

remain, it must be distant from the dorsal furrows nearly the width of the glabella.

"This species appears to be closely allied to the one above cited from Shumard's paper, so far as the characters of the glabella are concerned. As, however, the proportions are a little different, I shall dispose of it as above until I can have an opportunity of submitting a specimen to Dr. Shumard.

"*Locality and formation.*—One and one-half miles east of Swanton, in Vermont, in the slates of the Potsdam group."

Mr. Billings describes an entire specimen, but does not figure it, and we have been unable to obtain any more than the head exclusive of the free cheeks.

The most marked difference between the head and that of *P. Adamsi* is in the form of the frontal limb.

A comparison with specimens of *P. Billingsi*, from Texas, shows it to be a distinct species.

Formation and locality.—Middle Cambrian, Georgia Formation. About $1\frac{1}{2}$ miles east-northeast of Highgate Springs, Vermont; also, in the conglomerate limestones at Bic Harbor below Quebec, on the St. Lawrence River, Canada.

PTYCHOPARIA VULCANUS Billings.

Plate xxvi, figs. 4, 4a.

Conocephalites Vulcanus Billings, 1861. Geology of Vermont, vol. ii, p. 952, fig. 357; Pamphlet 1861, republished (1865) in Pal. Foss., vol. i, p. 14, fig. 17; Geol. Canada, 1863, p. 286, fig. 296.

Original description.—"Head broad, moderately convex; glabella obtusely conical, with the neck segment triangular and extended backwards in the middle; neck furrow not extending across, being interrupted by a strong carina which runs along the median line; dorsal furrow all round, but not sharply defined. Front margin about one-third the length of whole head, with a projecting rim, and a transverse groove situated two-thirds the distance from the front of glabella. Cheeks moderately convex; ocular ridge well defined; a line drawn across the head a little in advance of the mid-length of the glabella would pass through the eyes; the latter distant from the glabella at least half the whole length of the head. No indications of glabellar furrows visible.

"Length of head, four and one-third lines; of glabella, including the backward projecting angle of the neck segment, three lines; width of glabella just in advance of neck furrow, two and one-third lines; distance of eye from glabella, two and one-fourth lines.

"This species differs from *C. Adamsi* in the character of neck furrows and in the greater proportional width of the glabella.

"It was found along with *C. Adamsi* in the same beds."