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A NEW OLIGOCENE INSECTIVORE

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The specimen described in this paper was found in the Oligocene exposures at Pipestone Springs, Montana (see Matthew, 1903), by Mr. R. Thompson in 1940 and by him presented to the American Museum. Besides representing a clear-cut new species, it adds to morphological knowledge of the interesting genus *Domnina*. This genus, formerly very confused as to nomenclature, structure, and relationships, has recently been splendidly clarified by Patterson and McGrew (1937), to whom reference is made for discussion of such characters as are not differential or additional in the present specimen. On contemporaneous insectivores see Scott and Jepsen (1936) and Clark (1937).

Domnina thompsoni,[1] new species

TYPE.—Amer. Mus. No. 32647, left lower jaw with alveoli of I_3 and P_{1-4}, crowns of M_{1-3}, and most of the postdental portion of the jaw.

HYPODIGM.—Type only.

KNOWN OCCURRENCE.—Chadronian beds of Pipestone Springs, Montana.

DEFINITION.—Antemolar dentition less reduced than in *D. gradata*, five alveoli between molars and I_3. Molars and jaw smaller throughout. Molar structure and proportions about as in *D. gradata*.

The alveoli between I_3 and the molars occupy a space 1.9 mm. in length, relatively larger than in *D. gradata*, and are five in number, subequal but the first and fifth largest. The first two are markedly procumbent and the following three progressively less so. A root is preserved in the last alveolus while the others are full of matrix, a fact that suggests, but does not prove, that P_4 was not two-rooted. The relatively unreduced antemolar dentition is remarkable for a soricid and might even warrant generic distinction, but these teeth are known only from alveoli and the molar structure is practically identical with that of *Domnina gradata*, so that such a step would be unjustified on this material. The indication of more primitive structure is to be expected in an earlier form, *D. thompsoni* being Chadronian (Lower Oligocene) while all the known specimens of *D. gradata* are probably Orellan (Middle Oligocene).

The postdental part of the lower jaw has hitherto been almost unknown in *Domnina*. Except for the angular process, it is well preserved in this specimen and is adequately shown in the accompanying figure. In general it is about what would be expected in a form definitely soricid but primitive in that group. Patterson and McGrew (1937, p. 255) noted inconclusive evidence of an intertemporal fossa in *D. gradata*. In *D. thompsoni* there is a concavity in the region where this fossa develops in later soricids, but it is neither deep nor sharply bounded.

In the following table measurements are compared with those given by Patterson and McGrew for *D. gradata*. For the latter species I have also calculated an estimate of what the range would be in a sample of 1000 specimens, in which it would more nearly approximate the population range. I propose to call this figure the "standard range from observed range" or "S.R. (O.R.)." It is calculated from Tippett's tables (1925) of mean ranges in terms of standard deviation for samples of various sizes. Thus in samples of 5 specimens the range tends, on an average, to be 2.33 times the standard deviation while in samples of 1000 specimens it tends to be 6.48 times the standard deviation. Therefore in the large "standard" samples of 1000 specimens the range tends to be 6.48/2.33 = 2.78 times as large as in samples of

[1] For Raymond Thompson, the collector.

5 specimens and an estimate of range at that standard sample size can be obtained by multiplying the range observed in 5 specimens by 2.78. This estimate is subject to rather large standard error, and yet it can serve many useful purposes, especially as a rough and easy check where more tedious statistical methods are not necessary, or to decide whether it is worth while to employ these. It has the further advantage of being more graphic and more nearly related to the concepts and methods to which paleontologists have been accustomed. In the present case an appropriate refined method would be "Student's" relatively laborious *t*-test. As a check, this has, in fact, been applied to several of these measurements and it confirms the conclusion drawn from the new standard range method.

Of the eight measurements available, those of *D. thompsoni* are below the standard range for *D. gradata* in 3 cases, at the lower limit of that standard range in 4 others, and within the standard range in only 1, the length of M_3. The legitimate conclusion is that the chance that a specimen of *D. gradata* as small as the type of *D. thompsoni* will ever be collected is very small, so small that it may be ignored for practical purposes and it may be taken that *D. thompsoni* ranges below the limits of individual variation in *D. gradata*. Measurements are in millimeters.

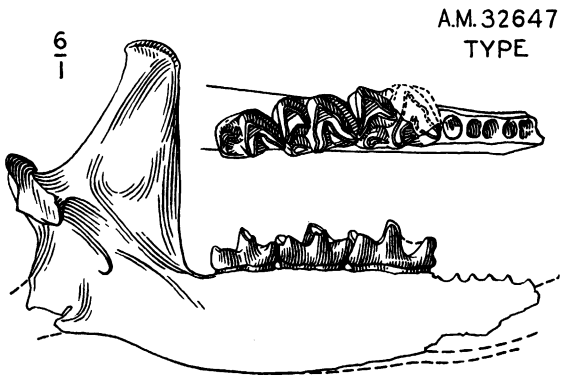

Fig. 1. *Domnina thompsoni*, new species. Left lower jaw, internal view, and molars and antemolar aveoli, superior view. Type, Amer. Mus. No. 32647. Six times natural size. (Drawn by J. C. Germann.)

Variate	*D. thompsoni*, Type	*Domnina gradata* Number of Specimens	Mean	Observed Range	Standard Range-S.R. (O.R.)
Depth of ramus under M_1	ca. 2	5	2.4	2.2–2.5	2.0–2.7
Length M_{1-3}	4.8	4	5.7	5.4–5.8	5.0–6.3
M_1:					
Length	1.8	4	2.3	2.2–2.5	1.8–2.8
Width	1.2	5	1.5	1.4–1.5	1.3–1.6
M_2:					
Length	1.5	5	1.9	1.8–2.1	1.5–2.4
Width	1.1	5	1.3	1.2–1.4	1.1–1.6
M_3:					
Length	1.3	4	1.6	1.5–1.8	1.1–2.1
Width	.8	4	1.1	1.1–1.2	1.0–1.3

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