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A New Species of *Sphenophalos* from the Upper Ogallala of Nebraska

BY ERWIN HINCKLEY BARBOUR AND C. BERTRAND SCHULTZ

THE GENUS *Sphenophalos* was described by John C. Merriam (1909, p. 319-30), who based his description on a fragmentary horn-core (Uni. of Calif. No. 11887) from the late Tertiary deposits near Thousand Creek in northern Humboldt county, Nevada. Knowledge of *Sphenophalos*, however, is still confined to this single, fragmented type horn-core (Frick 1937, p. 472) and other fragmental specimens (Furlong 1932, p. 27-36).

In 1937, Messrs. S. R. Sweet, T. C. Middleswart, and W. F. Chaloupka, while exploring for vertebrate fossils in the late Tertiary gravels northwest of Bridgeport in Morrill county, Nebraska, discovered an interesting partial cranium of an extinct antilocaprid. The specimen was immediately sent to the writers for identification. The similarity to *Plioceros* Frick was observed but it was apparent that the form was generically distinct. It was not until the specimen was later compared with a cast of the holotype of *Sphenophalos nevadanus* Merriam that it was possible definitely to place the new specimen in the genus *Sphenophalos*.

The writers are grateful to Mr. Childs Frick for his special interest in the specimen described here, and to Mr. Morris F. Skinner for helpful suggestions. Drawings A, C, and D of figure 23 were made by Mr. Ralph Mefferd and drawing B by Miss Hazel de Berard.

DESCRIPTION AND DISCUSSION

Sphenophalos middleswarti,¹ new species

Type.—Partial cranium with left horn-core, No. 1-20-5-37 S.P., University of Nebraska State Museum.

Locality.—SE $\frac{1}{4}$ of sec. 11, T. 20 N., R. 52 W., 8 mi. NW of Angora, Morrill county, Nebraska, on the farm of C. W. Nichols.

¹ Named in honor of Mr. T. C. Middleswart.

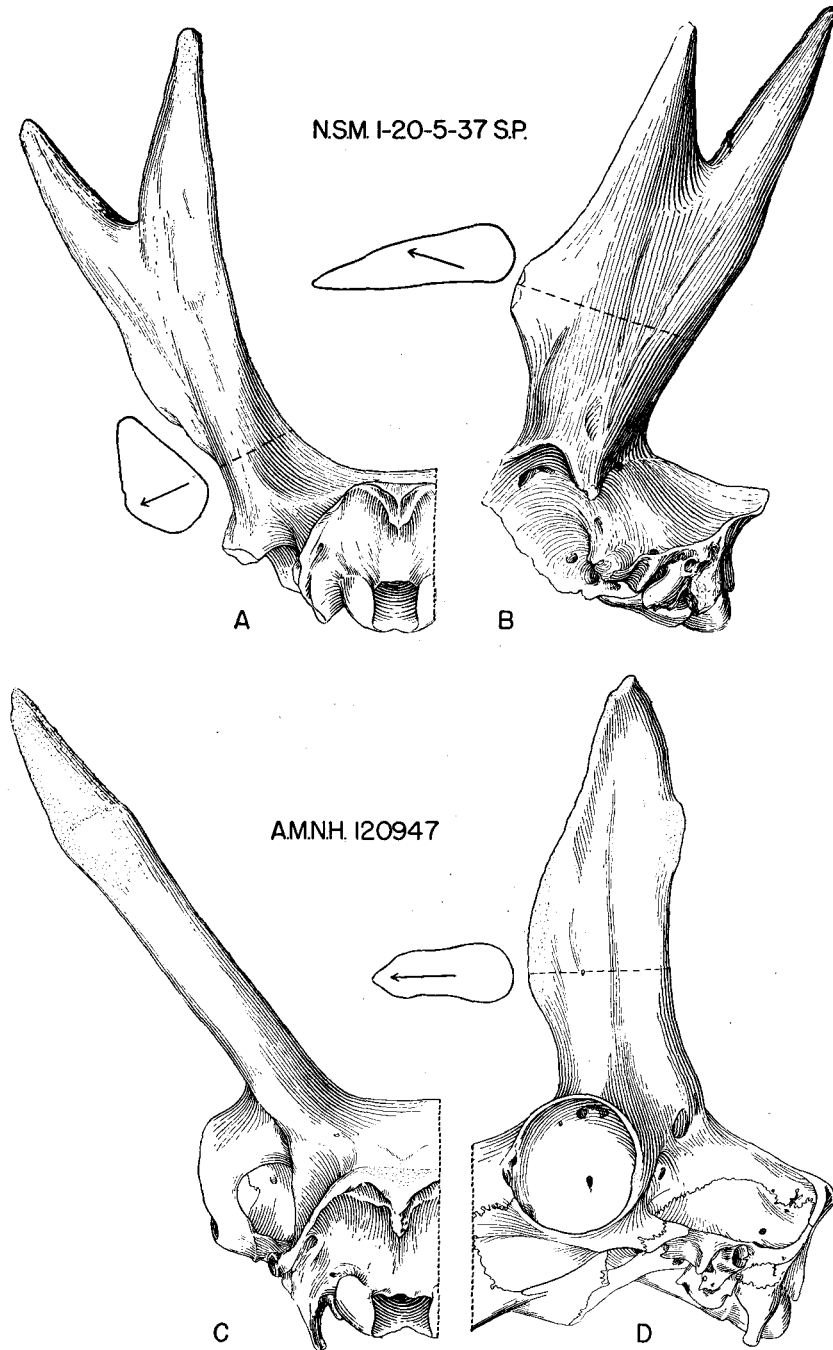


Fig. 23.—Comparison of horn-cores and partial crania of *Sphenophalos middleswarti*, new species, and *Antilocapra americana*. (A-B) *Sphenophalos middleswarti*, new species, Uni. Neb. State Mus. No. 1-20-5-37 S.P.; (C-D) *Antilocapra americana* Ord, male specimen, Am. Mus. Nat. Hist. No. 120947. $\times \frac{1}{3}$.

Horizon.—Late Pliocene (upper Ogallala gravels, probably upper Ash Hollow or Sidney).

Specific Characters.—Smaller than the holotype of *Sphenophalus nevadanus*; horn relatively large and heavy for size of cranium compared with that of *Antilocapra americana*; presence of a boss or swelling situated on the anterior edge of the horn-core midway on the beam; tendency for horn-cores to twist, the left core in a counter-clockwise direction; bifurcation of horn-core at distal end into two short prongs with the anterior prong flaring outwardly and the posterior inwardly; posterior base of horn-core broadly expanded (unexpanded in *Plioceros*); posterior base of horn-core situated well over the cranium and not strongly confluent with the supra-orbital process; cranium relatively small and short when compared with that of *A. americana* and transversely not so expanded; transverse diameter of horn-core not so great as in the holotype of *S. nevadanus* but considerably greater than in the holotype of *Plioceros blicki*; longitudinal axis of horn-core strongly oblique to orbit, while it is parallel to orbit in *P. blicki*; parietal ridges well separated at the occiput; external auditory meatus smaller but similar to that of *A. americana*; tympanohyal pit deep; tympanic bulla only partially present but remains suggest less expansion than in *A. americana*; orbit incompletely preserved but suggests a different shape and a lesser degree of protuberance than that of *A. americana*.

Comparative Measurements

	<i>Sphenophalus middleswarti</i> sp. nov. HOLOTYPE N.S.M. 1-20-5-37-S.P.	<i>Sphenophalus nevadanus</i> Merriam HOLOTYPE Uni. Calif. 11887	<i>Plioceros blicki</i> Frick HOLOTYPE F.A.M. 31682
	mm.		
External length of horn-core from top of orbital rim to crotch.....	109.5		59.5
External length of horn-core from top of orbital rim to anterior tip.....	156.5		(72.0)*
External length of horn-core from top of orbital rim to posterior tip.....	177.0		(91.0)
Anterior-posterior diameter of base of horn-core.....	42.5	(43.0)	41.5
Anterior-posterior diameter of horn-core at anterior boss.....	(71.0)		
Anterior-posterior diameter of horn-core below crotch.....	67.5		51.0
Transverse diameter of horn-core at anterior edge of base (min.).....	(10.0)	(10.0)	(11.2)
Transverse diameter of horn-core at posterior edge of base (max.).....	30.5	(39.0)	21.0
Transverse diameter of anterior prong of horn-core at crotch.....	15.0		15.0
Transverse diameter of posterior prong of horn-core at crotch.....	23.0		18.0
Depth of occiput (supraoccipital crest to base of condyles).....	52.0		
Width of occiput (max.).....	70.0		
Width of cranium above glenoid process.....	60.5		
Postorbital width of skull.....	(127.0)		
Width of condyles.....	37.5		

* () = approximate.

The slightly rugose texture of the bone at the distal end of the horn-core suggests an *Antilocapra*-like sheath. The various similarities observed between *S. middleswarti* and *A. americana* appear, however, to be the result of parallel development. More material is needed and more work must be done on available specimens before an acceptable phylogeny of the late Tertiary antilocaprids can be made.

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