Postilla

PEABODY MUSEUM OF NATURAL HISTORY
YALE UNIVERSITY
NEW HAVEN, CONNECTICUT, U.S.A.

Number 85 **September 21, 1964**

A NEW OREODONT FROM THE CABBAGE PATCH LOCAL FAUNA, WESTERN MONTANA

STANLEY J. RIEL
PEABODY MUSEUM OF NATURAL HISTORY, YALE UNIVERSITY

INTRODUCTION

Mammal-bearing beds on the north side of the Clark Fork River east of Drummond, Montana, were first noted by Earl Douglass in 1901. In his discussion of the fossils collected from this site, Douglass (1903, p. 151) called these beds "doubtfully Oligocene" and wrote, "Only three good specimens were obtained here and none of these can I identify with species found elsewhere." Little more was said of the locality until the late 1950's when three more fossils were found. The formal designation of "Cabbage Patch Local Fauna" was made by Konizeski and Donohoe (1958) after "the only, but adequate, neighborhood bar."

The Cabbage Patch locality is three miles east of Drummond, Montana, on the north side of the Clark Fork River (figure 1). The beds extend for at least two miles east and north of U.S. route 10 but are largely covered by gravels and vegetation. The specimen of *Desmatochoerus* described in this paper was found by the author in Sec. 10, T. 10 N., R. 12 W.

I wish to thank Robert W. Fields for permission to borrow the specimen from Montana State University and for his aid in field

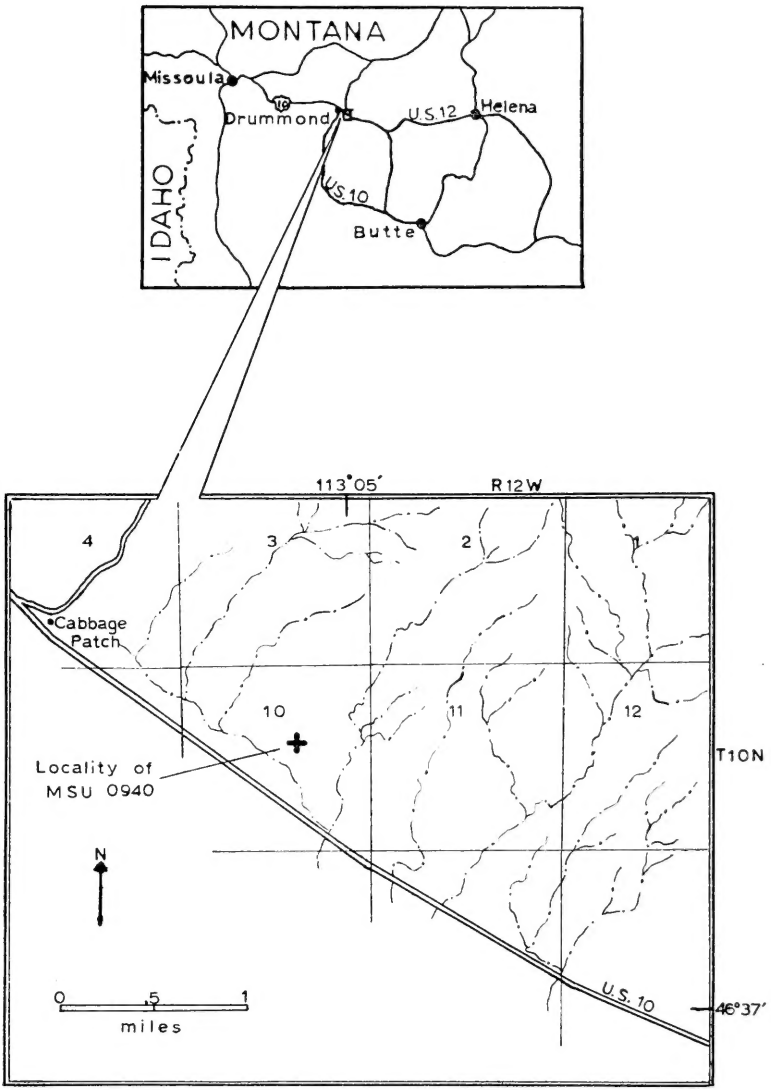

Figure 1. Index map of Cabbage Patch vertebrate fossil locality.

recovery. I would also like to thank Elwyn L. Simons and James A. Hopson of Yale for helpful comments and criticism.

The tooth nomenclature is that used by Schultz and Falkenbach

(1941, figure 17 and 1956, figure 4). The following is a list of the abbreviations used in this paper:

CNHM—Chicago Natural History Museum

F:AM—Frick collection, American Museum of Natural History

MSU—Montana State University

YPM—Yale University, Peabody Museum of Natural History

DESCRIPTION AND DISCUSSION OF AFFINITIES

FAMILY MERYCOIDODONTIDAE Thorpe, 1923

SUBFAMILY DESMATOCHOERINAE Schultz and Falkenbach, 1954

GENUS *DESMATOCHOERUS* Thorpe, 1937

Desmatochoerus macrosynaphus,* sp. nov.

(text-fig. no. 2; plates I, II)

Holotype: MSU 0940; a mandible with I_2–M_3; partial upper dentition including right P^3–M^3, left C, P^2, P^3, M^3.

Hypodigm: Type only.

Plastotype: YPM 20957.

Diagnosis: Medium size; alveolar length of lower dental series approximately 135 mm; mandible very long and narrow; elongate symphysis extending to beneath M_1; ramus very shallow anterior to M_3, increasing in depth posteriorly with abrupt downward curve of inferior border beneath M_3; dentition light as in *D. (Paradesmatochoerus);* superior premolars narrow; M_3 with prominent metastyle; lower premolars not crowded; posterior accessory blade present on P_3; anterior and posterior fossettes of P_4 open lingually.

Discussion: In their *Revision of the Oreodonts,* Schultz and Falkenbach (1954) divide species of *Desmatochoerus* into two groups. One of these groups is assigned to a new subgenus; the

* From the Greek *macros* (long) and *synaphe* (connection) in reference to the symphysis of the mandible.

other group is without subgeneric designation and is referred to as *Desmatochoerus*. The subgenus, *D. (Paradesmatochoerus),* includes small species with dentition more brachyodont and lighter than in *Desmatochoerus*. In these characters the present specimen is similar to species of that subgenus. In tooth pattern, length of symphysis and shape of the lower jaw, however, *D. macrosynaphus* is considerably different. In the author's opinion, these differences are great enough to warrant its assignment to at least a new subgenus. However, because the species is based on a single specimen, such an assignment would be more or less equivocal and would be of dubious taxonomic value. Thus, no subgeneric designation has been made.

The teeth of the type specimen of *D. macrosynaphus* are considerably worn but, in most, the dental patterns have not been obliterated. The pattern of the superior dentition, insofar as can be determined, is similar to that of YPM 13957, the type of *D. hatcheri grinnelli* (see Schultz and Falkenbach, 1956, figure 7, and this report, plate II). P_2 and P_3 are more square in *D. hatcheri grinnelli*, however, than in the type of *D. macrosynaphus* where these teeth are considerably longer than wide. The species also differ in cingula development. Cingula are especially well developed on the lingual sides of P^4–M^3 of *D. hatcheri grinnelli*. On *D. macrosynaphus*, cingula are present only on the anterior sides of M_2 and M_3.

The lower molars do not differ greatly in members of the genus except in size and minor differences in cingula. Premolars $\overline{3}$ and $\overline{4}$, however, show considerable variation. Comparative patterns of *D. macrosynaphus, D. hatcheri grinnelli,* and *D. (Paradesmatochoerus) wyomingensis* are shown in figure 2. As can be seen in this figure, the posterior accessory blade on P_3 of *D. macrosynaphus* is blade-like and directed toward the median crest. In *D. hatcheri grinnelli*, this structure is short, more cuspate and connects with the posterior crest. On P_4 of *D. macrosynaphus*, the anterior and posterior fossettes are open lingually even though the tooth is considerably worn. On three relatively unworn YPM specimens of *D. hatcheri grinnelli,* these fossettes are completely closed. Judging from the worn teeth of the figured specimen of *D.(P.) wyomingensis*, the posterior fossette opened lingually in an unworn tooth. Division into anterior and posterior crescents,

which represents molarization of P_4, is much more distinct in *D. hatcheri grinnelli* and *D. (P.) wyomingensis* than in *D. macrosynaphus.*

The coronoid processes of both sides of the mandible, the mental tubercle, and the right condyle are missing on MSU 0940. Enough of the jaw is present, however, to demonstrate that it is considerably different from other members of the Desmatochoe-

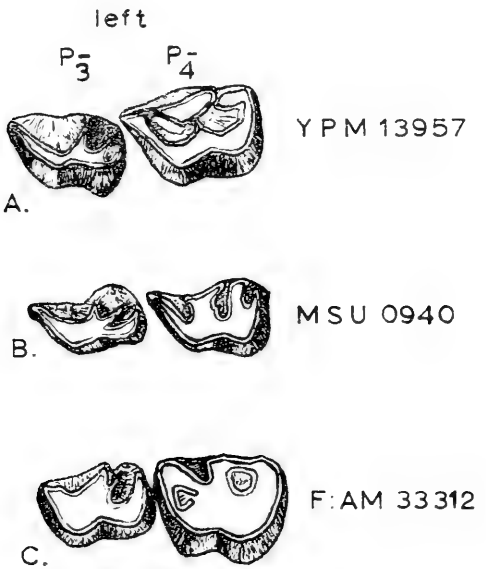

Figure 2. Comparative lower premolar patterns of *Desmatochoerus.*
A) *D. hatcheri grinnelli*
B) *D. macrosynaphus*
C) *D.* (*Paradesmatochoerus*) *wyomingensis* (redrawn from Schultz and Falkenbach, 1954, figure 11.)

rinae. According to Schultz and Falkenbach (1954, p. 177), species of *Desmatochoerus* are characterized by an elongate symphysis extending to below P_2–P_4. The symphysis in the specimen described here is more elongate than in any other known oreodont, extending to below M_1. In *Desmatochoerus,* the inferior border of the ramus is more or less parallel to the tooth row anterior to P_4. In *D. (Paradesmatochoerus),* the ramus increases in

depth between P_2–P_4. In this character, *D. macrosynaphus* is similar to species of *D. (Paradesmatochoerus)*. The inferior border is shallow anterior to M_3 with the depth of the jaw increasing only moderately. Below M_3, there is an abrupt downward curve of the inferior border. The angular region of the ramus is deep and prominent (see plate I). A mental tubercle appears to have been present below P_3–P_4 but has broken off. The condyle is light and is not positioned horizontally, the external border being slightly higher than the internal border.

TABLE 1

Measurements in mm — *Desmatochoerus macrosynaphus*

Upper right P^3 — M^3 incl.					81	
	P^3	P^4	M^1	M^2	M^3	
Length	13.2	12	14.2	17	25.5	
Width	11.4	13.8	17	19.5	22.4	
Greatest depth of ramus below plane horizontal with alveoli						71
Length of mandible at alveoli						225
Length of symphysis						85
P_1 — P_1					approx.	59
P_1 — M_3					approx.	134
	P_2	P_3	P_4	M_1	M_2	M_3
Length	13	15.9	16.8	14	18	29
Width	5.7	8.6	12	11.5	14.5	15.5

NOTE ON STRATIGRAPHIC RELATIONSHIPS

Little systematic collecting has been done from the Cabbage Patch locality. Several brief visits to the area by the author produced, in addition to the specimen described herein, only a few bone fragments and broken teeth. The faunal list known at present is given below (in part from Konizeski and Donohoe, 1958). Only single specimens of each have thus far been found.

Faunal list — Cabbage Patch locality

° *Meniscomys sp.**

° ?*Mesocyon drummondensis* Douglass, 1903

° *Kukusepasutanka schultzi* McDonald, 1956

Diceratherium cf. armatum Marsh, 1875

° *Promerycochoerus (Pseudopromerycochoerus) minor* Douglass, 1903

Leptomeryx transmontanus Douglass, 1903

° *Desmatochoerus macrosynaphus,* new species

° These species known only from their types.

* This specimen, CNHM Um1125, is listed as *M. grassicarum* by Konizeski and Donohoe (1958), but a description of the species has not yet been published.

Douglass (1901, p. 2, 3) considered the Cabbage Patch beds as probable John Day equivalents. Schultz and Falkenbach (1949, p. 124) considered these beds as "approximately equal to the Harrison of the Great Plains." McDonald (1956, p. 642) quotes Schultz and Falkenbach's designation of a Harrison equivalent. Konizeski and Donohoe (1958) summarized the stratigraphic significance of the first six species of table 2 and tentatively correlated the Cabbage Patch Local Fauna with Wood's (1933, p. 2, 3) lower Madison Valley deposits as Rocky Mountain province equivalents of the Oregon lower to middle John Day.

The specimen described in this paper apparently represents an aberrant species of the *Desmatochoerus* line and does little to clarify the age relationships of this fauna. According to the classification of oreodonts proposed by Schultz and Falkenbach (1954, chart 1), the range of the genus *Desmatochoerus* including *D. (Paradesmatochoerus)* is from late Oligocene to possibly late Miocene. Thus, an age assignment more precise than Arikareean for the Cabbage Patch beds must remain somewhat speculative.

PLATE I

Right: *Desmatochoerus macrosynaphus*. Holotype, new species. MSU 0940. Mandible, crown view, × 3/5.

Left: Ventral view of the same, × 3/5.

PLATE II

Top: External view of left side of the same, × 4/9.

Bottom: Crown view of the upper dentition, × 2/3.

References Cited

Douglass, Earl, 1901. Fossil Mammalia of the White River beds of Montana: Trans. Amer. Philos. Soc., new ser., vol. 20, p. 237-279.

————————, 1903. New vertebrates from the Montana Tertiary: Ann. Carnegie Mus., vol. II, no. 2, p. 145-200.

Fields, R. W., 1958. (Editor) Society of Vertebrate Paleontology, Guidebook, Eighth Field Conference, Western Montana: Mont. State Univ. Press, 50+ p.

Konizeski, R. and Donohoe, J. C., 1958. Faunal and stratigraphic relationships of the Cabbage Patch beds, Granite County, Montana: *In* Fields, R. W., Editor, 1958, Guidebook, p. 45-49.

McDonald, J. R., 1956. The North American anthracotheres: Jour. Paleo., vol. 30, no. 3, p. 615-645.

Schultz, C. B. and Falkenbach, C. H., 1941. Ticholeptinae. A new subfamily of oreodonts: Bull. Amer. Mus. Nat. Hist., vol. 79, p. 1-105.

————————, 1949. Promerycochoerinae, A new subfamily of oreodonts: Bull. Amer. Mus. Nat. Hist., vol. 93, p. 73-198.

————————, 1954. Desmatochoerinae, A new subfamily of oreodonts: Bull. Amer. Mus. Nat. Hist., vol. 105, p. 147-256.

————————, 1956. Miniochoerinae and Oreonetinae, two new subfamilies of oreodonts: Bull. Amer. Mus. Nat. Hist., vol. 109, p. 373-482.

Wood, H. E., 1933. A fossil rhinoceros (*Diceratherium armatum* Marsh) from Gallatin County, Montana: U.S. Nat. Mus. Proc., vol. 82, no. 7, p. 1-4.