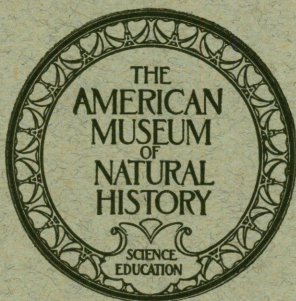


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NEW GENERA OF PALEOCENE MAMMALS

BY W. D. MATTHEW AND WALTER GRANGER



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NEW GENERA OF PALEOCENE MAMMALS

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In the course of the revision of the Puerco and Torrejon faunas of New Mexico and the description of the more recently discovered Tiffany fauna of southwestern Colorado, several new genera were recognized which it seems advisable to place on record in advance of the full description.

MULTITUBERCULATA

Plagiaulacidae

*Ectypodus*¹ *musculus*, new genus and species

TYPE.—No. 17373, upper jaw from the Mason pocket, Tiffany beds, Animas Co., Colorado.

TOPOTYPES.—A series of seven upper and lower jaws and many isolated teeth and jaw fragments, all from the Mason pocket.

GENERIC CHARACTERS.—Dentition: $\frac{1.1.4.2}{1.0.1.2}$. Teeth much as in *Ptilodus*, except that p^4 is of simple trenchant type instead of molariform. The crown is triangular in cross-section and there are seven tubercles on the interior cutting edge. On the outer face of the crown near its anterior border there are usually two (one in type) minute tubercles; these appear to be a rudiment of the second row of tubercles which in *Ptilodus* extends the full length of the tooth. P^1 and P^2 are tricuspid; p^3 is quadricuspid. The lower jaw (topotypes) is similar to *Ptilodus*, except that P_3 is absent.

SPECIFIC CHARACTERS.— $P^1-M^3=6.2$ mm.

Eucosmodon,² new genus

TYPE.—*Neoplagiaulax americanus* Cope, of the Puerco formation, Lower Paleocene of San Juan basin, New Mexico.

GENERIC CHARACTERS.—Agrees with the true *Neoplagiaulax*, of the Cernaysian of France, in absence of P^3 (present in *Ptilodus*), but differs from both of these genera and from *Ectypodus* in the large, compressed, fully scalpriform incisor, rootless or nearly so. The species are of considerably larger size than those of the three above-named genera.

¹ἐκτυπος=carved in relief; δδολος=tooth; in reference to the peculiar type of sculpture of the lower premolar.

²ἐὺ=well; κοσμος=ornament; δδολος=tooth.

MARSUPIALIA

Didelphidæ

Peradectes¹ elegans, new genus and species

TYPE.—No. 17376, a pair of lower jaws, nearly perfect, from the Mason pocket, Tiffany beds, Colorado.

PARATYPE.—No. 17369, upper jaw with M¹⁻⁴.

GENERIC CHARACTERS.—Dentition: $\frac{1.1.3.4}{1.1.3.4}$. Upper molars tritubercular, paracone and metacone subequal, styler cusps weak, conules rudimentary. Last upper molar transverse. Lower molars with high trigonids and deep basin heels, paraconid well developed, anterointernal; premolars simple, with high compressed protoconids and small heels on P₂₋₃. Molars increasing somewhat in size from first to third, the fourth slightly smaller with narrower heel. Canines moderately large, as in *Marmosa*. Jaw slender, with inflected angle as in opossums.

SPECIFIC CHARACTERS.—Size minute, P₁-M₄=11 mm.

About fifteen specimens of upper and lower jaws of this genus were obtained from the Mason pocket, it being, next to *Nothodectes*, the most abundant form. The generic characters separating *Peradectes* from *Peratherium* are found principally in the upper teeth.

Thylacodon² pusillus, new genus and species

TYPE.—No. 16414, a fragment of lower jaw, with m₂₋₃, the heel of m₁ and part of alveolus of m₄, from the upper level of the Puerco formation near Ojo Alamo, San Juan basin, New Mexico. Exped. 1913.

GENERIC CHARACTERS.—Molar teeth of didelphid type, rather narrow as a whole, the trigonid relatively high, with reduced paraconid. Metaconid and protoconid high, well separated, acute, the protoconid considerably the higher. Talonid deeply basined with acute marginal cusps, the entoconid internal, hypoconulid well developed on all molars and nearly posterointernal in position (a characteristic didelphid construction), hypoconid postero-external. The high bicuspid trigonid and reduced paraconid serve to distinguish this from other didelphid genera; the tooth is also unusually narrow and the hypoconulid and entoconid more distinct than usual.

SPECIFIC CHARACTERS.—M₂₋₃=5. mm.; M₁₋₃=7.2 mm. (approx.). Size of the larger species of *Marmosa*, about a third larger than *M. chapmani*.

Represented in the collection by the type specimen only.

INSECTIVORA

Leptictidæ

Leptacodon tener³, new genus and species

TYPE.—No. 17179, lower jaws with badly crushed front of skull, from the Mason pocket, Tiffany beds, Colorado.

¹πῆρα=pouch; δῆκτης=biter; i. e., a carnivorous marsupial. Also suggestive of its relative *Peratherium*.

²θῦλακος=pouch; δόους=tooth, i. e., marsupial tooth.

³From λεπρός=small, delicate; ἀκμή=point; δόους=tooth. Intended to be also suggestive of its relationship to *Leptictis* and *Diacodon*.

FAMILY CHARACTERS (Leptictidæ).—Jaw long, slender with low condyle, prominent narrow angular process curving downward and backward, not inflected, coronoid process low, broad. Upper molars tritubercular, paracone and metacone subequal, external, with strong cingulum around outer base but stylar cusps rudimentary, conules minute, protocone large, subrescenscentic, hypocone small but prominently projecting; lower molars with short high trigonids and large basin heels; p^4 molariform except that me is smaller than pa and pr and hy smaller than in true molars. p_4 molariform, but with pa^d strong, projecting prominently forward, anterior premolars moderately large, compressed, simple, not crowded.

GENERIC CHARACTERS.—Trigonids lower than in *Diacodon*, paraconids distinct, molars reduced in size from first to third. Protoconid overtopping inner cusp. The least specialized in molars and premolars of any member of the Leptictinæ.

SPECIFIC CHARACTERS.—Size minute, $P_2-M_3=7.3$ mm.

*Xenacodon*¹ *mutilatus*, new genus and species

TYPE.—No. 17407, a right ramus of the lower jaw with P_4 , M_{2-3} and alveoli of remaining teeth, from the Mason pocket, Tiffany beds, Colorado.

GENERIC CHARACTERS.—Dentition $\overline{3.1.4.3}$. Incisors small, canine of moderate size, P_1 two-rooted, P_4 with large, well-separated metaconid and protoconid, rudimentary paraconid and very small heel. Molars as in *Diacodon* and *Palæolestes* with high trigonids of two principal cusps well separated, very small paraconids, large high-cusped heel with deep basin opening inward, high external hypoconid and posterior hypoconulid, entoconid smaller, posterointernal and imperfectly separated from hypoconulid. Distinguished from other genera of Leptictidæ principally by the peculiar character of its P_4 .

SPECIFIC CHARACTERS.—Size of *Palæolestes puercensis* ($M_{2-3}=7$. m.) which it resembles in general proportions. Third premolars considerably more robust; the first and second of subequal size, both being two-rooted. Premolars not spaced and only a very small space behind the canine, which is a somewhat larger tooth than in *P. puercensis*.

Represented in the collection by the type only.

*Acmeodon*² *secans*, new genus and species

TYPE.—No. 16599, a part of the lower jaw with P_2-M_2 and the root of the canine preserved. From the upper level of the Torrejon formation, Torrejon Arroyo, San Juan basin New Mexico. Exped. 1913.

GENERIC CHARACTERS.—Dentition $\overline{1.1.3.3}$. Molars of leptictid type but trigonid not so high and paraconid better developed than in *Diacodon* or *Palæolestes*. P_4 of peculiar pattern, the principal cusp (protoconid) much compressed and crested, with strong accessory cusps (paraconid, protostylid) on the anterior and posterior edges and a somewhat weaker posterointernal cusp (metaconid) connected by a prominent crest with the apex of the protoconid; also a well-developed basined talonid with acute postero-external and posterointernal cusps (hypoconid, entoconid).

¹ξένος= strange; ἀκμή= point; δδούς= tooth. In reference to the very peculiar p_4 , which appears at first glance to be a broken and incomplete tooth.

²ἀκμή= a crest or edge; δδούς= tooth.

P₃ large, simple, high, acute and compressed, with anterior postero-external and postero-internal crests, and a small, low, simple, acute heel-cusp. P₂ much smaller, simple, with anterior and posterior crests and a minute heel-cusp. Canine rather small, oval in cross-section at base. At least one small incisor is present.

SPECIFIC CHARACTERS.—P₂-M₂=19.3 mm.; M₁₋₃=10.6 mm. (approx.). A faint rudiment of anterior basal cusp on P₂ and P₃; on P₄ it is distinct; protostyloid a faint rudiment on P₃; on P₄ this is a strong cusp connected by a crest with the apex of the protoconid.

In addition to this type there is a second specimen, paratype No. 16600, a jaw fragment with P₄-M₁ and alveoli of remaining molars, from the same horizon as the type, Escavada wash.

MENOTYPHELA

Plesiadapidae

*Labidolemur*¹ *soricoides*, new genus and species

TYPE.—No. 17400, lower jaws with incisors, M₁ right and left, and alveoli of remaining teeth; from Mason pocket of the Tiffany beds, Colorado.

GENERIC CHARACTERS.—Dentition, $\overline{1.0.1.1.3}$. Jaw short and of moderate depth; incisor greatly enlarged, semiproclumbe, considerably curved upward towards the tip, crown trihedral, with sharp, knife-like, coarsely serrate outer margin, anterior face flattened convex, root elongate. Fourth premolar much reduced, probably two-rooted, crown unknown, diastema much reduced owing to enlargement of incisor. First molar with a moderately high trigonid of two subequal cusps (protoconid and metaconid) well separated, and a low ledge-like paraconid appressed to anterior margin; large rounded basin heel. Third molar with elongated heel. Coronoid process low, narrow, projecting strongly backward, angle flat and of moderate width, with narrow backward projection at tip. Mental foramen below anterior edge of M₂.

SPECIFIC CHARACTERS.—M₁₋₃=5.7 mm. (approx.); length of incisor crown (lingual side)=6.7 mm.

This form is close to *Phenacolemur* of the Wasatch beds of Wyoming, but is distinguished from it by the apparently greatly reduced premolar. In *Phenacolemur* this is a large robust tooth, exceeding in size the first molar. It is possible that *Labidolemur* is the lower dentition of *Ignacius* (*infra*) but there are evidently two forms of small plesiadapids in the Tiffany beds as indicated by lower incisor teeth, one as in the present genus and the other with a much simpler, laterally-compressed and straighter crown.

Aside from the type this new form is represented in the collection from the Tiffany beds by a lower incisor, No. 17402, and, somewhat doubtfully, by two other specimens, Nos. 17401, 17405, in each of which

¹αβγδ = pincers and *Lemur*.

the last lower molar is preserved. This tooth shows the peculiarly broad elongated talonid and is structurally similar to that in *Phenacolemur*, but compared with this latter genus both *Labidolemur* and *Ignacius* are minute.

? *Plesiadapidae*

*Ignacius*¹ *frugivorus*, new genus and species

TYPE.—No. 17368, upper jaw with C, P⁴-M² and alveoli of remaining cheek teeth. From the Mason pocket of the Tiffany beds, Colorado.

GENERIC CHARACTERS.—Dentition, $\frac{1.1.2.3}{1.1.2.3}$. Canine small, simple, double-rooted, pointed. P³ two-rooted, p⁴ nearly as large as m¹, submolariform, metacone much smaller than paracone, and no crest connecting metacone with protocone, otherwise this tooth is similar to the true molars. Molars with subequal outer cusps, no external styles, minute protoconules, a broad sloping shelf occupying the postero-internal angle of the tooth. Low crests connect the protocone with the two outer cusps.

SPECIFIC CHARACTERS.—C-M²=8.3 mm.; M¹⁻³=6. mm. (approx).

Two specimens, Nos. 17377, lower jaw with one molar, and 17408, loose lower incisor, premolar and molar, may pertain to this genus. The incisor is a slender, gently tapering lanceolate tooth; the premolar, presumably P₃, is two-rooted, with subconical protoconid and well-developed heel. The molars have a trigonid of two opposite, nearly equal cusps, connected nearly to their tips, and no paraconid; the talonid is broad, basined, and without hypoconulid. A transverse crest connects the hypoconid with the metaconid.

PRIMATES

Tarsiidae

Navajovius kohlhaase,² new genus and species

TYPE.—No. 17390, upper and lower jaws, probably of the same individual, from the Mason pocket in the Tiffany beds, Colorado.

GENERIC CHARACTERS.—Dentition, $\frac{1.1.1.3}{2.1.2.3}$. Two lower incisors somewhat enlarged, with elongate roots and long, pointed, subspatulate crowns. Canine smaller, one-rooted, premolariform. Third premolar smaller than canine, two-rooted, crown comparatively simple; P₄ nearly as large as M₁, with trenchant heel and rudimentary metaconid. Lower molars tritubercular, with distinct but small paraconid extended outwardly as a low ledge; protoconid and metaconid equal, submarginal, talonid basined, wide and deep. Upper fourth premolar not as large as M¹, with large sub-

¹From the town of Ignacio, Colo., about seven miles west of the Mason pocket.

²From the Navajo mountains north of the San Juan River. As a mnemonic convenience the names of our new Tarsioid genera have all been derived from various mountain ranges in the region where they were found, the names chosen being of Indian derivation, and most of them originally applied to Indian tribes of the region; and they are latinized in the same form as *Tarsius*.

The species name is in honor of Miss Erna Kohlhaase, to whose skilful and patient work is due the preparation of the minute and delicate specimens from the Tiffany beds herein described.

trigonal external cusp and rudimentary internal cusp. Molars tritubercular with rudimentary hypocones on M^1 and M^2 , conules minute, no external styler cusps.

SPECIFIC CHARACTERS.— $C-M_3=7.5$ mm.; $M_{1-3}=4.7$ mm.

Represented in the collection by the type only.

This is the only true primate thus far described from the Paleocene. The Plesiadapidae are primitive types lying on the border between Primates and menotyphlan insectivores.

INCERTÆ SEDIS

*Carpodaptes*¹ *aulacodon*, new genus and species

TYPE:—No. 17367, lower jaw with P_2-M_3 , alveolus of P_1 and part of canine alveolus. From the Mason pocket of the Tiffany beds, Colorado.

GENERIC CHARACTERS.—Dentition, $\overline{1.1.4.3}$. Canine moderately large; anterior premolars much reduced, single-rooted, knob-like, fourth premolar enlarged, secant with scalloped edge and obscure grooving toward apex of the crown. No diastemata. Molars fundamentally of tarsoid type but considerably specialized in various respects; M_2 the smallest of the series; trigonid of M_1 converted into an antero-posterior crest; protoconids of M_2 and especially of M_3 lower and smaller than metaconids; molar heels large and deeply basined. Jaw short, rather deep anteriorly, mental foramen below P_2-3 .

SPECIFIC CHARACTERS:— $P_2-M_3=8.5$ mm.; $M_{1-3}=5$ mm.

Represented in the collection by the type only.

This form cannot be definitely assigned to any family or order; it may be a primate, a menotyphlan insectivore, or neither.

CREODONTA

Triisodontidae

Eoconodon, new genus

TYPE:—*Sarcothraustes coryphæus* Cope, 1888, = *Triisodon heilprinianus* Cope, 1882. From the Paleocene (Puerco formation) of the San Juan basin, New Mexico.

A more careful restudy of the type of the genus *Triisodon*, *T. quivirensis* Cope, in connection with additional and better preserved material of the Triisodontidae, shows that it is not congeneric with *T. heilprinianus* and other species of the Puerco fauna, but that it is congeneric with *Sarcothraustes* (type *S. antiquus*) of the Torrejon fauna, which it antedates as a generic name. Moreover, the records of its locality and associated material, with the field data obtained by Mr. Granger in 1913 as to the exposure of the Puerco and Torrejon formation, confirm the suspicion that it is a Torrejon and not a Puerco species. The

¹καρπός = fruit; δάπτειν = eater, bloodsucker; in reference to the supposed habits indicated by the character of the teeth, especially the enlarged cutting premolar. The species name refers to the vertical grooving of the tooth, which shows some analogy to the Plagiaulacidae and the modern rat kangaroos.

Puerco genus represented by *T. heilprinianus* (syn. *T. biculminatus*, 'Sarcothraustes' *coryphæus*, etc.), requires a new generic name. The type of *T. heilprinianus* is very incomplete and its exact provenience unrecorded, so that it appears better to base the genus upon *S. coryphæus* founded upon an excellent type known to have come from the true Puerco, but considered at present as a synonym of *T. heilprinianus*.

This genus is nearly related and appears to be directly ancestral to *Triisodon* of the Torrejon, the type of which genus is *T. quivirensis* Cope, 1881. The distinguishing characters separating *Eoconodon* from *Microclænodon* and *Triisodon*, the other two genera of the Triisodontidæ, are as follows: trigonids low, metaconids and protoconids slightly connate, subequal, paraconid strong, heel large, basined.

Oxycænidæ

*Mixoclænus*¹ *encinensis*, new genus and species

TYPE.—No. 16601, upper and lower jaws with P³-M³, P₂-M₁ left, and roots of M²⁻³ right, preserved. From the lower level of the Torrejon formation, east fork of Torrejon arroyo, San Juan basin, New Mexico. Exped. 1913.

GENERIC CHARACTERS.—The upper molars resemble those of *Chriacus*, but are wider transversely, and more triangular, external angles more prominent, hypocone less so, M³ much reduced, transverse. Premolars with blunt-pointed, somewhat inflated crowns, more as in *Mioclænidæ*, and the more primitive *Anisonchinae*. Lower canine small, partly premolariform. Jaw elongate, shallow, condyle not transverse.

SPECIFIC CHARACTERS.—C-M₃=26 mm.; M₁₋₃=10 mm.

In addition to the type there is a paratype, No. 17074, a lower jaw with nearly complete dentition, and two other lower jaw fragments. All four specimens are from the lower level of the Torrejon formation.

The lower dentition of this genus is very much like that of *Coriphagus* Douglass of the Fort Union. Until the upper dentition of *Coriphagus* is discovered it appears better to hold *Mixoclænus* provisionally distinct.

¹μῆξος = mingled; (*Mio*) clænus, (*Oxy*) Clænus, etc.; in reference to the synthetic character of the dentition.

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FRANK E. LUTZ, Editor

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