

AN INTRODUCTION
TO THE STUDY OF
M A M M A L S
LIVING AND EXTINCT

BY

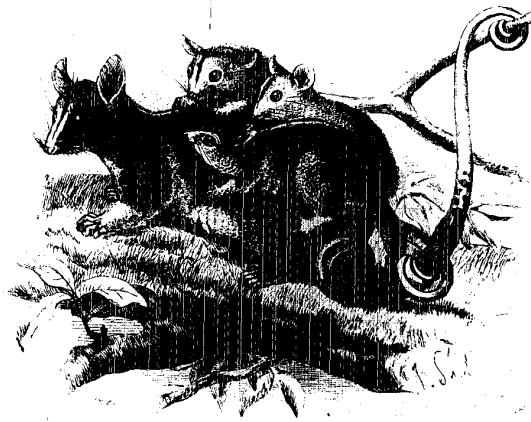
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THE WOOLLY OPOSSUM

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continent. According to Mr. O. Thomas,¹ the latter "little animal is most nearly allied to the West-African *A. beecrofti*, but differs from that species in its duller and less yellow upper side, in the entire absence of rufous on its neck and belly, and, as from all the other described species, in its diminutive size."

Family SCIURIDÆ.

Arboreal or terrestrial forms, with cylindrical hairy tails, with-



FIG. 198.—Lateral view of skull of American Marmot (*Arctomys monax*).

out scales, and with twelve or thirteen pairs of ribs. Skull (Figs. 198, 199) with distinct postorbital processes; infra-orbital opening small; palate broad; p_1^2 ; first upper premolar very small or deciduous; molars rooted, tubercular.

Subfamily Sciurinae.—Incisors compressed; form slender; tail long and

hairy. Cosmopolitan (excluding Australian region).

This subfamily includes the true Squirrels, of which seven existing genera are usually recognised.

Sciurus.²—Tail long and bushy; ears generally well developed, pointed, often tufted; feet adapted for climbing, the anterior having four digits and a rudimentary pollex, and the posterior with five digits, all of which have long, curved, and sharp claws. Mammary from four to six. Skull (Fig. 199) lightly built, with long postorbital processes. Penultimate upper premolar, when present, minute.

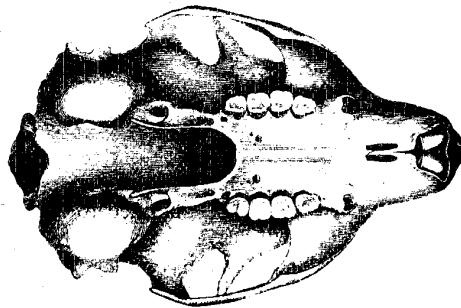


FIG. 199.—Palatal Aspect of cranium of Squirrel (*Sciurus bicolor*). Natural size.

¹ *Proc. Zool. Soc.*, 1882, p. 8.

² *Linn. Syst. Nat.* 12th ed. vol. i. p. 86 (1766).

natives of the Oriental region, except that one of *Sciuropterus* is found in North America, and another in Siberia and Eastern Europe.

Eupetaurus.¹—Externally as in *Pteromys*, except that the claws are less sharp. Skull with a more produced muzzle than in the latter, more distinct supraorbital notches, longer anterior palatal foramina, and a shorter bony palate. Cheek-teeth differing from those of all other *Sciuridae* in their hypsodont character. One large species (*E. cinereus*), from Gilgit and adjacent districts on the extreme north-west of Kashmir territory. This fine Flying Squirrel is chiefly known by one entire specimen and some imperfect skins.

Extinct Genera.—The genera *Pseudosciurus* and *Sciuroides*, from the Upper Eocene of Europe, have the molar teeth more elongated than in *Sciurus*. *Gymnophloeus* with $p \frac{1}{1}$, from the North American Miocene, approximates in the structure of its molars to *Tamias*. *Meniscomys* ($p \frac{3}{1}$), from the latter deposits, together with *Sciurodon* of the French Phosphorites, are regarded as Squirrels showing signs of affinity with the *Haplodontida*.

Subfamily Arctomyinæ.—Incisors not compressed; typically the form stout, and the tail comparatively short. This subfamily comprises burrowing forms which may be collectively known as Marmots; as already mentioned, they are so intimately connected with the preceding subfamily that the division into two groups is purely a matter of convenience. They are confined to the Palearctic and Neartic regions.

Arctomys.²—External form stout and heavy, ears short, tail short and hairy, cheek-pouches rudimentary or absent. Fore feet with four well-developed digits, and a rudimentary pollex provided with a flat nail. Skull (Fig. 198) large and heavy, with the post-orbital process stout, and at right angles to the axis. Incisors broad and powerful. First upper premolar nearly as large as the second. Molar series nearly parallel, scarcely converging behind at all.

The various species of true Marmot, which exceed a dozen in number, are all much alike in general appearance, ranging in size from about 15 to 25 inches in length, with tails from 3 to 12 inches long.

The Alpine Marmot (Fig. 201) is peculiar to Europe, being found in the Alps, Pyrenees, and Carpathians; its remains occur in European Pleistocene deposits. *A. bobak* occurs in Eastern Europe and Siberia. Several species (e.g. *A. monax*, Fig. 198) are found in the Neartic region, and many in Kashmir and Central Asia. The long-tailed Red Marmot (*A. caudatus*) is a fine Himalayan species, which may be seen on the mountain passes to the north of the valley of Kashmir, as soon as the snow begins to disappear,

¹ O. Thomas, *Journ. As. Soc. Bengal*, vol. lvii. p. 256 (1888).

² Schreber, *Säugethiere*, vol. iv. p. 721 (1792).

sitting at the entrance to its burrow, which is generally beneath a rhubarb plant.

The following account of the habits of the Alpine Marmot is given by Professor Blasius: "Marmots live high up in the snowy regions of the mountains, generally preferring exposed cliffs, whence they may have a clear view of any approaching danger, for which, while quietly basking in the sun or actively running about in search of food, a constant watch is kept. When one of them raises the cry of warning, the loud piercing whistle so well known to travellers



FIG. 204. — Alpine Marmot (*Arctomys marmotta*). — After Brehm.

in the Alps, they all instantly take to flight and hide themselves in holes and crannies among the rocks, often not reappearing at the entrance of their hiding-places until several hours have elapsed, and then frequently standing motionless on the look-out for a still longer period. Their food consists of the roots and leaves of various Alpine plants, which, like squirrels, they lift to their mouths with their fore paws. For their winter quarters they make a large round burrow, with but one entrance, and ending in a sleeping-place thickly lined with hay. Here often from ten to fifteen Marmots pass the winter, all lying closely packed together fast asleep until the spring."

Cynomys.¹—Size and form intermediate between *Arctomys* and *Spermophilus*. Ears and tail short. Cheek-pouches shallow. Fore

¹ Rafinesque, *Amer. Monthly Mag.* vol. ii. p. 45 (1817).