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## A NEW SILURIAN TRILOBITE DALMANITES OKLAHOMAE

EUGENE S. RICHARDSON, JR.

CURATOR OF FOSSIL INVERTEBRATES

In the collections of Chicago Natural History Museum there is a single, fairly well-preserved, partly exfoliated cephalon that differs from any previously described form. It is here made the type of a new species of phacopid trilobite.

### **Dalmanites oklahomae**, sp. nov.

(?)*Dalmanites*, sp. nov. Reeds, Amer. Jour. Sci., 32, (4), p. 263, 1911 (in faunal list).

*Holotype*.—C.N.H.M. P10435, an incomplete cephalon.

*Horizon and locality*.—Probably Silurian, probably Henryhouse shale. Collected at Bromide, Coal County, Oklahoma.

*Description*.—Cephalon about twice as wide as long, nearly flat in transverse profile across glabella, steeply convex at cheeks, below eyes. Genal angles or spines unknown. Border very wide in front of eyes, narrow in front of glabella, projecting anteriorly in process of unknown length, apparently narrowing behind eyes. Eyes long, semicircular, extending from first glabellar furrows to nuchal furrow, high, rising well above glabellar level and above palpebral lobes; facets about 320 in number, arranged in 39 vertical rows. Distinct groove beneath eye (see fig. 15). First glabellar furrows pronounced, rounded, directed anteriorly outward, slightly deepened proximally; second glabellar furrows directed posteriorly outward, deepened into pits proximally, almost obsolete distally; third glabellar furrows parallel to second, proximally deepened, distally shallow. Nuchal furrow parallel to second and third glabellar furrows, deepened in line with proximal deepening of those furrows, shallow where it crosses axis. Frontal lobe large, smooth, and nearly flat on top, elliptical, about twice as wide as long, gently sloping anteriorly, strongly arched at sides, bearing fine pustules on front and sides.

Glabella lobes smooth on top, flat, bearing fine pustules on ends. Nuchal ring high, circularly arched, smooth. Dorsal furrow pronounced, with scattered pustules. Cheeks and border minutely pustulose. Facial suture apparently close below subocular furrow posteriorly, not seen elsewhere. Doublure as wide as widest part of border, continuing thus across front of cephalon. The hypostoma of the unique specimen was evidently lost before fossilization.

*Remarks.*—The specimen was presented to the Museum in 1908 by Mr. W. W. Newberry, of Chicago, with a notation stating that

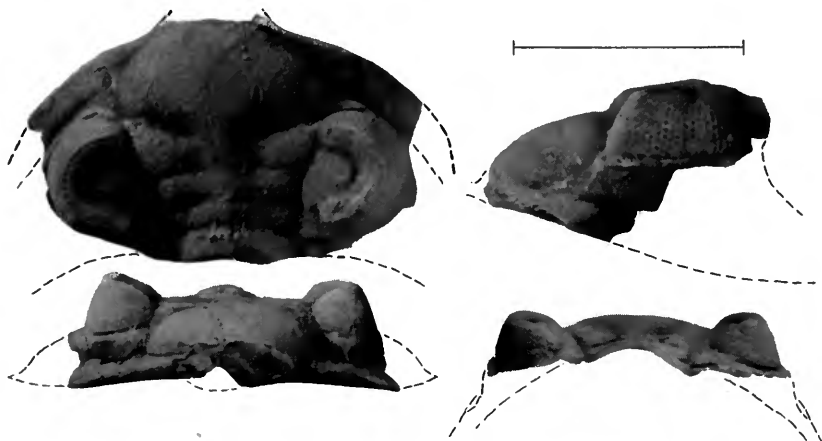


FIG. 14. *Dalmanites oklahomae*, sp. nov. Holotype, an incomplete cephalon. C.N.H.M. No. P10435. Upper left, dorsal view of test;  $\times 1.5$ . Lower left, front view, showing high eyes, flat-topped glabella, and high cheeks;  $\times 1.2$ . Upper right, lateral view;  $\times 1.7$ . Lower right, back view, showing strongly arched nuchal ring and flat-topped glabella;  $\times 1.2$ . The line at the top represents one inch on the scale of magnification of the two lower photographs.

it came from the Silurian Clinton group at Bromide, Oklahoma. A small amount of matrix adheres to the cephalon, permitting comparison with published information on the rocks of the Bromide region. Considering the apparent stage of evolution of the trilobite, it seems to be similar to Silurian and Devonian species of the *Dalmanitina socialis* lineage, with glabellar lobation and eyes very similar to those of *Dalmanitina arkansana* (Van Ingen), of the St. Clair limestone (middle Niagaran). Lithologically, the specimen might have been taken from either the Silurian (lower Cayugan) Henryhouse shale or the Devonian (Helderbergian) Haragan shale. The matrix of the specimen is a light tan, dense, earthy limestone. According to the original description (Reeds, 1911, pp. 261–263), the

Henryhouse consists, in part, of "bluish to yellowish, thin- to moderately thick-bedded earthy limestone and intercalated shale" in the lower part of its exposure on Chimneyhill Creek, in the Arbuckle Mountains of Oklahoma. This formation, however, is missing by an erosional unconformity below the Haragan shale at Bromide (Sulphur Springs), the locality from which the fossil is said to have been taken. Here, the Haragan contains "thin-bedded earthy limestones which weather to yellowish shales on long exposure." Though the piece of matrix at hand is weathered and of

FIG. 15. *Dalmanites oklahomae*, sp. nov. Sketch of vertical section through eye and cheek.



a somewhat earthy texture, it is not shaly. Such a small sample, of course, is not necessarily typical of the major features of the formation from which it was collected, so that whether this trilobite is Silurian rather than Devonian must remain uncertain.

The lack of a hypostoma prevents an accurate generic assignment, wherefore the species is here included in *Dalmanites*, sens. lat., to which it is, at all events, very closely related. Unpublished work of Dr. Frank M. Swartz, concerning the subocular grooves of the dalmanitids, may have an important bearing on its relationships.

In spite of its close resemblance to *Dalmanitina arkansana* (Van Ingen), the species is excluded from that genus by the presence of a frontal border. The width and the broad anterior curvature of the cephalon, together with the flat-topped glabella and high cheeks, differentiate this species from other known dalmanitids. Reeds (1911) listed *Dalmanites arkansus* (*Dalmanitina arkansana*?) and *D. werthneri* from the lower Silurian (Albion) Chimneyhill formation; *Dalmanites*, sp. nov., from the Henryhouse; and *Synphoroides pleuroptyx* (as *Dalmanites*) from the overlying Devonian Haragan. *D. arkansana* is much more elongate than *D. oklahomae*, sp. nov.; *D. werthneri* has wider cheeks and more nearly transverse glabellar furrows; "*Dalmanites*, sp. nov." may be the same; and *S. pleuroptyx* is more nodose, has wider cheeks, and has somewhat smaller eyes.

#### REFERENCE

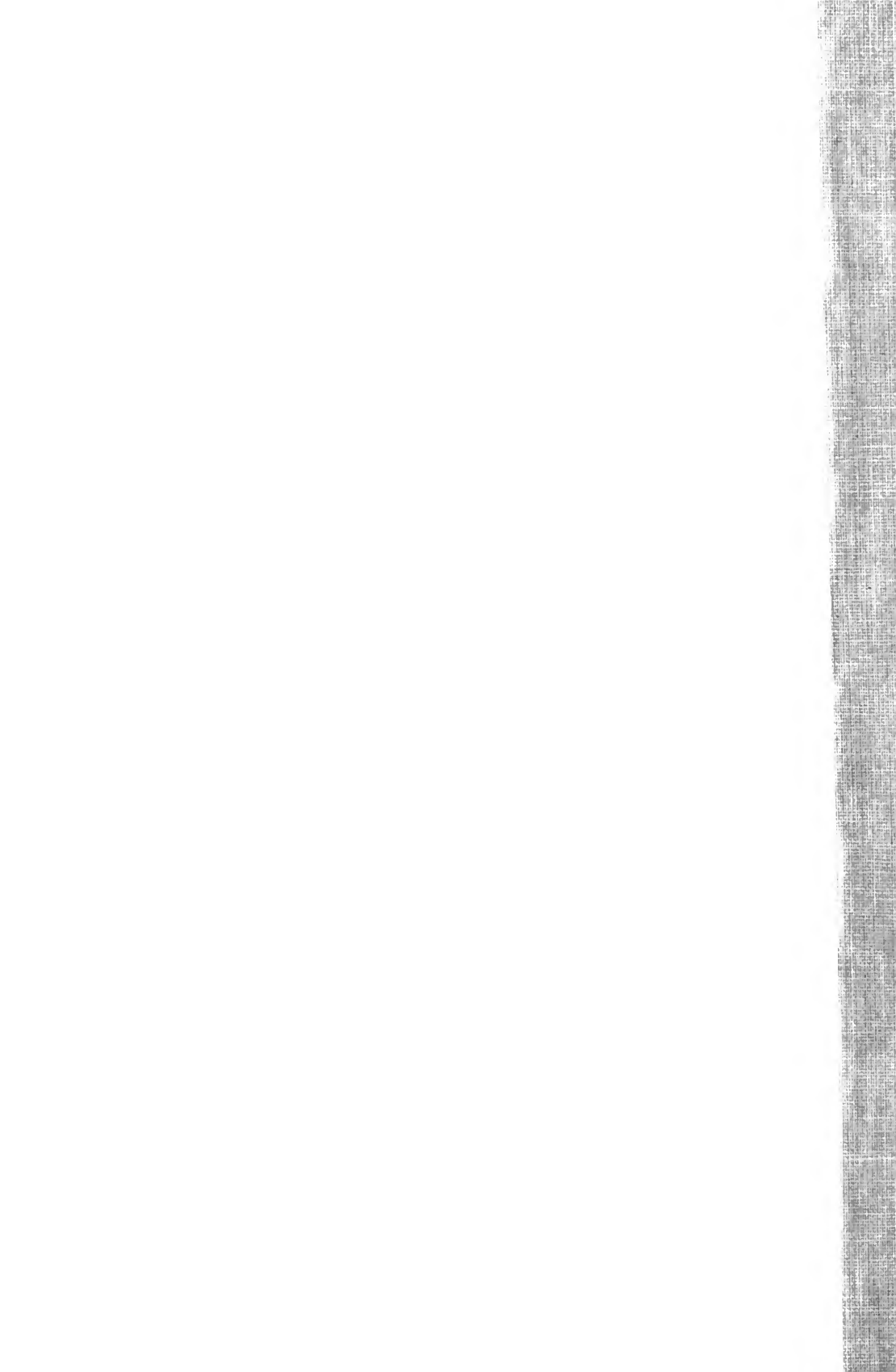
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