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## Paleontological Notes on Growth Series and Sexual Dimorphism of Some Mississippian Ostracodes from Utah, U.S.A.

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**Paleontological Notes on Growth Series and  
Sexual Dimorphism of Some Mississippian  
Ostracodes from Utah, U. S. A.**

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**Abstract**

Several species of ostracodes such as *Perprimitia* aff. *P. tenera*, *Bythocypris* aff. *B. disparilis*, *Monoceratina* sp., *Healdia* cf. *H. ovoidea*, *Aechminella* aff. *trispinosa*, *Amphissites rugosus*, and *Perprimitia* (?) *morganensis* n. sp. were studied from point of growth series and sexual dimorphism.

*Amphissites rugosus*, *Monoceratina* sp., and *Healdia* cf. *H. ovoidea* each show four, three, and two possible molt stages of instars. However, *Aechminella* aff. *trispinosa*, *Perprimitia*? aff. *P. tenera*, and *Bythocypris* aff. *B. disparilis* do not show clear molt stages.

The study indicates that *Perprimitia* (?) *morganensis* n. sp. is sexually dimorphic.

**1. Introduction**

The present study is based on forty species of ostracodes which were collected from the Great Blue Limestone, Morgan County, Utah, U. S. A. during the summer of 1963.

**2. Discussion**

Seventy eight single valves of *Perprimitia*? aff. *P. ? tenera* were measured and plotted (Fig. 1). The specimens range in length from 0.27 mm. to 0.54 mm. and in height from 0.17 mm. to 0.34 mm. and it is probable that a number of younger growth series were not represented.

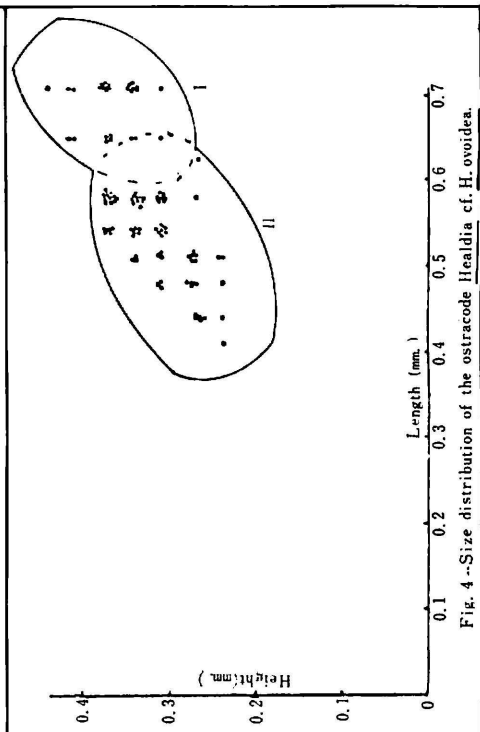
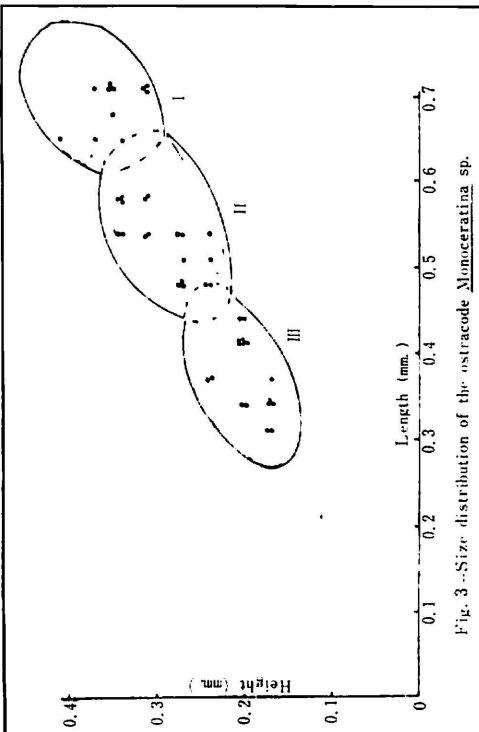
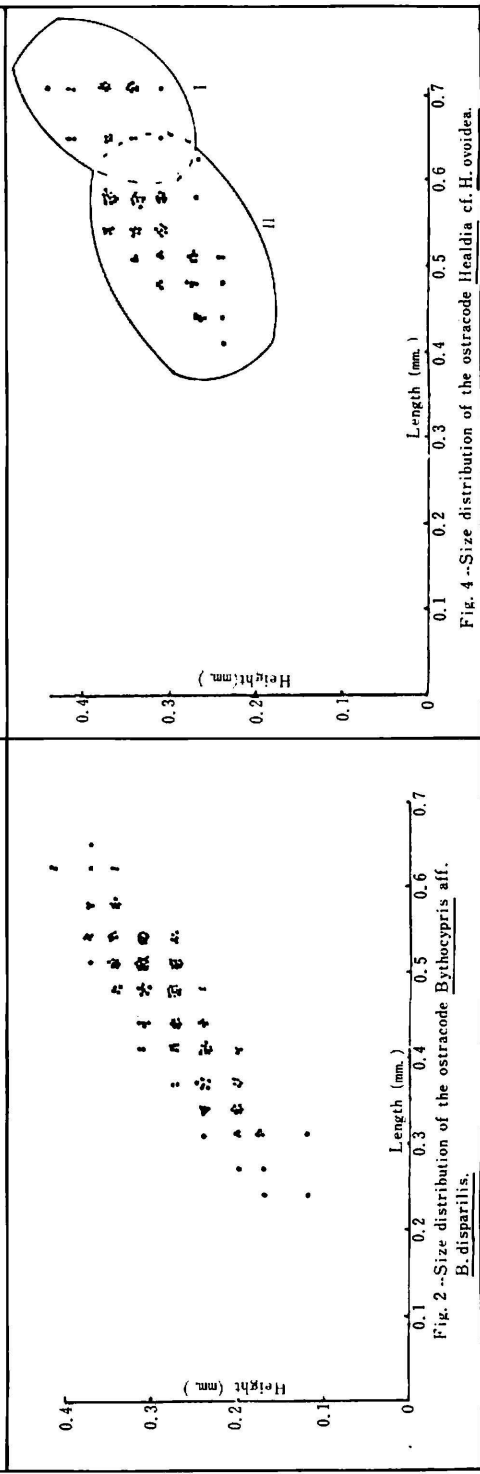
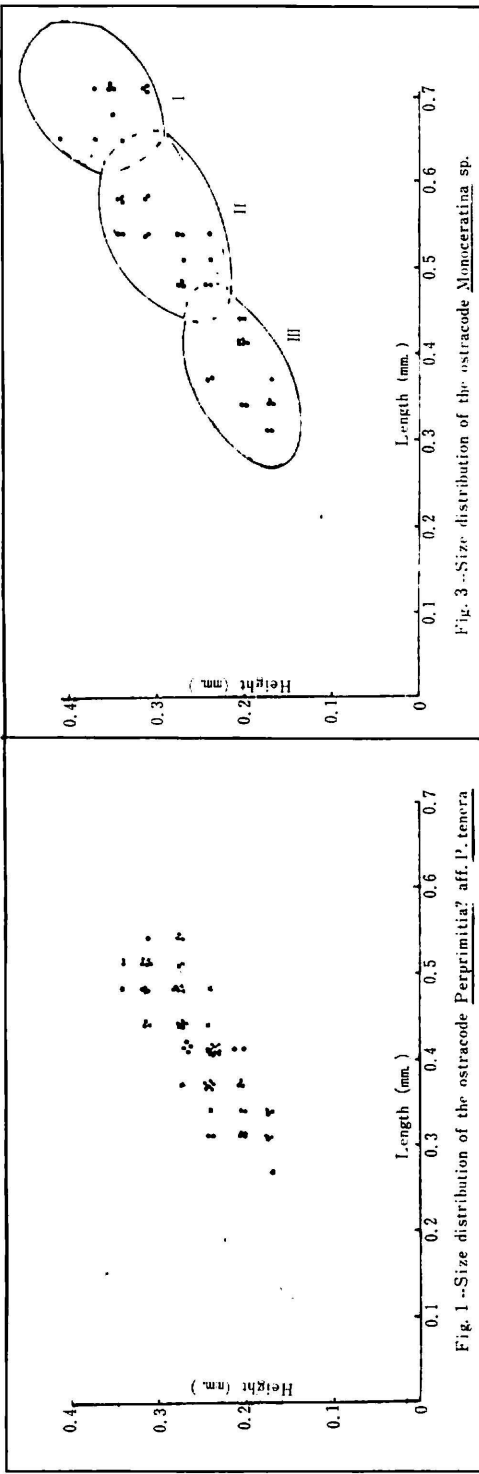
Two hundred and six single valves of *Bythocypris* aff. *B. disparilis* were measured and plotted (Fig. 2). The specimens range in length from 0.24 mm. to 0.65 mm. and in height from 0.12 mm. to 0.41 mm. and it is probable that a number of younger growth series were not represented.

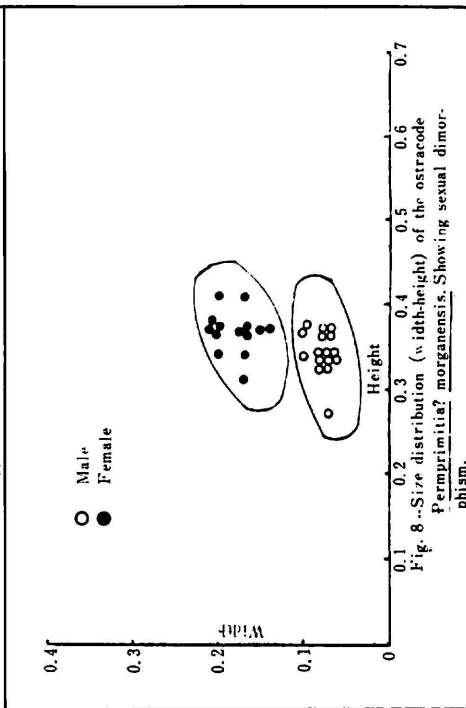
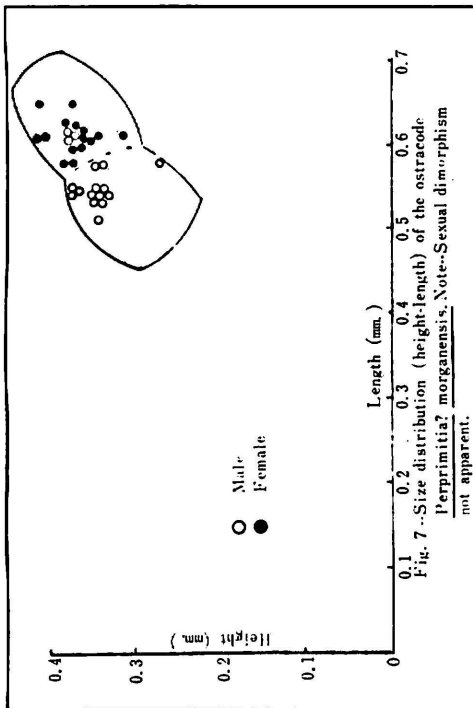
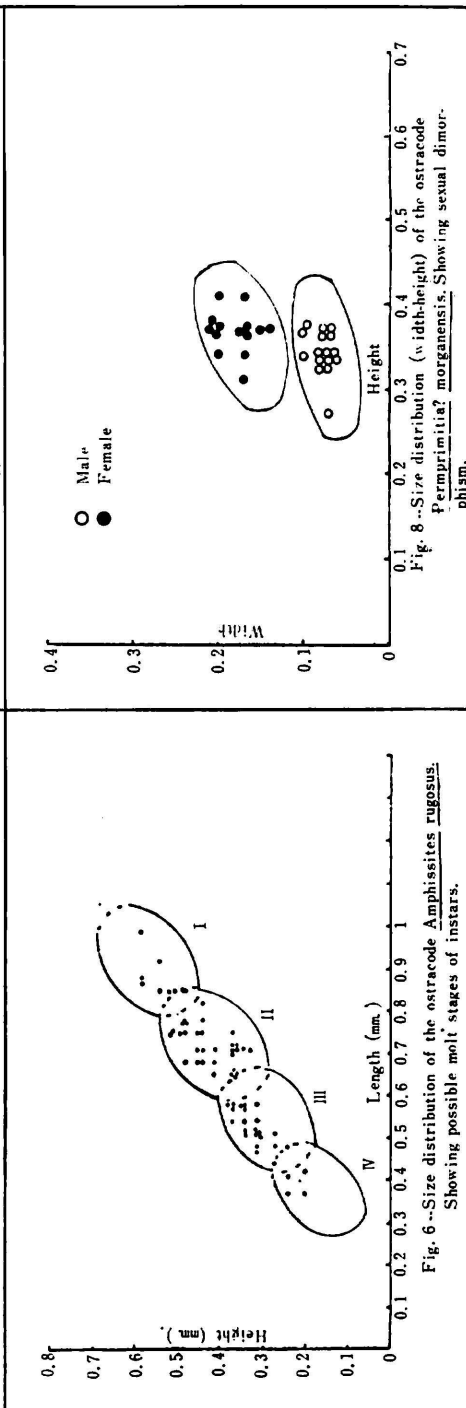
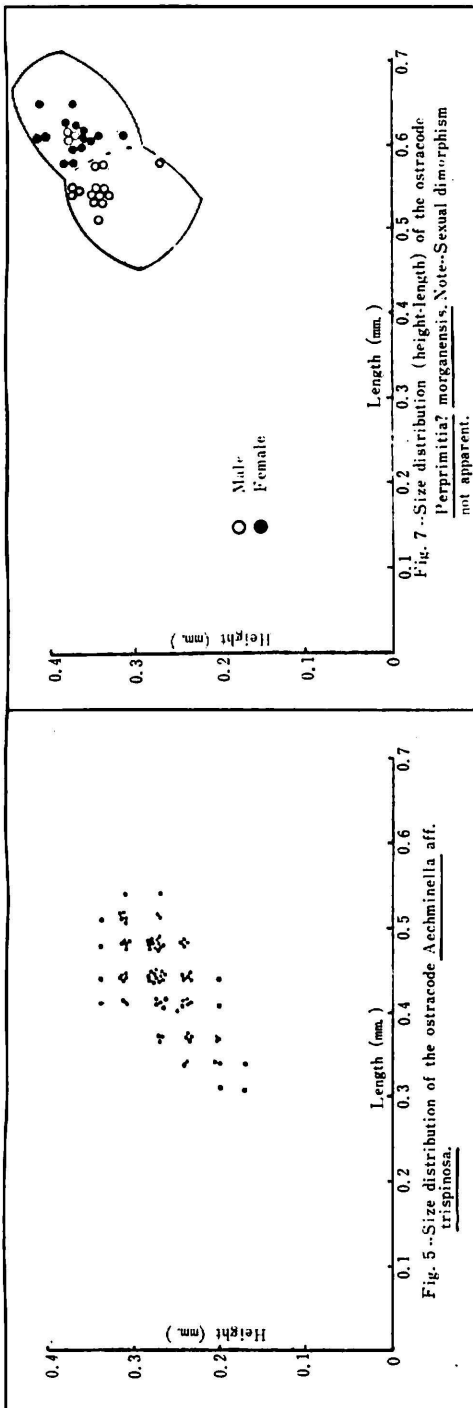
Forty seven single valves of *Monoceratina* sp. were measured and plotted (Fig. 3). The specimens range in length from 0.31 mm. to 0.68 mm. and in height from 0.17 mm. to 0.41 mm. Three growth stages were represented. The length and height of the three interpreted growth stages are plotted on figure 3. The probable mature instar is designated as I-instar, the next to I-instar, II-instar, etc.

One hundred and eleven single valves of *Healdia* cf. *H. ovoidea* were measured. The specimens range in length from 0.41 mm. to 0.71 mm. and in height from 0.24mm. to 0.44mm., and it is probable that a number of younger growth series

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were not represented. The length and height of the two interpreted growth stages are plotted (Fig. 4).

One hundred and three single valves of *Aechminella* aff. *A. trispinosa* were measured. The specimens range in length from 0.31 mm. to 0.54 mm. and in height from 0.17 mm. to 0.34 mm., and it is probable that a number of younger growth series were not represented. When the measurements are plotted on a scatter diagram, instar stages are not apparent (Fig. 5). This is probably the result of overlap in size of tests from different instar stages.

Sixty five single valves of *Amphissites rugosus* were measured and plotted. The specimens range in length from 0.34 mm. to 0.99 mm. and in height from 0.20 mm. to 0.58 mm., and four growth stages were identified (Fig. 6). The figure shows the frequency distribution of length and height of *A. rugosus*. It indicates that there is a close relationship between height and length of valves.

### 3. Dimorphism

Detailed studies have been made of a collection of thirty two specimens, mainly valves. The length, height, and width of each specimen were measured and presented (Table 1).

The size-distribution diagram (Fig. 7, 8) clearly indicates that two groups of ostracodes can be distinguished. The individuals of one group are slightly longer, and distinctly wider (more than two times) than those of the other group. The greater width of one group is considered to result from sexual dimorphism in this species. The wider individuals are here considered to be the females (Fig. 8). The dimorphism may be referred to kloedenellid type, which is characterized by inflation of the posterior portion of the domicilium of the female. According to Swartz,<sup>1)</sup> the inflations are believed to represent female incubatory chambers.

The possibility of sexual dimorphism of genus? *Perprimitia* was suggested by Cooper.<sup>2)</sup> However, no males and females of the same species had previously been designated. As far as the writer<sup>3)</sup> is aware, this is probably the first report of males and females of the same species in the genus? *Perprimitia*.

### 4. References Cited

- (1) Swartz, F.M.: "Dimorphism and orientation in ostracodes of the family Kloedenellidae from the Silurian of Pennsylvania," Jour. Paleontology, v. 7. P. 231, pls. 28-30, (1933)
- (2) Cooper, C. L.: "Chester ostracodes of Illinois," Illinois Geol. Survey Rept. Inv. no. 77. p. 58. (1941)
- (3) Nohara, T.: "Microfauna of the Upper Mississippian Great Blue Limestone near Morgan, Utah," Geol. Dept. Utah Univ. (M. S. thesis). 87 p. (1966)

Male			Female		
Length (mm)	Height	Width	Length (mm)	Height	Width
0.54	0.37	0.14*	0.65	0.41	0.31*
0.61	0.37	0.14*	0.61	0.31	0.17
0.54	0.37	0.07	0.61	0.37	0.14
0.54	0.34	0.07	0.61	0.41	0.20
0.58	0.34	0.07	0.61	0.41	0.17
0.54	0.34	0.10	0.61	0.34	0.20
0.61	0.37	0.07	0.61	0.37	0.20
0.54	0.34	0.07	0.61	0.37	0.17
0.54	0.37	0.10	0.65	0.37	0.20
0.54	0.34	0.07	0.58	0.37	0.17
0.61	0.37	0.07	0.61	0.37	0.14
0.54	0.37	0.10	0.61	0.34	0.17
0.61	0.37	0.07	0.61	0.37	0.20
0.51	0.34	0.07	0.61	0.37	0.20
0.58	0.34	0.07	0.58	0.37	0.17
0.54	0.34	0.07			
0.54	0.34	0.07			
0.58	0.27	0.07			
Mean 0.56	0.35	0.08	0.61	0.37	0.18

\*--Measurements are based on carapace.

All other measurements are based on valves.

Table 1