

**Article XXI. — MAMMALS COLLECTED IN ALASKA
AND NORTHERN BRITISH COLUMBIA BY THE
ANDREW J. STONE EXPEDITION OF 1902.**

By J. A. ALLEN.

The collection of mammals obtained by the Andrew J. Stone Expedition¹ of 1902 numbers nearly 1100 specimens, representing 43 species and subspecies, some of them by very large series; it includes about 50 head of large game, and a series of 31 skulls of the Kadiak Bear. In completeness, for the area principally worked, and in the quality of the material obtained, the results merit the highest praise. The field of operation was mainly in the Cassiar District of northern British Columbia, as shown by the following brief statement of the itinerary.

Mr. Stone left New York April 5, to outfit at Seattle, Washington. He left Seattle April 25, via Juneau, for Sand Point, Alaska, where he arrived May 12. From Sand Point an expedition was made to the Stevana flats, seventy-five miles inland, for the purpose of procuring specimens of the big brown bear (*Ursus merriami* of the Stone Expedition report for 1901²) discovered by him in 1901, and incidentally to obtain accessories for a group of the Grant Caribou, also discovered by him in 1901.³ While successful in this last particular, the month's hunt for bears proved futile, only three bears being seen and none obtained. The reason for this failure is thus stated in Mr. Stone's report on the season's work: "All the large bears of western Alaska are rapidly becoming exterminated. Most of the country inhabited by them is easy of access, and in many places the cover is very slight for such large animals. There is every evidence that they were once very plentiful on Stevana flats and in the mountains surrounding the flats. Well-worn, but old trails are numerous, and reports of large numbers being killed there

¹ For an account of the origin, maintenance, and proposed work of the Andrew J. Stone Expedition see this Bulletin, Vol. XVI, 1902, p. 125.

² See this Bulletin, Vol. XVI, 1902, pp. 141, 227.

³ *L. c.*, pp. 119-127.

some years previous are still current. A single hunter is reported to have killed forty-five animals in one season's hunt. But, as in many other places in the best game countries, it is this sort of thing that is making animal life scarce."

On his return from the North he reached Juneau on June 26, and arrived at Wrangel the following day. Here he found Mr. M. P. Anderson, his assistant, already at work collecting small mammals. The party left on July 8 for the headwaters of the Stickine River, in which general region collecting was carried on till October 23. The party then returned to the coast, and two weeks were spent on Kupreanof Island, collecting deer and small mammals.

Work in the interior was begun at Telegraph (village), July 10, and continued there until August 18, with a side trip into the Cheonnee Mountains, to the south of Telegraph Creek, and others to the 'Summit,' twelve miles north of Telegraph. The country about Telegraph is described by Mr. Anderson, in his MS. report, as broken, the river, below the village, flowing between terraced hills, which gradually rise toward the mountains. "The terraces, sometimes three in number, are composed of drift, and are broken and irregular. Above the village the walls of the river become more precipitous, and there are frequent basaltic cliffs, with taluses sloping to the water's edge. Back of the village, on each side of the creek, rise cliffs with talus piles, and above these other terraces, level bottoms, and flat-topped hills. Wherever rock appears in place it is lava." The timber consists of 'black pine,' a spruce, two species of juniper, growing in low patches on the dry hillsides, poplars and a few birches. Raspberries were abundant everywhere, sabis berries on the hillsides, and gooseberries, strawberries and currants were more or less plentiful in suitable places.

No attempt was made here to collect large mammals, but about 650 small mammals were obtained during the stay at Telegraph Creek, including those taken on the side trips to the Cheonnee Mountains and the 'Summit,' at the head of Telegraph Creek.

Mr. Stone, with his three assistants, and four animals carry-

ing the camp outfit and supplies, left Telegraph Creek August 16, reaching Shesley, a Government telegraph station, on the headwaters of Shesley River, forty-five miles distant, on the 19th. A part of the supplies were left here and a trip made into the Shesley Mountains, for large game. Four Mountain Goats were killed *en route*, but fell into inaccessible places and were lost. "On the afternoon of August 22," continues Mr. Stone in his MS. report, "camp was pitched among some low balsams, just at the upper edge of timber-line, after having travelled a swampy mountain plain all day. Confronting us in every direction were very rugged mountains, cut by deep cañons. To secure goats and sheep was the special object of this hunt, but after the first three sheep were taken I decided that the coat was yet too short for mountable specimens, and did not try for any more. Four splendid specimens of goats were secured, one Black Bear and a Grizzly mother and her cub." Also about 140 small mammals were taken on the Shesley trip.

The camp at the head of Shesley River is described by Mr. Anderson as "situated at timber-line on the side of a mountain, which, rising above us, formed a plateau barren of vegetation, except for a few lichens and here and there a little bunch grass. The side where we were camped, however, had considerable grass where there were depressions that gathered moisture or where little streams ran. Below us on the side away from the plateau ran a considerable glacier stream in a deep cañon. Between the plateau and the high snow-covered mountains from which this stream ran, there was a broad valley through which flowed another glacier stream to join the first. The valley was broken into innumerable hills and knolls, among which were small lakes. The timber here consisted of scrubby balsam fir, with here and there a pine. Willows and other shrubs were abundant in the broad valley, but the ground was largely covered with mosses and lichens, and bunch grass grew in the dry places."

The party later returned to Shesley, and on September 6 started for Level Mountain, some fifty miles further on, and about one hundred miles southeast of Telegraph Creek. At

Level Mountain 5 Moose, including an adult female with twin calves, 9 Caribou, and 1 Red Fox, and about 100 small mammals were secured. On the return trip Telegraph Creek was reached September 27. From this point a trip was made to Iskoot Summit, distant about forty-five miles, for the purpose of making a collection of the Stone Sheep, first discovered by Mr. Stone in the Cheonnee Mountains, in August, 1896. Six sheep were secured, consisting of two old females, a three-year-old ram and several lambs. A second trip was made to the Cheonnee Mountains during the third week of October, in the hope of securing some large rams, but the weather turning cold, with heavy snow-falls, the trip proved dangerous and unsuccessful.

The final departure from Telegraph Creek for Wrangel was made on the 23d of October, and later, as already stated, nearly two weeks were devoted to collecting on Kupreanof Island.

From the foregoing it will be seen that quite diverse localities were covered, as regards elevation and other conditions, so that a thoroughly representative collection was made in the region of the headwaters of the Stickine River, and from Wrangel and Kupreanof Islands. The species obtained are, arranged by localities, as follows:

Alaska Peninsula.

Phoca richardii pribilofensis.
Ursus middendorffi.
Gulo luscus.

Wrangel and Kupreanof Islands.

Odocoileus columbianus sitkensis.
Sciurus hudsonicus vancouverensis.
Citellus stonei, sp. nov.
Peromyscus sitkensis.
Evotomys wrangeli.
Microtus macrurus.
Ursus sitkensis.
Sorex personatus streatori.
 " *longicauda.*

Telegraph Creek Region.

Rangifer osborni.
Paralces gigas.
Ovis stonei.
Oreamnos montanus.
Sciurus hudsonicus baileyi.
Eutamias caniceps.
Citellus erythrogluteus.
Marmotta caligata.
Mus musculus.
Peromyscus arcticus.
 " *oreas.*
Neotoma cinerea saxamans.
Evotomys dawsoni.
Microtus mordax vellerosus.
 " *drummondi.*

*Telegraph Creek Region.**(Continued.)**Fiber spatulatus.**Phenacomys constablei.**Synaptomys andersoni*, sp. nov.*Lemmus helvolus.**Zapus saltator.**Erethizon epizanthus nigrescens*,
subsp. nov.*Lepus saliens.**Canis occidentalis.**Vulpes alascensis abietorum.**Ursus horribilis.*" *americanus.**Putorius cicognanii richardsoni.*" *microtis*, sp. nov.*Sorex personatus.*" *obscurus.*" *palustris alaskanus.*

It will be seen from the above that none of the species or subspecies is common to both the Sitkan coast and the Telegraph Creek region.

In regard to the personnel of the Expedition, Mr. Stone had with him as field assistants Mr. Malcom P. Anderson, a student of Stanford University, who was engaged especially to take charge of the work of collecting small mammals; Mr. Belmore H. Browne, of Tacoma, Washington, as general field assistant; and Dennis, a Tahltan Indian, who did good service as a hunter and trapper. Mr. Stone speaks in the highest terms of their efficiency and faithfulness. While Mr. Stone is personally to be credited with the capture and preservation of the large game, he also assisted whenever possible in the small mammal collecting, with a view to securing as large and as varied a collection as possible. All the specimens were carefully measured in the flesh before skinning, and the measurements, especially in the case of the large series of small mammals, bear internal evidence of the care with which they were taken and recorded.

A type-written report of the season's work was submitted by both Mr. Stone and Mr. Anderson, the latter's relating especially to the small mammals and the character of the localities at which they were collected. These reports have been extensively drawn upon in the foregoing introduction, and many of Mr. Anderson's field notes will be found quoted in the following annotated list of the species.

The only special faunal paper bearing upon the mammals of the Telegraph Creek region is a short report on the collection made by Mr. Stone in 1897-98 (this Bulletin, Vol. XII, 1899,

pp. 1-9); but Mr. Wilfred H. Osgood's 'Results of a Biological Reconnaissance of the Yukon River Region' (N. Am. Fauna, No. 19, October, 1900, pp. 1-45) is of special interest in this connection, since he made collections in the Lynn Canal and White Pass districts, not far to the northwestward of Telegraph Creek, and from which he described a number of new species and subspecies represented in the present collections.

In this connection I wish to express my great indebtedness to Dr. A. K. Fisher, Acting Chief of the Biological Survey, U. S. Department of Agriculture, for the loan of topotypes of Mr. Osgood's species and other needed material for use in the preparation of the present paper.

1. *Rangifer osborni* Allen. OSBORN CARIBOU.

Rangifer osborni ALLEN, Bull. Am. Mus. Nat. Hist., XVI, 1902, 140. April 16, 1902. Cassiar Mountains, B. C.

Represented by a series of 9 fine specimens, skins and skulls, carefully prepared for mounting, consisting of 6 males and 3 females, taken on Level Mountain, September 14. The females and four of the males are fully adult, and measure in the flesh as follows: 4 males, total length, 2112 (2048-2211); tail, 191 (178-203); hind foot, 619 (597-635); height at shoulders, 1400 (1334-1499). The 3 females: Total length, 1545 (1473-1651); tail, 174 (165-178); hind foot, 571 (559-600); height at shoulders, 1051 (967-1119).

The general color above is blackish brown, or dark clove brown, the dark color of the back extending to the base of the tail; chest, flanks, and front of legs black; belly white; neck dingy brownish gray, with a white median band in front from the throat to the chest, well developed in some of the specimens and rather indistinct in others; head and face blackish brown, like the back. The antlers in the older males are strikingly large and fine, nearly equalling in size those of the Wapiti Deer.

2. *Paralces gigas* (Miller). ALASKA MOOSE.

Alces gigas MILLER, Proc. Biol. Soc. Wash., XIII, May 29, 1899, 57.
Tustumena Lake, Kenai Peninsula, Alaska.

Six specimens, collected as follows: An adult female, Shesley Mountains, August 24; an adult female and her twin calves, and two young adult males, Level Mountain, September 10-18, all carefully prepared for mounting.

These specimens are very dark colored, being nearly black and hence much darker than the eastern Moose from northern Maine and New Brunswick. The two young adult males have small antlers, but mature dentition, although the teeth are still unworn. The measurements of these specimens, taken in the flesh before skinning, are as follows:

Mus. No.	Sex.	Total length.	Tail vertebræ.	Hind foot.	Height at shoulder.
19802	♂	2540	178	825	1839
19803	♂	2540	178	825	1814
19798	♀	2540	203	775	1778
19799 ¹	♀	2375	191	787	1814
19801	♂ juv.	1698	102	641	1320
19800	♀ "	1651	102	635	1308

The skulls of the two females (adult but not old, the teeth being but very little worn) measure as follows: Total length, 587, 578; basal length, 560, 543; naso-occipital length, 353, 348; front border of premaxillæ to front end of nasals, 260, 250; length of nasals, 108, 102; zygomatic breadth, 191, 200; mastoid breadth, 141, 152; breadth at fronto-parietal suture (= postorbital constriction), 92, 89; length of upper tooth-row, 147, 142; length of lower jaw, 450, 457; height at condyle, 157, 146; height at coronoid, 215, 217; lower toothrow, 155, 150. The skull of a young male, with complete but unworn dentition, is intermediate in measurements between the two females, while another young male skull of practically the same age is slightly larger than the larger of the two females.

¹ Mother of Nos. 19800 and 19801, twins, about six months old.

These specimens are much larger than specimens of the eastern animal of corresponding age, and in their dark coloration resemble Kenai Peninsula specimens, to which they are provisionally referred.

3. ***Odocoileus columbianus sitkensis* Merriam.** SITKA DEER.

Odocoileus columbianus sitkensis MERRIAM, Proc. Biol. Soc. Wash., XII, 1898, 100, April 30, 1898. Sitka, Alaska.

Fourteen specimens, all in fine condition for mounting, collected on Kupreanof Island, southeastern Alaska, November 3-14. The series contains adults of both sexes, several young males, and a young-of-the-year female.

The type, from Sitka, Alaska, was an immature female, killed August 6, and had "patches of gray winter coat." As the present specimens, all killed during the first half of November, are in practically full winter coat, the following description, based on this material, is appended.

Adult Male (November).—General color, pale yellowish brown with a slight grayish cast, darker along the median line of the back and lighter on the flanks; the hairs individually are basally light ash gray, broadly ringed near the tip with blackish and strongly tipped with deep buff; nose with a broad terminal band of black, laterally not quite reaching the lips; face whitish gray as far back laterally as the eyes, which are nearly enclosed in this light area, behind which is a broad V-shaped band of black, beginning anteriorly considerably in front of the plane of the eyes, and extending backward about midway between the posterior border of the eyes and the base of the horns, and blending on top of the head with a blackish area varied with rusty brown (deepening in some specimens to chestnut); cheeks pale buffy gray; neck all round and chest like back; chin white, followed by a band of pale yellowish brown; a patch of black on either side of the lower jaw about midway between the tip of the chin and the angle of the mouth, varying in extent and sharpness in different specimens; throat and upper part of neck in front white, followed by a broad band of brown, and this again by an indistinct half-collar of grayish white; pectoral region darker than the back, in some specimens quite blackish; axillary region and inside of fore legs white, the white on the legs becoming buffy white distally; outside of upper part of fore legs like the flanks, the legs becoming paler and yellower distally, passing into ochraceous on the feet; middle of belly, inguinal region

and inside of hind legs white, the white on the legs decreasing in width distally and terminating a little below the tarsal joint; outside of hind legs proximally like the body, becoming ochraceous brown below the tarsal joint and deepening in color distally to deep ochraceous on the feet; tarsal gland dark rusty brown or dull chestnut, usually with a blackish tinge; ears externally gray, passing into pale buff basally, and white internally, with a slight fringe of buff; tail above at base like the rump, passing gradually into black, which occupies from about one-half to two-thirds its length; lower side of tail white, the white also forming a terminal fringe visible from above. Antlers dark reddish brown; they are small, but very symmetrical and handsome in the old males.

The foregoing is based on a middle-aged male in prime condition, but the coloration in the series of fourteen specimens, including females and young males, is so uniform that the variations are hardly worth noting, and are fairly covered by the qualifications above expressed. They relate mainly to the distinctness of the black face and chin marks, the extent of the black area on the tail, the intensity of the fulvous tints on the legs, and the dusky shading on the pectoral area, which is sometimes quite blackish. In the adult males there is also very little variation in size, either in external measurements or in the skulls, as shown by the following:

External measurements of 3 adult males: Total length, 1508 (1500-1524); tail vertebræ, 127 (127-127); hind foot, 436 (432-438); height at shoulders, 902 (889-908). A fourth adult male measures slightly smaller. The two adult females are much smaller, except that the tail is much longer, as follows, respectively: Total length, 1321, 1283; tail vertebræ, 165, 165; hind foot, 406, 406; height at shoulders, 835, 762. The ear from the notch, as well as can be determined from the skins, varies from about 115 to 125.

Skull measurements of 3 adult males: Total length, 266 (265, 266, 266); basal length, 254 (253, 254, 255); naso-occipital length, 215 (211, 216, 218); front border of premaxillæ to front end of nasals, 64 (65, 65, 63); length of nasals, 77.3 (73, 76, 83); zygomatic breadth, 112 (112, 112, 112); breadth of braincase at fronto-parietal suture (= post-orbital constriction), 73 (74, 73, 72); mastoid breadth, 97 (95, [October, 1903.]

100, 95); length of upper toothrow, 69 (68, 69, 69); length of lower jaw, 202 (198, 201, 208); height at condyles, 75 (75, 75, 75); height at coronoid process, 109 (110, 110, 107); length of lower toothrow, 72 (72, 72, 72); antlers: length of main beam, following external curvature, 336 (285, 352, 370); distance between points of main beam, 303 (260, 320, 330); across point of greatest convexity of main beams, outside to outside, 393 (387, 385, 408). The specimen with the smallest antlers is the oldest of the three, or at least has the teeth most worn.

4. *Ovis stonei* Allen. STONE SHEEP.

Ovis stonei ALLEN, Bull. Am. Mus. Nat. Hist., IX, 1897, 111. April 8, 1897. Head of Stickine River, B. C.

Ovis canadensis liardensis LYDEKKER, Wild Oxen, Sheep, and Goats, 1898, 215, fig. 41. Liard River, lat. 59° N.

Nine specimens, collected as follows: Shesley Mountains, 3, August 24; Iskoot Summit, 6, October 4-10. They are mostly young adults, but include one quite young lamb, three old females, and a three-year-old male. The flesh measurements of the three adult females are: Total length, 1359 (1321-1410); tail vertebræ, 110 (102-114); hind foot, 385 (381-393); height at shoulders, 879 (864-896). The three-year-old male: Total length, 1283; tail vertebræ, 127; hind foot, 406; height at shoulders, 902. A female lamb in the soft first pelage: Total length, 759; tail vertebræ, 76; hind foot, 279; height at shoulders, 559. The largest of these three females is very old, with worn-out teeth; the others are fully adult.

The August specimens are in much shorter coat and lighter in coloration than those killed in October. The lightest colored specimens are dingy gray-brown finely varied with black hairs. The three-year-old ram is almost black—the darkest specimen I have yet seen—the general color being sooty or brownish black, — nearly black across the shoulders, sides of the shoulders, flanks, and front of the legs. A narrow black stripe runs from the dark area of the back to the tail, dividing the white rump patch into two halves. This feature

is seen in four other specimens, but in the four remaining specimens the black stripe is broken by the rump patch.

The young lamb in first pelage has the coat very fine and soft, of a dull drab gray, with a pale rusty tinge over the shoulders; legs darker; tail stripe continued on to the back.

5. *Oreamnos montanus* (Ord). MOUNTAIN GOAT.

Four specimens, Shesley Mountains, August 24-28. All are males, three of them being old adults and the other about half grown. They are in poor coat, and the color is soiled white, quite different from the clear white of winter pelage. Following are the measurements of the three adult males: Total length, 1625 (1549-1676); tail vertebræ, 191 (178-203); hind foot, 356 (343-368); height at shoulders, 971 (929-992). The smallest specimen of the three (represented by the minimum measurements in the parentheses) is perhaps not fully adult.

Sciuropterus. FLYING SQUIRRELS.

Mr. Anderson says: "Flying Squirrels were reported as occurring at the Indian village of Tahltan, twelve miles up the river from Telegraph, but we were unable to secure specimens."

6. *Sciurus (Tamiasciurus) hudsonicus vancouverensis* Allen. VANCOUVER CHICKAREE.

Sciurus hudsonicus vancouverensis ALLEN, Bull. Am. Mus. Nat. Hist., III, 1890-91, 165. Nov. 14, 1890. Duncans, Vancouver Island, B. C.

A single specimen, in summer pelage, was collected at Wrangel, Alaska, June 29, and 14 others, nearly in full winter pelage, were taken on Kupreanof Island, near Wrangel, November 5-15.

In the November series the ventral surface in many of the specimens is dark gray, the hairs being plumbeous at the base, then whitish banded near the tip with black, this being the coloration of the winter dress; but many of the specimens still

show a more or less strong fulvous wash on the lower parts, especially over the pectoral and axillary regions, due to portions of the summer coat still remaining, the moult into winter dress not having been completed.

The 14 November specimens from Kupreanof Island measure as follows: 8 males, total length, 312 (291-325); tail vertebræ, 122 (104-134); hind foot, 51 (49-52); ear, 24 (23-26); 6 females, total length, 309.5 (296-321); tail vertebræ, 122 (115-127); hind foot, 50 (49-51); ear, 23 (22-24).

These specimens appear to be distinctly referable to *van-couverensis*, hardly differing in size or color from Vancouver Island examples.

7. ***Sciurus (Tamiasciurus) hudsonicus baileyi* Allen.** BAILEY
CHICKAREE.

Sciurus hudsonicus baileyi ALLEN, Bull. Am. Mus. Nat. Hist., X, 1898, 261. July 22, 1898. Bighorn Mountains, Wyoming; altitude, 8400 feet.

Represented by 47 specimens taken at Telegraph Creek, July 15 to August 15; 2 taken at the head of Shesley River, September 1 and 6; 6 taken on Level Mountain, September 13-19; and 2 on Raspberry Creek, Oct. 5 and 8; making a total of 57 specimens. Greatly to my surprise, they appear to be referable to *S. h. baileyi*, from Alberta specimens of which they do not very appreciably differ. They are hence quite different from *S. h. petulans* Osgood, of which I have several topotypes for comparison, being much paler and grayer in post-breeding pelage, with the tail fringed with yellowish white instead of deep yellow as in *petulans*.

In this large series of specimens, practically all in summer pelage, there are several that depart greatly in coloration from the average or normal phase, an adult male (No. 19874) from Telegraph Creek, August 5, being as red, and of nearly the same shade of red, as average August specimens of *S. h. loquax* taken in New York or New Jersey; while a young male (No. 19868), taken July 30, at the same locality, is also easily matched by specimens of corresponding age from New York.

These are pale yellowish red instead of olivaceous gray, varied slightly with brownish red, which is the average color of the summer pelage in the Telegraph Creek series.

Fully adult specimens (young of the year being excluded) measure as follows: 16 males, total length, 319 (311-325); tail vertebræ, 128 (120-138); hind foot, 50 (48-51); ear, 25 (23.5-26.5): 8 females, total length, 319 (306-324); tail vertebræ, 124.6 (110-135); hind foot, 49.2 (49-50); ear, 24.6 (23-26).

Mr. Anderson says this squirrel was "abundant among the pines, where it could frequently be seen feeding upon the pine nuts or carrying cones to its burrow beneath some tree."

8. *Eutamias caniceps* Osgood. GRAY-HEADED CHIPMUNK.

Eutamias caniceps OSGOOD, N. Am. Fauna, No. 19, Oct. 6, 1900, 28. Lake Lebarge, Northwest Territory, Canada.

This chipmunk is represented by 41 specimens, all taken at Telegraph Creek, July 13-September 15, except 2 from Level Mountain, September 10, and 1 from Raspberry Creek, October 5. Of these 41 specimens 24 are males and 17 females, of which latter only two give evidence of having recently nursed young. Of the whole series not more than six or eight can be considered as adult, by far the larger part not having fully acquired their permanent premolars. None of the males exceed a total length of 206 mm., the greater part falling between 195 and 200, with the tail vertebræ ranging from 86 to 92 mm., the hind foot 32, and the ear 15 mm. The two breeding females measure respectively: Total length, 205 and 215; tail vertebræ, 90 and 97; hind foot, 32 and 34; ear, 15.5 and 17. Several other females, though evidently not fully adult, range in total length from 211 to 213 mm.

This chipmunk, recently described by Mr. Osgood from Lake Lebarge, N. W. T. (N. Am. Fauna, No. 19, Oct., 1900, p. 28), is quite different in coloration from *Eutamias borealis*, being much grayer, with the central area of the tail below much paler. A comparison of several topotypes of *caniceps* with Telegraph Creek specimens shows that the latter are

indistinguishable from *caniceps*. Osgood found it ranging northward from Lake Lindeman to Fort Selkirk; to the southward and eastward it is abundant in the Telegraph Creek region, where Mr. Stone first obtained several immature specimens in the summer of 1897.

Mr. Anderson says: "The little chipmunk, of which a considerable number was secured near Telegraph Creek, was most always to be found about the talus piles and other rocky places, where it feeds upon the seeds of the sabis berry and a small red berry which grows on a little plant close to the ground in dry places." At the head of the Shesley River no specimens were taken, but several were observed in the deep cañon. The two specimens taken on Level Mountain "were the only ones seen there."

9. *Citellus erythrogluteius* (Richardson). RED-THIGHED
GROUND SQUIRREL.

Arctomys parryi, var. *B. erythrogluteia* RICHARDSON, Faun. Bor.-Amer., I, 1839, 161. Head of Elk River, Rocky Mountains, Lat. 57° N.

Mr. Anderson states that no spermophiles are found in the immediate vicinity of Telegraph village, but a series of 43 was taken on two trips made to Summit, at the head of Telegraph Creek (twelve miles north of Telegraph) July 31 (21 specimens) and August 9 (22 specimens). Another series of 16 specimens was taken on the headwaters of Shesley River, August 23–September 2, where "their burrows could be seen everywhere, but most commonly on hillsides and in little valleys where the earth was soft and not too moist." Both series consist mainly of young-of-the-year, and together show the changes of pelage with season in both the adult and young.

Breeding females in worn pelage, taken July 31, have the general color above gray, washed slightly with brownish over the median area of the back, and mottled with small squarish whitish spots; the whole top of the head, as far back as the posterior border of the ears, dull chestnut brown, brighter and more chestnut anteriorly; cheeks, from below the eyes posteriorly to a little behind the ears, pale yellowish brown;

fore limbs, sides of the shoulders, sides of body and ventral surface grayish white with a faint yellowish tinge, with a tendency to yellowish rust-color on the chest and mid-line of the ventral surface, in part due apparently to the coming in of the new fall coat; tail above gray, broadly fringed with yellowish white, and with a broad subapical bar of black; below, the central area is dull chestnut brown, fringed and tipped as above; upper surface of fore and hind feet pale yellowish gray.

Young specimens, one-fourth to one-half grown, taken at the same place and date, are strikingly like the above-described females, except that the pelage is finer and more woolly; the dorsal area is a little darker or more dusky, with no rufous tinge; the sides of the neck, shoulders, and fore limbs are washed with pale buff; the ventral surface is almost wholly dusky gray, the hairs being for the most part dusky plumbeous, lightly tipped with soiled whitish; tail and feet as in the adults; top of head and nose similar in respect to the extent of the brown area, but the colors are paler.

In the series taken at the same locality August 9 (ten days later) the pelage is much fuller and the colors are much brighter, and the average size of the young-of-the-year has greatly increased. Some of the old males appear to have nearly acquired the full post-breeding dress, at least as regards coloration, though the pelage would still doubtless have appreciably increased in length and fulness. The ground color of the whole dorsal area is now dark iron-gray, or dusky gray, prominently blotched with small squarish spots of white, the hairs individually being dusky at base, centrally ringed with ashy, subapically with black, and tipped with whitish, with which are interspersed many longer wholly black hairs. The top of the nose, as far back as the middle of the eyes, is a bright rusty chestnut; the sides of the neck, shoulders, forearms and thighs and the whole ventral surface extending well up on the sides, are deep rusty ochraceous; the upper surface of the fore and hind feet is deep ochraceous, and the central area of the lower surface of the tail is a much deeper, richer chestnut brown than in the breeding specimens. The larger

of the young-of-the-year specimens are from two-thirds to practically full grown, and differ scarcely at all from the post-breeding pelage of the adults, except that perhaps the sides and the ventral surface are a little paler.

The contrast between these two series, taken only ten days apart, at the same locality, is surprisingly marked, especially when the most advanced adults and largest young-of-the-year of the last set are contrasted with the breeding females and half-grown young of the first set.

The series taken at the head of the Shesley River, two to three weeks later, are quite similar to the more advanced of the August 9 series from Summit, at the head of Telegraph Creek. All of the Shesley River specimens, however, have acquired the winter pelage, while many of the August 9 specimens are still in change, and some are still almost wholly in the worn, faded, breeding pelage.

Most of the 59 specimens in the present collection are young-of-the-year; 11 of the females, however, give evidence of having suckled young; and 7 of the males are obviously adult. The 18 unquestionably adults measure as follows: 7 males, total length, 334 (318-349); tail vertebræ, 86 (75-92); hind foot, 52 (47-56); ear, 11.4 (11-12): 11 females, total length, 324 (308-339); tail vertebræ, 86 (78-100); hind foot, 50.4 (48-54); ear, 11.5 (9-13).

In size and proportions this species closely resembles *Citellus columbianus*, which it also more nearly resembles in general coloration than it does most members of the *parryi* group. It is, however, less strongly colored throughout, and has the central area of the lower surface of the tail rufous instead of gray; besides, it is much smaller and differs strikingly in cranial characters.

Mr. Osgood's *S. empetra plesius* is very closely related to, if not identical with, what is here recognized as *erythrogluteius* Richardson (*Arctomys parryi* var. *B. erythrogluteia* Richardson), the type locality of which is "the Rocky Mountains, near the sources of the Elk River, in latitude 57°." This is very near the localities at which my present large series of specimens was collected; and there is reason to suppose that

its range may extend northwestward to Lake Bennett, the type locality of *plesius* Osgood. Several topotypes of *plesius* (Lake Bennett, June 18-22) are intermediate in coloration between faded July specimens (July 31) and dark September specimens in fresh pelage from Shesley River, as would be expected from the dates of collecting.

Citellus columbianus seems to be specifically distinct from the more northern and very much larger spermophiles constituting the *C. parryi* group, differing greatly in general coloration, especially in the central area of the underside of the tail being gray instead of uniform reddish brown; also in relatively longer tail, much smaller size (fully one-third less), and in the narrower and slenderer skull, etc.¹

10. *Citellus stonei*, sp. nov. WRANGEL GROUND SQUIRREL.

Type, No. 20775, adult (♂ ?), Wrangel, Alaska, June, 1902; collected by Andrew J. Stone, for whom the species is named.

The type and only specimen of this species is a flat skin (without flesh measurements) with an excellent adult skull, and is apparently a male, and in excellent pelage.

Above gray, suffused with rufous, especially on the median dorsal area, the rufous increasing in intensity on the lower back and rump, where it almost becomes the prevailing tint; the hairs individually are blackish basally, then broadly banded with bright buff (almost golden apically), then narrow-banded with dark brown tinged with rusty, and broadly tipped with whitish, more or less suffused with rufous over the median and posterior portions of the dorsal area; with these hairs, constituting the bulk of the pelage, are much longer

¹ A comparison of a series of five specimens of *C. columbianus* from Moscow, Idaho (hence topotypes), with six specimens from Banff, Alberta, shows that the latter differ from the former in certain features of the skull, although the two series are closely similar in size, proportions, and coloration, except that the Banff specimens are a little paler. The skull in the Banff specimens, while but slightly larger in linear dimensions, is much heavier and more massive, with the zygomata especially thickened, the malar being nearly twice as massive as in true *columbianus*, while the antorbital foramen is sharply triangular instead of circular, with the peg-like process forming its lower border much more heavily developed and angular, and the postpalatal border is more produced posteriorly. For this form I propose the name

Citellus columbianus albertæ, subsp. nov.

Type, No. 15539, Am. Mus., ♂ ad., Canadian National Park, Alberta, Canada, August 16, 1899; coll. G. F. Dippie.

Collector's measurements of type: Total length, 321; tail vertebrae, 108; hind foot, 57 mm. Three other specimens in the series slightly exceed these dimensions. Skull, total length, 52; zygomatic breadth, 33.

hairs which are apically wholly black. Front half of the top of the head rusty cinnamon, the posterior half rusty, strongly varied with blackish; sides of face and neck clear gray; fore limbs lighter gray with a faint buffy wash; sides of shoulders suffused (mostly beneath the surface) with pale rufous; thighs pale rufous, with the longer hairs banded subapically with black and with long white tips, mixed with a few wholly black-tipped hairs; upper surface of hind feet deep rusty yellow or orange, the edges and lower surface clothed with gray or yellowish gray hairs; front and sides of nose, under side of head, throat, breast, and inside of fore legs whitish, the base of the pelage blackish plumbeous; rest of ventral surface washed rather strongly with pale rufous; tail above at extreme base tinged with rusty, the rest gray, with a faint tinge of rufous apically at the base of the hairs, the sides with a narrow band of black and a broad fringe of pale yellowish white; a broad (25–30 mm.) subapical band of black; tail below with the central area pale brownish rusty, increasing in intensity apically, with a broad subapical band of black and a yellowish white fringe.

Measurements (from flat skin, apparently much shrunken). Total length, 350; tail vertebrae, 100; hind foot, 59.

Skull. — Large, equal in dimensions to large skulls of *Citellus barrowensis* and *C. parryi*, but general form less broad anteriorly and rostral portion more elongated, giving quite a different contour as seen from above; interorbital area and nasals narrower, breadth across base of premaxillae one-eighth to one-seventh less; antorbital foramen oval, very broad and depressed. Total length, 59; greatest zygomatic breadth, 37; nasals, 22, terminating about evenly with the premaxillae; width of nasals at base, 5, as against 6 to 7 in *barrowensis* and *parryi*.

Citellus stonoi is easily distinguished from *C. erythrogluteus* (and *C. plesius* if different) through its immensely larger size and very different coloration; and also from *C. osgoodi*, *C. barrowensis* and *C. parryi*¹ in coloration, as well as in cranial characters, as above detailed. In coloration it bears very little resemblance to either of the three species last mentioned, though perhaps most approaching *C. osgoodi* in general features.

¹ In the series of *C. parryi* collected by Mr. George Comer for this Museum in the vicinity of Repulse Bay are several specimens that fulfil all the requirements of Richardson's *Arctomys parryi*, var. *Y. phaeognatha*, reputed to have been based on a specimen said to have been "also brought from Hudson's Bay, but the particular district not mentioned" (Fauna Bor.-Amer., I, p. 161) and described as "characterized chiefly [in comparison with *parryi*] by a well-defined deep, chestnut-coloured mark under the eye." Two out of the Comer series of nine specimens are thus marked and a third shows a trace of the same mark, which is apparently a feature of season or of very high coloration.

11. *Marmotta caligata* (Eschscholtz). HOARY MARMOT.

Arctomys caligatus ESCHSCHOLTZ, Zoöl. Atlas, II, 1829, p. 1, pl. vi.
Near Bristol Bay, Alaska.

A series of 13 specimens was taken on the Cheonnee Mountains, July 21-24, of which four were old nursing females, one an adult non-breeding female, three half-grown and five quarter-grown young. There are also two adults from Shesley River, taken August 23 and 27, and an old male from Level Mountain, taken September 16, making a total of 16 specimens.

The quarter-grown young from the Cheonnee Mountains, in the first, soft, woolly pelage, differ little in general pattern of coloration from the adults from the same locality, but the lower back is less varied with black. The pelage in all of the adults is thick and heavy but more or less worn, and there is considerable individual variation in the amount of black in the dorsal pelage. Generally from the nape posteriorly to the middle of the back, including the shoulders and sides, the color is whitish gray, and the rest of the dorsal surface blackish varied with rusty brown; but in one of the Shesley River specimens the prevailing color above over the anterior half of the body is black varied with gray.

A single adult male from Level Mountain measures as follows: Total length, 792; tail vertebrae, 210; hind foot, 100; ear, 32. Five breeding females (four from the Cheonnee Mountains and one from Shesley River), measure: Total length, 668 (659-672); tail vertebrae, 189 (180-200); hind foot, 95 (93-96); ear, 34 (33-37).

Mr. Anderson states that these animals were first met with in the Cheonnee Mountains, they not being found in the immediate neighborhood of Telegraph Creek. "In the Cheonnees, as elsewhere," he says, "these animals are found in dry, rocky places. They are very wary and shy." On Level Mountain, September 8-21, their "burrows were frequently seen in the numerous rocky localities, but the animals were undoubtedly beginning to hibernate. The whistle of one was heard on September 15, and Dennis [the Indian helper] shot

a specimen September 16." In the neighborhood of Shesley River camp none was found, but two specimens were brought in from a distance.

12. *Mus musculus* *Linnæus*. HOUSE MOUSE.

Three specimens, Telegraph Creek, August 2, 6, and 7. They were trapped about the buildings in the village of Telegraph.

13. *Peromyscus sitkensis* *Merriam*. SITKA WHITE-FOOTED MOUSE.

Peromyscus sitkensis MERRIAM, Proc. Biol. Soc. Wash., XI, July 15, 1897, 223. Sitka, Alaska.

Eight specimens (2 adults, 1 young adult, 5 half to two-thirds grown young), from Wrangel, June 27-30, and two young adults from Kupreanof Island, November 8. In six of the oldest specimens the tail averages just one-half the total length, varying from a little less to a little more than half.

According to Mr. Anderson's notes, these specimens "were trapped under rotten logs in the higher and dryer places."

14. *Peromyscus arcticus* (*Mearns*). ARCTIC WHITE-FOOTED MOUSE.

Hesperomys leucopus arcticus MEARNS, Bull. Am. Mus. Nat. Hist., II, No. 4, 1890, 285. Feb. 20, 1890. Fort Simpson, Mackenzie River, Canada.

All of the white-footed mice from the interior are referred to *P. arcticus*, except a single specimen from the Cheonnee Mountains which appears referable to *P. oreas* Bangs. The series numbers altogether 292 specimens, collected as follows: Telegraph Creek, 272 specimens, July 11-August 17; Cheonnee Mountains, 4 specimens, July 22 and 23; Shesley River, 3, August 23 and 24; Level Mountain, 3, September 12-15; Raspberry Creek, 10, October 8-12. About four-fifths of the series consists of young-of-the-year and 'young adults.' Of the large number of females only about 50 give evidence of

having suckled young, or show by their worn teeth that they were fully adult. As of interest in showing the wide range of variation in size and proportions in breeding females, the collector's measurements of 40 specimens, all from Telegraph Creek, and including all of the breeding females in the series of 265 specimens, are tabulated below in the order of size, from which it will be seen that the total length ranges in old adults with well-worn teeth from about 180-190 mm., with the tail length ranging from about 82 to nearly 90; while the young females, with generally wholly unworn teeth and many of them still in the pelage of immaturity, range from about 165 to 175, with a tail length of from about 72 to 80. It will also be noted that the ratio of tail length to total length is considerably higher in the larger and older specimens than in the younger and smaller ones, ranging from about 44 to 48 in the former and 42.5 to 46 in the latter. It thus appears that the length of the tail, as perhaps would be expected, increases more than the length of the head and body between the period of breeding age and complete maturity or old age.

An examination of the skulls of these specimens shows that while this wide range of variation in size may be referred in large part to age, the element of individual variation also plays an important part, since one of the largest specimens in the series has the teeth unworn and the bones of the skull not firmly united, while on the other hand, several of the smallest specimens have the teeth greatly worn and the skull sutures firmly closed.

There is a much smaller proportion of adult males in the collection than of adult females, but so far as the material goes, there is no appreciable sexual difference in size.

The type locality of *Peromyscus arcticus* was Fort Simpson, on the Mackenzie River, about half way between Fort Liard and Fort Norman. Fortunately the American Museum collection contains a small series from each of these points, and also from Hell Gate and Telegraph Creek, taken by Mr. Stone in 1897 and 1898, numbering altogether about 30 specimens. These, with the collection now under special notice, represent the species by specimens taken in April, May, July,

August, September, and October. The April and May adults, and the September and October specimens are much darker, or more blackish, and less faded than the July and August specimens, which are in moult and in thin pelage in comparison with the thick, soft, and longer coat of the April-May and September-October examples.

The young are born, judging from the present material, mainly during July and the first half of August; April and May females not yet having begun to nurse young, while in September and October the nipples have become so shrunken and the mammae so heavily enclosed in soft fur that it is difficult to distinguish males from females by an examination of the skins. During the nursing period, and until the completion of the moult, a bare space surrounds the nipples, indicating, usually at a glance, the females that have recently nourished young.

Mr. Anderson states: "Near Telegraph, white-footed mice were trapped in every kind of place to be found, wet or dry, talus or level terrace." At the camp at timber-line on the Shesley River they "were not common," and only three were obtained on Level Mountain; but they were very abundant at the camp on Raspberry Creek.

EXTERNAL MEASUREMENTS OF 40 BREEDING FEMALES OF
Peromyscus arcticus.

Mus. No.	Total length.	Tail vertebræ.	Hind foot.	Ear.	Ratio of tail vert. to total length.
20150	189	86	20.5	18	45.5
20352	187	90	20	18	48
20168	186	83	21	18.5	45
20356	185	87	20	18	47
20204	185	83	21	19	45
20334	184	87	20.5	20	47
20109	184	81	21	18.5	44
20116	183	81	22	19	44.3
20261	182	85	20	18	46.7
20294	181	85	20.5	20	47
20274	181	84	20	19.5	46.3

EXTERNAL MEASUREMENTS—*Continued.*

Mus. No.	Total length.	Tail vertebræ.	Hind foot.	Ear.	Ratio of tail vert. to total length.
20296	179	82	20.5	19.5	45.8
20242	179	82	21	19	45.8
20215	179	81	20	18	45
20221	178	82	19.5	18	46
20344	178	82	21.5	18	46
20308	178	80	20.5	18.5	45
20280	177	80	21	19	45
20118	177	78	21	18	44
20108	176	86	21	18	48.8
20183	176	78	21	20	44.3
20120	176	75	22	20	42.6
20184	175	78	20	18	44.6
20249	175	78	21	18	44.6
20117	175	76	19	18.5	43.4
20100	174	80	20	19	46
20281	174	78	20	18.5	45
20167	174	77	20	18	44.3
20246	172	74	20	19	43
20158	172	74	20	19	43
20324	171	78	19.5	18	45.6
20186	171	75	20	18	43.9
20219	171	72	21	18	42
20205	170	78	20	19	46
20345	170	75	19	19	44
20263	170	74	20	17 (?)	43.5
20157	169	72	20	19	42.6
20133	167	77	21	19	46
20122	167	74	20	18	44.3
20269	163	71	20	18	43.5
Average....	176	78.9	20.4	18.6	44.8

7 specimens have a total length of 184 or more.

16 " " " " " 174 or less.

17 " " " " " between 174 and 184.

8 " " a tail length of 84 or more.

9 " " " " " 74 " less.

23 " " " " " between 74 and 84.

Ratio of tail vertebræ to total length, 42 to 48.

22 specimens have a tail ratio of 45 or above.

18 " " " " " less than 45.

15. *Peromyscus oreas* Bangs. BANGS WHITE-FOOTED MOUSE.

Peromyscus oreas BANGS, Proc. Biol. Soc. Wash., XII, 84, March 24, 1898. Mount Baker Range, 49th parallel, British Columbia; altitude, 6500 feet.

A single specimen, Cheonnee Mountains, July 22, a young male with the following measurements: Total length, 189; tail vertebrae, 100; hind foot, 23; ear, 19. In color and character of pelage it closely resembles young adults of *P. sitkensis*, but the skull is very different from the skull of that species. Mr. Osgood (N. Am. Fauna, No. 19, Oct. 1900, p. 32) has recorded *P. oreas* from Skagway, Glacier, Summit, Bennett, Caribou Crossing and other points near the head of the Yukon, showing that its range extends to the northward much beyond the Telegraph Creek region, where, however, it seems to be rare, as only one of the three hundred specimens of *Peromyscus* taken here proves referable to this species.

16. *Neotoma cinerea saxamans* (Osgood). NORTHERN BUSHY-TAILED RAT.

Neotoma saxamans OSGOOD, N. Am. Fauna, No. 19, Oct. 6, 1900, 33. Bennett City, head of Lake Bennett, B. C.

Represented by 46 specimens, taken as follows: Telegraph Creek, 41 specimens, July 17 and 18, and July 27 to August 15; Level Mountain, 2 specimens, September 10 and 21; Raspberry Creek, 2 specimens, October 9 and 11; Sheep Creek, 1 specimen, October 14. Of these 8 are breeding females, and 3 are fully adult males; the others are apparently all young-of-the-year, and vary from about quarter-grown to full-grown. The young in first pelage are, above, blackish gray; below, with a large pure white pectoral area, and the rest of the underparts with the fur plumbeous tipped more or less with whitish, the white particularly conspicuous along the median line, and expanding to form a small clear white anal patch. In many specimens of this age the whole ventral surface is superficially pure white, with the underfur more or

less plumbeous. Later the amount of white below increases till in half-grown specimens the whole ventral surface is white, with the pelage on the lateral third of the ventral area on either side, more or less plumbeous basally. The color of the upper parts is still dusky gray. When about full-grown the yellowish brown of the adult pelage begins gradually to appear.

The adults in full pelage are yellowish olivaceous brown above, strongly washed with blackish, through the abundance of long black-tipped hairs intermixed with the general pelage; below pure white to the base of the hairs, with a tendency to a buffy wash over the middle of the abdominal area. In the worn, faded pelage of the breeding season the upper surface is suffused with pale cinnamon brown.

Eleven adults measure as follows: 3 males, total length, 409 (399-425); tail vertebræ, 171 (167-180); hind foot, 47.3 (46-49); ear, 32: 8 breeding females, total length, 370.5 (358-380); tail vertebræ, 156 (147-165); hind foot, 44.3 (42-46); ear, 30 (28-31).

Six adult skulls, three males and three females, measure: Total length, 51.5 (49-53); zygomatic breadth, 26.4 (25.4-27.2); interorbital breadth, 5 (4.8-5.2); nasals, 21 (20-22).

Neotoma cinerea saxamans differs from *N. c. drummondi* in being paler and of a more yellowish gray brown above, with also the upper parts more strongly varied with blackish. A comparison of the present material with a small series of specimens from the vicinity of Banff, Alberta, shows that the alleged cranial differences mentioned in the description of *Neotoma saxamans* are of very slight importance, adult and strictly comparable skulls from Banff and Telegraph Creek being indistinguishable as regards the form of the nasals, the maxillary branch of the zygoma, and the more or less openness of the sphenopalatine vacuities. There is apparently a slight average color difference between true *drummondi* and the more northern bushy-tailed rats, and also in the cranial characters indicated by Osgood, but the Telegraph Creek series presents intermediates, and shows that all of these features are subject to considerable individual variation.

The color of the incisors, given also as a character, is very variable, ranging from pale yellow to deep yellow. The single specimen of *saxamans* of which external measurements are given, from "a dry skin," considerably exceeds in size any of the specimens from the Telegraph Creek region, but the cranial measurements show that this difference is apparent rather than real.

At Telegraph Creek the bushy-tailed rats were "fairly abundant"; they were "trapped in the talus just beneath the cliffs above Telegraph, and in several other rocky places." At the camp at the head of the Shesley River (at timber-line) none was secured and only one was seen. Only two were taken on Level Mountain. Two were trapped at the camp on Raspberry Creek, "beside a large rock in a dry flat, away from timber."

17. ***Evotomys wrangeli* Bailey.** WRANGEL RED-BACKED MOUSE.

Evotomys wrangeli BAILEY, Proc. Biol. Soc. Wash., XI, May 13, 1897, 120. Wrangel Island, Alaska.

Wrangel Island, 18 specimens (topotypes), June 25 to July 7, of which 6 are adults, 7 are nearly full-grown young, and 5 about half-grown. Four adult females measure as follows: Total length, 145 (141-147); tail vertebræ, 33 (31-34); hind foot, 19.6 (19-20.5); ear, 14.2 (13-15). The two adult males are smaller, measuring respectively: Total length, 136, 138; tail vertebræ, 30, 33; hind foot, 19.5, 20; ear, 15, 14.5. In coloration they exactly resemble the females, showing that they are fully adult. The nearly full-grown young (total length 129-138) are much duller and darker, with much less red on the back.

18. ***Evotomys dawsoni* Merriam.** DAWSON RED-BACKED MOUSE.

Evotomys dawsoni MERRIAM, Am. Nat., XXII, July, 1888, 649. Finlayson River, Northwest Territory, Canada.

Represented by 67 specimens, as follows: Telegraph Creek, 5 specimens, July 13, and August 4, 7, and 17; Cheonnee

Mountains, 11, July 21-25; Level Mountain, 42, September 10-21; Raspberry Creek, 9, October 6-13.

The type of *Evotomys dawsoni* was from the Finlayson River, a northern fork of Liard River. The present series added to the 16 specimens taken by Mr. Stone at Fort Norman, at Fort Liard, at Hell Gate on the Liard River, and at other localities in the same general region, forms a series of 83 specimens collected at various dates from the middle of July to the middle of December. There is also in the collection the series of 35 specimens obtained by the Stone Expedition of 1901 on the Kenai Peninsula, making about 120 specimens referable to this species. The adults are very uniform in coloration except three taken on the Liard River December 7-11, 1897,¹ and one at Dawson; these differ from all the others in their much lighter, yellowish brown color, and represent apparently the midwinter coat, which is usually lighter than that of late summer and early fall. There can be little doubt that these specimens are referable to the true *E. dawsoni* from Finlayson River and Fort Liard. Yet they fall far below the average size as given by Bailey (Proc. Biol. Soc. Washington, Vol. XI, 1897, p. 121), based on Yakutat specimens, of which he gives the average of eight specimens as: "Total length, 144; tail vertebræ, 33; hind foot, 20."

The series from the upper Liard River region contains many specimens with well-worn teeth and very mature-looking skulls, yet only 5 attain a length of 140 mm., the average of 20 of the largest specimens of the series falling slightly below 130, with an average length of tail of about 33, but with the hind foot 19 instead of 20. Thus 13 specimens (9 males and 4 females) from Level Mountain measure as follows: Total length, 129 (123-141); tail vertebræ, 32.7 (29-38); hind foot, 18.6 (18-19.5); ear, 15.6 (14-16.5). The largest 13 specimens from the Kenai Peninsula (6 males and 7 females) are somewhat larger, having a total length of 137 (133-140); tail vertebræ, 32.6 (31-38); hind foot, 19 (18-

¹ Formerly (this Bulletin, Vol. XII, 199, p. 5) erroneously referred to *E. alascensis*, as shown on reexamination, in the light of more abundant material. The supposed cranial differences mentioned prove to be due to the immaturity of the single complete skull available for examination.

19.5). These latter measurements are very close to those given by Dr. Merriam for his *E. orca* from Prince William Sound.

It may prove that the larger Alaska coast specimens (Yakutat north to Alaska Peninsula) are better referable to *E. dawsoni orca* than to *E. dawsoni*.

19. ***Microtus mordax vellerosus* (Allen).** WOOLLY VOLE.

Microtus vellerosus ALLEN, Bull. Am. Mus. Nat. Hist., XII, 1899, 7. March 4, 1899. Upper Liard River, Northwest Territory, Canada.

Microtus cantus ALLEN, *ibid.*, Hell Gate, Liard River.

Represented by 53 specimens collected as follows: Telegraph Creek, 38 specimens, July 11 to August 8, and October 18-20; Cheonnee Mountains, 1, July 24; Tahltan River, 1, August 18; Shesley River, 1, August 27; Level Mountain, 6, September 11-19; Raspberry Creek, 5, October 4-6; Sheep Creek, 1, October 14. About three-fifths are adult, of which only 7 reach or exceed 190 mm., in total length. Of the series of nearly 40 specimens from Telegraph Creek the 27 adults (6 males and 21 females) measure as follows: *Males*: Total length, 175.3 (158-190); tail vertebræ, 61.3 (52-70); hind foot, 20.8 (19-21); ear, 14 (13-15). *Females*: 176 (160-195); 60.6 (50-70); 21 (19.5-21.5); 14 (13-15). Nine old adults (7 males and 2 females) from the other localities measure slightly larger, as follows: Total length, 182.5 (168-202); tail vertebræ, 65 (60-70); hind foot, 20.7 (19.5-22); ear, 14 (13-15).

The series well illustrates the pelages of adults from July to October, and of the young in various stages of growth. The adults vary considerably in the amount of yellowish brown suffusing the dorsal surface, even among specimens taken at the same season and locality. July specimens have this tint brighter and stronger, often reddish brown, than September and October specimens, which are grayer and more yellowish brown, but some October specimens have a rufescent brown cast, while others are much paler and grayer. The type of *M. vellerosus* is a very gray specimen from the upper Liard

River, taken the last of November. It is the grayest specimen of the whole series, but several October specimens from Telegraph Creek very closely resemble it. My *M. cantus* (see this Bulletin, Vol. XII, 1899, p. 7) is a May specimen, also from Liard River, and though more yellowish brown on the back, is easily matched by the brighter specimens of the October series, and is, as stated by Mr. Bailey¹ (N. Am. Fauna, No. 17, 1900, p. 48, footnote), a phase of *vellerosus*.

The present large series shows that *vellerosus* is rather darker colored and more rufescent than *mordax*, and somewhat smaller, the hind foot averaging 21 mm., instead of 22, and the ear 14 instead of 15. Six specimens of *mordax* (the type and 5 topotypes) measure (*cf.* Merriam, N. Am. Fauna, No. 5, 1891, p. 62) as follows: Total length, 184 (180-200); tail vertebræ, 67.3 (63-77); hind foot, 22 (21-23). Seven adults from Amador County, California, collected and measured by Mr. W. W. Price, range as follows: Total length, 193 (181-202); tail vertebræ, 66.2 (57-67); hind foot, 22.9 (20-25); ear, 15.1 (14-16). *Microtus vellerosus* seems well-entitled to stand as a northern subspecies of *M. mordax*.

20. ***Microtus drummondi* (Aud. & Bach.). DRUMMOND VOLE.**

Arvicola drummondi AUD. & BACH., Quad. N. Am., III, 1853, 106, pl. cxxxv. "Valley of the Rocky Mountains."

Microtus drummondi BAILEY, N. Am. Fauna, No. 17, June, 1900, 22. "Type locality, Rocky Mountains, vicinity of Jasper House, Alberta."

Represented by 39 specimens, taken as follows: Cheonnee Mountains, 3 specimens, July 22-25; Telegraph Creek, 1, July 27; Shesley River, 4, August 25 to September 1; Tahltan River, 1, August 18; Level Mountain, 30, September 10-21. Only 12 are fully adult, 7 of which are males and 5 are females; all of the adults, except one, are from Level Mountain, and

¹ In his comment on these species he has transposed the names *vellerosus* and *cantus*; his remarks respecting the former relate to the latter, and *vice versa*.

measure as follows: 7 males, total length, 151 (146-162); tail vertebrae, 41.3 (40-46); hind foot, 18.4 (18-19); ear, 12.7 (12-13); 5 females, 155 (153-158); 42 (40-44); 18.6 (18-19.5); 13.2 (13-14).

There is a wide range of individual variation in color, both July and September specimens varying above from a dark gray brown, slightly suffused with yellowish brown, to darker brown strongly suffused with chestnut; the underparts may be pure gray or strongly washed with buffy, especially in fall specimens after the moult.

It is of interest to note that 30 of the 39 specimens of this species were taken on Level Mountain and only one at Telegraph Creek; while in the case of *M. m. vellerosus* 38 out of 52 specimens were taken at Telegraph Creek, and only 6 on Level Mountain, showing that the two forms occupy different areas of abundance.

My *Microtus stonei* (this Bulletin, Vol. XII, 1899, p. 5), based on a specimen from the head of Liard River, is unrepresented in the present collection. The present large series of *M. drummondi*, together with a series of over 20 specimens from northern Alberta, furnish ample means for the comparison of *M. stonei* with *M. drummondi*. Instead of "the type of *M. stonei*" being "indistinguishable from typical *drummondi*" (cf. Bailey, N. Am. Fauna, No. 17, 1900, p. 23), it proves to be cranially widely different, although externally closely resembling *drummondi*. In *M. stonei* the rostral portion of the skull, including the interorbital region, is very narrow and greatly elongated, in strong contrast to the short, broad form of this portion of the skull in *M. drummondi*, and the incisive foramina are correspondingly long and narrow. In *stonei* the superior aspect of the interorbital region has also a deep longitudinal groove never present in *drummondi*; and the maxillary branch of the zygoma is much narrower; the angular process of the lower jaw is longer, slenderer, and more pointed. The form of the posterior loop of the last upper molar is also distinctly different. *M. stonei* may therefore be regarded as specifically distinct from *M. drummondi*.

21. *Microtus macrurus* Merriam. OLYMPIC VOLE.

Microtus macrurus MERRIAM, Proc. Acad. Nat. Sci. Phila., 1898, 353. Oct., 1898. Lake Cushman, Olympic Mountains, Washington.

A single specimen, a 'young adult' male, from Kupreanof Island, southeastern Alaska, taken November 10. Total length, 165; tail vertebræ, 61; hind foot, 20; ear, 14. Above very dark gray brown, or blackish brown, with an almost imperceptible yellowish suffusion; below dark gray, the longer hairs tipped with whitish.

22. *Fiber spatulatus* Osgood. NORTHWEST MUSKRAT.

Fiber spatulatus OSGOOD, N. Am. Fauna, No. 19, Oct. 6, 1900, 36. Lake Marsh, Northwest Territory, Canada.

One specimen, an old male, Shesley (Government telegraph station), September 5.

This specimen greatly exceeds the measurements given for *F. spatulatus*, but agrees with the description of this species in all other characters. As shown by the massive, heavily ossified skull, the animal was a very old male. The external measurements are: Total length, 583; tail vertebræ, 290; hind foot, 78; ear, 23. Skull: Total length, 68; basal length, 64.5; zygomatic breadth, 43; length of nasals, 24; least width of nasals posteriorly, 3; greatest width anteriorly, 11.2; alveolar length of molar series, 15; length of crown surface, 13.

A specimen of corresponding age and sex from Hastings, Westchester Co., N. Y., measures as follows: Total length, 591; tail vertebræ, 274; hind foot, 83. Skull: Total length, 65; basal length, 62; zygomatic breadth, 39.6; length of nasals, 22; least posterior width of nasals, 2.6; greatest anterior width of nasals, 8.6; alveolar length of molar series, 16; length of crown surface of molar series, 15. The Shesley skull thus exceeds in linear dimensions and greatly in massiveness any skull in a very large series of eastern Muskrats; and also exceeds the type specimen of *F. spatulatus* by about 20 per cent. in total length, and about 7 per cent. in the principal skull measurements.

Musk rats, like most other mammals, continue to increase in size after maturity is reached, the skull increasing somewhat in linear measurements and especially in massiveness. The type of *F. spatulatus* is given as "yg. ad.," and no other specimens from the type region are referred to. If the character, "size small," is based on this specimen, this comparative statement should be eliminated, as shown by the following table of comparative measurements, giving the principal dimensions of the seven largest Muskrat skulls in the Museum series of considerably over one hundred specimens. They are all very old examples, and range much above the average, doubtless, for the several forms they represent. This is at least true of the New York and New Jersey series.

COMPARATIVE MEASUREMENTS OF SKULLS OF MUSKRATS.

Mus. No.	Species.	Sex.	Total length.	Basal length.	Zyg. breadth.	Nasals.			Molar series.
						Length.	Post. width.	Ant. width.	
98567	<i>Fiber spatulatus</i>	♀	—	57	38	21	—	—	14
20768	"	♂	68	64.5	43	24	3	12	15
16422	" <i>osoyoosensis</i>	♂	66	63	42	25	2	10	15
16421	" "	♀	65.5	62	41.2	23	2.5	10	16
16204	" <i>zibethicus</i>	♂	69	65	42	24	3	10	15
16205	" ".....	♀	69	64.6	41	24	3	10	16
8541	" ".....	♂	65	62	39.6	22	2.6	8.6	16
15980	" ".....	♂	68	64	43	24	3	9	16

No. 98567, U. S. Nat. Mus., type of *Fiber spatulatus* Osgood. Lake Marsh, N. W. T. (measurements from Osgood, *l. c.*).

No. 20768, Am. Mus., Shesley, B. C.

No. 16422 and 16421, Am. Mus., Kettle River, B. C., near type locality of *Fiber osoyoosensis*.

No. 16204 and 16205, Am. Mus., Newport, Nova Scotia.

No. 8541, Am. Mus., Hastings, Westchester Co., N. Y.

No. 15980, Am. Mus., Paterson, N. J.

Mr. Anderson says (MS. notes): "On September 5 a single muskrat was shot on the marshy edge of a small lake about a mile from Shesley; another was shot at, but not secured.

Muskrats are not uncommon in many of the small lakes so numerous along the Teslin trail, and more specimens would certainly have been secured had we carried a shotgun on our trip to Level Mountain. . . . On the morning of October 9 I observed a muskrat in a small pond just back of our camp, on Raspberry Creek. I had no means of securing him."

23. ***Phenacomys constablei* Allen.** CONSTABLE VOLE.

Phenacomys constablei ALLEN, Bull. Am. Mus. Nat. Hist., XII, 1899, 4. March 4, 1899. Telegraph Creek, B. C.

Represented by 11 specimens, of which 8 were taken at Telegraph Creek, July 14 to August 13; and 1 each on the Cheonnee Mountains (July 21), Shesley River (September 1), and Level Mountain (September 11). All are females except two, and five of them appear to have suckled young, but only four had attained fully adult size. The five adults measure as follows: Total length, 143.5 (139-148); tail vertebræ, 33 (31-41); hind foot, 17.7 (17-19); ear, 13.6 (13-14).

Phenacomys constablei was based on two specimens collected by Mr. A. J. Stone on Telegraph Creek, August 24, 1897, so that eight of the present series are topotypes. Both of the original specimens were females, one of which was quite young, while the other (the type) had evidently nursed young and was described as adult. The present series, however, shows it was much below the average size of full-grown adults, the total length being only 124 mm., and the tail 31 mm., as against 144 and 33 in fully adult females of the present series. In other respects the original description requires no emendation.

This species must be very rare or of local distribution, as out of over 350 specimens of mice of various species taken at Telegraph Creek only 8 were *Phenacomys*, and only two *Phenacomys* were taken elsewhere, although very large numbers of mice were collected on Level Mountain and at other points.

This species has a close external resemblance to faded summer specimens of *Microtus drummondi*, not only in coloration but in size and proportions, so close, indeed, that it is quite difficult to distinguish the two species by skins alone. The

form of the hind foot — broad and short in *Phenacomys* and long and slender in *M. drummondi* — and certain differences in the size and position of the plantar tubercles, however, will usually suffice for their discrimination. In the reddish brown fall dress, with the underparts more or less tinged with buff (September, October, and November specimens), of *M. drummondi* there is a well-marked contrast in color with July and August specimens of *Phenacomys constablei*; but the adult fall pelage of the latter is not as yet known.

24. **Synaptomys (Mictomys) andersoni**, sp. nov. ANDERSON
LEMMING VOLE.

Type, No. 20467, ♀ ad., Level Mountain, northern British Columbia, September 11, 1902; M. P. Anderson.

Above dark brown, faintly suffused with clay color and strongly varied with blackish, the head, including the sides of the nose and cheeks, concolorous with the back; under surface ashy gray, rather sharply defined against the yellowish brown flanks; tail bicolor, the dorsal third blackish, the sides and lower surface dull grayish; upper surface of fore and hind feet blackish brown, the hind feet rather darker than the fore feet; ears small, wholly concealed in the fur.

Total length, 120; tail vertebræ, 25; hind foot, 18; ear, 11.5. Skull: Naso-occipital length, 24.6; basal length, 23; zygomatic breadth, 14.5; mastoid breadth, 11.5; interorbital constriction, 3; length of braincase, 14; length of rostrum (front edge of nasals to braincase), 11; length of nasals, 6; length of incisive foramina, 4.2; length of upper toothrow, 6.6. General form of the skull much as in *S. wrangeli*, but bullæ much more inflated, especially anteriorly, and the posterior loop on the last upper molar much larger, about two-thirds as large as the middle loop; reentrant angle on outer side of last molar deeper, nearly as deep as in *S. truei*.

Synaptomys andersoni is based on a single adult specimen collected on Level Mountain, northern British Columbia, September 11, and is in heavy fall pelage. Its nearest known geographical representative is *S. wrangeli*, from Wrangel, Alaska, from which it is apparently quite distinct, it in some features more resembling *S. dalli* from Nulato, Alaska. The species is named for Mr. M. P. Anderson, whose very careful field work has so greatly contributed to the success of the Stone Expeditions of 1902 and 1903.

[In a small collection of mammals made by Mr. Frank M. Chapman at Glacier, B. C., in July, 1901, is a single specimen of *Synaptomys* that seems specifically distinct from any previously recognized, and which I take the present opportunity to describe.

***Synaptomys (Mictomys) chapmani*, sp. nov. CHAPMAN LEMMING VOLE.**

Type, No. 16908, ♂ ad., Glacier, Selkirk Range, British Columbia, July 20, 1901; Frank M. Chapman, for whom the species is named.

Above grayish brown, with a slight suffusion of buff, strongest on the front of the head, the whole region in front of the eyes being conspicuously washed with buff; ventral surface dark gray, the plumbeous underfur being slightly tipped with whitish, not sharply defined against the sides; ears large, colored like surrounding pelage; feet dusky grayish brown; tail very short, darker above than below, well pencilled. Side glands in front of hips covered with conspicuously lighter fur, almost whitish.

Total length, 134; tail vertebrae, 21; hind foot, 20; ear (from notch, in dry skin), 11; prominent above the fur. Skull: Naso-occipital length, 26; basal length, 24.5; zygomatic breadth, 15.2; mastoid breadth, 11.5; interorbital constriction, 3; length of braincase, 13.5; length of rostrum (front edge of nasals to braincase), 12.2; length of nasals, 6.6; length of palatal foramina, 5; length of upper toothrow, 7. Compared with *S. andersoni* it is much larger, and the general form of the skull is narrower, with a relatively narrower braincase and more elongated rostrum; the incisive foramina are much longer and narrower, and the audital bullae much smaller and less inflated; last loop of last upper molar large, as in *S. andersoni*, and the reëntrant angle on the outer border of last lower molar is also strongly marked.

Unfortunately this species is represented only by the type, an old male, taken at Glacier, B. C., by Mr. Chapman in July, 1901. Externally the species seems to be well characterized by its very short tail and large ears, the dark grayish brown color of the upper parts and buffy nose. The narrow skull, elongated rostrum, and small bullae seem to distinguish it from its more northern allies. The presence of this species in the Selkirks extends considerably to the southward, especially in the West, the previously known range of the subgenus *Mictomys*.]

25. *Lemmus helvulus* (Richardson). GOLDEN LEMMING.

This beautiful lemming is represented by 43 specimens, collected as follows: Telegraph Creek, 28 specimens, July 31, August 9, and October 17; Level Mountain, 11, September 10-25; Shesley River, 1, August 27; Raspberry Creek, 1, October 11; and 2 without locality. Only about 12 are adult, the others ranging from nursing young to two-thirds grown.

In the adults the anterior half of the upper surface is gray suffused with fulvous, the sides and top of the head and neck being gray or grayish, gradually passing into deep yellowish brown over the shoulders, and thence posteriorly to the tail the color ranges, in different specimens, from ochraceous, or even golden, to ochraceous rufous, and in some to reddish chestnut. (Late September and October specimens have the upper parts lighter or more golden than the August examples.) The flanks are deep ochraceous, varying to orange ochraceous; chin and throat soiled grayish white; rest of the ventral surface ranging in different specimens from deep buff to ochraceous buff. In the half to two-thirds-grown young the head is more heavily suffused with fulvous than in adults, and there is hence less contrast between the anterior and the posterior parts of the dorsal area. Young in the soft, woolly, first pelage are dull brown strongly washed with dark rufous, with nearly the same contrast in color antero-posteriorly as in the adults. In all pelages there is a slight admixture of stiff black or blackish-tipped hairs overtopping the general pelage, varying greatly in abundance in different individuals that are comparable as to season and age.

This species, like most microtines, begins to breed at an early age, and greatly increases in size after birth of the first young. The largest specimens (5 males and 3 females) of the series, apparently all entitled to be classed as adult, measure as follows: Total length, 143.6 (134-150); tail vertebræ, 22.3 (20-25); hind foot, 19.9 (18.5-22); ear, 11.5 (10-13). Three additional females that appear to have suckled young range in total length from 124-129, with the other measurements proportional.

This species differs considerably in color from either *L. trimucronatus* or *L. alascensis*, and still more in cranial details.

Of this species Mr. Anderson says: "The short-tailed yellowish voles taken at Telegraph Creek inhabited a long, rather dry little valley near the top of the 'Summit.' At the time I attempted to trap them, a light snow fell during the first night, and in the morning we saw a number of places where these animals had burrowed through the snow and made long winding trails to the surface, not merely tracks, but trails, as if they had dragged their bodies through the soft snow. I followed one of these for more than twenty yards. It ended in a little tunnel in the snow." At Level Mountain he says: "The small number of the short-tailed yellowish voles which I took here was from holes beneath rocks imbedded in the moss and lichen in places back from the streams, but nevertheless often very damp."

The following schedule is of interest as showing the relative abundance of the different species of Muridæ at the five principal localities in the Telegraph Creek region where collections were made, as from Mr. Anderson's report it is evident that the collecting was indiscriminate at each of the localities. The time spent at each was of course unequal, but the ratio of abundance, as indicated by the specimens taken, is not thereby affected.

	Tele- graph Creek. ¹	Cheonnee Mts. ²	Shesley River. ³	Level Mt. ⁴	Rasp- berry Creek. ⁵
<i>Mus musculus</i>	3	—	—	—	—
<i>Peromyscus arcticus</i>	272	4	3	3	10
<i>oreas</i>	—	1	—	—	—
<i>Neotoma saxamans</i>	41	—	—	2	2
<i>Evotomys dawsoni</i>	5	11	—	42	9
<i>Microtus vellerosus</i>	38	1	1	6	5
<i>drummondi</i>	1	3	4	30	—
<i>Fiber spatulatus</i>	—	—	1	seen	seen
<i>Phenacomys constablei</i>	8	1	1	1	—
<i>Synaptomys andersoni</i>	—	—	—	1	—
<i>Lemmus helvolus</i>	28	—	1	11	1

¹ July 11-18, July 27-Aug 17, Oct. 17-20.

² July 21-25.

³ Aug. 23-Sept. 6.

⁴ Sept. 10-21.

⁵ Oct. 4-13.

26. *Zapus saltator* Allen. STICKINE JUMPING MOUSE.

Zapus saltator ALLEN, Bull. Am. Mus. Nat. Hist., XII, 1899, 3. March 4, 1899. Telegraph Creek, B. C.

Five specimens, taken as follows: Telegraph Creek, July 26 and August 13 and 15; Shesley, September 5 (2 specimens). Two of the Telegraph Creek skins were later destroyed by mice, but the skulls and measurements remain.

The yellow in the July specimen is rather paler and the back less dark than in the September examples, the former being in breeding pelage and the latter in fall pelage. An adult male and an adult female measure respectively as follows: Total length, ♂, 240, ♀, 234; tail vertebræ, 145, 149; hind foot, 32.5, 33; ear, 16, 15.

27. *Erethizon epizanthus nigrescens*, subsp. nov. DUSKY PORCUPINE.

Type, No. 20772, ♂ ad., Shesley River, August 23; M. P. Anderson.

General coloration above black, lighter on the nape, sides of lower back, and thighs, where the tips of the hairs are yellowish; beneath uniform sooty black. Whole front and sides of the head sooty black, with a few white-tipped hairs on the nose; over the top of the head and nape, the long hairs are broadly tipped with pale yellow; over the shoulders and greater part of the back they are nearly all wholly black, a very few showing a slight tipping of yellowish; over the hinder back, rump, and median area of the tail the long hairs are wanting, but the spines are still wholly concealed by the long black underfur; the thighs and sides of the tail have the long black hairs broadly tipped with yellowish white. The spines, which show very plainly through the pelage on the sides of the shoulders, flanks, and thighs, are white, pointed with plumbeous over the shoulders and with blackish elsewhere.

Measurements (type).—Total length, 740; tail vertebræ, 210; hind foot, 90; ear, 27. Skull: Total length, 105; basal length, 99; zygomatic breadth, 67; mastoid breadth, 42; nasals, ? (broken away); upper molar series, 26. An adult female skull measures: Total length, 104; basal length, 98; zygomatic breadth, 71; interorbital breadth, 29; mastoid breadth, 45; nasals, ? (imperfect); upper molar series, 28.

Represented by two skins with skulls and two additional skulls. The extra skulls are from Level Mountains, and the

two skins, respectively, from Telegraph Creek, August 31, and Shesley River. The Shesley River skin is much the younger of the two, and in better pelage; the general coloration is less dark, owing to the greater abundance of long hairs, which are more broadly tipped with pale yellowish white.

Compared with Dr. Merriam's description of *E. epizanthus myops* from the Alaska Peninsula, and with a very fine large November specimen from Kenai Peninsula, the present form differs strikingly in its very much darker coloration and the much paler tips of the long hairs, which are pale yellow instead of deep yellow. The skulls of porcupines differ so greatly with age and individually, and the material for comparison is at present so scanty, that no very positive cranial differences are apparent. The four skulls of the present series, however, agree in possessing a very marked depression of the top of the skull at the fronto-parietal region, and in the great development of the lateral border of the interorbital region, which, just behind the orbits, forms a high obtuse knob, thus greatly emphasizing the fronto-parietal depression. In an equal number of Alaska skulls referable to *myops* both these features are practically absent.

"Porcupines are not infrequent near Telegraph Creek, though we took but one specimen." The same report is made for the camps at the head of Shesley River and Table Mountain.

28. *Lepus saliens* Osgood. LAKE BENNETT HARE.

Lepus saliens OSGOOD, N. Am. Fauna, No. 19, Oct. 6, 1900, 39. "Caribou Crossing, between Lake Bennett and Lake Tagish, Northwest Territory, Canada."

Two adult specimens, male and female, Telegraph Creek, October 20 and 21. Both are in change from summer to winter pelage, the female retaining the summer coat except on the ears and feet, which have turned white. The male specimen is a little more advanced in change, the ventral surface, rump, and flanks having become white as well as the ears and feet.

Summer pelage. — Female, No. 20770. Dusky gray brown, copiously varied with black; the underfur is pale plumbeous tipped with wood brown; the longer hairs are plumbeous for their basal half, then broadly ringed with pale wood brown and tipped with black. Lower back blackish; head brighter than the back, the hairs ringed subapically with rusty brown instead of pale wood brown. Prepectoral band very broad, rusty buff.

The male is similar in coloration where the summer coat still remains, the back being gray brown varied with black, and the top of the head rusty brown.

Measurements. — The external dimensions as taken by the collector are as follows: Total length, ♂, 455, ♀, 475; tail vertebræ, 40, 40; hind foot, 135, 130; ear, 74, 75. Skull: Occipital-nasal length, ♂, 74, ♀, 77.5; greatest zygomatic breadth, 38, 37; length of nasals, 27.5, 30; greatest width of nasals, 15, 14; alveolar length of molars, 13, 14.3.

If these specimens are correctly referred to *L. saliens*, the total length of the type of the species, "measured from dry skin," is apparently much too small (395 mm. as against 455 and 475 in the present specimens), as the other measurements conform satisfactorily with the Telegraph Creek specimens.

Although hares "were said to be not uncommon at Telegraph Creek," the "two specimens brought in on October 20 and 21" were the only examples secured.

29. ***Phoca richardii pribilofensis* Allen.** PRIBILOF HARBOR
SEAL.

Phoca richardii pribilofensis ALLEN, Bull. Am. Mus. Nat. Hist., XVI, 1902, 495. Dec. 12, 1902. Pribilof Islands, Alaska.

One skull, adult male, from the western end of the Alaska Peninsula. Total length of skull, 209; zygomatic breadth, 130.

30. ***Canis occidentalis* (Richardson).** GRAY WOLF.

Canis lupus, occidentalis RICHARDSON, Fauna Bor.-Amer., I, 1829, 60, 62. "Northern Wolf of America."

One specimen, old female, Little Tahltan River, August 17. Length, 2642; tail vertebræ, 406; hind foot, 254. Skull, total length, 200; zygomatic breadth, 127. General color

pale yellowish white, strongly varied with black over the whole dorsal area, where black is the prevailing color, including upper surface of tail; top and sides of head, from the eyes posteriorly, lighter, gray varied with black, the nose reddish brown, varied with black; ears externally ochraceous rufous, varied on the apical half with black, and whitish internally; fore limbs ochraceous buff, brightest externally; hind limbs similar but much paler.

31. *Vulpes alascensis abietorum* Merriam. FIR FOX.

Vulpes alascensis abietorum MERRIAM, Proc. Wash. Acad. Sci., II, 669. Dec. 28, 1900. Stuart Lake, B. C.

A young female, skin and skull, Level Mountain, September 12. This specimen is so young that it still retains the milk dentition. Consequently its relationship cannot be satisfactorily determined. It is referred here on geographical grounds.

32. *Ursus middendorffi* Merriam. KADIAK BEAR.

Ursus middendorffi MERRIAM, Proc. Biol. Soc. Wash., X, 69, April 13, 1896. Kadiak Island, Alaska.

Represented by 30 skulls from Kadiak Island, varying in age from young still retaining part of the milk dentition to very old males and females. Four of the largest old male skulls measure as follows: Total length (front of premaxillaries to end of occipital crest), 428 (408-440); basal length (gnathion to posterior border of occipital condyles), 402 (390-408); zygomatic breadth, 291 (282-303); interorbital breadth, 97.5 (94-100); width across postorbital processes, 138 (132-142). A large 'young adult' male (all the sutures still open): Total length, 405; basal length, 392; zygomatic breadth, 230; interorbital breadth, 86; postorbital processes, 116. Four other smaller but very old skulls, presumably females, measure: Total length, 366 (350-380); basal length, 336 (312-350); zygomatic breadth, 224 (220-227); interorbital breadth, 86 (83-91); postorbital processes, 122 (120-126). [October, 1903.]

33. *Ursus sitkensis* Merriam. SITKA BEAR.

Ursus sitkensis MERRIAM, Proc. Biol. Soc. Wash., X, 73, April 13, 1896. Coast, near Sitka, Alaska.

A single skull, obtained at Sitka.

34. *Ursus horribilis* Ord. GRIZZLY BEAR.

Ursus horribilis ORD, Guthrie's Geogr., 2d Am. ed., II, 1815, 291, 299. Montana (Merriam).

An old female and a male cub, skins and skulls, Shesley Mountains, September 2. The old female measures: Total length, 1626; tail vertebræ, 146; hind foot, 292. Skull: Total length, 332; basal length, 313; zygomatic breadth, 192; interorbital breadth, 75; postorbital processes, 105.

35. *Ursus americanus* Pallas. BLACK BEAR.

Ursus americanus PALLAS, Spic. Zoöl., fasc. xiv, 1780, 5.

An old male, skin and skull, Shesley Mountains, August 27. Total length, 1524; tail vertebræ, 152; hind foot, 229. Skull: Total length, 260; basal length, 252; zygomatic breadth, 170; interorbital breadth, 69; postorbital processes, 99.

36. *Putorius cicognanii richardsoni* (Bonaparte). RICHARDSON WEASEL.

Mustela richardsoni BONEPARTE, Charlesworth's Mag. Nat. Hist., II, Jan., 1838, 38. "North America" (Great Bear Lake, *apud* Bangs).

This animal is represented by 7 specimens, 5 males and 2 females, taken as follows: 6 specimens (4 males, 2 females), Telegraph Creek, August 11-15; 1 male, Level Mountain, September 17. They vary considerably in depth of color, some being much lighter than others, even when taken at the same place, on the same day. An examination of the skulls shows that in the case of both males and females, the palest specimens are very old adults and the darker ones young adults. One specimen (one of the oldest) differs from all the others in having no white on the hind feet and barely a trace of white on the fore feet.

The five males measure as follows: Total length, 330.5 (302-348); tail vertebræ, 99.5 (94-108); hind foot, 43.5 (41-46); ear, 20.5 (20-21.5). The two females measure respectively: Total length, 265, 250; tail vertebræ, 80, 70; hind foot, 34.5, 32; ear, 16, 16.

Four of the specimens are almost pure white below and the other three show a decided tinge of yellow.

37. *Putorius microtis*, sp. nov. SMALL-EARED WEASEL.

Type, No. 19964, ♂ ad., Shesley, September 24; M. P. Anderson.

Similar in coloration, including the white on the feet, to *Putorius c. richardsoni*, but very much smaller, with very small ears and very pronounced cranial characters.

Above dark brown, with a slight tinge of golden, but not very decidedly different from yellowish-brown specimens of *richardsoni*; below white, with a strong tinge of sulphur yellow; extent of white on the toes of both fore and hind feet about as in average specimens of *richardsoni*. Ears very small, 2 mm. less in height, and in general size one-half less than in *richardsoni*.

Skull. — Rostral and interorbital portions of the skull very broad, the nasals broader than in the much larger *richardsoni*; zygomata, weak, uniformly curved outwardly; postpalatal fossa small, narrow U-shaped; audital bullæ small, flat, very little inflated in comparison with *richardsoni*, the small development of the bullæ coördinated with the small external ear.

Measurements. — Total length, 295; tail vertebræ, 82; hind foot, 37; ear from crown, 19 mm. Skull: Total length, 40; zygomatic breadth, 20.5; length of nasals, 7; width of nasals at middle, 3.5; length of palate, 14; interorbital breadth, 9; postorbital breadth, 9.5; breadth across postorbital processes, 11; mastoid breadth, 14; breadth of skull across audital bullæ, 19; length of audital bullæ, 12; width of bullæ, 7; height of bullæ above postpalatal floor, 1.6; length of premolar-molar series, 9; length of lower jaw, 20; height at coronoid process, 9. The size of the skull is intermediate between that of male and female skulls of *richardsoni*, male skulls of *richardsoni* of exactly corresponding age having a length of 45 mm. as against 40 in the present species and 35 in the female of *richardsoni*.

Represented by a single adult male taken at Shesley, British Columbia, September 24.

While similar in coloration to *Putorius richardsoni*, it is

readily distinguished externally by the very small ears. Its very distinctive cranial features render further comparison with allied species unnecessary.

This weasel was trapped by Mr. Anderson "in the same bunch of balsam firs where the bushy-tailed rats were secured."

38. *Gulo luscus* (Linn.). WOLVERINE.

An adult female, from Oizenoy Bay, Alaska Peninsula, June 7. Total length, 965; tail vertebræ, 229; hind foot, 178. Skull, naso-occipital length, 148; basal length, 135; zygomatic breadth, 96; interorbital breadth, 39; breadth of post-orbital constriction, 34.

39. *Sorex personatus* I. Geoffroy. MASKED SHREW.

This species is represented by 34 specimens, collected as follows: Telegraph Creek, 21 (13 skulls and skins, and 8 additional skulls with field measurements), August 2 to 15 and October 19; Little Tahltan River, 1, August 18; Level Mountain, 2, September 15; Raspberry Creek, 9, October 7; and Sheep Creek, 1, October 14.

The Telegraph Creek and Raspberry Creek series measure as follows: Telegraph Creek, 20 specimens: Total length, 99.6 (96-104); tail vertebræ, 40.4 (37-44); hind foot, 11.9 (11-13); ear, 7.6 (7-8). Raspberry Creek, 9 specimens: Total length, 100 (96-105); tail vertebræ, 40.8 (40-42); hind foot, 11.9 (11-12); ear, 7.5 (6-8).

I also refer to this species 2 specimens taken by Mr. A. J. Stone on previous trips, as follows: Liard River, 1 specimen, Nov. 27, 1897; Fort Norman, 1 specimen, Sept. 17, 1898. From its very dark color the first mentioned of these two examples was formerly referred (this Bulletin, XII, 1899, p. 9) provisionally to *Sorex sphagnicola* Coues, but both agree well with the present species, and are too small to meet the requirements of *S. sphagnicola*.

The specimens from the Telegraph Creek region do not differ appreciably from specimens from northern Maine and New Brunswick.

40. *Sorex personatus streatori* Merriam. STREATOR SHREW.

Sorex personatus streatori MERRIAM, N. Am. Fauna, No. 10, Dec. 31, 1895, 62. Yakutat, Alaska.

Represented by 7 specimens from Wrangel Island, June 27 to July 7, and 2 from Kupreanof Island, November 3, the latter being in the plumbeous autumn pelage. The Wrangel Island specimens agree within about a millimeter with the measurements given by Dr. Merriam (N. Am. Fauna, No. 10, 1895, p. 63) for a series of 7 specimens from the same locality, Mr. Anderson's measurements being as follows: Total length, 107 (104-114); tail vertebræ, 45 (44-47); hind foot, 13.1 (13-13.5); ear, 7.7 (7-8.5). The Kupreanof specimens are slightly smaller and apparently less mature.

41. *Sorex obscurus* Merriam. MOUNTAIN SHREW.

Sorex vagrans similis MERRIAM, N. Am. Fauna, No. 5, Aug., 1891, 31, pl. iv., fig. 3. Salmon River Mountains, Idaho.

Sorex obscurus MERRIAM, N. Am. Fauna, No. 10, Dec. 31, 1895, 72 = *S. v. similis*, the name *similis* being preoccupied.

Represented by 33 skins and skulls and 7 additional skulls (with field measurements) collected at the following localities: Telegraph Creek, 10 specimens, July 15 to August 15; Cheonnee Mountains, 4, July 22-25; Shesley River, 4, August 23-31; Little Tahltan River, 1, August 18; Level Mountain, 4, September 15; Raspberry Creek, 10, October 7-13.

The Raspberry Creek series is in the ash gray pelage of winter, and thus contrasts strongly in color with all the others, which are in the brown pelage of summer. This series also averages slightly smaller in all of the measurements than those from the other localities, as shown by the following:

Telegraph Creek, 10 specimens: Total length, 112.9 (110-115); tail vertebræ, 45.3 (43-48); hind foot, 13 (12.5-13.5); ear, 8 (7-8.5).

Shesley River, 6 specimens: Total length, 115.3 (111-121); tail vertebræ, 45.6 (43-48); hind foot, 13 (12.5-15); ear, 8.6 (7.5-9).

Raspberry Creek, 10 specimens: Total length, 109.7 (102-

115); tail vertebræ, 44.3 (42-49); hind foot, 12.6 (12-13); ear, 7.8 (7-9).

Mr. Anderson states that the shrews were usually taken "where there was a growth of moss and lichens in moist places," or "in moist green spots near water," or "in groves of firs and pines, when the moss-covered ground was always damp."

42. *Sorex longicauda* (Merriam). LONG-TAILED SHREW.

Sorex obscurus longicaudata MERRIAM, N. Am. Fauna, No. 10, Dec. 31, 1895, 74. Wrangel, Alaska.

Represented by 20 specimens (topotypes) from Fort Wrangel, taken June 25 to July 7, of which 2 are males and 18 females. The 2 adult males measure respectively: Total length, 132, 137; tail vertebræ, 56, 58; hind foot, 15, 16; ear, 8, 8. The 11 adult females measure: Total length, 129 (122-138); tail vertebræ, 56 (53-59); hind foot, 15.2 (14.5-16); ear, 8 (7.5-8.5). The series is very uniform in coloration, both above and below.

Four of the six November specimens of *Sorex* from Kupreanof Island (near Wrangel Island), taken November 3, 4, and 8, are also referred to this subspecies. They differ, however, in color from the Wrangel June-July series in being dusky plumbeous above, and in showing only a slight trace of a buffy wash on the gray of the ventral surface. Two of the specimens are moulting, apparently into the plumbeous coat from the brown dress of the breeding season.

This species differs from *S. obscurus* in its considerably larger size and more brownish coloration, particularly through the brownish wash of the ventral surface.

Mr. Anderson states that these specimens were "usually trapped under damp, overhanging mossy banks, or about the roots of up-turned stumps."

[*Sorex richardsoni* Bachman. SADDLE-BACKED SHREW.

Three specimens of this species, not previously recorded, were taken by Mr. A. J. Stone at Fort Norman, Mackenzie

River, September 15, 16, and 17, 1898. This greatly extends to the northward the previous known range of the species, which has not been previously recorded from north of Edmonton, Alberta.]

43. **Sorex (Neosorex) palustris alaskanus** (*Merriam*). ALASKA
WATER SHREW.

Sorex navigator alaskanus MERRIAM, Proc. Wash. Acad. Sci., II, 1900, 18. March 14, 1900. Point Gustavus, Glacier Bay, Alaska.

Two specimens, skins and skulls (male and female), and an additional skull (female). Total length, ♂, 148, ♀, 154, ♀, 157; tail vertebræ, 68, 74, 74; hind foot, 19, 19, 20; ear, 7, 8, 6.5.

Mr. Anderson says: "I secured three specimens of a large dark gray shrew with silvery underparts, from the banks of Telegraph Creek, where there was a dense growth and the ground was always moist."

Vespertilionidæ. BATS.

"During July a few small bats were seen flying about the village of Telegraph, but none were secured." (Anderson, MS. notes.) Mr. Osgood (N. Am. Fauna, No. 19, 1900, p. 45) occasionally met with small bats between Caribou Crossing and Fort Selkirk, Alaska. The specimens obtained proved referable to *Myotis lucifugus* (Le Conte).

