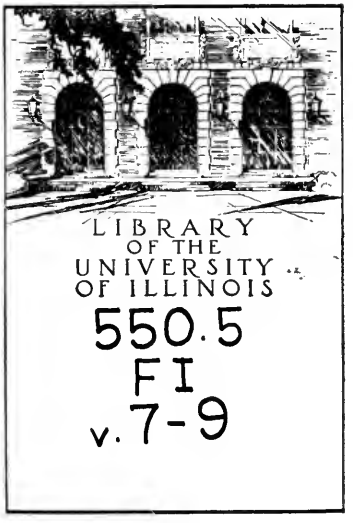
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A NEW MIOCENE LAGOMORPH

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The recent discovery of a new lagomorph of distinctive type in American Miocene deposits adds another species to a small group of perplexing members of the order from the Tertiary of Eurasia and North America. The close similarity in dental structure of the new specimen to *Oreolagus nevadensis* Dice (1917) of the late Miocene Virgin Valley local fauna necessitates its inclusion in that genus. *Oreolagus*, hitherto known from but one jaw, has stood since its description without a secure position in lagomorph taxonomy. The new specimen serves to establish the genus on a firm basis, but unfortunately does not permit definite conclusions concerning its relationships.

The drawings were made by Mr. John Conrad Hansen. I am indebted to Mr. John Burke for helpful suggestions.

Oreolagus Dice 1917.

Paleolagus Kellogg 1910, Univ. Calif. Publ., Bull. Dept. Geol., 5, p. 435 (in part).

Oreolagus Dice 1917, Univ. Calif. Publ., Bull. Dept. Geol., **10**, p. 182.

Genotype.—*Paleolagus nevadensis* Kellogg 1910.

Distribution.—Virgin Valley (upper Miocene), Nevada and Marsland (late lower Miocene or early middle Miocene), Nebraska.

Emended diagnosis.—Lower dentition I, $P_{\overline{3}-\overline{4}}$, $M_{\overline{1}-\overline{2}}$.[1] Cheek teeth fully hypsodont; $P_{\overline{3}}$ simple and small with only a single external re-entrant angle in adult specimens; molariform teeth with columns united by narrow neck, and with deep internal and external valleys; columns strongly angular externally and rounded internally.

[1] Both Kellogg (1910) and Dice (1917) believed $M_{\overline{3}}$ to have been lost in the holotype of *Oreolagus nevadensis*. The posterior part of the jaw was covered with matrix, however, and it was only assumed that an alveolus was present. I am indebted to R. A. Stirton for removing some matrix from the specimen, thereby determining that no alveolus for $M_{\overline{3}}$ existed.

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Oreolagus nebrascensis sp. nov.

Holotype.—F.M. No. P26280, right ramus with complete cheek tooth series.

Locality and horizon.—Twenty miles southwest of Chadron, Dawes County, Nebraska, NE ¼, sec. 28, T. 30 N., R. 49 W.; Marsland formation, early middle Miocene.

Diagnosis.—Differs from *O. nevadensis*, the only other known species of the genus, in the following characters: P_3 relatively smaller, anterior and internal faces slightly concave to base of tooth; posterior columns of P_4 and lower molars narrower transversely than anterior columns; connections between columns wider.

Description.—The mandible of *Oreolagus nebrascensis* is small—about half as large as that of *Sylvilagus baileyi*. It is proportionately short antero-posteriorly and deep vertically (see Measurements). The diastema is relatively short, occupying less space than the cheek tooth series (P_3-M_2). The masseteric scar extends anteriorly to a point beneath the posterior portion of M_2. The mandibular foramen is large and lies in the usual lagomorph position. Both posterior and anterior mental foramina are present, the former situated low on the ramus beneath the posterior portion of P_4 and the latter high, halfway between P_3 and the incisive alveolus. Only the dorsal surface of the alveolus for the incisor is preserved but it shows that this portion of the tooth was evenly rounded. All of the cheek teeth are rootless and completely hypsodont, their bases presenting exactly the same pattern as their crowns. P_3 is composed of a single, roughly quadrangular column, partially divided externally by a re-entrant angle extending nearly halfway across the tooth. The antero-posterior diameter of the anterior portion is greater than that of the posterior, but the anterior is about one-third narrower transversely. The internal border is slightly concave, possibly indicating that an internal valley may have been present in the unworn tooth. The anterior border is also slightly concave but less so than the inner. The remaining cheek teeth are very much alike. Each is divided into two columns that are united by a relatively narrow neck, with a deep valley between the columns both internally and externally. The columns are of about equal antero-posterior diameter but the posterior ones are somewhat narrower transversely. P_4 is wider and about one-third longer antero-posteriorly than P_3. M_1 is slightly longer than P_4, and M_2 is equal in antero-posterior diameter to P_4. P_4 and the molars are of equal transverse diameter.

Discussion.—The known lower jaws of *Oreolagus* do not have enough characters of supergeneric significance to permit a positive allocation of the genus to either the Leporidae or the Ochotonidae. Certain mandibular characters, such as the possession of deep internal valleys in the lower molars, and the presence of a posterior foramen and triangularly rounded incisors, have been regarded as typical of the Ochotonidae. It seems, however, that none of them is really diagnostic. Deep internal valleys on the molars occur in

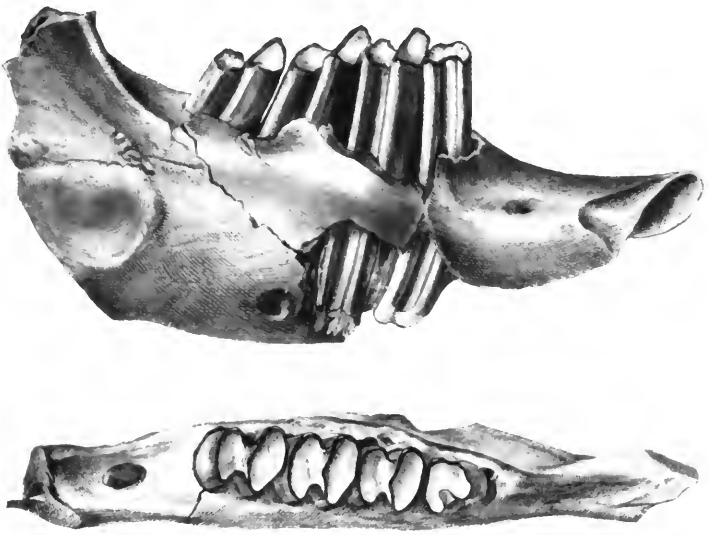

FIG. 14. *Oreolagus nebrascensis* sp. nov. F.M. No. P26280. Holotype. Right ramus with $P_{\overline{3}}$–$M_{\overline{2}}$. Dorsal and lateral views. × 5.

the living leporid genus *Romerolagus*, and Burke (1936, p. 152) reports that this condition "... can be found in certain species of *Paleolagus*." The presence of a posterior, as well as an anterior, mental foramen seems to lose value as a family character as we go back in time. Both foramina occur in *Mytonolagus*, *Desmatolagus*, *Paleolagus*, and other early genera, a fact which suggests that the presence of a posterior foramen is characteristic not only of the Ochotonidae, but of primitive lagomorphs in general. Similarly, whereas the triangularly rounded incisor seems to be characteristic of living ochotonids, this character is again shared by all primitive genera.

In nearly every character of the jaw and lower dentition *Oreolagus* is very close to *Amphilagus antiquus* of the European late Oligocene

(see especially figures given by Viret, 1929, pl. 29, fig. 13b). $P_{\bar{3}}$ is of almost exactly the same structure and the molariform teeth are very similar, with transversely wide columns separated by deep internal and external valleys. The tooth formula of *Amphilagus* differs from that of the American form in the retention of $M_{\bar{3}}$, but, as this tooth is much reduced in the former, the difference would not bar relationship. I cannot detect any fundamental difference between the lower dentitions of the two genera. Burke (1936) is of the opinion that *Amphilagus* is close to *Desmatolagus*, and thus leporid.[1] On the other hand, however, *Oreolagus* is equally close to the Chinese *Sinolagomys* (Bohlin, 1937) and the South African *Austrolagomys*, both of which, as indicated by their upper dentitions, are quite certainly ochotonid. If Burke is correct in assigning *Amphilagus* to the Leporidae we cannot, with confidence, place *Oreolagus* in either family until its upper teeth are known. If, however, both *Amphilagus* and *Desmatolagus* should prove to be ochotonids, then *Oreolagus* certainly will fall within that family. On the basis of lower jaws alone I can see little reason why *Oreolagus* should not be regarded as a descendant of *Desmatolagus*.

More material, especially upper dentitions, will be necessary before the affinities of *Oreolagus* can be precisely determined.

MEASUREMENTS

(*In millimeters*)

$P_{\bar{3}}$ A–p	1.3
$P_{\bar{3}}$ Tr	1.5
$P_{\bar{4}}$ A–p	1.7
$P_{\bar{4}}$ Tr	1.8
$M_{\bar{1}}$ A–p	1.8
$M_{\bar{1}}$ Tr	1.9
$M_{\bar{2}}$ A–p	1.7
$M_{\bar{2}}$ Tr	1.8
Cheek tooth series, $P_{\bar{3}}$–$M_{\bar{2}}$	6.8
Depth of ramus under $M_{\bar{2}}$	6.4

[1] Most authors have regarded *Desmatolagus* as an ochotonid (Matthew and Granger, 1923 and 1925; Stromer, 1926; Teilhard de Chardin, 1926; Dice, 1929; and Viret, 1929). Burke (1934 and 1936) pointed out certain specializations in the teeth of *Desmatolagus* which he believed to indicate leporid affinities. He was followed in this by Wood (1940) who presented additional leporid characters of *Desmatolagus*.

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