines and a half. Between the two angles of the eye, five lines. Distance between the anterior angles of the eyes, measured in a strait line, one inch and half a line.

" Length of the ears, one inch and six lines : breadth of the ears at bottom, five lines. Distance between the ears, nine lines.

“ Length of the tail, eight inches six lines : thickness of the tail, at its origin, two lines.

“ Total length of the fore-legs, one inch seven lines : that of the great toe, one line and a half ; of the second, including the nail, three lines.

“ Total length of the hind-legs, six inches and two lines : that of the middle toe, including the nail, ten lines : that of the spur, one line.”

“ The females have eight nipples, the position of which is remarkable : they are situated more externally than in other quadrupeds : the first pair is beyond the bend of the shoulders ; and the last is rather under the thigh than under the belly : the two other pairs, being on the same line, are consequently placed rather under the flanks than under the body.

“ The Jerboa appears to be a prolific animal ; for it is exceedingly numerous in Arabia, Nubia, Egypt, and Barbary. During my stay in, or rather during my excursions in Egypt, I opened several Jerboas. My principal aim was to ascertain that they had only one stomach, and consequently could not possess the power of ruminating. This was an answer to one of the questions that Michaelis, professor at Gottingen, had addressed to the travellers sent to the East by the king of Denmark, viz. *Whether the Jerboa was a ruminating animal?* A question arising from the same mistake which had occasioned the confounding the Jerboa with the *Daman Israel*, or *Saphan* of the Hebrews.

“ The sand and ruins that surround modern

Alexandria are much frequented by the Jerboas. They live in society, and in burrows, which they dig with their teeth and nails. I have even been told, that they sometimes make their way through the soft stone which is under the stratum of sand. Though not absolutely wild, they are very shy, and upon the least noise, or the sight of any object, retire precipitately to their holes. They can only be killed by surprise. The Arabs contrive to take them alive, by stopping up all the avenues to their burrows except one, by which they force them to come out. I never ate any: their flesh indeed is said to be not very palatable, though it is not despised by the Egyptians. Their skin, covered with soft and shining hair, is used as a common fur.

“ In Egypt I kept six of these animals for some time in a large iron cage: the very first night they entirely gnawed through the upright and cross pieces of wood, and I was obliged to have the inside of the cage lined with tin. They ate rice, walnuts, and all kinds of fruit. They delighted in being in the sun; and when taken into the shade, huddled together, and seemed to suffer from the privation of heat. It has been said that the Jerboas sleep by day, and never in the night; but, for my part, I observed quite the contrary. In a state of liberty they are found round their subterraneous habitations in open day, and those which I kept were never more lively nor awake than in the heat of the sun. Although they have a great deal of agility in their motions, they

seem to be of a mild and tranquil disposition. Mine suffered themselves to be touched without difficulty; and there was neither noise nor quarrel among them, even when taking their food. At the same time they testified neither joy, fear, nor gratitude: their gentleness was neither amiable nor interesting: it appeared to be the effect of cold and complete indifference, bordering on stupidity. Three of these animals died successively, before my departure from Alexandria. I lost two others during a somewhat stormy passage to the isle of Rhodes, when the last, owing to the negligence of the person to whose care it was committed, got out of its cage and disappeared. I had a strict search made for it, when the vessel was unloaded, but without effect: it had, no doubt, been killed by the cats."

Mons. Sonnini seems inclined to think that the *Alagtaga* or *Tartarian Jerboa* described by Gmelin in the *Petersburgh Transactions*, is no other than the *Egyptian Jerboa*, notwithstanding its different residence.





ALAGPAGA



After John J. Fenderson. Published by the Smithsonian Institution.

March 1874

## ALAGTAGA.

*Dipus Jaculus. D. cauda longissima apice pennata nigro-alba, pedibus posticis maximis pentadactylis. Pall. Glir. p. 87. and 275. Mus.*

Pale-brown Jerboa, white beneath, with extremely long pentadactyle hind-feet, and very long tail with subpennated black-and-white tip.

Siberian Jerboa. *Pennant Quadr. 2. p. 166.*

Alagtaga. *Buff. 13. p. 141. Schreb. sacugth. p. 842.*

IN its general appearance this species perfectly resembles the common or Egyptian Jerboa, but is considerably larger, though there appear to be permanent varieties or races which are, on the contrary, much smaller than the common species. It is principally distinguished by the remarkable character of the hind feet, each of which has a pair of very conspicuous spurs or additional toes, situated at some distance above the front toes, and furnished with sharp claws.

In the Leverian Museum is a very fine specimen of this animal, which has been figured in Mr. Pennant's History of Quadrupeds. The colour of the Siberian Jerboa or Alagtaga is nearly the same as that of the Egyptian; but there is no appearance of the dusky band across the lower part of the back, or any transverse undulations; the whole upper parts being of a pale yellowish fawn-colour, and the under parts white. Its length is about eight inches, and the tail ten. It is found, according to Dr. Pallas, from the Caspian sea to the river Irtysh, but is no where very

frequent. It inhabits dry, sandy, and gravelly soils.

Of this species there are two supposed varieties, agreeing in form with the above mentioned, but differing in size, and in some degree in colour; but the differences are not such as to justify our considering them as specifically distinct. The first of these varieties is the *Middle Siberian Jerboa*, which is of the size of a rat, and has the thighs crossed by a white line; and a whitish zone or circle surrounds the nose. It is found in the eastern deserts of Siberia and Tartary, beyond the lake Baikal. It also occurs in Barbary and Syria, and extends, according to Dr. Pallas, even as far as India. The other variety is called by Mr. Pennant the *Pygmy Siberian Jerboa*. It agrees in form with the other, but has no white circle round the nose, and has a smaller tuft to the tail, the end of which is just tipped with white. In size it is far inferior to the *middle* variety. It is said to inhabit the same places with the large or first described kind. All these agree in their manners, burrowing in hard, clayey ground, not only in high and dry spots, but even in low and salt places; digging their holes with great celerity with their fore feet and teeth; thus forming oblique and winding burrows, of some yards in length, and ending in a large hole or receptacle by way of nest, in which are deposited the herbs, &c. on which they feed. They are said to wander about chiefly by night. They sleep rolled up, with the head between the thighs:

they are extremely nimble, and on the approach of danger spring forward so swiftly, that a man well mounted can scarcely overtake them. They are said to be particularly fond of the roots of tulips, and some other bulbous-rooted plants. They are supposed to sleep during the winter in the manner of Dormice.

The large, or middle variety of this species appears to be figured by Aldrovandus, under the title of *Cuniculus Indicus Utias dictus*.

It is possible that Mr. Bruce's description may refer to the same animal, since he expressly affirms, that the hind feet have four toes besides a spur. His figure, however, does not represent this particular distinctly, and is besides marked across the lower part of the back by the dusky band or crescent, which generally appears on the Common Jerboa.

Mr. Bruce tells us, that there is little variety in the animal, either in size or colour; but that towards Aleppo they have broader noses than the African ones; that their bodies are thicker, and their colour lighter.

“The Arabs of the kingdom of Tripoli (says Mr. Bruce) make very good diversion with the Jerboa, in training their greyhounds, which they employ to hunt the Gazel or Antelope, after instructing him to turn himself by hunting this animal. The Prince of Tunis, son of Sidi Younis, and grandson of Ali Bey, who had been strangled by the Algerines when that capital was taken, being then an exile at Algiers, made me a present

of a small greyhound, which often gave us excellent sport. It may perhaps be imagined that a chace between these two creatures could not be long: yet I have often seen, in a large inclosure, or court-yard, the greyhound employ a quarter of an hour before he could master his nimble adversary: the small size of the creature assisted him much; and had not the greyhound been a practised one, and made use of his feet as well as his teeth, he might have killed two Antelopes in the time he could have killed one Jerboa."

I must not omit to add, that Mr. Bruce cannot allow the Jerboa to be the *Saphan* of the sacred writings.

#### CAPE JERBOA.

*Dipus Cafer.* *D. spadiceus, subtus subcinereus, palmis pentadactylis, plantis tetradactylis, cauda villosissima apice nigra.*

Ferruginous Jerboa, pale ash-coloured beneath, with pentadactyle fore-feet, tetradactyle hind-feet, and very villose tail tipped with black.

*Jerboa Capensis.* *Mill. cim. phys. p. 62. t. 31.*

*Grand Gerbo.* *Buff. Suppl. 6. p. 260. pl. 42.*

*Cape Jerboa.* *Pennant Quadr. 2. p. 170.*

THIS is by far the largest of all the Jerboas, and is a native of the mountainous country to the north of the Cape of Good Hope. Its length from nose to tail is one foot two inches; of the tail near fifteen inches. The head is broad; the muzzle somewhat sharp; and the upper jaw longer





CAPE JERBOA

than the lower. The general colour of the animal is a pale ferruginous above, and pale ash-colour beneath. The nose is black and bare to some little distance up the front: the ears large: the whiskers long and black: the tail is of the same colour with the body for about half its length; the remainder blackish, and extremely villous or full of hair. It is an animal of great strength and activity, and will spring to the distance of twenty or thirty feet at once. When eating, it sits upright in the manner of a squirrel. It burrows in the ground, like the smaller kind of Jerboas, with great ease and expedition; having very strong and long claws, five in number, on the fore feet: those on the hind feet are rather short, and are four in number.

This animal is among the late accessions to Natural History. It seems to have been first figured in the miscellaneous plates of Mr. Millar. A figure also occurs in the sixth supplemental volume of the Count de Buffon's History of Quadrupeds. It is called by the Dutch colonists, at the Cape, by the name of *Springen Haus* or *Jumping Hare*.



## TORRID JERBOA.

*Dipus Meridianus*. *D. palmis subtetradactylis, plantis pentadactylis, cauda concolore.* *Lin. Syst. Nat. Gmel. p. 159.*

Yellowish-brown Jerboa, white beneath, with subtetradactyle fore-feet, pentadactyle hind-feet, and tapering tail of the same colour with the body.

*Mus longipes.* *Lin. Syst. Nat. p. 84. Pall Ghr. p. 88.*

Torrid Jerboa. *Pennant Quadr. 2. p. 171.*

THIS species, according to Dr. Pallas, was first figured by Seba, whose specimen appears to have been not fully grown. Specimens were brought to Dr. Pallas in the year 1770, which were taken on the borders of the sandy desert of *Naryn*, in  $46\frac{1}{2}$  north latitude. The burrows or passages which they had formed in the dry soil, had a triple entrance, and were about an ell deep in the ground. The size of this species is between that of a rat and a field-mouse; and notwithstanding the great length of the hind legs, it does not leap, like the rest of the Jerboas, but runs in the manner of the rat tribe; and it seems to be on this account that Mr. Pennant has ranked it under his division of Jerboid Rats, rather than among the true Jerboas. The length from nose to tail is rather more than four inches; and of the tail rather more than three: the nose is blunt; the mouth placed far beneath; the upper lip bifid; the ears large and rounded; the fore legs short, with four toes, and a tubercle in place of a thumb: the hind legs long and naked: the toes long and slender; the exterior one shorter than





the rest. The colour of the animal is brown above, and white beneath; the colours separated along the sides by a yellowish line.

## TAMARISK JERBOA.

*Dipus Tamaricinus. D. palmis subtetradactylis, plantis pentadactylis, cauda obsolete annulata. Lin. Syst. Nat. Gmel. p. 159.*

Yellowish-brown Jerboa, white beneath, with subtetradactyle fore-feet, pentadactyle hind-feet, and tapering tail obscurely annulated with brown.

*Mus tamaricinus. Pall. Glir. p. 88. t. 19.*

*Tamarisk Rat. Pennant Quadr. 2. p. 175.*

THIS species, which was first discovered by Dr. Pallas, is about the size of the brown rat. It is an inhabitant of the most southern parts of the Caspian deserts, and probably of the warmer parts of Asia. It delights in low grounds and salt marshes, and burrows under the roots of the tamarisk-bushes. Each burrow has two entrances, and is very deep. The animal comes out by night to feed, and makes its principal repast on succulent maritime plants, as the *Salsola*, &c. which in the salt deserts it inhabits are very plentiful. The head of this species is oblong; the whiskers large; the nose blunt; and the nostrils covered by a flap: the eyes large; the ears large, oval, and naked: the space round the nose and eyes, and beyond the ears, white: the sides of the head and neck cinereous: the back and sides yellowish grey: the tips of the hairs brown: the

breast and belly white : the tail ash-coloured, and annulated more than half way from the base with rings of brown : the hind legs are long in proportion to the fore legs ; and the feet are longitudinally black beneath : on the fore feet is a warty tubercle in place of the thumb. The length from nose to tail is about six inches ; the tail not quite so long.

## CANADIAN JERBOA.

*Dipus Canadensis. D. fusco-flavescens, subtus albidus, palmis tetradactylis, plantis pentadactylis, cauda longa subnuda murina.*

Yellowish-brown Jerboa, whitish beneath, with the fore-feet tetradactylous, the hind-feet pentadactylous ; the tail long and mouse-like.

*Dipus palmis tetradactylis, plantis pentadactylis, cauda annulata undique setosa.*

Jumping Mouse of Canada. *Lin. Trans. 4. p. 157. pl. 8.*

Canada Rat. *Pennant Quadr. 2. p. 172.*

THIS minute species, which is figured on the annexed plate in its natural size, and represented both in its active and torpid state, is a native of Canada, and appears to have been first discovered by General Davies, who had an opportunity of examining it during his residence at Quebec, and who has described it in the fourth volume of the Transactions of the Linnæan Society.

The description is as follows :

“ As I conceive there are very few persons, however conversant with natural history, who may have seen or known that there was an ani-



CANADIAN JERBOA, *nat. size*

1861. *Jard.* London. Published by G. Knowerly Fleet Street



mal existing, in the coldest parts of Canada, of the same genus with the Jerboa, hitherto confined to the warmer climates of Africa, I take the liberty of laying before this society the following observations, accompanied by a drawing of an animal of that kind, procured by myself, in the neighbourhood of Quebec, during my last residence in that country. The specimens from which I made the drawing are now in my collection. With respect to the food, or mode of feeding, of this animal, I have it not in my power to speak with any degree of certainty, as I could by no means procure any kind of sustenance that I could induce it to eat; therefore, when caught, it only lived a day and a half. The first I was so fortunate to catch was taken in a large field near the falls of Montmorenci, and by its having strayed too far from the skirts of the wood allowed myself, assisted by three other gentlemen, to surround it, and after an hour's hard chace, to get it unhurt, though not before it was thoroughly fatigued, which might in a great measure accelerate its death. During the time the animal remained in its usual vigour, its agility was incredible for so small a creature. It always took progressive leaps of from three to four, and sometimes of five yards, although seldom above twelve or fourteen inches from the surface of the grass; but I have frequently observed others in shrubby places, and in the woods, among plants, where they chiefly reside, leap considerably higher. When found in such places it is impossible to take them.



from their wonderful agility, and their evading all pursuit by bounding into the thickest part of the cover they can find. With respect to the figure given of it in its dormant state, I have to observe, that the specimen was found by some workmen, in digging the foundation for a summer-house in a gentleman's garden, about two miles from Quebec, in the latter end of May, 1787. It was discovered enclosed in a ball of clay, about the size of a cricket-ball, nearly an inch in thickness, perfectly smooth within, and about 20 inches under ground. The man who first discovered it, not knowing what it was, struck the ball with his spade, by which means it was broken to pieces, or the ball would have been presented to me. The drawing will perfectly shew how the animal is laid during its dormant state. How long it had been under ground, it is impossible to say; but as I never could observe these animals in any parts of the country after the beginning of September, I conceive they lay themselves up some time in that month, or beginning of October, when the frost becomes sharp; nor did I ever see them again before the last week in May, or beginning of June. From their being enveloped in balls of clay, without any appearance of food, I conceive they sleep during the winter, and remain for that term without sustenance. As soon as I conveyed this specimen to my house, I deposited it, as it was, in a small chip box, in some cotton, waiting with great anxiety for its waking; but that not taking

place at the season they generally appear, I kept it until I found it begin to smell: I then stuffed it, and preserved it in its torpid position. I am led to believe its not recovering from that state, arose from the heat of my room during the time it was in the box, a fire having been constantly burning in the stove, and which in all probability was too great for its respiration."

This animal, in the last edition of Mr. Pen-  
nant's History of Quadrupeds, is referred to the  
genus *Mus*, and is described under the name of  
the *Canada Rat*.

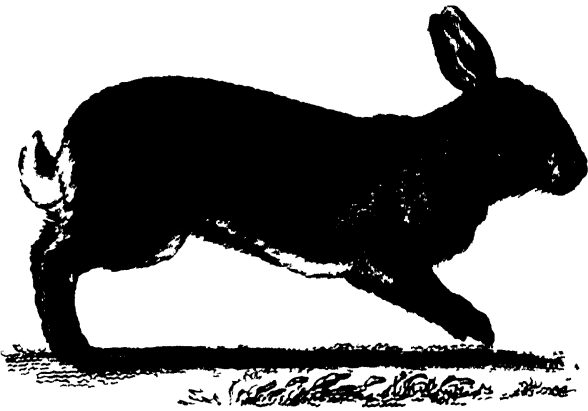
## LEPUS. HARE.

*Generic Character.*

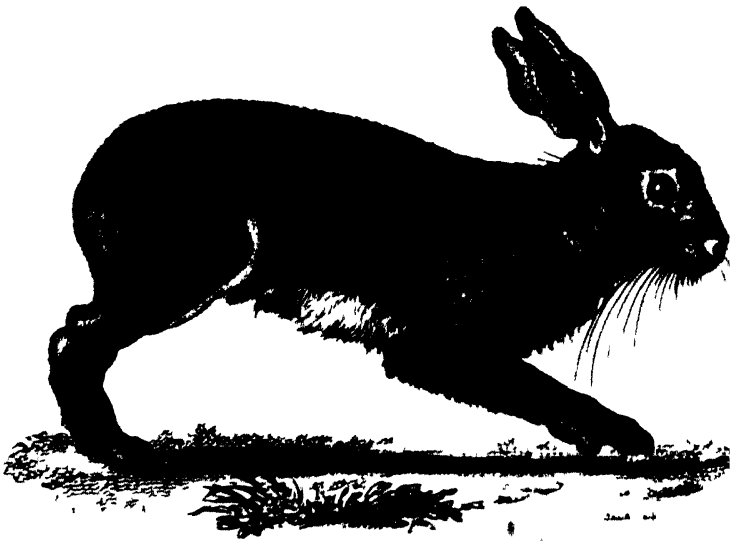
<p><i>Dentes Primores</i> utrinque duo; superiores duplicati, interioribus minoribus.</p>		<p><i>Front-teeth</i> two both above and below: the upper pair duplicate; two small interior ones standing behind the exterior.</p>
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**T**HIS genus, when considered with anatomical exactness, exhibits particularities of structure, deviating somewhat from that of the *Glires*, and making an indistinct approach to the *Pecora* or Ruminants. It has even been supposed that the common hare actually ruminates; an opinion owing not only to the peculiar motions of the mouth, which present an obscure appearance of rumination, but to the structure of the stomach, which is marked as it were into two regions by a particular fold or ridge. Other singularities relative to internal formation may be met with in the works of comparative anatomists.





RABBIT.



HARE.

## COMMON HARE.

*Lepus Timidus*. *L. cauda abbreviata, auriculis apice nigris, capite longioribus*. *Lin. Syst. Nat. Gmél. p. 160.*

Subferruginous-brown short-tailed Hare, with ears longer than the head, and tipped with black.

*Lepus*. *Gesn. Quadr. 69. Aldr. dig. 247. Raj. Quadr. 204.*

Le Lievre. *Buff. 6. p. 246. pl. 38.*

Common Hare. *Pennant Quadr. 2. p. 98.*

THE Hare is an animal so familiarly known as to supersede the necessity of any very minute description. It is a native not only of every part of Europe, but of almost every part of the old continent. It may perhaps be doubted whether it be an aboriginal native of any part of America.

The favourite residence of the Hare is in rich and somewhat dry and flat grounds, and it is rarely discovered in very hilly or mountainous situations. It feeds principally by night, and remains concealed during the day in its form, beneath some bush, or slight shelter.

The swiftness of this animal is proverbial, and on account of the conformation of its legs, the hinder of which are longer than the fore, it is observed to run to most advantage on slightly ascending ground.

The general length of the Hare is about two feet; the colour a subferruginous grey, with the chin and belly white, the throat and breast ferruginous, and the tips of the ears blackish: the tail is black above, and white below: the feet are covered beneath as well as above with fur; the in-

side of the mouth is also coated with short hair : the upper lip is divided ; the eyes are large, yellowish-brown, and are said to be constantly open even during sleep.

The hare is a very prolific animal, generally producing three or four young at a time, and breeding several times in a year. The young require the assistance of the parent but for a short time, and in about three weeks are able to provide for themselves : they do not remove to any great distance from each other, but continue in the same neighbourhood for a considerable time. The Hare feeds on various vegetables, but is observed to prefer those of a milky and succulent quality. It also occasionally feeds on the bark of trees, as well as on the young shoots of various shrubs, &c.

The nature of the soil in which the Hare resides and feeds, is observed to influence in a considerable degree the colour and constitution of the animal. Those which feed in elevated situations are larger and darker than those which reside in the plains.

The Hare is an animal proverbially timid, and flies, if disturbed when feeding, by the slightest alarm ; but when seated in its form, will allow itself to be approached so near as to be reached by a stick ; seeming to be fascinated as it were by fear, and instead of endeavouring to fly, continues to squat immovable, with its eyes fixed on its enemy. It is necessary, however, in order to conduct this manoeuvre, to approach in a gradual and circling manner.

The Hare, though so nearly allied to the Rabbit as to make the general descriptive distinction not very easy, is yet of different habits and propensities, and never associates with the latter animal. If taken very young, the Hare may be successfully tamed, and in that state shews a considerable degree of attachment to its benefactors, though it continues shy to those whose presence it has not been accustomed to. Mr. White, in his History of Selbourne, relates an instance which happened in that village, of a young leveret suckled and nursed by a Cat, which received it very early under her protection, and continued to guard it with maternal solicitude till it was grown to a considerable size. Mons. Sonnini, in his notes to Buffon's Natural History, assures us that he himself kept a tame Hare, which used generally to repose itself by the fire in winter between two large Angora cats, and was also on terms of equal friendship with a hound. In this state of domesticity the hare, like other quadrupeds, is subject to a prolongation of the teeth, which exceed their proper bounds, unless the animal be furnished with some hard substances on which to exercise them at intervals. This extraordinary prolongation of the teeth, as Dr. Pallas has justly observed, furnishes an irrefragable argument against Mr. Hunter's doctrine with respect to the growth of these organs.

A most singular variety of this animal is sometimes found, which is furnished with rough and slightly branched horns, bearing a considerable



resemblance to those of a roebuck. This particularity, as strange as it is uncommon, seems to imply a kind of indistinct approach in this animal to the order *Pecora*. Accounts of horned hares may be found, not only in the writings of Gesner and Aldrovandus, but of many other naturalists, and there seems to be no reason for doubting the reality of the phænomenon. Dr. Grew, in his *Museum Regalis Societatis*, mentions a pair of these horns, which were at that time in the collection of the Royal Society, and Mr. Schreber has lately figured a pair in his work on quadrupeds.

The Hare is a short-lived animal, and is supposed rarely to exceed the term of seven or eight years. Its voice, which is scarce ever heard but in the distress of sudden surprise, is a cry not much unlike that of an infant. The Hare is preyed upon by foxes, wolves, eagles, hawks, kites, &c. &c. which, together with the more destructive pursuits of mankind, contribute to thin the number of these animals, which from their prolific nature would otherwise multiply to the most extravagant degree; since, according to Buffon, in some districts appropriated to the pleasures of the chace, not less than four or five hundred have been destroyed in a single day!

It may be proper to add, that in very severe winters, and especially in those of the more northern regions, the hare becomes entirely white, in which state it is liable to be mistaken for the following species.

## VARYING HARE.

*Lepus Variabilis.* *L. cauda abbreviata, excepto auricularum ca-  
pate breviorum apice nigro hyeme totus albus.* *Lin. Syst. Nat.*  
*Gmel. p. 161.*

Tawny-grey short-tailed Hare (white in winter), with ears shorter than the head, and tipped with black.

Varying Hare. *Pennant Quadr. 2. p. 100.*

*Lepus variabilis.* *Pall. Glir. p. 1.*

THIS species is an inhabitant of the loftiest alpine tracts in the northern regions of the globe; occurring in Norway, Lapland, Russia, Siberia, and Kamtschatka; and in our own island on the Alps of Scotland. The same species is also found to extend to America, appearing in some parts of Canada. In its general appearance it bears an extreme resemblance to the common hare, but is of smaller \* size, and has shorter ears and more slender legs. Its colour in summer is a tawny grey, in winter entirely white; except the tips of the ears, which are black: the soles of the feet are also black, but are very thickly covered with a yellowish fur. This animal is observed to confine itself altogether to elevated situations, and never to descend into the plains, or to mix with the common hare †. The change of colour commences in the month

\* Dr. Pallas, on the contrary, represents it as larger than the common hare: it, therefore, appears to vary in size in different countries; and the Scottish variety is smaller than the Russian and Siberian.

† Yet, according to Dr. Pallas, a Hybrid variety is sometimes evidently produced between this species and the common hare.

of September, and the grey or summer coat re-appears in April; but in the very severe climate of Siberia it continues white all the year round. It has been sometimes found entirely coal-black; a variety which is also known to take place occasionally in the common hare. The varying hare sometimes migrates in order to obtain food in severe seasons. Troops of five or six hundred have been seen to quit in this manner the frozen hills of Siberia, and to descend into the plains and woody districts, from which they again return in spring to the mountains.

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#### AMERICAN HARE.

*Lepus Americanus* *L. cauda abbreviata, pedibus posticis corpore dimidio longioribus, auricularum caudaeque apicibus nigris.* *Lin. Syst. Nat. Gmel. p. 162.*

Tawny-grey short-tailed Hare, white beneath, with the hind legs longer than the body, and the ears and tail tipped with grey.

*American Hare. Forst. Phil. Trans. vol. 62. p. 376. Pennant Quadr. 2. p. 102. Catech. app. 27.*

THIS animal is not much superior in size to a rabbit; measuring about eighteen inches. Its colour nearly resembles that of the common hare, to which it seems much allied; but the fore legs are shorter, and the hind ones longer in proportion. The belly is white; the tail black above and white beneath; the ears tipped with grey, and the legs of a pale ferruginous colour. It is said to inhabit all parts of North America; and

in the more temperate regions retains its colour all the year round, but in the colder parts becomes white in winter, when the fur grows extremely long and silvery; the edges of the ears alone retaining their former colour. It is said to be extremely common at Hudson's Bay, where it is considered as a highly useful article of food. It breeds once or twice a year, producing from five to seven at a time. It is not of a migratory nature, but always continues to haunt the same places, taking occasional refuge under the roots of trees, or in the hollows near their roots.

## BAIKAL HARE.

*Lepus Tolai. L. cauda abbreviata, auricularum margine summo nigro. Lin. Syst. Nat. Gmel. p. 162. Pall. Glir. p. 17. t. 4. f. 2.*

Pale-brown short-tailed Hare, with the upper edges of the ears black.

Tolai. *Buff. 15. p. 138.*

Baikal Hare. *Pennant Quadr. 2. p. 104.*

THIS is a somewhat larger species than the common hare, which it pretty much resembles as to colour and general appearance, but has a longer and smaller head, with a thicker nose in proportion: the tail is longer in proportion than in the rabbit, and shorter than in the common hare, and is black above and white below: the end of the nose and the eyes are bordered with whitish hair, and the upper edges of the ears are black.

the throat\* and under parts are white, and the feet yellowish. This animal is an inhabitant of open hilly places in Dauria and Mongolia, and is said to extend as far as Tibet. In the colour of its flesh it agrees with the rabbit, but differs both from that animal and the hare in its manners; neither burrowing in the ground, like the former, nor running far when pursued, like the latter; but instantly taking refuge in the holes of rocks. It is called by the Mongols by the name of Tolai. The fur is said to be very indifferent, and of no esteem as a commercial article.

## RABBIT.

*Lepus Cuniculus. L. cauda abbreviata subconcolore, auriculis apice atris, cruribus posticis trunco brevioribus. Lin. Syst. Nat. Gmel. p. 163.*

Short-tailed brown Hare, with the tips of the ears black, and the hind legs shorter than the body.

*Cuniculus. Plin. Gem. Aldr. Raj.*

*Le Lapin. Buff. 6. p. 303. pl. 50, 47.*

*Rabbit. Pennant Quadr. 2. p. 103.*

THE Rabbit bears a very strong general resemblance to the Hare, but is considerably smaller, and its fore feet are furnished with sharper and longer claws in proportion; thus enabling it to burrow in the ground, and to form convenient retreats, in which it conceals itself by day, and, like

\* Mr. Erxleben describes it with the throat black.

the hare, comes out chiefly by night and during the early part of the morning to feed. Its colour, in the wild state, is a dusky brown, paler or whitish on the under parts, and the tail is black above and white below. In a domestic state the animal varies into black, black-and-white, silver-grey, perfectly white, &c. &c.

The Rabbet is a native of most of the temperate and warmer parts of the old continent, but is not found in the northern regions, and is not originally a native of Britain, but was introduced from other countries. Its general residence is in dry, chalky, or gravelly soils, in which it can conveniently burrow. It is so prolific an animal that it has been known to breed seven times in a year, and to produce no less than eight young each time. It is, therefore, not surprising that in some countries it has been considered as a kind of calamity, and that various arts of extirpation have been practised against it.

The difference between the Rabbet and the Hare, though known from daily habit and inspection, is yet by no means easily described in words; and it is a curious fact, that the attempts at a specific character by Linnæus, in the earlier editions of the *Systema Naturæ*, are remarkable for their want of precision. In the second edition of that work he thus distinguishes the Rabbet: *Lepus cauda abruptu, pupillis rubris. Hare with abrupt tail, and red pupils.* Red eyes are, however, only seen occasionally in domestic rabbits of a perfectly white colour. In the twelfth

edition of the *Systema Naturæ* he attempts to distinguish the Rabbet thus: *L. cauda abbreviata, auriculis denudatis*. Hare with abbreviated tail, and naked ears. But, as Mr. Barrington, whose remarks on this subject may be found in the *Philosophical Transactions*, has well observed, this latter distinction will be found equally to fail.

The criterion proposed by Mr. Barrington is the proportional length of the hind legs compared with those of the hare; for "if the hind legs of an European Hare are measured from the uppermost joint to the toe, the number of inches will turn out to be just half the length of the back from the rump to the mouth, the tail not being included. The hind legs of the Rabbet being measured in the same manner, and compared with the back, are not much more than one third." Mr. B. adds, that the fore legs of the Rabbet are also shorter than those of the hare. Mr. Barrington's criterion, as the reader will observe by turning to the specific character, has been adopted by modern naturalists.

The strange variety, or rather, if such really existed, distinct species, figured in Mr. Pennant's *Synopsis*, and repeated in his *History of Quadrupeds*, under the title of the *Hooded Rabbet*, and taken from a drawing by Edwards, in the British Museum, appears such an outrageous violation of probability as to justify our supposing it, with Dr. Pallas, to be in reality no other than an Angora Rabbet, in the state in which it sometimes appears when casting its fur, which, as Daubenton

has observed, becomes clotted and tangled here and there, as in a specimen figured in Buffon, where a mass of the fur hangs down on one side in such a manner as to resemble an additional leg. Edwards's drawing above mentioned is called, in the memorandum annexed to it, *A Rabbet from Moscovy*, and is described as follows :

“ This Rabbit is about the bigness of our largest tame Rabbits in England. It has a double skin all over the back, so that it can roll itself up in a round form, putting its head under the upper skin, and its feet into a pouch under the throat. It has also a flap of thick wool which it places its feet upon when it sits. It has a small hole in the skin on the back, which gives light to the eye when the head is under the skin. It was shewn to the Royal Society of London in the year 1736, and acknowledged to be natural.”

In the same volume of drawings is a figure of the skin itself, which is evidently no other than the ragged spoil of some long-haired Rabbet ; the head and feet in the preceding figure (which represents the animal in its supposed complete state) being evidently added by Edwards and coloured brown, like those of a common Rabbet, though the enveloping skin itself is white.



## BRASILIAN HARE.

*Lepus Brasiliensis. L. auritus, collari albo, cauda nulla. Lin.*  
*Syst. Nat. Gmel. p. 164. Pall. Gler. p. 30.*

Tailless brown Hare, white beneath, with a white collar round the neck.

Cuniculus Brasiliensis Tapeti. *Marcgr. bras. 223.*

Brasilian Hare. *Pennant Quadr. 2. p. 107.*

THE Brazilian Hare is nearly of the same size as the common hare: it is also similar in colour, but of a somewhat darker cast: the chin and under parts are white; the face reddish, and a white ring surrounds the neck; the ears are very large; the eyes black; and the tail is entirely wanting. This animal is said to inhabit the woods of Brasil, and is esteemed as an article of food. The white ring round the neck is not found to be an universal character, but is sometimes wanting. Its native name among the Brasilians is *Tapeti*, and among the Mexicans *Citli*.

## CAPE HARE.

*Lepus Capensis. L. cauda longitudine capitis, pedibus rubris.*  
*Lin. Syst. Nat. Gmel. p. 164.*

Brown Hare, with reddish legs, and tail the length of the head.  
 Cape Hare. *Pennant Quadr. 2. p. 105.*

THE Cape Hare is about the size of a Rabbet, and is a native of the northern parts above the Cape of Good Hope. Its colour on the upper parts is similar to that of a common Hare, but the cheeks and sides are cinereous, and the under parts and legs ferruginous: the tail is bushy, of a pale ferruginous colour, and carried in an upright direction: the ears are long, broad in the middle, naked, and rose-coloured on the outside and covered with short ash-coloured hair within. It is called about the Cape by the name of Mountain Hare, inhabiting only rocky mountainous regions, and running, when disturbed, into the fissures of the rocks.

## VISCACCIA.

*Lepus Viscaccia. L. cauda elongata setosa. Ian. Syst. Nat.*  
*Gmel. p. 160.*

Brownish Hare, with long bristly tail.

Vischacha. *Nieremb. Hist. Nat. p. 161.*

Viscaccia. *Pennant Quadr. 2. p. 106.*

THIS species is said to have the general appearance of a Rabbet, but has a long bushy and

bristly tail, like that of a fox, which the animal also resembles in colour; the fur on all parts, except the tail, is soft, and is used by the Peruvians in the manufacture of hats: it was also used by the ancient Peruvians for the fabric of garments, worn only by persons of distinction. In its manners this animal resembles the rabbit, burrowing under ground, and forming a double mansion, in the upper of which it deposits its provisions, and sleeps in the other. It appears chiefly by night, and is said to defend itself when attacked by striking with its tail.

## ALPINE HARE.

*Lepus Alpinus. L. caudatus rufescens, auriculis rotundatis plantisque fuscis. Lin. Syst. Nat. Gmel. p. 165. Pall. Gtir. p. 45. t. 2.*

Tailless ferruginous Hare, with rounded ears, and brownish feet.  
Alpine Hare. *Pennant Quadr. 2. p. 107.*

THIS is a very different species from the Alpine Hare described by Mr. Pennant in the *British Zoology*, which is no other than the *Varying Hare*. The Alpine Hare is a far smaller animal, scarce exceeding a Guinea-Pig (*Cavia Cobaya*) in size, and measuring only nine inches in length. Its colour is a bright ferruginous grey, paler beneath: the head is long, and the ears short, broad, and rounded. It appears to have been first described by Dr. Pallas, who informs us that it is a native of the Altaic mountains, and extends to the Lake

CALLING HARE.

ALPINE HARE.

OGOTONA HARE.



*See Jewell's London Published by G. Emery, Fleet Street*



Baikal, and even to Kamtschatka, inhabiting rough, woody tracts amidst rocks and cataracts, and forming burrows beneath the rocks, or inhabiting the natural fissures, and dwelling sometimes singly, and sometimes two or three together. They are also said to be occasionally found in the hollows of large trees, which have been thrown down by the violence of storms in those lofty regions. In general they confine themselves to their holes in bright weather, coming out only in the evening and during the night; but in dull weather are frequently seen in the day-time, running about among the rocks, and frequently uttering a sort of whistle or chirping sound, not unlike that of a sparrow. In their manners they greatly resemble some of the Marmots or Hamsters, preparing, during the autumn, a plentiful assortment of the finest herbs and grasses, which they collect in company, and after drying with great care in the sun, dispose into heaps of very considerable size, for their winter support, and which may always be distinguished, even through the deep snow, having the appearance of so many hay-ricks in miniature, and being often several feet in height and breadth. These little ricks, raised by their industrious labours, are often found of great service to the adventurous hunters of Sables, whose horses would perish for want, were it not for the supplies which they thus occasionally discover. The Alpine Hare varies in size according to the different regions in which it

is found, being largest about the Altaic mountains, and smaller about Lake Baikal, &c.

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OGOTONA HARE.

*Lepus Ogotona. L. ecaudatus griseo-pallidus, auriculis ovalibus subacutis concoloribus. Lin. Syst. Nat. Gmel. p. 166. Pall. Glir. p. 59. t. 3.*

Tailless pale-brown Hare, with oval subacute ears of the same colour.

Ogotona Hare. *Pennant Quadr. 2. p. 109.*

THIS animal, says Dr. Pallas, is called by the Mongolians by the name of Ogotona, and is an inhabitant of rocky mountains, or sandy plains, burrowing under the soil, or concealing itself under heaps of stones, and forming a soft nest at no great depth from the surface. It wanders about chiefly by night, and sometimes appears by day, especially in cloudy weather. In autumn it collects heaps of various vegetables for its winter food, in the same manner as the Alpine hare, before described, disposing them into neat hemispherical heaps of about a foot in diameter. These heaps are prepared in the month of September, and are entirely consumed by the end of winter.

The Ogotona Hare is about six inches or somewhat more in length, and is of a pale brown colour above, and white beneath: on the nose is a yellowish spot, and the outsides of the limbs

and space about the rump is of the same colour. It is entirely destitute of a tail.

## CALLING HARE.

*epus Pusillus. L. ecaudatus, fusco griseoque mixtus, auriculis subtriangulis, albo marginatis. Lin. Syst. Nat. Gmel. p. 164. Pall. Glir. p. 31. t. 1.*

Tailless grey-brown Hare, with subtriangular ears edged with white.

Calling Hare. *Pennant Quadr. 2. p. 111.*

IN its form this species extremely resembles the Ogotona hare, but is smaller, measuring near six inches, but weighing only from three ounces and a quarter to four and half, and in winter two and a half. The head is somewhat longer than is usual in this genus, and thickly covered with fur even to the tip of the nose: the ears are large and rounded; the legs very short; the feet furred beneath; and the fur on the whole animal is very soft, long, smooth, and of a brownish lead-colour, with the hairs tipped with black: on the sides of the body a yellowish tinge prevails. It is an inhabitant of the south-east parts of *Russia*, and about all the ridge of hills spreading southward from the *Uralian* chain; as well as about the *Irtish*, and the west part of the *Altaic* chain. It is an animal of a solitary disposition, and is very rarely to be seen, even in places it most frequents. It commonly chuses its residence in some dry gentle declivity, where the turf is firm and covered with bushes,



and is therefore mostly found on the western side of hills, where it forms an obliquely descending burrow, the entrance of which is scarcely more than two inches in diameter. The animal generally betrays its place of residence by its voice, which is heard after sunset and early in the morning, and much resembles that of a quail; and is repeated at intervals, three, or four, or six times: it is heard to a surprising distance, considering the small size of the animal, and that there is nothing peculiar in the structure of its organs which can account for so powerful a tone. In cloudy weather this note is heard by day as well as by night, and is commonly mistaken by the country people for that of some bird.

These little animals grow tame almost as soon as caught, and in the course of a day become quite familiar; being of an extremely gentle disposition: they sleep but little, and that with open eyes, like the common hare: they generally sit with body drawn up, as in the figure, but when sleeping, they stretch themselves out with their belly on the ground and their ears pressed close to the head. The animal, when sitting in its general or contracted form, just fills the hollow of the hand. Its pace is a kind of leaping motion, but not very quick; nor does it run well, on account of the shortness of the legs. It may be fed during a state of captivity, on the leaves of various shrubs and plants. It produces five or six young, which are at first of a blackish colour, and blind and naked; but on

the eighth day begin to be furred, to see, and to creep about. This species is not observed to undergo any change of colour during the winter.

## MINUTE HARE.

*Lepus Minimus.* *L. cauda abbreviata, auriculis pilosis concoloribus.* *Lin. Syst. Nat. Gmel. p. 163.*

Short-tailed brown long-nosed Hare, with small, hairy, pointed ears.

Cuy Hare. *Pennant Quadr. 2. p. 106.*

THIS is by far the smallest of the whole genus, scarce exceeding the meadow mouse (*Mus arvalis*) in size. It is a native of *Chili*, where it is said to be much esteemed as a delicate food, and is often kept in a domestic state. The body is of a conoid shape, the ears small, pointed, and covered with hair: the nose long; the tail so short as to be scarce visible. This animal varies in colour (at least when in a domestic state), being either brown, white, or spotted. It produces about six or eight young at a time, and is said to breed almost every month. No figure of this animal appears to have yet been given, nor is its description by Molina and others quite so full and circumstantial as might be wished. It is said to be called in *Chili* by the name of *Cuy*.

## HYRAX. HYRAX.

*Generic Character.*

<i>Dentes Primores superiores</i> duo, lati, distantes.	<i>Front-teeth</i> in the upper jaw two, broad, somewhat dis- tant.
<i>Inferiores quatuor, contigui,</i> lato-plani, bis crenati.	In the lower jaw four, broad, flat, twice crenated.
<i>Molares magni, ubique qua-</i> tuor.	<i>Grinders</i> large, four on each side in both jaws.
<i>Palme</i> digitis quatuor.	<i>Fore-feet</i> with four toes.
<i>Plantæ</i> digitis tribus.	<i>Hind-feet</i> with three toes.
<i>Cauda</i> nulla.	<i>Tail</i> none.
<i>Claviculæ</i> nullæ.	<i>Clavicles</i> none.

THE genus Hyrax is distinguished from all the rest of the Glires by the remarkable circumstance of having four teeth in the lower jaw instead of two: these lower teeth are also of a different structure from the upper, being broad, short, and crenated or denticulated at the top: the upper teeth in this genus are also less sharp or pointed than in the rest of the Glires. In other particulars the genus Hyrax seems most nearly allied to that of Cavia.





SYRIAN HYRAX.



CAPE HYRAX.

## CAPE HYRAX.

**Hyrax Capensis.** *H. palmarum unguibus planis, plantarum unico subulato.* *Lin. Syst. Nat. Gmel. p. 166.*

Grey-brown Hyrax, paler beneath, with flat nails on the fore feet, and a single sharp curved claw on the hind feet.

**Cavia Capensis.** *Pall. misc. 34. t. 3. spicil. 2. p. 22. t. 2.*

Marmotte du Cap de Bonne Esperance. *Buff. Suppl. 3. p. 177. pl. 29.*

Cape Cavy. *Pennant Quadr. 2. p. 96.*

THIS is an animal of which the natural history and manners have but lately been well understood. It is a native of mountainous situations about the Cape of Good Hope; residing in the hollows of rocks, and leaping with great agility about the prominences of the irregular regions it frequents, though its general or walking pace is not remarkably quick. Its size is nearly that of a rabbit, and in colour it much resembles that animal, but is whitish beneath. It is of a thick form, with short limbs, of which the hinder are longer than the fore, and is perfectly destitute of a tail. The head is rather small; the nose divided by a furrow; the ears short and rounded; the eyes large and black; the fore feet divided into four lobes or toes of a soft or pulpy nature, and furnished with flattish, rounded nails: the hind feet are of similar structure, but have only three lobes, of which the interior is furnished with a sharp crooked claw, while the others have nails similar to those on the fore feet.

This animal is said to be known at the Cape by the name of *rock badger*, but Mr. Allamand observes, that this is an improper name, since the structure of its feet evidently shews that it has no power of digging or burrowing. It is a diurnal animal, and by night retires into the cavities of rocks, &c.

The first figure of this species, published by Dr. Pallas in his *Spicilegia Zoologica*, and from thence copied into the third supplemental volume of the Count de Buffon's Natural History, was executed from a very indifferent drawing, and exhibits the animal beyond measure gross and corpulent. More expressive representations have since been given, and from one of these the figure in the present work is copied.

This animal appears to be easily tamed, and in that state is observed to be remarkably cleanly, and of a lively and active disposition; leaping almost as readily and with as much security as a cat. This is contrary to the character given of the animal from the specimen represented by Dr. Pallas and others; but the individual then described appears to have lost a part of its natural habits from the confinement in which it was kept, and the manner in which it was fed; and consequently misled the describers of the day into a wrong idea of its nature and manners; and this, among many other instances, may serve to shew how little dependence is to be placed on descriptions drawn up from an individual specimen, transported from its native country into a widely

different climate, and having no power of exerting with freedom its natural habits and propensities.

The Cape Hyrax feeds on vegetables only, and is said to prepare a kind of nest or bed of dried leaves, grasses, &c. in the cavities in which it resides. Its voice is a shrill repeated squeak.

## SYRIAN HYRAX.

Hyrax Syriacus. *H. plantis tridactylis, unguibus omnibus subæqualibus.* Schreb. *sacughth.* p. 923.

Rufous-grey Hyrax, white beneath, with tridactyle feet and nearly equal claws.

Ashkoko. *Bruce Trav. append. p. 139. pl. 23.*

Bristly Cavy. *Pennant Quadr. 2. p. 92.*

THIS species seems to have been first clearly and fully described by Mr. Bruce, in the appendix to his celebrated Abyssinian Travels. If the description appears in some parts rather too minute, let it be considered, that Mr. B. was treating of an animal almost unknown to European naturalists, and which, in consequence, seemed to demand a peculiar degree of exactness.

“ This curious animal,” says Mr. Bruce, “ is found in Ethiopia, in the caverns of the rocks, or under the great stones in the Mountain of the Sun, behind the queen’s palace at Koscam. It is also frequent in the deep caverns in the rock in many other parts of Abyssinia. It does not burrow, or make holes, as the rat and rabbit, Nature



having interdicted him this practice by furnishing him with feet, the toes of which are perfectly round, and of a soft, pulpy, tender substance; the fleshy parts of the toes project beyond the nails, which are rather broad than sharp, much similar to a man's nails ill grown, and these appear rather given him for the defence of his soft toes, than for any active use in digging, to which they are by no means adapted.

“ His hind foot is long and narrow, divided with two deep wrinkles, or clefts, in the middle, drawn across the centre, on each side of which the flesh rises with considerable protuberancy, and it is terminated by three claws; the middle one is the longest. The fore foot has four toes, three disposed in the same proportion as the hind foot; the fourth, the largest of the whole, is placed lower down on the side of the foot, so that the top of it arrives no farther than the bottom of the toe next to it. The sole of the foot is divided in the centre by deep clefts, like the other, and this cleft reaches down to the heel, which it nearly divides. The whole of the fore foot is very thick, fleshy, and soft, and of a deep black colour, altogether void of hair, though the back or upper part of it is thick-covered like the rest of its body, down to where the toes divide, there the hair ends, so that these long toes very much resemble the fingers of a man.

“ In the place of holes, it seems to delight in less close, or more airy places, in the mouths of caves, or clefts in the rock, or where one pro-

jecting, and being open before, affords a long retreat under it, without fear that this can ever be removed by the strength or operations of man. The Ashkoko are gregarious, and frequently several dozens of them sit upon the great stones at the mouth of caves, and warm themselves in the sun, or even come out and enjoy the freshness of the summer evening. They do not stand upright upon their feet, but seem to steal along as in fear, their belly being nearly close to the ground, advancing a few steps at a time, and then pausing. They have something very mild, feeble, and timid, in their deportment; are gentle and easily tamed, though, when roughly handled at the first, they bite very severely.

“ This animal is found plentifully on Mount Libanus. I have seen him also among the rocks at the Pharan Promontorium, or Cape Mahomet, which divides the Elanitic from the Heroopolitic Gulf, or Gulf of Suez. In all places they seem to be the same; if there is any difference it is in favour of the size and fatness which those in the Mountain of the Sun seem to enjoy, above the others. What is his food I cannot determine with any degree of certainty. When in my possession, he ate bread and milk, and seemed to be rather a moderate than voracious feeder. I suppose he lives on grain, fruit, and roots. He seemed too timid and backward in his own nature to feed upon living food, or catch it by hunting.

“ The total length of this animal, as he sits, from the point of his nose to the extremity of his

body is seventeen inches and a quarter. The length of his snout, from the extremity of the nose to the occiput, is three inches and three eighths. His upper jaw is longer than his under; his nose stretches half an inch beyond his chin. The aperture of the mouth, when he keeps it close, in profile, is little more than an inch. The circumference of his snout around both his jaws is three inches and three eighths; and round his head, just above his ears, eight inches and five eighths: the circumference of his neck is eight inches and a half, and its length one inch and a half. He seems more willing to turn his body altogether than his neck alone. The circumference of his body, measured behind his fore legs, is nine inches and three quarters, and that of his body, where greatest, eleven inches and three eighths: the length of his fore leg and toe is three inches and a half. The length of his hind thigh is three inches and one eighth, and the length of his hind leg to the toe taken together, is two feet two inches: the length of the fore foot is one inch and three eighths; the length of the middle toe six lines, and its breadth six lines also. The distance between the point of the nose and the first corner of the eye is one inch and five eighths; and the length of his eye, from one angle to the other, four lines. The difference from the fore angle of his eye to the root of his ear is one inch and three lines, and the opening of his eye two lines and a half. His upper lip is covered with a pencil of strong hairs

for mustachoes, the length of which are three inches and five eighths, and those of his eye-brows two inches and two eighths. He has no tail, and gives at first sight the idea of a rat, rather than of any other creature. His colour is a grey mixed with a reddish brown, perfectly like the wild or warren rabbit. His belly is white, from the point of the lower jaw, to where his tail would begin, if that he had one. All over his body he has scattered hairs, strong and polished like his mustachoes; these are for the most part two inches and a quarter in length. His ears are round, not pointed. He makes no noise that ever I heard, but certainly chews the cud\*. To discover this was the principal reason of my keeping him alive: those with whom he is acquainted he follows with great assiduity. The arrival of any living creature, even of a bird, makes him seek for a hiding-place; and I shut him up in a cage with a small chicken, after omitting to feed him a whole day: the next morning the chicken was unhurt, though the Ashkokö came to me with great signs of having suffered with hunger. I likewise made a second experiment, by inclosing two smaller birds with him for the space of several weeks: neither were these hurt, though both of them fed, without impediment, of the meat that was thrown into his cage, and the smallest of

\* This particular seems very doubtful, and may probably be owing to the peculiar motions of the mouth, resembling those of the hare, which has also been supposed by some to ruminate.

these, a titmouse, seemed to be advancing in a sort of familiarity with him, though I never saw it venture to perch upon him: yet it would eat frequently, and, at the same time, of the food upon which the Ashkoko was feeding; and in this consisted chiefly the familiarity I speak of, for the Ashkoko himself never shewed any alteration of behaviour upon the presence of the bird, but treated it with a kind of absolute indifference. The cage indeed was large, and the birds having a perch to sit upon in the upper part of it, they did not annoy one another.

“ In Amhara this animal is called Ashkoko, which I apprehend is derived from the singularity of those long herinaceous hairs, which, like small thorns, grow about his back, and which in Amhara are called Ashok. In Arabia and Syria he is called Israel's Sheep, or Gannim Israel, for what reason I know not, unless it is chiefly from his frequenting the rocks of Horeb and Sinai, where the children of Israel made their forty years' peregrination; perhaps this name obtains only among the Arabians. I apprehend he is known by that of Saphan in the Hebrew, and is the animal erroneously called by our translators Cuniculus, the rabbet or coney.”

## HUDSON'S BAY HYRAX.

*Hyrax Hudsonius. H. cinereo-fuscus pilis apice albidis, palmis plantisque tetradactylis.*

Cinereous-brown Hyrax, with the hair whitish at the tips, and four toes on all the feet.

Tailless Marmot. *Pennant Quadr. 2. p. 137.*

THIS was first described by Mr. Pennant, and is in the Leverian Museum. Its colour is a cinereous brown, with the ends of the hairs white. It is a native of Hudson's Bay. Its size is nearly that of a common Marmot: the two upper teeth are moderately large, and shaped like those of the Cape Hyrax: the four lower are very strong, rather long than broad, and are very abruptly truncated, without any appearance of denticulations: the feet are tetradactylous; of a similar form to those of the Cape Hyrax, but have rounded claws on all the toes. Nothing particular is known of the manners or natural history of this species.

To be added to the Genus *Cavia*.—Page 16.

PATAGONIAN CAVY.

*Cavia Patagonica*. *C. subcaudata* griseo-ferruginea, subtus al-  
bida, macula femorali utrinque alba, uropygio nigro.

Ferruginous-grey Cavy, whitish beneath, with extremely short  
naked tail, large white patch on each thigh, and black rump.

Patagonian Cavy. *Pennant Quadr.* 2. p. 91.

Hare. *Narborough's Voy. to Magell.* p. 33.

THIS remarkable species, of which a fine speci-  
men occurs in the Leverian Museum, is a native  
of Patagonia, where it is said to be by no means  
uncommon. In size it considerably exceeds a  
Hare, and, according to Mr. Pennant, has been  
sometimes found to weigh more than twenty-six  
pounds. Its colour on the upper parts resembles  
that of a Hare; but the under parts are whitish,  
the breast and sides tinged with ferruginous: on  
each thigh is a large oval white patch, and the  
rump or region round the tail is black: the ears  
are long, rather broad, and sharp-pointed. On  
each side the nose is a tuft of short soft hair, ex-  
clusive of the long vibrissæ or whiskers. The legs  
are long; the claws long, strait, sharp, and black:  
they are four in number on the fore feet, and  
three on the hind. The tail is extremely short, as  
in the *Aguti*, being a mere naked stump or process.  
This animal is said to be an excellent article of food,  
the flesh being very white and delicate. It is  
called by Sir John Narborough, who seems to have  
been its first discoverer, by the title of a Hare.



PATAGONIAN CAVY from *Levan Museum*