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Zoölogical Museum, Hamburg, Germany.

THE ASIATIC GENUS EOMELLIVORA IN THE PLIOCENE OF CALIFORNIA

BY CHESTER STOCK and E. RAYMOND HALL

[Plate 4]

Despite our growing knowledge of the relationships of Pliocene faunas of Asia and North America, relatively few cases are on record in which a given mammalian genus has been found to occur in both continental areas. It is a matter of considerable interest therefore, to discover in the collections of fossil mammals obtained by the California Institute in the Kern River Pliocene deposits of California, a mustelid that resembles closely *Eomellivora wimani*, described by Zdansky from the red clays of the provinces of Honan and Shansi, China. Indeed, so similar are these two forms that an examination of our specimen, in the light of Zdansky's description and good illustrations of the Chinese material, makes it difficult to establish any very noteworthy differences on which to base a specific distinction.

Eomellivora cf. *wimani* Zdansky

Pl. 4, figs. A to E

Eomellivora wimani Zdansky, Palaeontologia Sinica, ser. C, vol. 2, fasc. 1, pp. 61-67, pl. 11, figs. 5 and 6, pl. 12, figs. 1 and 2. 1924.

Specimens examined.—No. 1210, Calif. Inst. Technology, Coll. Vert. Paleont. Right maxillary fragment with M¹, P⁴, P³, the alveoli of P², P¹, and the posterior wall of the alveolus of the canine. Left maxillary fragment with M¹, the protocone and two roots of P⁴, and a considerable portion of P³. See plate 4, figs. A and B. Two incisors and a canine tooth, No. 1216, Calif. Inst. Technology, Coll. Vert. Paleont., are referred to *Eomellivora*. These specimens were found at the locality where No. 1210 occurred and are presumed to belong to the same individual. See plate 4, figs. C to E.

Locality.—Kern River Pliocene deposits, Bakersfield Quadrangle, U. S. Geol.

Survey, NE. $\frac{1}{4}$ Sec. 26, T. 28 S., R. 28 E., Mt. Diablo Base and Mer., Kern County, California. Collector, E. R. Inglee.

Comparison.—In addition to the complete skull material of *Eomellivora* on which Zdansky based the description of this type, fragmentary remains from the Chinji and Dhok Pathan horizons of the Siwaliks have been tentatively assigned to this genus by Pilgrim,¹ but are representative of species distinct from *E. wimani*.

The two pieces of the maxillary, No. 1210, from the Kern River Pliocene deposits of California, fortunately retain most of the cheek-tooth dentition. Little, however, remains of the skull structure. The fragment of the right side shows the entire course of the ventral surface of the relatively large infraorbital canal. At the forward end of the canal the ventral surface is elevated somewhat over the apex of the antero-external root of P⁴.

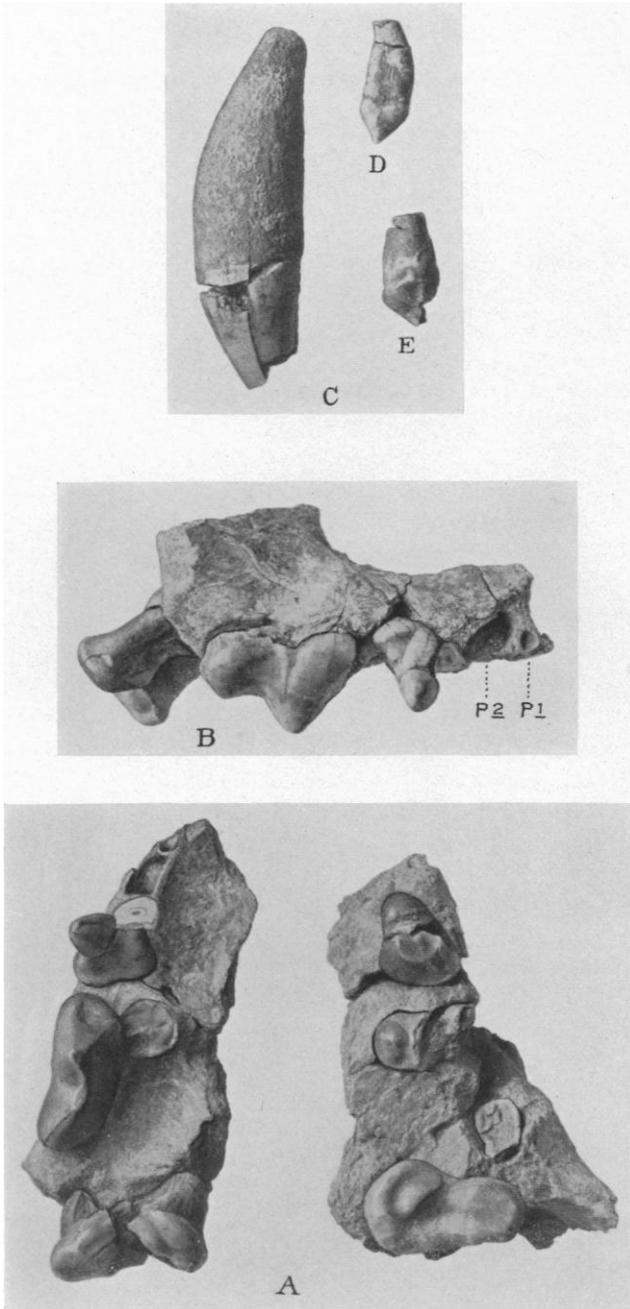
The anterior premolars are crowded, apparently slightly more so than in *Eomellivora wimani*. As in the latter, P¹ is a single-rooted tooth situated immediately behind the canine and to the antero-internal side of P². Less space appears to be present for this tooth in No. 1210 than in the second example of *E. wimani* figured by Zdansky. P², as judged from its alveolus was single-rooted. In the Chinese species this tooth is two-rooted, possessing, according to Zdansky, a very strong posterior root and a slender anterior fang. In No. 1210, P² evidently extended along the antero-external wall of P³ for a greater distance than in *E. wimani*, reflecting again the more crowded position of the anterior premolars.

Considerable similarity prevails between the Californian specimen and *E. wimani* in the structural details of the crowns of P³, P⁴ and M¹. P³ possesses a size and shape closely similar to that in the corresponding tooth of the Chinese species. As in that species the principal cusp is flanked in front and behind by a reduced basal cuspule. The principal cusp appears to descend farther in No. 1210 than in Zdansky's specimen, although in the illustration of this portion of the crown of P³ in *E. wimani* the cusp may be somewhat foreshortened. In shape and size of tooth and prominence of protocone, P⁴ is singularly like the corresponding tooth in the species described by Zdansky. The protocone extends well to the inner side of the paracone and is broadly connected with the latter.

The structure of M¹ is again remarkably similar to that in *E. wimani*. Outwardly the crown is extended relatively far beyond the paracone and metacone. These cusps are subdued, with the paracone distinctly more prominent than the metacone. The latter is situated close to the posterior edge of the tooth. The features of the inner half of the crown agree closely with those described by Zdansky for *E. wimani*. In No. 1210 the basin receiving in occlusion the hypoconid of M₁ appears to be a trifle deeper and broader than in the Chinese animal, but this may be due to greater wear of the occlusal surface in our specimen.

Two incisor teeth and a canine were collected at the locality in the Kern River beds where No. 1210 was found and these may represent the same individual, though the fragmentary state of No. 1210 does not permit us to ascribe these teeth definitely to the same individual. One of the specimens, shown in fig. E, is clearly I³, while the other may represent the second upper incisor. The latter (see fig. D), is slightly larger than the corresponding tooth in *E. wimani*.

¹ Pilgrim, Guy E., *Palaeontologia Indica*, n.s., vol. 18, pp. 67-72, pl. 3, figs. 3-7a, 1932.



Eomellivora cf. *wimani* Zdansky. A, fragments of palate with cheek-teeth in occlusal view; B, right maxillary fragment and cheek-teeth in side view; No. 1210; C, upper (?) canine; D, I²?; E, I¹; No. 1216. Calif. Inst. Technology, Coll. Vert. Paleont. Kern River Pliocene deposits, California. All figures natural size.

Remarks.—We do not maintain that the specimen from the Kern River Pliocene is specifically identical with *Eomellivora wimani*. Indeed, because of the wide geographic separation of the localities of occurrence, the Californian animal, if known by more complete materials than are now available, would doubtless be found to be specifically distinct. In fact, some difference is suggested by the more crowded anterior premolars, the single-rooted P², and the apparently higher principal cusp in P³ in the Californian material. Although doubt may be expressed as to the specific identity of the American and Asiatic forms there can be but little, if any, question concerning the generic agreement.

The occurrence of this genus in both California and China furnishes another instance of close relationship between Pliocene Carnivora of North America and Asia like that found among the bears of the *Indarctos* group.²

Measurements.—The similarity in size between the Kern River material and the two specimens of *Eomellivora wimani* described by Zdansky from the provinces of Honan and Shansi may be appreciated by referring to the following measurements of the teeth.

Comparative measurements (in millimeters)

	EOMELLI- VORA CF. WIMANI NO. 1216 C.I.T.	EOMELLI- VORA CF. WIMANI NO. 1210 C.I.T.	EOMELLI- VORA WIMANI* EXAMPLE 1	EOMELLI- VORA WIMANI* EXAMPLE 2
I ² ?, Length	6.4		5.4	5.8
I ² ?, Breadth	4.1		3.2	3.1
I ³ , Length	8.7		8.5	9.3
I ³ , Breadth	6.9		6.1	6.5
C ¹ ?, Length	14.0		12.0	12.3
C ¹ ?, Breadth	10.2		10.2	10.6
P ³ , Length		14.2	14.2	14.3
P ³ , Breadth		10.1	10.1	10.6
P ⁴ , Length		21.0	21.6	21.6
P ⁴ , Breadth		16.0	15.1	16.7
M ¹ , Length		12.1	11.6	12.3
M ¹ , Breadth		19.9	20.1	20.5

* Measurements after Zdansky, p. 63, 1924.

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² Merriam, J. C., C. Stock, and C. L. Moody, Univ. Calif. Publ., Bull. Dept. Geol., vol. 10, no. 7, 1916.