RECORDS OF MILLIPEDS (DIPLOPODA) FROM JAPAN AND OTHER ORIENTAL AREAS, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES

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The material on which the present report is based is largely in the American Museum of Natural History in New York and in the collection of the senior author at the University of Utah. All the types are to be deposited in the American Museum. Much of it was received by the senior author some years ago through the courtesy of Dr. Yiosi Takakuwa and Dr. S. Hozawa and their associates. The names of the several collectors are given in connection with the different species. Unless otherwise stated, the localities given should be understood as being in Japan, from which country the great majority of the specimens came.

ORDER POLYXENIDA

FAMILY POLYXENIDAE

Monographis kraepelini Attems


Locality: Japan: eight specimens were taken at quarantine at Seattle, Washington, November 16, 1949, in cargo from that country.

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ORDER GLOMERIDA

FAMILY SPHAEROTHERIDAE

Arthrosphaera bicolor Pocock


LOCALITY: India: two males and four females.

FAMILY GLOMERIDAE

Hyleoglomeris insularum Verhoeff

Figure 1


LOCALITY: Northern Kii: two females taken in October, 1929, by Takakuwa.

ORDER POLYDESMIDA

FAMILY POLYDESMIDAE

Epanerchodus japonicus (Carl)


Epanerchodus orientalis orientalis Attems


Epanerchodus orientalis takakuwai Verhoeff


LOCALITIES: Hot Spring, Naruko, Sendai: one male, November 8, 1928, collected by K. Ito. Tatsu-No-Kuchi, Sendai:
FIG. 1. *Hyleoglomeris insularum* Verhoeff, vulva.
FIG. 2. *Nipponesmus shirinensis*, new species, gonopod of male.
FIG. 3. *Nikkonus nikoensis*, new species, gonopod of male.
FIG. 5. *Sinostemmiulus simplicior*, new species, posterior gonopod of male.

**Epanerchodus furciliger** Verhoeff


**Locality**: Nikko: one male, September, 1933, taken by Takakuwa.

**Epanerchodus jagerkiöldi** Attems


**Locality**: Yokahama: a male and female, September, 1933, taken by Takakuwa.

**Epanerchodus tremorum** Verhoeff


**Locality**: Hot Spring, Hanamaki-Iwate Prefecture: one male, August 28, 1928, taken by K. Oikawa.

**Nipponesmus, new genus**

In this genus the gonopods have the tarsus fringed with a conspicuous comb of setae or slender teeth much as in _Acanthotarsius_ but wholly lacking the triangular tooth present in the latter genus at base of tibiotarsus. Tarsus furcate at distal end with one branch strongly uncate, and bearing a large spine suggesting that of _A. robiniarum_. It differs from _Acanthotarsius_ in lacking an endomerite, and in the large size of the seminal bladder and of the pilose cushion in which it is much like the American _Pseudopolydesmus_.

**Generotype**: _Nipponesmus shirinensis_, new species.

**Nipponesmus shirinensis**, new species

Figure 2

Yellowish brown, prozonites and sternites lighter. Antennae brown, the legs a little lighter. Collum a little wider than the head, subquadrate. Dorsum slightly convex, the keels horizontal. Each tergite with three transverse rows of tubercles, of which the first is divided by a median furrow; second row with four and the
third with six tubercles; on each keel a larger swelling and a finger-like tubercle. Posterior corners of all keels excepting those of last four to six segments straight, those of these last produced; keels laterally with three to five serratures. Sternites with a cruciform impression, along which on the eighth sternite are four globose swellings. Gonopods of male as drawn (fig. 2). Length, 20 mm.; width, 2.6 mm.

LOCALITY: Shirin, Formosa: one male taken in August, 1923, by R. Takahashi.

FAMILY CRYPTOPIDAE

Onomatoplanus nodulosus (Verhoeff)


LOCALITY: Tokyo: a male and a female, September, 1933, taken by Takakuwa.

FAMILY STRONGYLOSOMIDAE

Aponedyopus maculatus Takakuwa


LOCALITY: Arisan, Formosa: four males, December 1, 1923, taken by Takahashi.

Haplogonosoma implicatum Brolemann


LOCALITY: Hot Spring, Tsuta, Aomori Prefecture: three males and one female, July 8, 1928, taken by S. Hozawa.

Kronopolites formosanus (Verhoeff)


LOCALITY: Baikei, Formosa: two females, May 23, 1924, taken by Takahashi.

Kronopolites swinhoei Pocock

Localities: Wenchow, Chekiang, China: 13 females, four males, and three immature males, September 6, 1928, taken by Shon Kon Schäe. Chekiang, China: one male and a female, September, 1928, taken by M. J. Jem.

**Nedyopus cingulatus** (Attems)


**Nedyopus tambanus** (Attems)


**Chondromorpha keelarti** (Humbert)


Locality: India: five males and five females.

**Oxidus nordenskiöldi** (Attems)


**Oxidus obtusus** (Takakuwa)


Locality: Japan: two females.

**Oxidus pekuensis** (Karsch)

LOCALITIES: Ta-An Shan, Tu Tai, China: a male and females, September 18, 1924, taken by P. A. Doisett.

**Oxidus gracilis** (Koch)


*Orthomorpha (Kalorthomorpha) gracilis* Attems, 1937, Das Tierreich, no. 68, p. 82, fig. 101.


**Oxidus circofera** (Verhoeff)


LOCALITY: Korea: a male and a female taken September, 1933, by Takakuwa.

**FAMILY EURYDESMIDAE**

**Ezodesmus lunatus** Takakuwa


LOCALITY: Sapporo: one male, September, 1933, taken by Takakuwa.

**Japonaria acutidens** (Attems)


LOCALITY: Ikao, Hot Spring, 60 miles from Tokyo: three males, September, 1933, taken by Takakuwa.

**Japonaria circula** (Attems)

LOCALITY: Northern Kii: one male, October, 1929, taken by Takakuwa.

**Takakuwaia furculigera** Verhoeff


LOCALITY: Yokahama: a male and a female, September, 1933, taken by Takakuwa.

These specimens, 25 to 30 mm. in length, are gray with a red spot on each segment.

**RHYSOLUS, NEW GENUS**

The species listed below are obviously different generically from the characteristically Mexican genus *Rhysodesmus* under which Takakuwa placed them. In the gonopods of the male the femoral division is short, subglobose, instead of being conspicuously elongate; the tarsus is elongate, typically curved towards the end and gradually acuminate at the tip, not bidentate as in *Rhysodesmus*; the stipplementary branch, instead of being much shorter than the acropodite proper, and subspiniform, is subequal in length to the principal branch and is more or less laminate in form, comparable in size and appearance to the tibiotarsal division.

**GENEROTYPE:** *Rhysodesmus semicirculatus* Takakuwa.

**Rhysolus semicirculatus** (Takakuwa)


**LOCALITIES:** Miyajima: one male and two females, September 1933, taken by Takakuwa. Northern Kii: one male taken in October, 1929, by Takakuwa.

**Rhysolus bifidus** (Takakuwa)


**LOCALITY:** Rinkin: one male, taken in September, 1933, by Takakuwa.
**Rhysolus** species

**Locality:** Kinsen, Korea: three immature males and four females taken in September, 1933, by Takakuwa.

**NIKKONUS, new genus**

Small forms comparable in size to the American *Nannaria*, but in general structure, especially of the gonopods, probably most closely related to *Harpaphe* and allied genera of northwestern America, though not showing the reduction or abortion of the spines of the second segment of the legs evident in these genera. Tergites, particularly the more posterior ones, showing sparse but distinct, though small, seriate granules or reduced tubercles such as also found in some species of the related genera of western America. The gonopods of the male have a laminate tibiotarsus with two branches arising below its base.

**Generotype:** *Nikkonus nikoensis*, new species.

In addition to the generotype, the *Pachydesmus bazanensis* of Takakuwa also belongs in this genus.

**Nikkonus nikoensis**, new species

Figure 3

Light yellowish. Head and dorsum glabrous. Collum as wide as the second tergite. Keels horizontal, margins smooth, the intervening dorsum slightly convex. On the fifth sternite of the male a pair of small protuberances. Second joint of legs from the ninth on with a well-developed spine at distal end. Gonopods of male as shown in figure 3. Length, 19 mm.; width, 2 mm.

**Locality:** Nikko: a male and a female taken in September, 1933, by Takakuwa.

Differs from *N. bazanensis* Takakuwa in the presence of the small protuberances on the fifth sternite of the male, in lacking the red spot on the keels, as well as in the details of the gonopods.

**ORDER CHORDEUMIDA**

**FAMILY CRASPEDOSOMIDAE**

**Craspedosoma** species

**Locality:** China: one female probably pertaining to this genus was taken in a cargo from China while at quarantine at Ontario.
FAMILY DIPLOMARAGNIDAE

Syntelopodeuma species


Tokyosoma takakuwai Verhoeff


LOCALITY: Japan: one male taken by Takakuwa in September, 1932.

ORDER STEMMIULIDA

FAMILY STEMMIULIDAE

SINOSTEMMIULUS, NEW GENUS

A genus agreeing with Stemmiulus and Prostemmiulus in lacking a lateral fissure or suture setting off the lower from the upper part of the tergites. It differs from these genera in lacking lateral lamellae in the sternites.

GENEROTYPE. Sinostemmiulus simplicior, new species.

Sinostemmiulus simplicior, new species

Figures 4 and 5

Brown in color, with a darker spot on the side of each somite. Head and dorsum glabrous. Collum triangularly narrowed down each side, equal in width to the other tergites. One ocellus on each side. Anterior gonopods relatively simple blades, each with a long, distally curving flagellum as shown in figure 4. Posterior gonopods with flagellum arising towards distal end as shown in figure 5. Body segments, 36 to 41 in number. Length, 15 mm.

LOCALITY: Chenghsien, Chekiang, China: four males and one female taken by Chang-Nee-Wang.

ORDER JULIDA

FAMILY NEMASOMIDAE

Anthrokoreana species

LOCALITY. Nikko: two females with 59 pairs of legs taken in September, 1933, by Takakuwa.
Okeanobates serratus Verhoeff


Locality: Izumigo-dake, Miyagi Prefecture, near Sendai: one female with 50 pairs of legs taken in October, 1928, by S. Kobayashi.

FAMILY JULIDAE

*Fusiulus simplex* Verhoeff


Locality: Tokyo: two males, each with 52 pairs of legs, taken in September, 1933, by Takakuwa.

*fusiulus* species


ORDER CAMBALIDA

FAMILY CAMBALIDAE

*Formosoglyphiulus tuberculatus* Verhoeff


Locality: Formosa: three females with 53 to 57 pairs of legs taken in September, 1933, by Takakuwa.

ORDER SPIROSTREPTIDA

FAMILY HARPAGOPHORIDAE

*Thyropygus descriptus* Attems

*Thyropygus descriptus* Attems, 1936, Mem. Indian Mus., vol. 11, no. 4, p. 263, fig. 61.

Locality: India: one female.

*Thyropygus minusculus* Attems


Locality: India: 10 males and one female.
American Museum Novitates No. 1621

Order SPIROBOLIDA

Sinobolus, New genus

Posterior gonopods lacking the free inner piece present, e.g., in the American Narceus Raf. (=Spirobolus as restricted by Brolemann). This perhaps represented by a transverse arm projecting mesad from base of gonopod proper. This arm with short angle or process projecting distad from its free end, while from its basal end a spine or curved finger-like process projects, lying against the base of the gonopod proper. Median plate of anterior gonopods absent or abortive.

Generotype: Spirobolus joannsi Brolemann.

Sinobolus joannsi (Brolemann)


Sinobolus species

Locality: Shirin, Formosa: one female, apparently different from the preceding but probably pertaining to the same genus, taken in August, 1923, by Takahashi.

Order PLATYDESMIDA

Family PLATYDESMIDAE

Trichozonium hirsutum Verhoeff


Localities: Takao, near Tokyo: one male and five females taken in September, 1933, by Takakuwa.

These specimens, which are reddish in color, were found feeding on mushrooms.

Order POLYZONIIDA

Family SIPHONOPHORIDAE

Zinaceps, New genus

Differs from Siphonophora in not having the head at all prolonged into a beak, in this respect resembling the American genus Illacme. The extremely elongate and very slender body of the
latter genus, in which the number of segments typically approaches 200, contrasts conspicuously with the shorter and proportionately stouter body of *Zinaceps* in which the number of segments in the known species lies between 45 and 83.

**Generotype: Zinaceps hozawai, new species.**

In addition to the generotype, *Siphonophora coniceps* and *S. cingulata* described by Attems from India appear to conform to *Zinaceps*.

**Zinaceps hozawai, new species**

Figure 6

Yellowish brown. Head and collum of form shown in figure 6; densely setose, with very short hairs; collum embracing head laterally. Dorsum moderately convex; with the usual median longitudinal line. Tergites with metazonites bearing two or three rows of small tubercules; densely setose, with fine short hairs. Pleurites also setose. Tergites rectangular, transversely oblong; each with an ovate swelling. Each coxa of legs with a rounded protuberance. Number of segments, 45. Length, 16 mm.; width, 1 mm.

**Locality:** Hot Springs, Takao: one immature male taken July 8, 1928, by Hozawa.