

A PORCUPINE SKULL WITH A PAIR OF SUPERNUM-
ERARY WELL DEVELOPED INCISORS
IN THE UPPER JAW

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ONE FIGURE

The specimen here recorded and illustrated is unique so far as my observations on rodents extend and I have been unable to find mention of a similar case in the literature on mammals. The anomaly occurs in a young (deciduous premolars and first molars only teeth in place aside from the incisors) male Old World porcupine, *Acanthion longicaudum*, number 153973, United States National Museum, collected along the Kendawangan River, southwestern Borneo, July 10, 1908, by Dr. W. L. Abbott. This specimen was briefly referred to by me in a faunal paper in 1911.¹ The condition evidently being rare seems worthy of a special note.

The order Rodentia (Gidley² has recently shown that the Lagomorphs constitute an order apart from the rodents) is principally characterized among other things by the possession of a single pair of heavy cutting teeth in both upper and lower jaws. It is only in those rodents possessing more than three cheek teeth, in general the so-called Sciuromorphs and Hystricomorphs, that deciduous teeth occur. The one, or sometimes two, premolars usually found in these groups are preceded by milk molars. The first cheek tooth in the specimen here illustrated is a milk molar and was destined to be succeeded by a permanent premolar.

The incisors of rodents, usually considered to be the second

¹ Proc. U. S. Nat. Mus., vol. 40, p. 114, April 25, 1911.

² Science, n. s. vol. 36, pp. 285-286, August 30, 1912.

pair of incisors of the generalized mammalian dentition,³ are to be regarded as members of the permanent dentition rather than permanently retained milk incisors. In mammals when only one set of teeth is functional, it is probably the permanent set as is exemplified in the early shedding of the milk teeth in seals and in bats. If the small additional incisor here illustrated is correctly interpreted, it is further evidence that the cutting teeth of rodents are members of the permanent set of teeth. A consideration of the use of the rodent incisor makes it at once apparent that a rodent must possess permanently functioning incisors as it could ill afford to dispense with such necessary teeth during the period of casting off the milk incisors and the incoming of the permanent ones.

In the porcupine skull under consideration a pair of well developed supernumerary upper incisors is present. The incisors in the lower jaws are normal in every respect. These extra teeth are fairly large. Their shape, size, and relation to the upper incisors are illustrated, natural size, right and left sides, in figure 1 and need no detailed description. The entire incisor socket has been exposed on the right side of the skull and it is there seen that the supernumerary tooth extended posteriorly more than half the length of the normal tooth. During the process of cleaning or handling the skull, a few millimeters of the small right incisor were broken off at the free end. The root of the tooth was situated further back than is shown in the illustration; that is the small incisor on the right side should be placed further back in the socket, and the apparent free edge of the tooth on the right side is not what was its cutting edge. The free distal edge of the small left incisor is worn by contact with the opposing under incisor. The free edge of small now broken off right incisor was without doubt similarly worn. Although showing evidences of wear these teeth could have been of no service to the animal. The left incisor is worn in the reverse direction as compared with the normal rodent incisor, that is, the anterior surface of the tooth is worn away more than the

³ Weber, *Die Säugetiere*, p. 480, 1904.

posterior, well shown in the lower view, figure 1. This condition of wear was evidently brought about by the protection afforded the posterior surface as it lay in contact with the hard anterior surface of the normal tooth. The supernumerary inci-

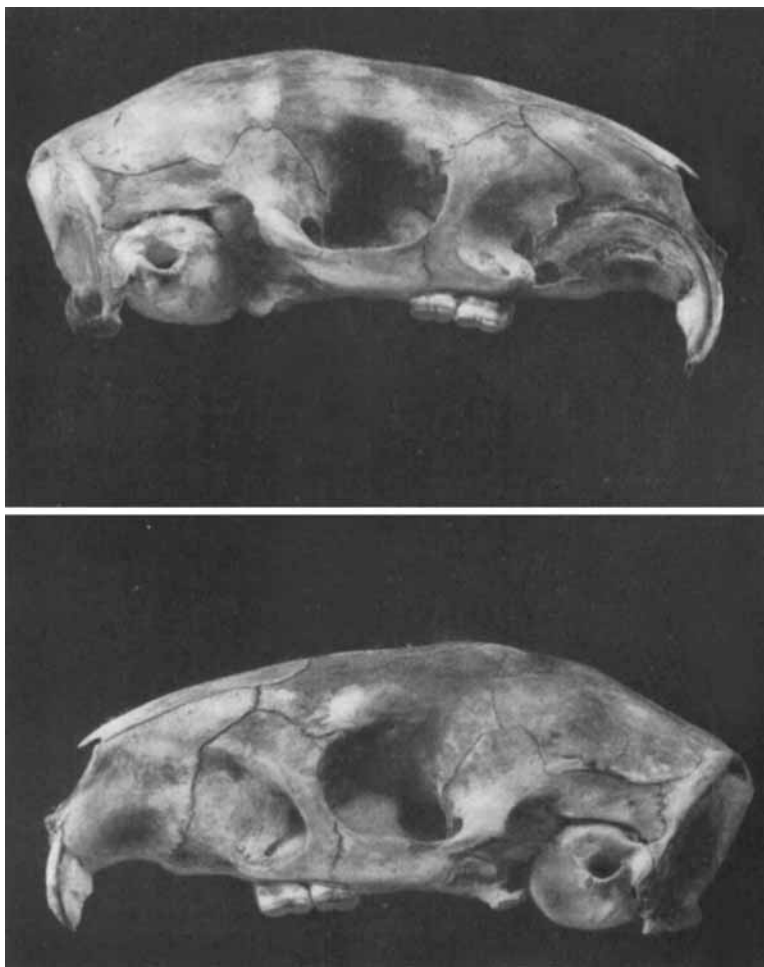


Fig. 1 Natural size view of skull of Old World porcupine, *Acanthion longicaudum*, number 153973, United States National Museum, from southwestern Borneo, collected by Dr. W. L. Abbott. It shows a small pair of extra incisors lying in front of the normal incisors.

sors seem to have an ill-defined layer of enamel covering them all around. In the center of the free extremities of these incisors is seen the remains of the dental canal just as it is also seen in the free extremities of the normal incisors. The posterior end of the small extracted tooth, the right one, shows typical incisor structure, a large pulp canal with walls thin at the base and progressively increasing in thickness anteriorly. Both small incisors show indistinct longitudinal striations and the left one has a well marked groove on the anterior face of the lower half of the exposed portion. There is no indication of a bony septum in the alveolus separating the small from the large incisor. There is nothing about the supernumerary teeth to indicate that they would not have persisted until or throughout adult life.

Rudiments of incisors have been described in the house mouse by Woodward⁴ and in the Sciuridae by Adloff,⁵ both authors giving reviews of the subject and many bibliographic references. The position of these vestigial teeth, occurring only in early embryonic life, as illustrated by these authors is essentially the same as with the porcupine, that is anterior to the permanent tooth.

To account for these anomalous teeth in the porcupine three explanations may be considered. First, that the occurrence is simply pathologic without any other significance. Second, that the small incisor corresponds to one of the incisors lost from the normal mammalian dentition in the evolution of the rodents. In that case it ought to lie in a separate alveolus. Third, that it is a hypertrophied and persistent milk incisor, the view that I consider the most rational. The occurrence of persistent or least partially persistent milk incisors is not infrequent in man, the mammal in which abnormal conditions most frequently come to notice.

In conclusion, I wish to express my thanks to the authorities of the United States National Museum, particularly to Mr. Gerrit S. Miller, Jr., Curator, Division of Mammals, for the privilege of studying and recording this specimen.

⁴ *Anat. Anz.*, vol. 9, pp. 619-631, 1894.

⁵ *Zool. Anz.*, vol. 20, pp. 324-329, 1897; and *Jena Zeitschr. Naturwiss.*, vol. 32, pp. 347-410, 1898.