

NEW MID-CAMBRIAN PTYCHOPARID.*

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ABSTRACT. The famous "Paradoxides Quarry" at Braintree, Massachusetts was obliterated during expansion of the Fore River Shipyards. A final fossil collection, authorized by the U. S. Geological Survey, revealed a new species related to "*Ptychoparia*" *rogersi* Walcott and necessitated a restudy of the latter.

"*Ptychoparia*" *rogersi* was referred by Howell and Mason (1938) to Resser's (1935) genus, *Ehmania*, and as such would represent a link of great importance between the Atlantic and Pacific Mid-Cambrian faunal provinces because the other species of *Ehmania* are limited to the west. But the generically significant ocular ridges, which were unfortunately ascribed to "*P.*" *rogersi* in Walcott's (1884) description and figure and which subsequently persuaded the reference of this Braintree species to *Ehmania* rather than to closely related Vermont ptychoparids, are not present in the holotype cranidium nor in any of the Braintree specimens now available.

In contrast to the broadly defined genus, *Ehmania*, the Vermont genera of Howell's (1937) subfamily, *Nassovinae*, are so delimited as to require the description of a new genus, *Braintreëlla*, having its closest affinities in the genera, *Vermontella* and *Champlainia*. The genotype, *Braintreëlla* (*Ptychoparia*) *rogersi*, and the new species, *Braintreëlla currieri* (distinguished by its more quadrate cranidium) differ from species of *Vermontella* and *Champlainia* in possessing broader, less tapering glabella and cranidia.

INTRODUCTION.

AS a joint project of the U. S. Geological Survey and the Massachusetts Department of Public Works, the writer was authorized to make a final collection from the Middle Cambrian Braintree argillite during the recent obliteration of the famous trilobite quarry at Braintree, Massachusetts. Collecting trips were made during the late Fall and Winter of 1940 as the blasting that accompanied expansion of the Fore River Shipyards proceeded.

In addition to a large collection of *Paradoxides* remains, several specimens of Walcott's¹ species, "*Ptychoparia*" *rogersi* were found. Study of the original (Shaler) collection revealed that the holotype was incorrectly figured and described. The redescribed holotype cannot be referred to the genus *Ptychoparia*, as restricted by Howell;² but shows characteristics intermediate between species included in his new genera *Champlainia* and *Vermontella*.

However, Howell³ has placed "*Ptychoparia*" *rogersi* in Resser's⁴ genus *Ehmania* as the only representative of the latter

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in the Atlantic Province. Thus "*Ptychoparia*" *rogersi* would constitute a connecting link of great importance between the Pacific and Atlantic Middle Cambrian provinces.

A careful consideration of the broad description of the genus *Ehmania* and study of Rocky Mountain species assigned to this genus indicates relatively little similarity between these species and "*Ptychoparia*" *rogersi*, whereas the affinities of the latter are very noticeably with species from the St. Albans slate of Vermont.

Further study of the Braintree collections revealed a new species closely related to "*Ptychoparia*" *rogersi* which strengthens the correlation with the Vermont species.

Since the genera of Howell's subfamily *Nassovinae* are too narrowly defined for the reception of these two Braintree ptychoparids, a new genus, *Braintreëlla* (following Howell's evaluation of cranidial features and style of naming) had to be established.

It is hoped that the redescription of "*Ptychoparia*" *rogersi*, the differentiation of a new species from material referred to it, and the assignment of both species to a new genus will be justified by the attention that is now focused on the taxonomy and stratigraphic utility of the family *Ptychoparidae* in recent Middle Cambrian correlation.

Description of Species.

Family PTYCHOPARIDAE Matthew.

Subfamily NASSOVINAE Howell.

Genus *Braintreëlla*, new genus.

The cranidium is subquadrate in outline with a rather straight front margin, moderately convex, with the rear corners of the cheeks not widely extended. The glabella is wide and tapering with weak pairs of glabellar furrows occasionally present. Ocular ridges are not present.

The genotype is "*Ptychoparia*" *rogersi* Walcott. The holotype of this species is no. 496 in Harvard Museum of Comparative Zoology. Walcott's original description of the holotype cranidium is given verbatim and the corrections appended.

Braintreëlla rogersi (Walcott).

(Plate I, Figs. 1 and 2).

1884. *Ptychoparia rogersi* Walcott, Bull. 10, U. S. Geol. Survey, p. 47, Pl. 7, Fig. 2.
1938. *Ehmania rogersi* Howell and Mason, Journal of Paleontology, Vol. 12, no. 3, p. 296 (Generic reference).

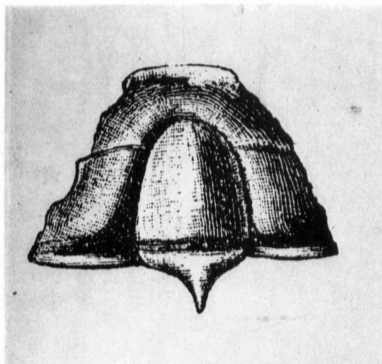


FIG. 1

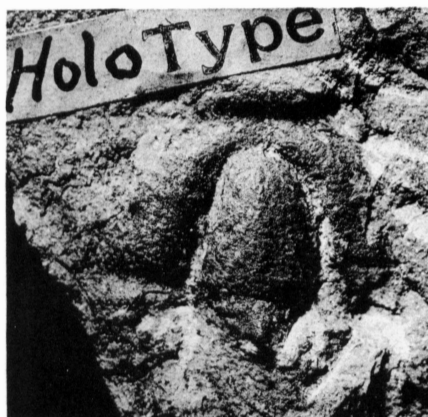


FIG. 2



FIG. 3

FIG. 1. *Braintreëlla* (*Ptychoparia*) *rogersi* Walcott. x 2. Walcott's drawing showing ocular ridges in holotype cranium.

FIG. 2. *Braintreëlla* (*Ptychoparia*) *rogersi* Walcott. x 2. Photograph of the same specimen showing absence of ocular ridges.

FIG. 3. *Braintreëlla* *currieri*, n. sp. x 2. Holotype cranium.

"Glabella cylindro-conical, rounding rather abruptly in front, posterior pair of glabellar furrows very faintly shown in one specimen; dorsal furrows strongly defined; occipital furrow rounded, well marked and extending out across the fixed cheeks; occipital ring rather narrow rising at the centre and extending backwards in a short, strong spine; fixed cheeks of medium width, moderately convex, and sloping forward to unite with the frontal limb; ocular ridges shown only on one specimen; starting a little back of the anterior end of the glabella, they extend obliquely back to the small palpebral lobe; frontal limb rather narrow; it curves downward for a short distance in front of the glabella and then up to the frontal rim. The facial sutures cut the anterior margin so as to leave a narrow frontal limb, and then extend obliquely outward and backward to the palpebral lobe; back of this they extend obliquely outward to the posterior margin of the head."

Discussion: The chief discrepancy noted in comparing the holotype with Walcott's figure and description lies in the absence of the generically important ocular ridges. Apparently the description is of the figure, whereas, the figure (in showing ocular ridges) must have been coined from more than one specimen. Yet no available Braintree cranium shows these ridges. Furthermore, the brim is actually shorter and less convex than drawn. An objection of less importance, considering the poor preservation, is the absence of the glabellar furrows ascribed to the holotype.

The important question arises, should this species be left in Resser's genus *Ehmania*? If one were to depend solely upon the broad description of that genus (which might include all of the genera of Howell's subfamily *Nassovinae*) one would be justified in referring "*Ptychoparia*" *rogersi* to *Ehmania*. On the other hand, a comparison of the holotype of this species with cranidia of *Ehmania gallatinensis*, *E. antiquata*, and other Montana forms brings out many significant differences.

The chief features possessed by the Montana species but lacking in "*Ptychoparia*" *rogersi* are the highly convex cranidia, the weak dorsal furrows and high glabella, the relatively strong glabellar furrows, the narrow fixed cheeks, the ocular ridges, and the flat, upturned brim with its rounded anterior margin.

Although the evidence is overwhelmingly against referring this species to *Ehmania*, it is especially the lack of ocular ridges that suggests affinities with certain of the more recently erected

genera of the subfamily, Nassovinae. The most closely allied species belongs to the genus, *Vermontella*, but, although these typically lack ocular ridges, they possess narrower tapering cranidia with narrow glabellas and narrow fixed cheeks. These features are diagnostic in Howell's reclassification of the *Ptychoparidae*, and consequently prevent the assignment of "*Ptychoparia*" *rogersi* to the genus, *Vermontella*, or to any other established genus.

Braintreëlla currieri, new species.

(Plate 1, Fig. 3.)

The cranidium is subquadrate in outline, moderately convex and distinguished by its wide straight frontal margin. The glabella is moderately convex terminating bluntly in front, and possessing weakly developed middle and posterior pairs of glabellar furrows. The dorsal furrows are wide but strongly impressed. The brim is wide but not proportionately long and is raised into a prominent marginal lip.

Discussion: One cranidium in Walcott's original collection and several in the writer's collection exhibited sufficient differences from *Braintreëlla* (*Ptychoparia*) *rogersi* to warrant description of a new species. The specific name is in honor of Dr. Louis W. Currier of the U. S. Geological Survey who was responsible for authorizing the final collection before the famous quarry was destroyed.

The holotype has its closest affinities in *Braintreëlla* (*Ptychoparia*) *rogersi* from which it especially differs in having a broader frontal margin, thus giving the cranidium a more quadrate outline. Also the cranidium is less convex and the glabella broader and lower. The two pairs of weak glabellar furrows are additional distinguishing features.

The holotype of the new species has been sent to the U. S. National Museum.

REFERENCES.

1. Walcott, C. D.: 1884, Bull. 10, U. S. Geol. Surv., p. 47, Pl. 7, Fig. 2.
2. Howell, B. F.: 1937, *Centropleura* Fauna of Vermont: Bull. Geol. Soc. Amer., Vol. 48, no. 8, pp. 1182-1187.
3. Howell and Mason: 1938, Middle Cambrian Faunas of N. America: Journ. of Paleont., Vol. 12, no. 3, p. 296.
4. Resser, C. E.: 1935, Cambrian Trilobites: Smithsonian. Misc. Coll., Vol. 93, no. 5, pp. 24-26.

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