

Article XXVIII.—THE AUDITORY OSSICLES OF *APLodontia*.

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The genus *Aplodontia* alone represents in the modern fauna an ancient series of Sciuromorph rodents which, in one of its families, dates back as far as the Wasatch Eocene.<sup>1</sup> It seemed probable that the ear-bones, hitherto undescribed, would throw interesting light on the relationships of the genus; so I applied to Dr. J. A. Allen, who has very kindly loaned a couple of skulls of *Aplodontia pacifica* Merriam, from the vicinity of Tillamook, Oregon, for the purposes of this investigation.

The characters found are as follows:

Skull remarkably wide; auditory bullæ rather small, with long (about 12 mm.) tubular meatus, approximately at right angles to the longitudinal axis of the skull. The surface of the bulla is only moderately convex, and consists of very dense bone; but within there is a coarse honey-comb-like structure, with numerous transverse bony lamellæ dividing the middle ear into compartments, with the small cochlea suspended, as it were, in the midst. The condition is not unlike that found in *Ochotona*.

*Malleus* with a large rounded head (without the pointed process seen in *Marmota*), from which descends, beak-like, a strong processus cephalicus, bounding exteriorly a translucent plate or lamina, as in the Myomorpha. The processus gracilis, which should bound the lamina below, is scarcely developed, the edge being almost wholly without thickening. Cephalic peduncle broad and stout; no orbicular apophysis. Manubrium well developed, blade-like, narrowly spatulate apically, the entire substance thick and dense, not bimarginate. Processus brevis low and obtuse. Processus muscularis apparently represented by a slight angle nearly half-way down the manubrial margin, as is common in Sciuridæ.

*Incus* with a broad head, the interval between the articular surfaces marked by a conical prominence (not always so high as shown in the figure); processus brevis like that of Sciuridæ, but rather short; processus longus stout, truncate, apically curved, but without any sylvian apophysis.

*Stapes* with a large thick head, oval seen from above; crura diverging, leaving a large subtriangular opening on each side; stapedius muscle inserted a short distance below the head; on the side opposite the stapedius muscle the foot-plate is produced far beyond the crus, and there is at the

<sup>1</sup> Matthew. Bull. Amer. Mus. Nat. Hist., XXVIII (1910), pp. 69-71.

base of the crus a large round pit or aperture, which is translucent like the flat inner surface of the foot-plate between the crura.

Reviewing the above, it may be said that the incus and stapes, while possessing marked characters, are not fundamentally different from those of the *Sciuridæ*. The malleus, on the other hand, possesses the lamina

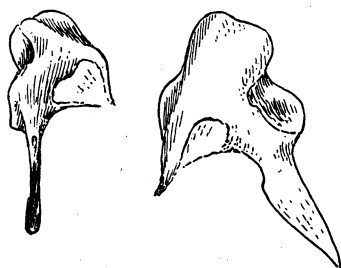


Fig. 1.

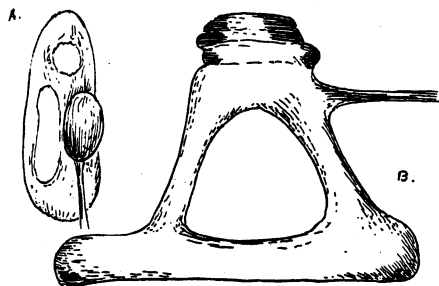


Fig. 3.

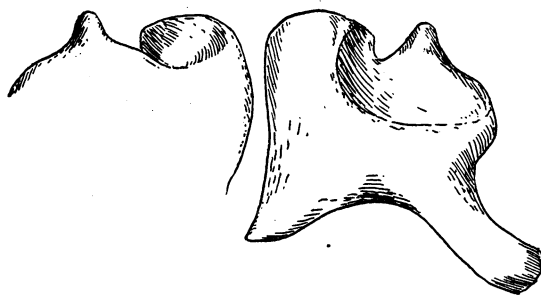


Fig. 2.

Fig. 1. *Aplodontia pacifica*. Malleus. Two views.

Fig. 2. " " Incus.

Fig. 3. " " Stapes. A, from above. B, from the side.

and processus cephalicus so characteristic of the *Myomorpha*, but lacks the orbicular apophysis.

It does not appear that on account of the malleus we are to dissociate *Aplodontia* from the *Sciuromorpha*, but we recall the argument<sup>1</sup> in favor of the view that the lamina is an ancient structure. According to this theory, the presence of cephalic process and lamina exactly fits in with the view that *Aplodontia* is (barring certain obvious specializations) the most primitive living *Sciuromorph*.

<sup>1</sup> Bull. Amer. Mus. Nat. Hist., XXXIII, p. 350.