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(Continuation of Contributions from the Museum of Geology)

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A NEW SPECIES OF DOG FROM THE
MIOCENE OF COLORADO

BY

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A NEW SPECIES OF DOG FROM THE MIOCENE OF COLORADO

By JOHN A. WILSON

THE specimen which forms the subject of this paper was found by Mr. Robert M. Garrels, a member of the collecting party from the Museum of Paleontology of the University of Michigan in the summer of 1937. It was discovered in a bed of volcanic tuff about five miles south of the former University of Michigan Geological Field Station at State Bridge, Colorado. The locality, known as Spruce Gulch, is in the eastern half of Sec. 1, T. 3 S., R. 83 W., Eagle County, Colorado. On the basis of the association, as shown below, of *Cynodesmus casei* with *C. minor* and *C. thompsoni*, both from the Upper Rosebud, the tuff beds are placed in the Lower Miocene.

I wish to express my appreciation to Mr. Garrels for his assistance in the field; to Mr. G. G. Simpson, of the American Museum of Natural History, for suggestions; and to Dr. E. C. Case for criticism.

Cynodesmus casei, sp. nov.

The type, Museum of Paleontology of the University of Michigan, number 18955, consists of the incomplete upper right dentition. I¹ and I² are missing; I³ and C are broken off close to the maxilla; otherwise the teeth are unworn. See Figures 1 and 2.

In size the specimen is between *C. minor* Matthew (1907) and *C. thompsoni* Matthew (1907). The canine is oval, and the diastema between it and I³ is 3 mm. in length. P¹ has a small anterior cusp; P³, a posterior cusp with a shallow cingulum. The direction of the carnassial shear agrees very closely with that of *C. thompsoni*. P⁴ has an internal cingulum from the deuterocone

to the posterior margin of the tooth, but there is no parastyle or external cingulum. M^1 is subquadrate and, although 0.3 mm. longer than the same tooth in *C. thompsoni*, is 1.7 mm. narrower. The external cones are approximately of equal size; the paracone

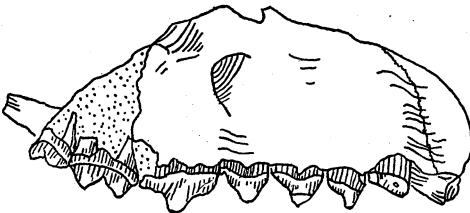


FIG. 1. Lateral view of *C. casei*. $\times 1$



FIG. 2. Ventral view of *C. casei*. $\times 1$

has a wider, more rectangular base than the metacone. The protocone and the hypocone are of equal height, but the former has a wider base. The valley between the protocone and the paracone is only slightly developed. The internal cingulum is divided by a shallow fissure; the posterior portion carries a tubercle. M^2 is longer than the same tooth in other species of *Cynodesmus*, with the exception of *C. noblis* Simpson (1932). The external cones are equal in height, but the base of the paracone is wider than that of the metacone. The protocone is about three times as large as the hypocone, which is poorly developed. The external cingula in both M^1 and M^2 are equal in width and, although heavy, do not have parastyles.

Cynodesmus casei is undoubtedly in or close to the *Nothocyon-Cynodesmus-Canis* line of the true dogs. Its reduced sectorial and larger tubercular dentition is suggestive of *Nothocyon*, but because of its stronger, heavier teeth, which indicate a larger animal than any described species of *Nothocyon*, it is referred with confidence to *Cynodesmus*. The following characters separate it from *C. thompsoni*: (1) the absence of a posterior cusp on P^2 ,

(2) the presence of cusps on the internal cingula of M¹ and M², and (3) the presence of a distinct hypocone on M².

Table I shows the comparative measurements of *C. casei*, *Nothocyon geismarianus*, the largest species of *Nothocyon*, *C. minor*, and *C. thompsoni*, the nearest related species of *Cynodesmus*.

TABLE I
COMPARATIVE MEASUREMENTS OF TEETH, IN MILLIMETERS,
OF FOUR SPECIES OF DOGS

	<i>Nothocyon geismarianus</i> (Merriam, 1906)	<i>Cynodesmus minor</i> (Matthew, 1907)	<i>Cynodesmus casei</i>	<i>Cynodesmus thompsoni</i> (Matthew, 1907)
Length, C to M ² inclusive.....	44	..	52	55*
Anteroposterior length of P ⁴	9	8.7	10	12*
Transverse diameter of P ⁴	5.2	5.7	8	10*
Anteroposterior length of M ¹	7.4	7	9.7	10.5
Transverse diameter of M ¹	9.2	9.2	12	13.7
Anteroposterior length of M ²	4.6	5	7.4	6.7
Transverse diameter of M ²	7.2	8	10	10

* Approximate measurements.

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