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PALEONTOLOGY AND GEOLOGY OF THE BADWATER CREEK AREA, CENTRAL WYOMING

Part 6. The leporid *Mytonolagus* (Mammalia, Lagomorpha)

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INTRODUCTION

One of the best represented small mammals in upper Eocene localities along Badwater Creek is *Mytonolagus*. Specimens of this leporid have been found there at all localities of this level, not only isolated teeth but also maxillae, partial jaws, and a few postcranial parts.

The genus *Mytonolagus*, the only described North American late Eocene leporid, was first reported from Uintan (Myton) and Duchesnean (Randlett) aged deposits in the Uinta Basin (Burke, 1934), where the species *M. petersoni* occurs. Later, Wood (1949) reported the genus from along Badwater Creek and named the new species *M. wyomingensis* on the basis of his Wyoming material. Thirteen isolated teeth from one locality (Wood Locality of Black and Dawson, 1966: fig. 1; this and other localities shown there) constituted Wood's sample. A later collection from a different upper Eocene locality along Badwater Creek (Gazin, 1956:8), probably Locality 5, 6, or 7, yielded a maxilla with P^3-M^2 that was referred to *M. wyomingensis*. Other reports of *Mytonolagus* since Burke's original description are Russell's (1965:8-9) reference of material from Swift Current Creek, Saskatchewan, to the Uinta Basin species, *M. petersoni*, and Black's mention (1967:62) of the genus in the Shoddy Springs (Montana) local fauna.

New material from Wood Locality adds to the record of *M. wyomingensis* from its type locality. Even more abundant, however, are specimens of *Mytonolagus* from Localities 5 and 6, located to the west of Wood Locality. These specimens differ from those from the type

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locality in a number of characters, most of which indicate a more primitive level of development than in *M. wyomingensis.* Locality 7 also has yielded remains of *Mytonolagus,* although less abundant, in a level of development comparable to that at localities 5 and 6. Specimens from localities 5, 6, and 7 are all referred to here as *Mytonolagus* near *M. petersoni.* Finally, Rodent Locality has produced specimens referable to *M. wyomingensis,* although these show a few differences, possibly advances, from Wood Locality specimens.

The following abbreviations have been used: ACM, Amherst College Museum; CM, Carnegie Museum; NMC, National Museum of Canada; ROM, Royal Ontario Museum; UCM, University of Colorado Museum; USNM, United States National Museum.

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SYSTEMATICS

Mytonolagus wyomingensis

Figures 1-12, Table 1

LOCALITIES: Wood (type) Locality (63 teeth in CM; 13 teeth in ACM) and Rodent Locality (25 teeth in CM).

EMENDED DIAGNOSIS: Species of *Mytonolagus* with buccal root on P^{3-4} showing some sign of separation into two parts. Hypostria on P^3-M^2 more persistent than in M. *petersoni.* On M^{1-3} limit of enamel deposition reached buccally before tooth is worn out; buccal pattern eliminated at relatively earlier wear stage than in *M. petersoni.* Trigonid of P_3 narrower transversely than talonid, has anterolingual groove in early wear; following wear trigonid and talonid united medially between buccal and lingual folds, and finally lingual fold worn away. On P_4-M_3 posterolophids present in early wear; lingual groove between trigonid and talonid persists nearly as far as buccal groove.

DESCRIPTION: Only isolated teeth are known, but they provide a more complete sample and show a greater range of wear stages than in the sample available to Wood.

No unworn or little-worn specimens of P^2 are represented. The worn pattern (fig. 1) shows three lobes transversely oriented. The central lobe is largest and protrudes anteriorly. The groove between central

TABLE 1

MEASUREMENTS IN MILLIMETERS OF *Mytonolagus wyomingensis*

	Number	Observed Range	Mean
P^2 a-p	2	1.15-1.22	1.19
width		1.49	1.49
P^3 a-p	4	1.70-1.90	1.80
width		2.44-3.46	2.88
P^4 a-p	3	1.83-2.03	1.95
width		2.41-3.05	2.69
M^1 a-p	1	1.83	1.83
width		2.85	2.85
M^2 a-p	2	1.36-1.70	1.53
width		2.17-2.37	2.27
M^3 a-p	3	0.81-0.95	0.86
width		1.36-1.73	1.56
P_3 a-p	4	1.76-2.03	1.88
width trigonid		1.22-1.42	1.35
width talonid		1.63-1.83	1.72
M_3[1] a-p	1	1.42	1.42
width trigonid		1.46	1.46
width talonid		1.19	1.19

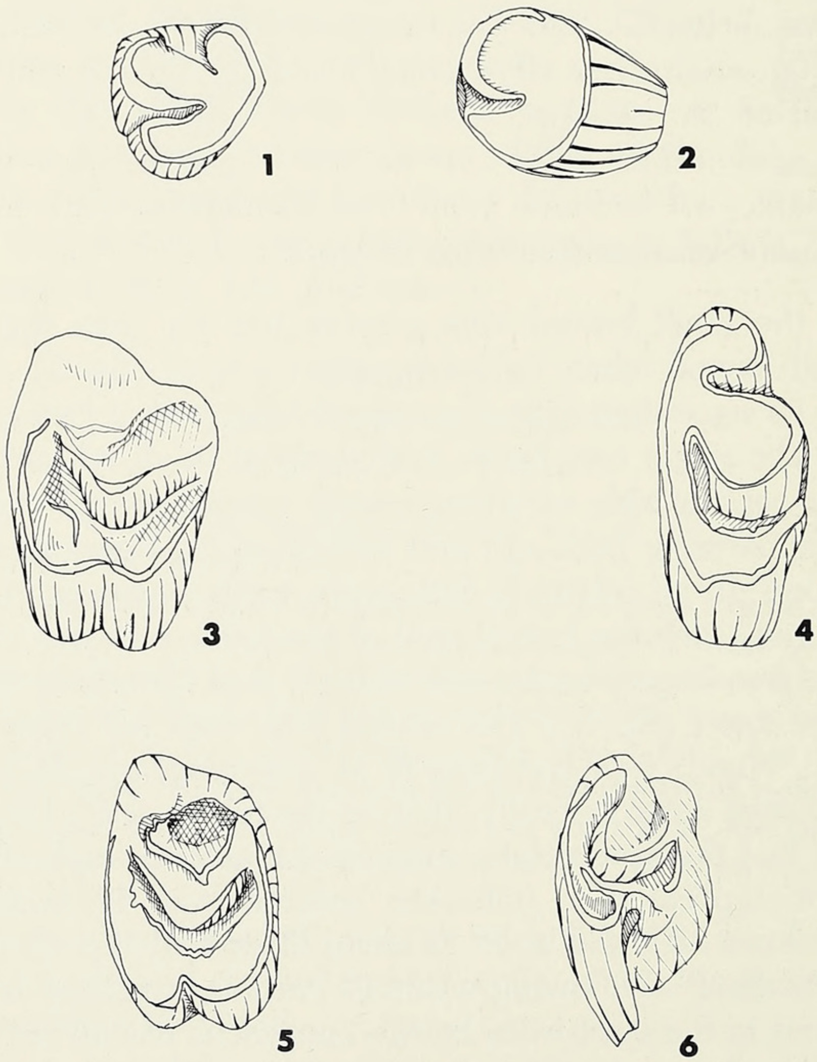
[1]Rodent Locality; all others from Wood Locality.

lobe and the small buccal lobe persists less far than that between central and lingual lobes. Following greater wear (fig. 2) this buccal lobe loses its separation from the central lobe, with a two-lobed tooth resulting. The single root bends posteriorly at its distal end.

There is considerable variation among specimens of P^3 from Wood Locality, apparently both age and individual, in development of the anterior loph. In all relatively little-worn teeth, however, the anterior loph does not reach the buccal wall of the tooth, and two valleys, one buccal and one lingual to the central lobe, thus open onto the anterior face of the tooth (fig. 3). The central lobe does not contact the anterior loph. Wood's type specimen of *M. wyomingensis,* ACM 10022, is a tooth, broken anterobuccally, that he described as P^3. On this tooth it appears that the central lobe contacts the anterior loph. This condition is not duplicated in unbroken specimens of P^3 from the type locality, but can be found on P^4. It seems likely that Wood's type specimen is actually P^4. Following wear, P^3 becomes widened transversely (fig. 4), and in the most-worn known specimens has all pattern eliminated except the crescentic valley lingual to the central lobe. There is one buccal root, usually grooved medially and variable in showing one or two pulp cavities at its distal end.

Only two specimens of P^3 are known from Rodent Locality, but these show some advance over those from the type locality in having a central lobe that bends more sharply anterobuccad, and two distinct pulp cavities in the buccal root.

On P^4 the buccal root is grooved medially, and has two pulp cavities. The pattern in a moderately worn specimen (fig. 5) shows a shallow hypostria, central lobe that contacts the well-developed anteroloph, and posterior (Wood's metacone), or posterior and anterior (Wood's paracone), buccal cuspules. As with P^3, the one known P^4 from Rodent Locality is advanced beyond those from the type locality in the more pronounced anterobuccal swing of the central lobe and in the greater separation of the buccal root into two parts.



Figs. 1-6. *Mytonolagus wyomingensis*, occlusal views of teeth, x 10. fig. 1: CM 21613, left P^2. fig. 2: CM 15233, left P^2. fig. 3: CM 15219, right P^3. fig. 4: CM 21610, right P^3. fig. 5: CM 21614, right P^4. fig. 6: CM 15439, left M^1.

On little-worn M^1 (fig. 6) the central lobe has a more pronounced posterobuccal protrusion than on M^2 (fig. 7). Following wear, the pattern becomes reduced to crescent and hypostria, and finally the buccal part of the hypostria forms an isolated lake. Deposition of the enamel is such that in well-worn specimens the tooth is past the enamel limit on the buccal side.

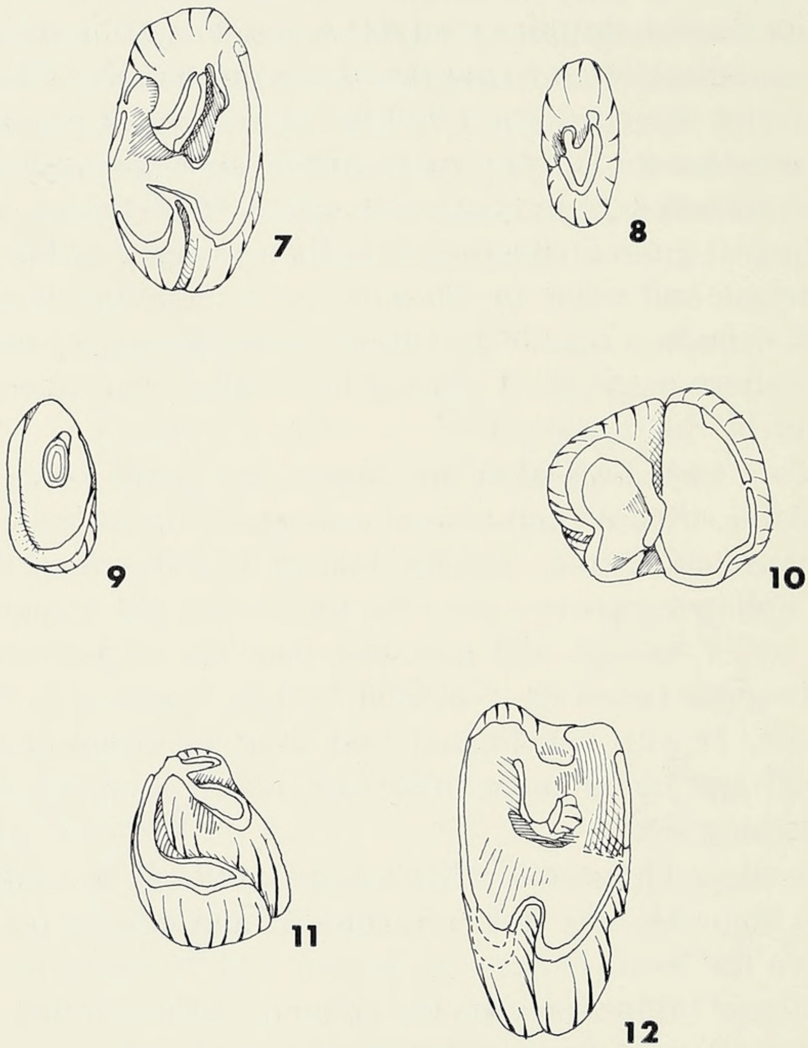
The three known specimens of M^3 from Wood Locality show that the tooth is reduced and compressed anteroposteriorly. The least-worn specimens (fig. 8) show the tooth to be composed primarily of the trigon. A deep buccal fold is present within the trigon and a very small posterior protrusion represents the talon. With wear, all pattern except a lingual groove, comparable to the hypostria on M^{1-2}, is present between trigon and talon. In the most worn stage known (fig. 9), the tooth is a cylinder, enamel is absent posterobuccally, and the only trace of pattern is a small enamel-lined lake, the remnant of the buccal end of the hypostria.

No unworn specimens of P_3 are known, but in the least-worn specimens available, trigonid and talonid are separate columns; the trigonid has an anterolingual fold, and the talonid is wider than the trigonid (fig. 10). Following greater wear the fold is lost, the trigonid becomes relatively wider, though still narrower than the talonid, and the two columns become joined by a medial bridge, resulting in lingual and buccal folds. Finally, the lingual fold loses its connection with the lingual wall and forms an isolated lake, which is worn away following still greater wear.

Well developed posterolophids occur on P_4-M_2 in early stages of wear. The lingual groove between trigonid and talonid persists nearly as far down the tooth as does the buccal fold. None of the specimens shows a lingual bridge between the columns, although this might form in a very well-worn tooth. The talonid is slightly narrower transversely than the trigonid and both taper buccally.

The only known M_3 is from Rodent Locality. This tooth has separate trigonid and talonid, with the posterolophid indicated by a posterior expansion of the tooth and a posterobuccal groove.

Only two specimens of deciduous teeth are known. DP^2 (fig. 11) has three transversely oriented lobes, which join one another posterobuccally. The buccal lobe is very small and the lingual lobe forms most of the posterior wall. DP^4 of *M. wyomingensis* (fig. 12) is less worn than that of *M. petersoni*, CM 11932, having the hypostria still connected to the lingual side of the tooth. The anterior arm of the central lobe joins the anterior lobe bucally at this stage of wear, whereas in the more worn dP^4 of *M. petersoni,* anterior and central lobes are still independent bucally.



Figs. 7-12. *Mytonolagus wyomingensis,* occlusal views of teeth, x 10. fig. 7: CM 15221, right M^2. fig. 8: CM 16012, right M^3. fig. 9: CM 16013, left M^3. fig. 10: CM 15224, right P_3. fig 11: CM 21654, right dP^4. fig. 12: CM 21612, left dP^4.

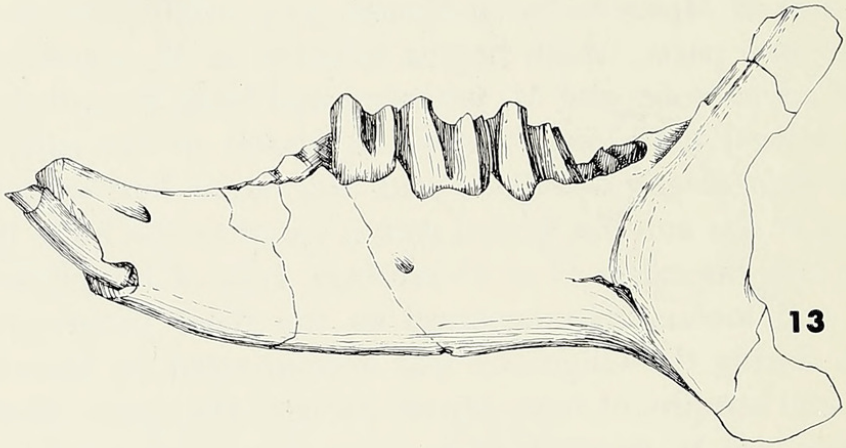
DISCUSSION: In his description and discussion of *Mytonolagus wyomingensis,* Wood (1949:561-565) considered some of this species' characters to be more primitive and some more advanced than in *M. petersoni,* but he concluded that *M. wyomingensis* is "a form close to, and perhaps even more primitive than, the Uinta *Mytonolagus petersoni.*" The characters considered primitive by Wood, which were taken from

ACM 10022, interpreted by him as P^3 but here as P^4, were position of the metacone, and the poorly developed hypocone. The now-known specimens of both P^3 and P^4 show that these teeth in *M. wyomingensis* are actually more advanced than in *M. petersoni.* On P^3 and P^4 the hypostria, separting "protocone" and "hypocone" parts of the lingual lobe, is more persistent than in *M. petersoni,* and P^4 has better developed anterior buccal cuspules (paracone and metacone of Wood). It is not clear whether Wood considered the formation of two buccal roots on the premolars as a primitive or an advanced feature of *M. wyomingensis,* but it appears to be advanced. In the most prinimtive known late Eocene lagomorph, the Asian *Lushilagus lohensis,* both P^3 and P^4 have a single buccal root (Li, 1965:30). This condition occurs also in *Mytonolagus petersoni.* The subdivision of the buccal root into two parts, which begins to occur in *M. wyomingensis,* is a stage of advance beyond *M. petersoni* and leads toward the condition of two buccal roots on P^{3-4} such as occurs in the early Oligocene leporids *Palaeolagus temnodon and Megalagus brachyodon.* In these forms on P^3 the anterior buccal root is fused to the large lingual root, and the two buccal roots of P^4 are free. Loss of buccal roots on premolars and molars that occurred in the more progressive lines of leporids during the Oligocene was accompanied by increased hypsodonty and atrophy of more buccal parts of the upper cheek teeth. In the molars also *M. wyomingensis* shows advance beyond *M. petersoni,* especially in longer persistence of the hypostria and earlier elimination of buccal parts of the molar pattern. The leporid from Badwater Localities 5, 6, and 7, described below, seems to be a good intermediate between *M. wyomingensis* and the more primitive *M. petersoni.*

Mytonolagus near *M. petersoni*
Figures 13-27, Tables 2, 3

LOCALITIES: 5 (70 teeth, 3 maxillae, 2 jaw fragments in CM), 5A (52 teeth, 1 jaw fragment in CM; 21 teeth in UCM), 6 (37 teeth, 6 maxillae, 1 jaw in CM), 7 (11 teeth in CM); 5, 6, or 7, USNM 21090, left maxilla with P^3M^2.

DESCRIPTION: This leporid is represented by more complete upper and lower jaw material than is *M. petersoni* from the Uinta Basin. The parts than can be compared show agreement between the two forms in most features. The zygoma protrudes laterally about in line with the anterior margin of P^4, which is slightly more posterior than in *Palaeolagus temnodon.* There are two mental foramina on the jaw (fig. 13), the more posterior of which is in line with the talonid of P_4, as in *M. petersoni.* The more anterior foramen is relatively far forward below the diastema, in an area not preserved in known specimens of *M. petersoni.* The anterior mental foramen is more posteriorly situated on the diastema in *P. temnodon.* The anterior border of the masseteric fossa reaches to below M_3, with a knob and fairly well-developed ridge forming the anteroventral border of the fossa. On the medial surface of the jaw the swelling over the shaft of the incisor terminates posteriorly in a line below the anterior of M_2, about as in *M. petersoni.*



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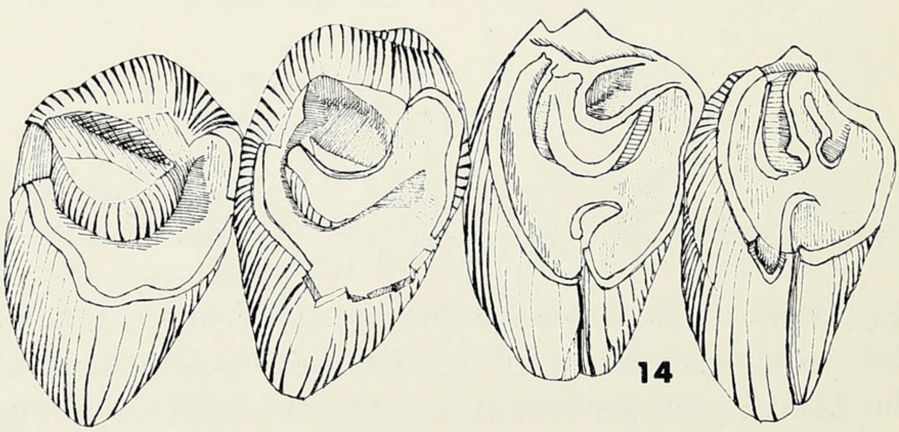

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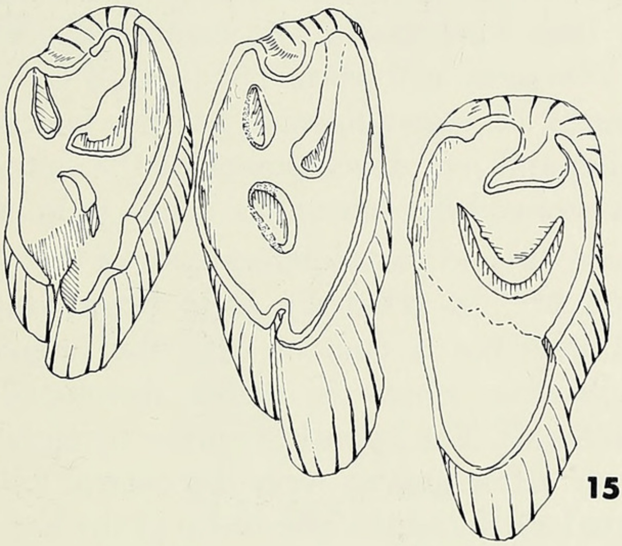
Figs. 13-14. *Mytonolagus* near *M. petersoni.* fig. 13: CM 21615, lateral view of left jaw, x 2½. fig. 14: CM 19742, occlusal view of left P^3-M^2, x 10.

Considering the proportions of the cheek teeth to one another (figs. 14, 15, 16) in both *M. petersoni* and *Mytonolagus* near *M. petersoni,* M^2 is slightly smaller than M^1, with the reduction of M^2 especially marked posterobuccally. *Palaeolagus temnodon* has a relatively more reduced M^2. In the lower jaw M_{1-2} are subequal in *M. petersoni* and *Mytonolagus* near *M. petersoni,* or M_2 may be slightly larger. Both these molars are larger than P_4. In *P. temnodon,* P_4-M_2 are more nearly equal in size.



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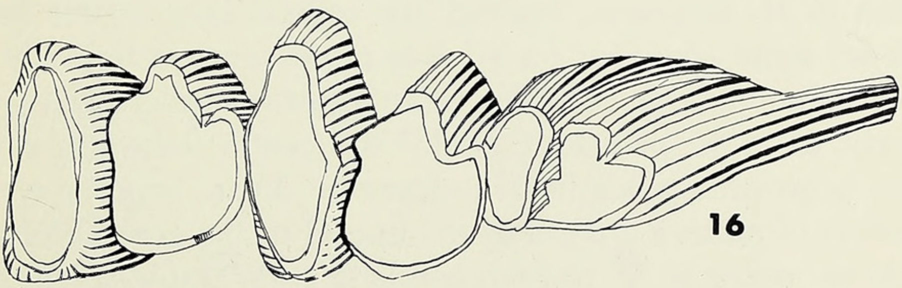

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Figs. 15-16. *Mytonolagus* near *M. petersoni,* occlusal views of teeth in jaws, x 10. fig. 15: CM 14403, right P^4-M^2. fig. 16: CM 19770, right M_{1-3}.

The groove of the upper incisor is slightly medial of center, and the medial portion protrudes farther anteriorly than the lateral.

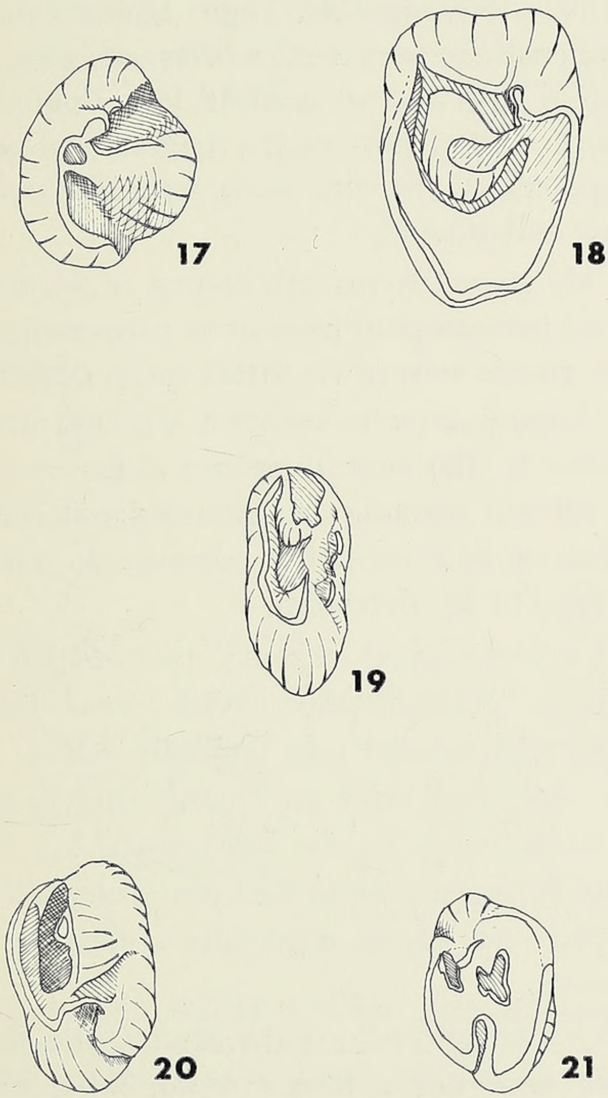
The first upper cheek tooth, P^2 (fig. 17), consists of three lobes, transversely oriented as in *M. wyomingensis.* Even in the most worn specimen available, three lobes are still present as they are in the very worn type specimen of *M. petersoni,* and it appears that the two-lobed shape found in worn P^2 of *M. wyomingensis* would not occur here. The roots are fused into a wider posterior and narrower anterior part or may separate into two parts at the distal end.

As in *M. petersoni* and *M. wyomingensis,* P^3 exhibits variation in transverse width of the anterior loph. The lingual groove is barely indicated, even in relatively unworn teeth, and thus is similar to that in *M. petersoni,* but less well developed than in *M. wyomingensis.* The single buccal root has one pulp cavity, as in *M. petersoni.*

The lingual hypostria is only rudimentary on P^4 (fig. 18), shallow even in relatively little-worn teeth. The central lobe remains distinct from the anterior lobe until well worn. The tooth is less well developed anterobuccally than in *M. wyomingensis,* has less buccad development of the anterior lobe, and less development of the antero-buccal cusp. The buccal root is grooved but has only a single pulp cavity.

The central lobe of M^1 and posterobuccal part of that tooth are better developed than on M^2. In relatively little worn examples of both teeth, the central lobe has a contact with the lingual shelf and a posterobuccal protrusion which is better developed and extends farther on M^1 than on M^2. The hypostria curves strongly posterobuccad at this stage of wear. After greater wear the central lobe loses its connection to the lingual shelf and the buccal tip of the hypostria forms an isolated lake. These teeth differ from those of *M. petersoni* in two principal features. First, the hypostria extends closer to the enamel limit than in *M. petersoni.* Second, the central lobe in this Badwater form shows some advance: on M^1 it is more concave buccally and its posterior connection is oriented more posterobuccally than directly posteriorly, as in *M. petersoni;* on M^2 the central lobe has a stronger posterior protrusion than in *M. petersoni.* Even in very well worn teeth, traces of pattern are preserved buccal to the central lobe. These traces do not occur in *M. wyomingensis* in comparable stages of wear. Enamel persists on the buccal side of the molars even in very well worn stages in contrast to *M. wyomingensis,* in which the buccal enamel is absent in well worn teeth.

It appears that considerable reduction has already affected M^3 (figs. 19-21), but the tooth is distinctly more robust and less reduced than in *M. wyomingensis.* When unworn, the trigon shows a strong V-shape with a rounded remnant of the central lobe in the buccal opening of the V. Posterior to this is the protrusion of the talon, developed lingually but not bucally. In the most worn specimen available there is a hypostria, lingually between trigon and talon, and an isolated lake. The only known, very worn M^3 of *M. petersoni*, CM 11937, is somewhat larger than most specimens of this tooth of *Mytonolagus* near *M. petersoni*.



Figs. 17-21. *Mytonolagus* near *M. petersoni*, occlusal views of teeth, x 10. fig. 17: CM 18245, right P^2. fig. 18: CM 21653 left P^4. fig. 19: UCM 24748, left M^3. fig. 20: UCM 24781, left M^3. fig. 21: CM 21620, right M^3.

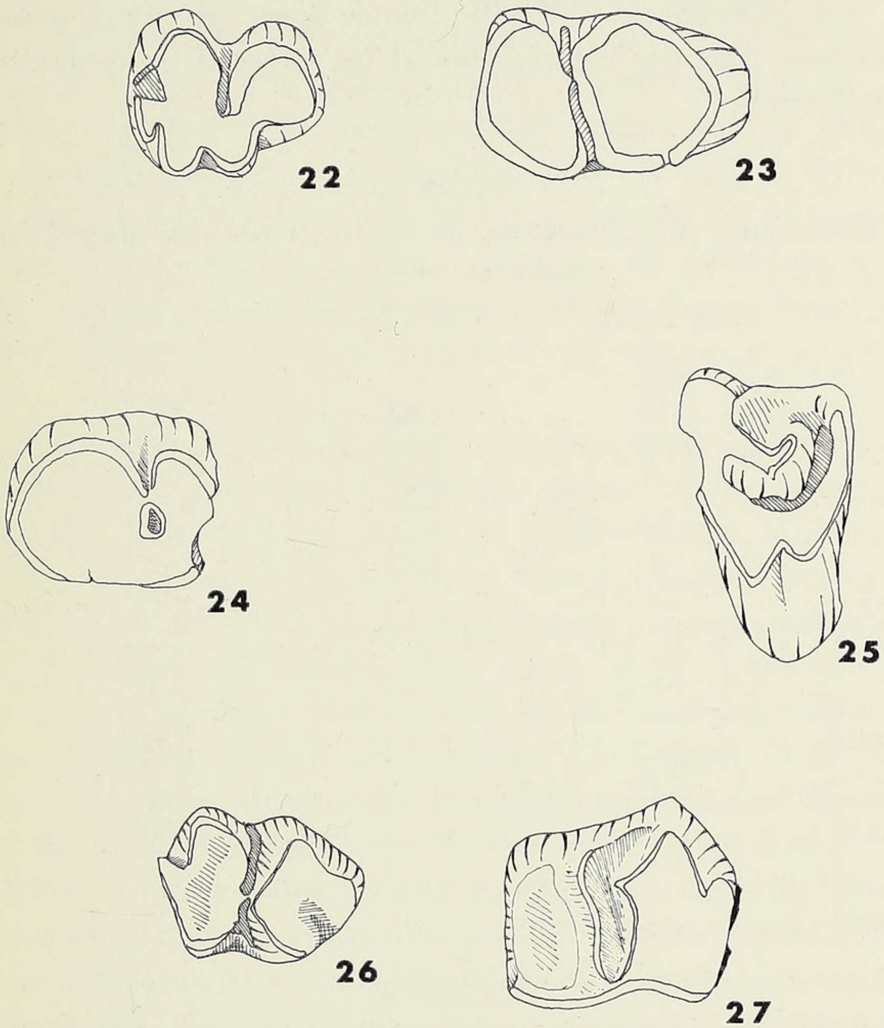
The lower incisor, as in *M. wyomingensis* and *M. petersoni*, is relatively narrower transversely in its ventral part than is that of *Palaeolagus temnodon*.

In the least-worn specimen of P_3 (fig. 22) a small posterolophid is still indicated by posterolingual fold, and the trigonid has a well-developed anterolingual notch. The presence or absence of a connection between trigonid and talonid is variable, some specimens having a connection near the lingual side, while in others, seemingly in comparable stages of wear, trigonid and talonid remain separate. The trigonid and talonid are nearly equal in width (fig. 23), as opposed to a narrower trigonid in *M. wyomingensis*. There is never a deep lingual fold as in *M. wyomingensis*. In very well worn teeth (fig. 24) the pattern consists of a buccal fold and an isolated lake lingual to the fold, a remnant of the more lingual part of the trigonid-talonid fold. The only know P_3s of *M. petersoni* are very worn, retaining only the buccal fold between trigonid and talonid.

The pattern on P_4-M_2 generally resembles that in *M. wyomingensis*, with a well-developed posterolophid present in early wear. These teeth are hypsodont but M_2 shows toward its distal end a constriction of the rooted portion. The lingual groove between trigonid and talonid is more persistent relative to the buccal groove than in *M. petersoni*. Following wear the talonid extends an anterolingual process toward the trigonid, but in known specimens the columns do not join as they do in the very worn type of *M. petersoni*.

Little-worn M_3 has a two-cusped trigonid, two cusped talonid, and well-developed, cuspate, posterolophid. With wear the cusps are flattened, and trigonid and talonid join lingually. Next, trigonid and talonid join buccally also, first with an enamel-ringed lake between them that is finally worn away. In the most worn M_3 available, the posteroexternal groove between talonid and posterolophid is also worn away. The tooth is relatively larger, especially anteroposteriorly, than that of *M. wyomingensis*.

All deciduous teeth except dP^2 are represented. Little worn dP^3 (fig. 35) has a shallow hypostria and a long anterior lobe, which extends to the buccal wall anterior to the central lobe. The hypostria is removed with wear. DP^4 has a hypostria that forms an isolated lake following wear. Its crescentric valley lingual to the central lobe connects to the buccal wall in earlier stages of wear but loses the connection later. An isolated lake is buccal to the central lobe. Out of the four known dP_3s, none are unworn. The least worn shows that the tooth had three lobes anteroposteriorly and a protruding posterolophid. The two anterior lobes join first (fig. 26). In greatly worn specimens the three lobes are joined. As on dP_3, the talonid of dP_4 has a protruding posterolophid. Following wear the two lobes of dP_4 (fig. 27) become joined lingually by a bridge.



Figs. 22-27. *Mytonolagus* near *M. petersoni,* occlusal views of teeth, x 10. fig. 22: CM 15440, left P_3. fig. 23: CM 16810, left P_3. fig. 24: CM 15186, right P_3. fig. 25: CM 15175, right dP^3. fig. 26: CM 21607, left dP_3. fig. 27: CM 21652, right dP_4.

DISCUSSION: The leporid from localities 5, 6, and 7 differs from *M. petersoni* mainly in its relatively longer hypostria on the upper molars, longer lingual fold between trigonid and talonid in the lower molars, and in evidence of a more crescentic shape of the central lobe on M^{1-2}. It and *M. petersoni* differ from *M. wyomingensis* in having a more persistent buccal lobe on P^2, having on P^{3-4} a single root with little or no subdivision into two parts and less development of the hypostria, retaining into later wear stages the folds buccal to the central lobe and buccal enamel on M^{1-2}, and having less reduced $M^3/_3$. The differences between *M. petersoni* and *Mytonolagus* from localities 5, 6, and 7 suggest a more advanced level of development in the latter. These two forms seem more similar to one another than either is to *M. wyomingensis,* but differences of the Badwater form from the Uinta Basin species suggest that the former should be referred to as *Mytonolagus* near *M. petersoni.*

TABLE 2

MEASUREMENTS IN MILLIMETERS OF TEETH IN JAWS OF *Mytonolagus* NEAR *M. petersoni*

	CM 19742	CM 14403	CM 21615	CM 19770
P^3 a-p	1.97	------	------	------
width	2.58	------	------	------
P^4 a-p	2.10	1.83	------	------
width	3.05	3.63	------	------
M^1 a-p	2.17	1.83	------	------
width	------	3.36	------	------
M^2 a-p	1.97	1.76	------	------
width	------	3.02	------	------
P_4 a-p	------	------	2.17	------
width trigonid	------	------	2.10	------
width talonid	------	------	1.56	------
M_1 a-p	------	------	2.37	2.30
width trigonid	------	------	2.17	2.14
width talonid	------	------	1.66	1.86
M_2 a-p	------	------	2.27	2.30
width trigonid	------	------	2.37	------
width talonid	------	------	1.70	1.83
M_3 a-p	------	------	------	1.63
width trigonid	------	------	------	1.36
width talonid	------	------	------	1.15

TABLE 3

MEASUREMENTS IN MILLIMETERS OF TEETH OF *Mytonolagus* NEAR *M. petersoni*

	Number	Observed Range	Mean
P^2 a-p	12	0.88-1.36	1.09
width		1.18-1.76	1.54
P^3 a-p	5	1.59-1.76	1.72
width		2.37-2.71	2.54
P^4 a-p	9	1.73-1.93	1.84
width		2.03-3.52	2.63
M^1 a-p	12	1.63-2.00	1.85
width		2.10-3.86	2.80
M^2 a-p	6	1.56-1.90	1.74
width		2.14-3.25	2.64
M^3 a-p	6	0.95-1.36	1.23
width		1.36-2.10	1.73
P_3 a-p	6	1.70-2.30	1.97
width trigonid		1.15-1.56	1.37
width talonid		1.12-1.66	1.35
M_3 a-p	9	1.36-1.73	1.57
width trigonid		1.25-1.56	1.37
width talonid		1.02-1.36	1.19

Mytonolagus and other late Eocene lagomorphs

Within the upper Eocene localities along Badwater Creek there are now known two and possibly three levels of development of *Mytonolagus*. The more westerly localities (5, 6, and 7) have produced the most primitive, a form slightly more advanced than *M. petersoni*. The more advanced *M. wyomingensis* occurs in the more easterly Wood Locality, and it, or a slightly more advanced form, is represented also at Rodent Locality. So far as known no *M. wyomingensis* is present in localities 5, 6, and 7, and no *M. petersoni* in Wood or Rodent localities. These forms, along with the Uinta Basin leporid *M. petersoni*, represent gradual stages of development within the late Eocene.

In addition to the late Eocene occurrences of *Mytonolagus* in the Uinta Basin and Badwater Creek, the genus has been reported from the Shoddy Springs local fauna of southwestern Montana (Black, 1967:62) and from Swift Current Creek, Saskatchewan (Russell, 1965:8-9). The Shoddy Springs *Mytonolagus* is represented by only a few teeth, which are smaller than those of *M. petersoni* but more similar to it in occlusal pattern than to *M. wyomingensis*. The Swift Current Creek lagomorph was referred by Russell (1965:8-9) to *M. petersoni*. Comparisons with the Uinta Basin specimens show, however, that in the Saskatchewan form the hypostria on the upper molar of NMC 8653 extends closer to the enamel limit than in *M. petersoni*. It differs from both *M. petersoni* and *M. wyomingensis* in having on P_4-M_2 of ROM 1679 the trignonid shorter anteroposteriorly relative to the talonid, which is more rounded lingually and reaches less far linguad, and in having a relatively longer lingual groove between trigonid and talonid. No little-worn P_3s are known for *M. petersoni*, but comparisons with P_3 of *Mytonolagus* near *M. petersoni* and *M. wyomingensis* show that on P_3 of the Saskatchewan form both the anterolingual fold and the more posterior lingual fold are situated more posteriorly than are the comparable folds in the specimens of *Mytonolagus*. Perhaps the more posterior lingual fold in the Saskatchewan forms marks the posterolophid of P_3. The Saskatchewan form is not yet known enough to serve as the basis for speculation. However, it is probably not referable to *M. petersoni*, and possibly not even to *Mytonolagus*. The characters of its lower cheek teeth are somewhat similar to those of some relatively primitive lagomorphs like *Desmato-*

lagus vetustus of the Mongolian Oligocene. In *Shamolagus medius* of the Mongolian late Eocene the folds on P_3 seem similar in position to those on P_3 of the Saskatchewan form. The Saskatchewan lagomorph suggests greater diversity in late Eocene North American lagomorphs than has been suspected, and although the evidence is not yet sufficient, it seems to have a few characters found in some of the Asian late Eocene lagomorphs and possibly in some later Tertiary North American lagomorphs that have been referred to as "*Desmatolagus.*" The late Eocene lagomorphs of China and Mongolia (Burke, 1941; Li, 1965) form at least two groups, that of *Lushilagus* and its relative *Shamolagus,* and that of *Gobiolagus.* Of these, the former group is the more generalized and probably led toward *Desmatolagus* of the Oligocene. *Gobiolagus* is specialized in its strongly developed unilateral hypsodonty and relatively small talonids, and seems to have persisted into the Oligocene. *Mytonolagus* cannot be tied closely to either of these groups and appears to be more advanced toward later North American leporids in the proportions of its cheek teeth. The Saskatchewan form is more advanced in the proportions of one tooth to another than are members of the Asian *Lushilagus-Shamolagus-Desmatolagus* group. However, the Saskatchewan form shows a little greater resemblance to that group than does *Mytonolagus.*

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