# A New Genus of Subterranean Water-Mites from Kyoto[1)]

By

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(*With 3 Text-figures*)

Recently through the courtesy of Mr. Shun-ichi Uéno of the Kyoto University some water-mite specimens, which were all collected by him from wells in Kyoto City, were forwarded to me for identification. On closer examination I found among them a peculiar species which belongs to the Hydrovolziidae. It resembles the genus *Hydrovolzia* but is clearly distinguished from the genus in the ventral shields, absence of eyes and its habitat. Based on these facts, I propose a new genus *Stygovolzia* which belongs to the subfamily Hydrovolziinae as described below.

Before going further, my hearty thanks are due to Mr. S. Uéno for his kind aid in supplying valuable specimens. It is my great pleasure to dedicate this paper to my teacher-professor, Dr. Tohru Uchida in memory of his 60th birthday.

## Genus *Stygovolzia* n. g.

Body almost colourless and without eyes. Skin finely ridged. Dorsum similar to that of the *Hydrovolzia*. Epimera in four groups and the anterior ones attach to each other with their inner margins which are almost straight. Genital area surrounded by four plates : anterior genital plate which is not found in the *Hydrovolzia*, a pair of lateral genital plates and an anal plate. Legs with bristles on each segment, indicating no sexual dimorphism. Claws two in each leg and of non-furcated sickle-shape. Several specimens, including male, female and nymph, were captured in subterranean water in Kyoto City. The new genus seems to be a troglobite.

Type species : *Stygovolzia uenoi* Imamura n. g. et n. sp.

### *Stygovolzia uenoi*[2)] n. g. et n. sp.

*Male* (holotype, prep. 1423, Fig. 1) : Body oval in outline, measuring 912$\mu$ long and 656 $\mu$ wide in the widest portion. Skin rather hard and finely striated.

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2) The present species is named in honour of Mr. Shun-ichi Uéno who collected the specimens.

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Dorsum equipped with shields which resemble those of the *Hydrovolzia*. Anterior plate elliptical and measured 208 $\mu$ long and 472 $\mu$ wide. Anterior margin somewhat protruded but the posterior is straight. Main plate long reverse triangle in shape, ending in a obtuse tip, measured 529 $\mu$ long and 408 $\mu$ wide. Lateral plates in three pairs, anterior ones almost elliptical, measured 240 $\mu$ long and 112 $\mu$ wide, and the middle and posterior ones are both slender. Glandularia consists of four pairs, arranged along by the posterior lateral margins as shown in Fig. 1,c. Eyes absent. Maxillar organ conically tipped in its shoulders, measuring 240 $\mu$ long and 192 $\mu$ wide in the widest portion. Mandibles stout, 64 $\mu$ high and 230 $\mu$

Table 1

| Segment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Extensor surface | 20 | 148 | 116 | 160 | 58 |
| Dorso-ventral height | 44 | 64 | 56 | 38 | 16 |

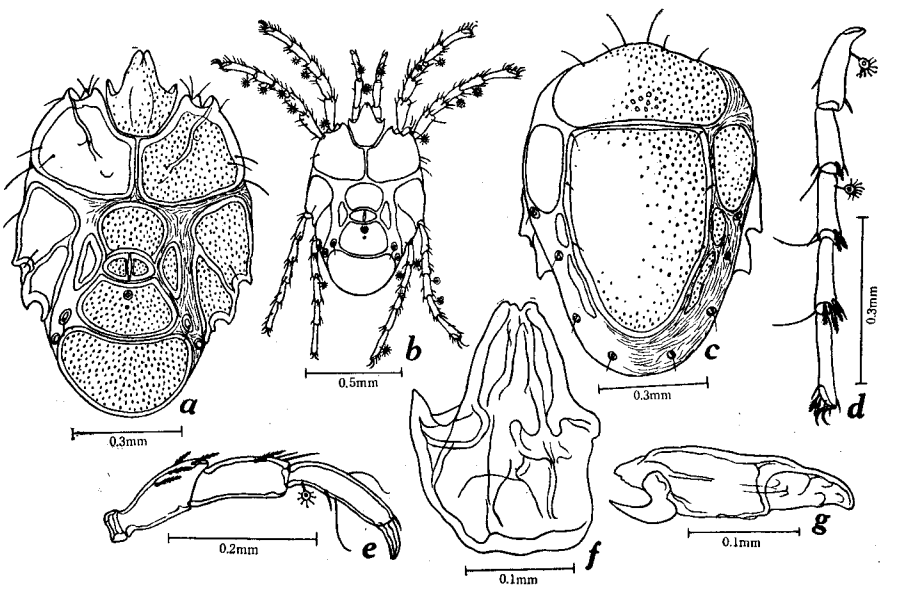


Fig. 1. *Stygovolzia uenoi* n. g. et n. sp., male. a, epimera and ventral shields. b, ventral view. c, dorsum. d, right IVth leg. e, right palp. f, maxillar organ, ventral view. g, mandible

long, including a claw in each. Palps rather slender, measuring segments as shown in Table 1, in $\mu$. First segment of quadrate in the side view and without spines. Second segment almost straight in the flexor margin, but moderately curved in the extensor surface and equipped with four feathered bristles on it.

Third segment trapezoidal in the side view and with three bristles, one feathered, at the terminal portion of extensor surface. Fourth segment longest, with a hair and a spine curved as a claw, on the extensor surface, and a spine and hair in the middle portion of flexor surface. Fifth segment beak-shaped. Venter almost covered with epimera and shields. Epimera in four groups. Inner margins of the anterior groups almost straight and attach to each other. Posterior groups similar in shape to those of the genus *Hydrovolzia*. Genital area with two plates, almost triangular, measuring 72 $\mu$ long and 74 $\mu$ wide in each. Five shields are found except the epimera and genital plates. Genital field surrounded by four shields. Anterior genital plate, not found in the *Hydrovolzia*, measured 192 $\mu$ wide and 128 $\mu$ long in the middle portion. Lateral genital plates almost rhomboidal in contour. Anal plate, having a excretory pore at the middle anterior portion of it, measured 312 $\mu$ wide and 176 $\mu$ long in the middle portion. Post-anal plate large, kidney-shaped, and measured 384 $\mu$ wide and 208 $\mu$ long in the middle portion. Two pairs of glandularia are found between the fourth epimera and post-anal plate. Legs composed of six segments in each, without swimming hairs but with bristles or hair-like spines, feathered or non-feathered, in each segment. Claws at the terminal end of legs two in number and equally sickle-shaped, having no furcation. Fourth legs indicating no sexual dimorphism. Pedal segments measured as shown in Table 2. in $\mu$. Body almost colourless and light yellow in preservative.

Table 2

| Leg \ Segment | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| I | — | 176 | 120 | 112 | 112 | 136 |
| II | — | 200 | 112 | 104 | 128 | 184 |
| III | — | 160 | 120 | 120 | 128 | 176 |
| IV | — | 152 | 120 | 120 | 128 | 152 |

*Female* (allotype, prep. 1425, Fig. 2): Body shape, colour, dorsal shields, mouth parts, epimera and legs all similar to those of male, but genital plates and ventral shields, except epimera, different in shape from those of male. Body 848 $\mu$ long and 624 $\mu$ wide. Dorsum : anterior plate 440 $\mu$ wide and 176 $\mu$ long in the middle portion ; main plate 568 $\mu$ long and 384 $\mu$ wide in the widest portion; anterior lateral plates 240 $\mu$ long and 120 $\mu$ wide. Eyes absent. Maxillar organ 232 $\mu$ long and 184 $\mu$ wide. Mandibles 56 $\mu$ high and 228 $\mu$ long, including a claw in each. Palpal segments measured as shown in Table 3, in $\mu$. Epimera and legs all resemble those of male. Genital plates larger than those of male, of half-moon in shape, measured 120 $\mu$ long and 64 $\mu$ wide. Each plate with three minute spines on the inner margin. Anterior genital plate relatively smaller

than that of male, measuring 200 $\mu$ wide and 98 $\mu$ long in the middle portion. Lateral genital plates larger than those of male, quadrate in shape, 160 $\mu$ long and 60 $\mu$ wide in the widest portion. Anal plate almost trapezoidal, measuring 248 $\mu$ wide and 152 $\mu$ long in the middle portion. Post-anal plate 184 $\mu$ long and 328 $\mu$ wide.

Table 3

| Segment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Extensor surface | — | 140 | 104 | 152 | 56 |
| Dorso-ventral height | — | 60 | 52 | 32 | 18 |

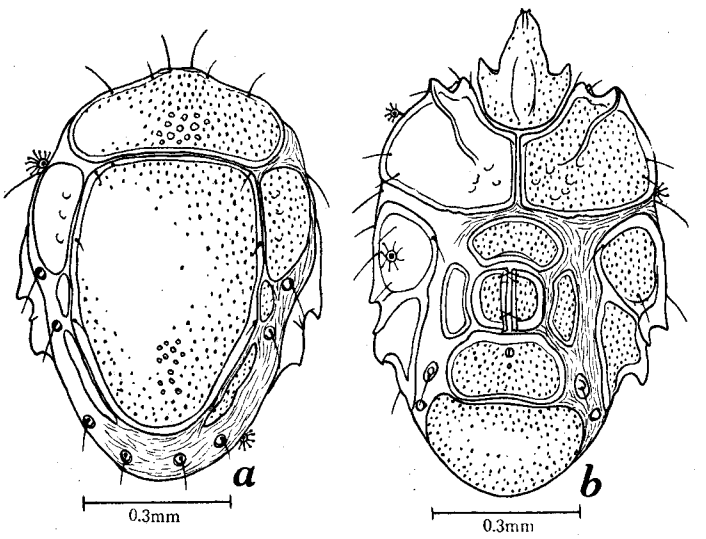


Fig. 2. *Stygovolzia uenoi* n. g. et n. sp., female. a, dorsum. b, venter.

*Nymph* (prep. 1424, Fig. 3) : Body 600 $\mu$ long and 470 $\mu$ wide, relatively shorter in length as compared to width. Without eyes. Dorsum characteristic of having a circular posterior plate and without posterior lateral accessory plates. Eight pairs of glandularia located in the posterior lateral portions. Anterior plate 148 $\mu$ long and 328 $\mu$ wide. Main plate 280 $\mu$ long and 288 $\mu$ wide. Lateral plates 160 $\mu$ long and 80 $\mu$ wide. Mouth parts resemble those of imagines. Maxillar organ 160 $\mu$ long and 144 $\mu$ wide. Mandibles 48 $\mu$ high and 164 $\mu$ long, including a claw in each. Spines on palps fewer in number than those of imagines. Second segment with two feathered spines. Third segment equipped with two hairs on the extensor terminal portion. Fourth and fifth segment both similar to those of imagines. Segments measured as shown in Table 4, in $\mu$. In venter,

epimera resemble almost those of imagines, except having straighter posterior margins of the second ones. Genital plates, anterior and lateral genital plates

Table 4

| Segment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Extensor surface | — | 108 | 84 | 116 | 44 |
| Dorso-ventral height | — | 48 | 40 | 28 | 14 |

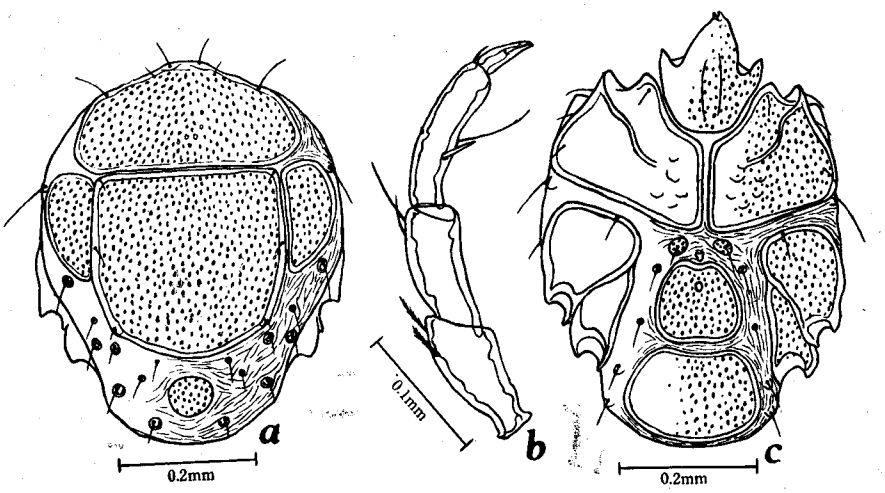


Fig. 3. *Stygovolzia uenoi* n. g. et n. sp., nymph. a, dorsum. b, right palp. c, venter.

all not found, but there are a pair of small circular plates, an anal and post-anal plates. Anal plate measured 108 $\mu$ long and 120 $\mu$ wide in the widest portion. Post-anal plate 200 $\mu$ wide and 144 $\mu$ long in the middle portion.

*Locality.* Each one male, female and nymph were captured by pumping-out method by Mr. S. Uéno in a driven well at Miyazaki-chô, Shimogamo, Kyoto City on Oct. 22, 1956.

*Remarks.* Many suctorian Protozoa are found attaching to the skin surface of body, mouth parts and legs as shown in the text-figures.