Genus ARCTOMYS.

ARCTOMYS *flaviventer*. Yellow-bellied Marmot.

A. Corpore supra flaveo-subalbicante et nigro; capitis apice maximum in partem nigro; corpore subtus flaveo-aureo; baccis flavis, quoad nasi orbiculum, mento et labiis albis; pedibus fuscis; caudâ ex atro-fuscâ: pilis omnibus ex fusco-flavo marginatis.

Yellow-bellied Marmot.—Upper parts, grizzled yellowish white and black; crown of the head chiefly black; under parts, deep yellow; sides of the muzzle, yellow; point of the nose, lips and chin, white; feet, brownish-yellow; tail, deep blackish-brown, all the hairs tipt with brownish yellow.

The fur on the back is greyish-black at the base; on each hair a considerable space is occupied by dirty yellowish-white, which is gradually shaded towards the apex through brown into black; tips of the hairs yellowish-white; hairs of the belly, greyish-black at the base; hairs of feet, many of them blackish at base; cheeks, grizzled black and white; the former color prevailing; a rusty brown patch on the throat, borders the white hairs of the chin; whiskers moderately black; feet entirely naked beneath.

This species is closely allied to the ARCTOMYS *empetra*, which exists in the northern part of our continent; but the feet are yellow instead of black, as in that animal; the belly is yellow instead of deep rusty-red; and the coloring of the hairs on the back consists of yellowish-white and black instead of rusty-brown, black and white. The head

is narrower, the toes are smaller, and claws only half the length of the ARCTOMYS *empetra*.

Dimensions.

	Inches.	lines.
From point of nose to root of tail,	16	0
Tail to end of fur,	6	10
Heel to point of nail,	2	6½
Height of ear, posteriorly,	0	6½
Point of nose to ear,	3	0

We detected this specimen in the collection brought by the late David Douglass, and by permission of the Zoological Society of London were enabled to describe it. It was brought from the mountains between Texas and California, and is marked in their printed catalogue of 1839, ARCTOMYS *flaviventer*. No. 459, Bachman's MSS.

Genus SCIURUS.

SCIURUS *lanigerus*. Woolly Squirrel.

S. Pilis longis et lanosis; caudâ villosa vixque disticha; naso, auriculis et pedibus pene nigris; vellere supra ex cinereo-fusco subalbicante; subtus, ex albo fusco.

Woolly Squirrel.—Hair long and woolly; tail, large and bushy, scarcely distichous; nose, ears and feet, nearly black; upper surface, grizzled dark grey and brown; under parts, pale brown.

Form. In size, this species is a little less than the Fox Squirrel, (SCIURUS *capistratus*.) The ears, in the two specimens which are before us are de-

cumbent at the ends, as if the animal, in a living state, did not carry them erect, as is the case with the squirrels generally; head short, ears large, thickly clothed on both surfaces with short hairs; feet and toes hairy to the extremity of the nails.

Color. The incisors are dark orange on the outer surface. The whole head, both on the upper and lower surface extending to the neck—the ears, a spot behind the auricle, fore legs to the shoulders, and hind feet to above the heel, black, with a few greyish-brown hairs intermixed. The long fur on the back is, for half the length, light plumbeous, then a line of light brown, and tipt with white and black. The hairs on the tail, in which the annulations are very obscure, are, for one-third of their length, brownish-black, then light-brown, then brownish-black, and tipt with ashy white. On the under surface, the hairs, which are short, are at the base light plumbeous, tipt with light brown and black; the throat is light greyish-brown.

The two specimens, which in other respects were very similar, differ a little in the color of the head; one being lighter colored, the head being dark greyish-brown.

Dimensions.

	Inches.	lines.
Length of head and body,	11	11
" tail, to end of hair,	11	0
Height of ear posteriorly, including fur,	0	8
From heel to end of middle claw,	2	6

The specimens were obtained from the northern

parts of California; and, from their long, woolly hair, have an appearance of coming from a cold, mountainous region.

SCIURUS *mustelinus*. Weasel Squirrel.

S. Cervice longissima; caudâ corpore longiore; pilis curtis, rigidis, compressis, teretibus; omni corporis parte nigerrima.

Neck very long; tail longer than the body; hair short, rigid, adpressed, glossy; the whole body jet black.

Form. The usual long neck of this species, together with its long and slender body, and smooth, lustrous hair, give it the appearance of some species of weasel, which has suggested to us the specific name. The ears, which are of moderate size, are nearly naked, there being only a few hairs on the borders; feet covered with very short hairs, which only reach to the roots of the nails. The tail, which is long, but not bushy, is moderately distichous.

Color. The hairs, in every part of the body, are from the roots to the extremities, of an intense glossy black.

Dimensions.

	Inches.	lines.
Length of head and body,	10	0
" tail,	13	0
" from shoulder to point of nose,	3	10
" Tarsus,	2	5
Height of ear posteriorly,	0	6

The specimen was received from California, and

has the appearance, from its thin covering of hair, nearly destitute of the soft fur usually found in the squirrel, of being a native of a warm climate.

Remarks.

This species differs widely from all the other varieties and species of Black Squirrel in our country; it has shorter and coarser hair than S. *capistratus*, and is destitute of the white nose and ears of S. *niger*, with none of the white tufts invariably found in the latter species; and has also a smaller body, although a much longer tail, than S. *Audubonii*, with none of the white, yellow and brown annulations in the hair, which characterise that species.

SCIURUS *ferruginiventris*. Rust-bellied Squirrel.

S. Vellere supra ex albo-cinereo vario, subtus rufo; armis fuscis.

Rust-bellied Squirrel. Light-grey above, reddish-brown on the shoulders; beneath, bright rufous.

Form. This species, which is a little smaller than the Carolina Grey Squirrel, possesses great symmetry of form, and in shape resembles the latter species. The ears on both surfaces are thinly clothed with hair; tail longer than the body.

Color. Teeth yellow; nails brown; point of nose and whiskers, black; ears, on the outer edges, tinged with brown; within, grey; behind the ears, on the neck, a line of soiled white. On the upper surface, the head, neck, back and tail are light grey, formed by hairs which are light plumbeous, from the roots to near the tips, where they have white

and black annulations; from the outer surface of the fore legs, there is a reddish brown wash, which extends over the shoulders, and nearly meets on the back, gradually fading into the colors of the back and neck. The hairs of the tail are black at the roots, then yellowish, then a broad line of black tipt with white. The feet, on the upper surface are grizzled with white and black. The sides of the face and chin are light gray. The whole of the remainder of the under surface of the body, including a line around the eyes, the throat and inner surface of the legs, is of an uniform bright rufous color.

Dimensions.

	Inches.	lines.
Length of the head and body,	8	10
" tail,	10	0
Height of ear, posteriorly,	0	5
Length of tarsus,	2	5

Habitat. California.

SCIURUS *leporinus.* Hare-like Squirrel.

S. Caudâ crassâ maximeque distichâ; vellere supra ex cinereo-fusco; subtus albo.

Tail broad, and very distichous; dark grayish-brown above, white beneath.

Form. Intermediate in size between S. *cinereus* and S. *leucotis*; ears moderate, thinly covered with very short hairs on both surfaces; tail longer than the body.

Color. Teeth orange; whiskers black; nose,

dark brown; ears, light brown. Above the ears, a tuft of soft, cottony-like fur. The hairs on the back, which are short, are cinereous at the roots, then light brown, tipt with brown and black, giving it so much the color of the English Hare, that we concluded to borrow from it our specific name. On the sides, the color is a shade lighter than on the back. The tail, which from the broad white tips of the hair has a white appearance, is brown at the roots, and three times annulated with black. The upper lips, chin, neck and whole under-surface, including the inner surface of the legs, white; the hair being of this color from the roots; feet, a soiled yellowish white. On the outer surface of the hind leg, above the heel, a small portion of the fur is brown. There is also a spot of the same color on the upper surface of the hind foot.

Dimensions.

	Inches.	lines.
Length of the head and body,	11	11
" tail,	12	6
Height of ear,	0	9
Heel, to end of middle claw,	2	9
Breadth of tail, with hairs extended,	5	6

This species, in its general appearance, so much resembles some varieties of the S. *cinereus* and S. *leucotis*, that, had it not been for its distant western locality, we should at first have been tempted to set it down, without further examination, as one or other of those species. There can, however, be no

doubt, from its differing in so many details of color, of its being distinct from either.

Habitat. Northern parts of California.

SCIURUS *mollipilosus.* Soft-haired Squirrel.

S. Caudâ corpore curtiore ; dorso fusco ; lateribus et colli partibus rufis ; abdomine cinereo.

Soft-haired Squirrel. Tail shorter than the body ; back, dark brown ; sides of the neck and flanks rufous ; under surface, cinereous.

Form. This species is a little larger than SCIURUS *Hudsonicus*, with which we have compared it ; its legs especially are considerably longer and more robust ; the fur is much softer, the hair longer and less glossy than that of the former species.

Color. The teeth are yellow ; the upper parts, including the nose, ears and outer surface of the legs and upper surface of the tail, are dark brown. This color is formed by the hairs being plumbeous at the roots, tipt with light brown and black. On the sides of the neck, the shoulder and near the thighs, the color is reddish brown. The tail, which is not very distichous, is brown, twice annulated with black ; a few of the hairs are tipt with grey. On the under surface, the lips, cheeks and chin are greyish-brown ; the inner surface of the fore legs, the throat and abdomen cinereous, lightly tinged in some places with rufous.

This species differs so widely in all its details, from S. *Hudsonicus*, that it is scarcely necessary to point out their distinctive marks of difference. The space occupied by the lighter colors on the under

surface is much narrower than in the former species, nor is there, as in that species, any black line of separation between the colors of the back and under surface.

	Inches.	lines.
Length of body,	8	6
" tail to end of hair,	7	0
Height of ear,	0	5
Tarsus,	2	1

Habitat. Northern parts of California.

Sciurus *occidentalis.* Western Squirrel.

S. Vellere longo ac molli; auriculis aretis; caudâ corpore longiore; capite, fasciâ dorsali et caudâ nigris; lateribus furvis; abdomine fusco.

Western Squirrel. Fur long and soft; ears narrow; tail longer than the body; head, dorsal line and tail, black; beneath, dark rusty brown.

In size, this species is a little larger than the Northern Grey Squirrel, (S. *leucotis*,) and may be compared with the black variety of that species. The ears, which are elliptical in shape and narrower than in most of our species, are thickly clothed with soft, fine hair on both surfaces. The tail is very long, and, instead of being distichous, as in most of the species, is in the prepared specimen perfectly round. The feet are clothed with hair, partially concealing the nails. The hair is longer, more diffuse, but not softer than that of S. *leucotis*.

Color. The head, ears, upper surface of the legs, tail and a broad dorsal line, black. On the sides,

the hair is plumbeous at the roots, then a line of brown slightly tipped with black. On the under surface, this species is dark brownish-black, from the lips to nearly the extent of the jaws. On the throat, inner surface of the legs, and whole under parts of the body, there is a mixture of black and brown fur, giving it a dark, rusty-brown color. There are no annulations in the hairs of the tail.

Dimensions.

	Inches.	lines.
Length of head and body,	11	0
" tail to the end of hair,	14	0
Height of ear,	0	8
Heel to end of nail,	2	9

When old father Linnæus comprehended the whole of his description of an American Squirrel in the single word *niger*, he was not aware of the number of species of Black squirrels which were yet to be detected in our western world, and the difficulty his successors would find in identifying the species to which he referred; for there are now no less than eight North American squirrels which are either permanently, or in some of their varieties, black.

The present cannot, however, be identified with any of our known species. It approaches nearest to the black variety of the Northern Grey Squirrel, but is sufficiently distinct from that to entitle it to another name. The species inhabiting the Atlantic states have, moreover, never been found west of the Rocky Mountains, nor, indeed, has any but the Fox

squirrel (S. *capistratus*) been observed to the west of the Mississippi River.

Genus SPERMOPHILUS.

SPERMOPHILUS *annulatus*. Annulated Marmot-Squirrel.

S. Super cervinus, pilis nigris interspersis, subtus albido. Caudâ corpore longiore, annulis 17—20 nigris.

Annulated Marmot-Squirrel. Reddish brown above, speckled with black, white beneath. Tail, which is longer than the body, annulated with from 17 to 20 black bands.

Description. In size, this species is scarcely larger than the Hudson's Bay Squirrel, (S. *Hudsonicus.*) In the shape of the head it resembles SPERMOPHILUS *Parryi.* The ears, however, are much shorter, being scarcely visible above its short coat of rather coarse adpressed hairs. They are thickly covered with hair on both surfaces. The nose is sharp; whiskers, which are numerous, the length of the head. The eyes, which are of moderate size, are situated on the sides of the head. The os frontis is rounded between the orbits, as in S. *Franklinii.* The cheek pouches are pretty large, and open into the mouth immediately anterior to the grinders. The body is more slender than the SPERMOPHILES in general, and in this and several other peculiarities which will be mentioned, this species approaches the Genus SCIURUS. On the fore-foot a sharp conical nail is inserted on the tubercle, which represents the thumb. There are

four toes, covered to the extremities of the nails with a close smooth coat of hair. The first and the fourth toe are of equal length. The second and third, which are longest, are also uniform in length. The nails are short, crooked, and sharp, like those of the Squirrels, and not like the Marmots and SPERMOPHILI in general, which are long, slender, and but slightly curved. The legs are long and slender. The hair on the back is rather short, and lies close and smooth. The short fur, which lies concealed beneath this coarser hair, is rather sparingly distributed. On the under surface the hairs are longer, and so thinly and loosely scattered as to leave the skin visible in many places, especially on the abdomen and inner surface of the thighs. The hind feet, which are thickly covered with short smooth hairs, have five toes. The soles, as well as palms, are naked. The tail, by its great length and singular markings, presents a distinguishing peculiarity in this species. It is flattened, and the hairs admit of a distichous arrangement, but the tail is narrower and less bushy than those of the Squirrels.

Color. The incisors are deep orange. Nails brown; whiskers black. Nose and sides of the face chesnut brown. There is a line of soiled white above and around the eyes. The hairs on the upper surface are yellowish brown at the roots: barred about the middle with black, then another line of yellowish brown, and tipt with black, giving it a dark greyish-brown, and in some lights, a speckled appearance. These small spots are, how-

ever, no where well defined. The upper surface of the feet and legs is yellowish brown. On the under parts, the chin, throat, the belly and inner surface of the legs and thighs are white. The tail is annulated with about nineteen black, and the same number of cream-colored bands, giving it a very conspicuous appearance. These annulations commence about three inches from the root of the tail, and continue to be well defined till near the extremity, where the colors become more blended, and the annulations are scarcely visible. On the under surface the tail is pale reddish-brown, irregularly and not very distinctly barred with black.

Dimensions.

	Inches.	lines.
Length, from point of nose to root of tail,	8	2
" tail vertebræ,	8	0
" " to end of hair,	9	4
From heel to end of middle hind claw,	1	10
Height of ear posteriorly,	0	1½
Length of longest fore claw,	0	2
Length of longest hind claw,	0	2½

General Remarks.

In every department of natural history a species is occasionally found which forms the connecting link between two genera, rendering it doubtful under which genus it should properly be arranged. Under such circumstances, the naturalist is obliged to ascertain, by careful examination, the various

predominating characteristics, and finally, place it under the genus to which it bears the closest affinity in all its details.

SPERMOPHILUS was proposed by F. Cuvier as a subgenus to ARCTOMYS. Although it has been generally adopted by naturalists, we regard it as sufficiently characteristic to form a genus, under which we may safely arrange a large group of animals whose residence is among the prairies of the west, the deserts of Africa, and the mountainous regions of Europe and Asia, where the various species either dig burrows in the ground, or are sheltered among the rocks, thus rendering the protection of the forest unnecessary to them. The Souslik (CITILLUS) of the north of Germany and Europe, and the CITILLUS *leptodactylis*, and C. *mugosaricus* of Bucharia, recently described by Prof. Lichtenstein, of Berlin, and a considerable number of American species, will render this a large and interesting genus. The SPERMOPHILI are intermediate in character between the Squirrels and Marmots. They have the lightness of form of the former, and burrow in the ground like the latter. By their cheek pouches, of which the true Squirrels and Marmots are destitute, they are distinguished from both. The second inner toe on the fore-foot of the SPERMOPHILI is the longest, whilst in the Squirrel's the third toe is longest. But in these closely allied genera, there are species in each which approach those of another genus. Thus, our Maryland Marmot (A. *monax*) has a rudimentary cheek pouch in which a pea might be inserted, yet

in every other particular it is a true ARCTOMYS. The downy Squirrel, (SCIURUS *lanuginosus*,) (See Jour. Acad. Nat. Sci., vol. 8, part 1st, p. 67,) by its short ears, broad head, and not very distichous tail, approaches the SPERMOPHILI; yet by its being destitute of cheek pouches—by its soft downy fur, and its hooked and sharp claws, of which the third, as in the Squirrel's, is longest, it is more allied to SCIURUS. On the other hand, the species now under consideration has the long legs, slender form, and sharp hooked claws of the Squirrel. The two middle toes of the fore-foot being of equal length, prove its affinity to both genera. But in the general shape of its body, its cheek pouches, its short ears, and smooth rigid hair, it must be regarded as belonging to the genus SPERMOPHILUS. We consider this species and the downy Squirrel as connecting links between SCIURUS and SPERMOPHILUS; as we regard SCIURUS *Hudsonicus* the connecting link between TAMIAS and SCIURUS.

The specimen we have described was obtained on the western prairies; the locality was not particularly stated. It was politely presented to us by Mr. Spencer F. Baird, of Carlisle, Pennsylvania.

NOTE.—More extended descriptions and a fuller account of the species embraced in this Memoir, together with accurate lithographic illustrations, will be found in our work on the Quadrupeds of North America, now preparing for publication.