

On Some Oonopidae from Japan and Formosa (Araneae)

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During a short visit in Hamburg I obtained in loan from the Zoologisches Museum a few undetermined Oonopidae from Formosa; as the study of this material requested the examination of the types of some Japanese Oonopidae, I resolved to publish a short note over all these species.

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Foreword

Up to this time, for what I know, two Oonopidae were known from Formosa; of Japan (incl. the Ryu Kyu islands) about a dozen species were named. Three, i. e. *Gamasomorpha cataphracta* KARSCH, 1881, *G. karschi* BÖSENBERG & STRAND, 1906 and *Oonops corticalis* BÖSENBERG & STRAND, 1906 were described in the first papers over Japanese spiders and their types are in European museums (I examined them all). The first species described by a Japanese author was *Gamasomorpha narutomii* NAKATSUDI, 1942 published in one of the many Japanese papers of the period between 1930 and 1950 which, for one reason or another (mostly because they were not listed in the Zoological Record), were unfortunately ignored by arachnologists of other countries.

In more recent years quite a number of species has been described: *Orchestina sanguinea* OI, 1955, *O. okitsui* OI, 1958, *Ischnothyreus japonicus* OI, 1958, *Gamasomorpha kusumii* KOMATSU, 1963, *G. syarakui* KOMATSU, 1967, *Tetrablemma shimojanai* KOMATSU, 1968. The last of these species, as I have already elsewhere demonstrated (BRIGNOLI, 1972) belongs to the family Tetrablemmidae, which is only superficially similar to the Oonopidae. *Gamasomorpha narutomii* belongs to the genus *Ischnothyreus* and is identical with *I. japonicus* (YAGINUMA, in litteris).

Three names, two of which at least appeared also in the Zoological Record, are following the informations of Dr. YAGINUMA, nomina nuda: *Orchestina nipponica* KISHIDA, *Gamasomorpha okinawana* KISHIDA and *Citepectris strandi* KISHIDA (the two last appeared in OKADA, 1959); also the genus *Citepectris* is a nomen nudum.

In the material at my disposition I had no *Orchestina* and so I shall not discuss problems over this genus. As every student of the Oonopidae knows, the generical division of this family is extremely unsatisfying; for this reason I shall have to discuss briefly some problems of the genera here considered.

***Gamasomorpha cataphracta* KARSCH, 1881**

Examined material:

Japan, leg. Doenitz, 1 ♂ (lectotypus), 1 ♀ (paralectotypus; both Zool. Mus. Berlin No. 3523).

Japan, Saga, 1882, Dönitz leg., 6 ♂♂, 18 ♀♀ (+1 ♀ abdomen; all Senck. Mus. Frankfurt No. 2781; BÖSENBERG & STRAND det.).

Same locality, 1 ♀ (Senck. Mus. Frankfurt No. 2782; BÖSENBERG & STRAND det. *Gamasomorpha karschi*; apparently syntype of this species).

Japan, Saga, 1882, Dönitz leg., 6 ♂♂ (Senck. Mus. Frankfurt No. 2865; syntypes of *Oonops corticalis* BÖSENBERG & STRAND, 1906 (NEW SYNONYMY)).

Formosa, Akau, 23.4.08, H. Sauter leg., 1 ♂, 7 ♀♀ (Zool. Mus. Hamburg).

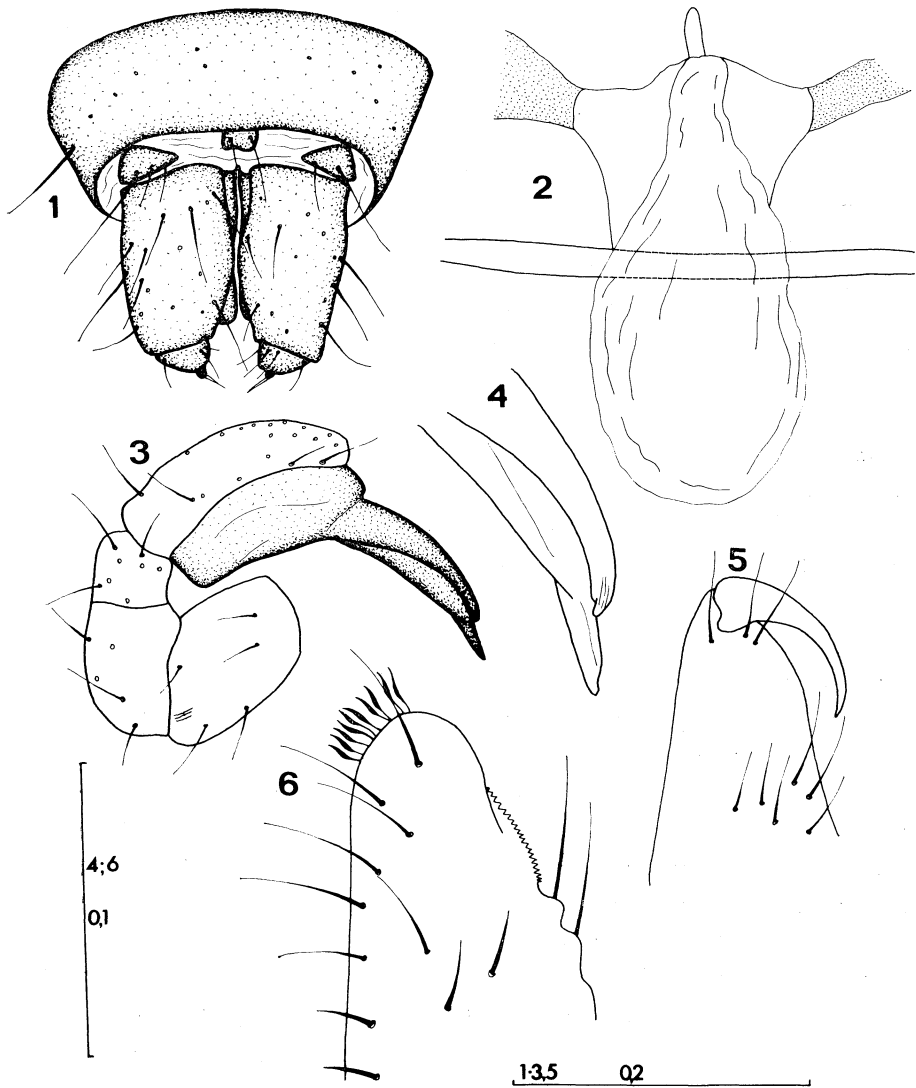
Notes: in the Berlin Museum collection should be 5 other ♂♂ (syntypes) which were not sent to me; in the SMF 2781 series was a ♀ of *Pseudotriaeris karschi* (BÖSENBERG & STRAND) 1906 -see later-; in the SMF 2782 tube (types of *Gamasomorpha karschi*), were one ♂ (which really belonged to this species) and a ♀ of *G. cataphracta*.

Redescription—♂: prosoma reddish, lightly granulated, elongated, more elevated at 3/4 of its length, posteriorly declining somewhat abruptly; 6 eyes in two straight rows; AL/PL: PM=5:4; posterior eyes neared, anterior eyes very slightly separated. Labium triangular, as long as wide; sternum orange red, heart-shaped, its obtuse point separates the 4th coxae of their diameter; on its surface, after the labio-sternal suture, can be seen a small "step" on which the embolus is rested. Chelicerae, s. fig. 5. Pedipalp, s. fig. 3, with long embolus and conductor (fig. 4). Legs yellowish, without spines; coxae 1, 2, 4 elongated, 3 quadrangular. Opisthosoma with a dorsal and a ventral yellowish shield; there is also a small inframammillar shield; colulus very small (s. fig. 1).

♀: similar to the ♂, but sternum without "step"; vulva, s. fig. 2, very

♂-Legs	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Total
I	0.43	0.25	0.33	0.31	0.17	1.49
II	0.41	0.22	0.33	0.27	0.15	1.38
III	0.35	0.18	0.27	0.26	0.13	1.19
IV	0.50	0.25	0.37	0.35	0.22	1.69

difficult to examine, with a large posterior seminal receptacle which is situated very anteriorly and masks the -anterior- receptacle.



Gamasomorpha cataphracta KARSCH, 1881

Fig. 1: spinnerets and colulus; fig. 2: vulva (from the inside; practically only the posterior seminal receptacle is visible); fig. 3: pedipalp of the ♂; fig. 4: embolus and conductor; fig. 5: chelicera; fig. 6: gnathocoxa; scales in mm.

Dimensions (in mm, slightly approximated; ♂ lectotype): prosoma 0.80 long, 0.62 wide; opisthosoma 1.00 long. Total length: 1.80. ♀ paralectotype: prosoma 0.81 long, 0.62 wide; opisthosoma 1.25 long. Total length: 2.06.

Legs	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Total
I	0.46	0.25	0.36	0.32	0.18	1.57
II	0.43	0.18	0.33	0.32	0.18	1.44
III	0.42	0.18	0.30	0.30	0.17	1.37
IV	0.52	0.31	0.42	0.43	0.22	1.90

Discussion: the syntypes of *Oonops corticalis* are without exception juvenile individuals which -now- are completely white; as always in the Gamasomorphinae their shields are not strongly sclerified; their general morphology, colour and apparently not sclerified opisthosoma explain the fault by BÖSENBERG & STRAND.

Gamasomorpha cataphracta is the generotype of *Gamasomorpha* KARSCH, 1881, a genus to which have been attributed many species of most parts of the world by many authors who have unfortunately followed SIMON in his lack of understanding of the taxonomical importance of the genitalia in this family. Few characters of *G. cataphracta* can be considered specialized: this species is one of the many strongly sclerified Oonopidae, with simple chelicerae and no peculiarities in the eyes or in sternum and labium. The absence of spines on the legs is noteworthy as in approximately 50% of the genera of the Oonopidae there are spines; its value as character is naturally small. The ♀ genitalia, which I have found very interesting in many genera, are not easily understood, at least in this species: the only sure fact is the presence of a large posterior seminal receptacle (as in many other genera). For the moment I would suggest to consider near to *G. cataphracta* (i. e. belonging to the same genus) only the species with similar ♂ genitalia, with a small bulbus, a long laminar embolus intimately associated with a similarly long and laminar conductor, simple pedipalpi and, naturally, similar as general morphology.

Of the three other Japanese *Gamasomorpha*, *G. karschi* BÖSENBERG & STRAND can not be maintained in this genus (see later); *G. syarakui* KOMATSU, by the ♂ pedipalp belongs to *Oporopaea* (see later); *G. kusumii* KOMATSU (of which only the ♀ is known) is similar by general morphology, but has spines

on tibiae and metatarsi of the first two pairs of legs and by this character remembers the Mediterranean species normally attributed to *Dysderina*. It is to be remembered that the generotype of this genus (*D. principalis* KEYSERLING) is South American and is possibly not congeneric with the Palearctic and Oriental "*Dysderina*."

True *Gamasomorpha*, strictly related to the generotype, are many Pacific species, as *G. lalana* SUMAN, 1965 or *G. loricata* (L. KOCH, 1872); most records of this last species should be controlled as the morphology of the ♂ bulbus is not at all so easily undertood and f.i. the illustrations of it given by BERLAND (1933) and ROEWER (1963) are quite different. *Gamasomorpha cataphracta* and *Oonops corticalis* had been recorded from Formosa by KAYASHIMA (1943).

Pseudotriaeris n. gen.

Diagnosis: a rather unspecialized genus of the Oonopidae (by general morphology), with reduced sclerifications, with extremely complicated ♂ genitalia (a short embolus, a relatively short and partially membranaceous conductor and two other apophyses all emerging from a relatively large bulbus). Pedipalp with short and thick articles (tibia the largest).

Generotype: *Gamasomorpha karschi* BÖSENBERG & STRAND, 1906.

Notes: for the complete description and the discussion, see under the redescription of the generotype.

Pseudotriaeris karschi (BÖSENBERG & STRAND, 1906), n. comb.

Examined material:

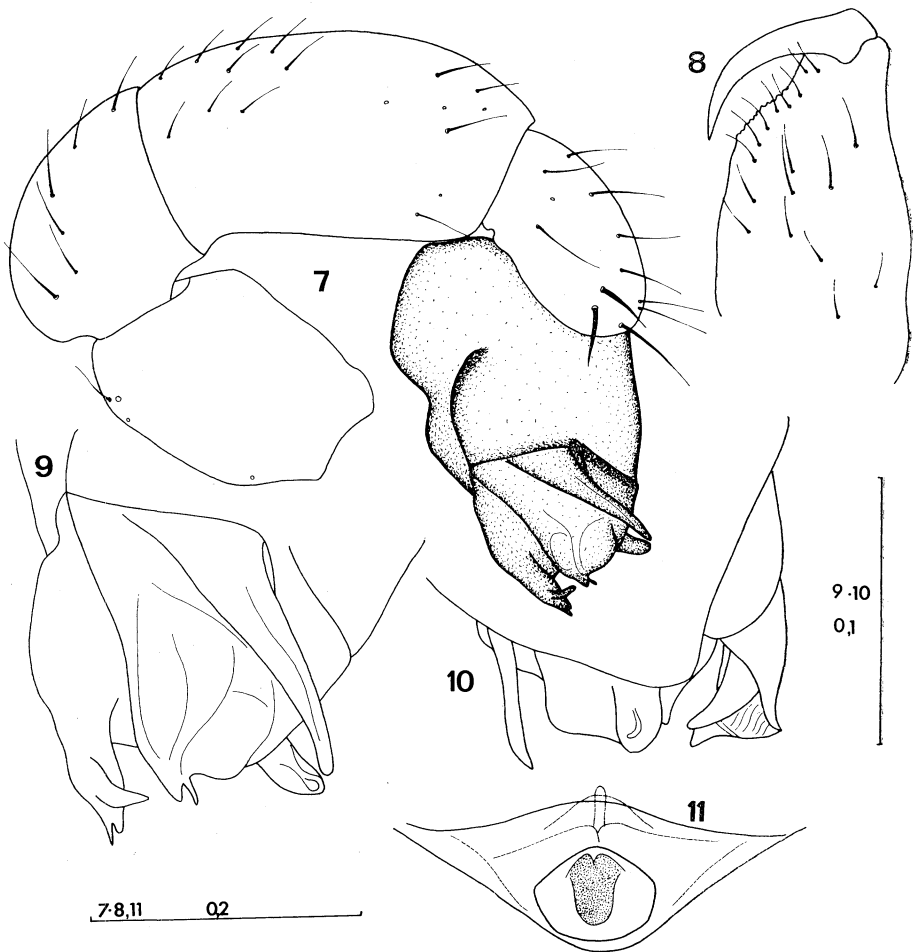
Japan, Saga, 1882, Dönitz leg., 1 ♂ (lectotype; Senck. Mus. Frankfurt No. 2782; type of *Gamasomorpha karschi*).

Some locality and date, 1 ♀ (Senck. Mus. Frankfurt 2781; labeled *Gamasomorpha cataphracta*).

Note: as this species is easily distinguished from *G. cataphracta* and BÖSENBERG & STRAND had a couple of it, probably some time or another the ♀ has been misplaced.

Redescription—♂: prosoma -now- pale yellow, elevated, rounded (almost as in *Ischnothyreus*); 6 oval eyes, the 4 posterior in a row with a slight posterior concavity, the 2 anterior situated between the PL and the PM of each side; all eyes very neared; PM: AL/PL=7:5. Clypeus vertical, much longer than the PM (at least 2×). Gnathocoxae converging before the labium; labium

triangular, longer than broad; labio-sternal suture evident; sternum heart-shaped, whitish, smooth, truncated (its apex separates the 4th coxae approximately of their diameter). Chelicerae, s. fig. 8; pedipalp, s. fig. 7. Legs yellowish, without spines or other modifications; coxae nearly globular; 2 tarsal claws on onychium, principal claws with a double series of teeth. Opisthosoma dorsally with a complete whitish shield; ventrally only the region



Pseudotriaeris karschi (BÖESENBERG & STRAND, 1906)

Fig. 7: pedipalp of the ♂ from the outside; fig. 8: chelicera; fig. 9, 10: terminal part of the bulbus from the outside and the inside; fig. 11: "epigyne" and vulva; scales in mm.

before the epigastric furrow is somewhat sclerified; non sclerified parts white; seen from the side, the opisthosoma is somewhat quadrangular and elevated (like f. i. some *Cyclosa* or *Episinus*). Spinnerets apparently normal (not examined in detail).

♀: corresponding to the ♂, but sclerified ventral region more easily visible. Vulva, s. fig. 11.

Dimensions (♂ lectotype; in mm, slightly approximated): prosoma 0.72 long, 0.60 wide; opisthosoma 0.96 long. Total length: 1.68.

Legs	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Total
I	0.52	0.26	0.40	0.40	0.22	1.80
II	0.50	0.26	0.38	0.35	0.22	1.71
III	0.48	0.16	0.31	0.30	0.22	1.47
IV	0.62	0.32	0.50	0.47	0.26	2.17

♀: prosoma 0.76 long, 0.58 wide; opisthosoma 0.90 long. Total length: 1.66.

Legs	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Total
I	0.56	0.30	0.43	0.43	0.22	1.94
II	0.53	0.30	0.41	0.40	0.22	1.86
III	0.45	0.26	0.33	0.31	0.22	1.56
IV	0.68	0.37	0.50	0.46	0.25	2.26

Discussion: this species is practically noteworthy only for its very curious ♂ genitalia, of an extraordinary complexity between the Oonopidae. By general morphology this species (and genus) seems near to *Ischnothyreus* but possibly only by convergence. The ♀ genitalia are apparently much simpler, but possibly the only individual which I could examine was not in optimal conditions (externally all seemed normal).

The affinities of this genus are for the moment completely obscure; of the genera described of the Pacific area, *Tasmanoops* HICKMAN, 1930 (see HICKMAN, 1932), *Subantarctia* FORSTER, 1955, *Ascuta* FORSTER, 1956, *Duripelta* FORSTER 1956, *Pounamua* FORSTER, 1956, *Kapitia* FORSTER, 1956 (see for all FORSTER, 1956) have extremely simple bulbi. *Yumates* CHAMBERLIN, 1924 (from California) can somewhat remember *Pseudotriaeris* by the morphology of the prosoma, but has a quite different bulbus, not so complicated (but still more than many Oonopidae). I could not find any affinity with the genera of the

other geographical regions (it is to be noted that the ♂♂ of some Oriental genera are unknown).

***Ischnothyreus formosus* n. sp.**

Examined material:

Formosa, Akau, 23.4.08, H. Sauter leg., 2 ♂♂ (holo- and paratypus), 1 ♀ (paratypus), 10 (all Zool. Mus. Hamburg).

Description—♂: prosoma yellowish brown, somewhat elevated, but less than in *I. narutomii*; 6 prominent, adegual, eyes, in 2 straight rows, all eyes neared. Gnathocoxae with a small terminal protuberance (s. fig. 15); labium broader than long; sternum whitish, smooth, heartshaped; truncated (separates the 4th coxae approximately of their diameter). Chelicerae, s. fig. 17; pedipalp, s. fig. 12, 18, blackish, typical of the genus. Legs whitish, femur 1 with 2 prolateral spines, tibia 1 with 3-4 ventral spines, metatarsus 1 with 2-2 ventral spines. Opisthosoma whitish, dorsally 3/4 of it covered by a small, elongated, brown yellowish shield; ventrally no shield.

♀: prosoma low, not elevated; chelicerae and gnathocoxae not modified; dorsal shield of the opisthosoma somewhat shorter (covering 2/3 of it). Vulva, s. fig. 16.

Dimensions (in mm, somewhat approximated; ♂ holotypus): prosoma 0.75 long, 0.58 wide; opisthosoma 0.75 long. Total length: 1.50.

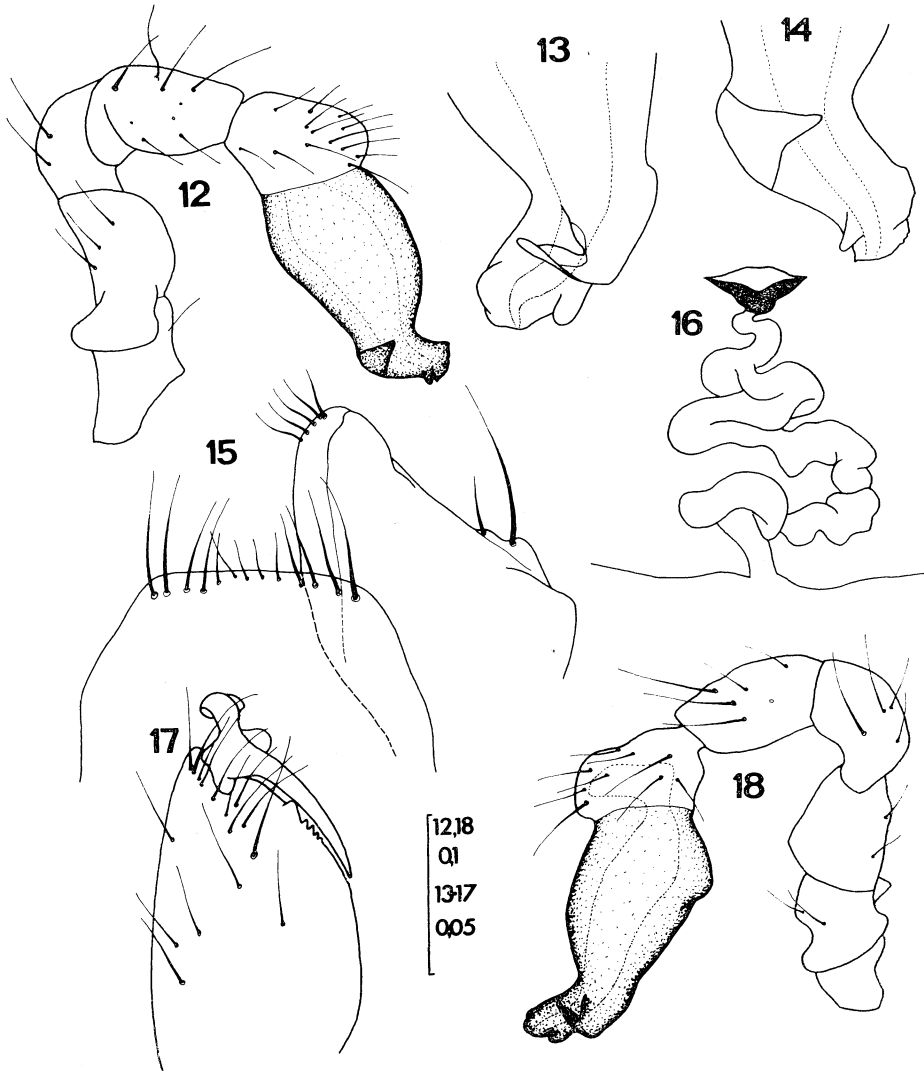
Legs	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Total
I	0.53	0.22	0.40	0.40	0.22	1.77
II	0.51	0.22	0.40	0.37	0.22	1.72
III	0.47	0.20	0.32	0.37	0.22	1.58
IV	0.65	0.27	0.47	0.53	0.28	2.20

♀: prosoma 0.77 long, 0.60 wide; opisthosoma 1.02 long. Total length: 1.79.

Legs	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Total
I	0.58	0.22	0.52	0.43	0.22	1.97
II	0.56	0.22	0.48	0.43	0.22	1.91
III	0.52	0.20	0.33	0.42	0.22	1.69
IV	0.68	0.27	0.57	0.63	0.28	2.40

Derivatio nominis: the Latin adjective "formosus" means beautiful (as "Formosa", the Portuguese name of the island of Taiwan).

Discussion: this species is very near to *I. narutomii* (NAKATSUDI) and can be distinguished from it by the genitalia.



Ischnothyreus formosus n. sp.

Fig. 12, 18: pedipalp of the ♂ from the inside and the outside; fig. 13, 14: terminal part of the bulbus from the outside and inside; fig. 15: gnathocoxa and labium; fig. 16: vulva; fig. 17: chelicera of the ♂; scale in mm.

After the redescription by CHICKERING (1968) of the generotype of *Ischnothyreus* SIMON, 1892, *I. peltifer* (SIMON, 1891), from the Antilles, it would seem quite probable that most of the Oonopidae with few sclerifications, blackish palpi, elongated bulbi and modifications in chelicerae and gnathocoxae of the ♂ could be attributed to this genus. It is to be noted that SIMON (and possibly other authors) confused many (perhaps not congeneric) species under the name "*I. peltifer*"; as CHICKERING also observes, the illustration given by SIMON (1893: 290, fig. 264) of this species does not correspond to the species of the Antilles. In the Pacific area belongs to this genus surely *I. omus* SUMAN, 1965 from Hawaii, whereas not at all sure is the position of *I. lanutoo* MARPLES, 1955 from Samoa (♀ only known) and of *I. pacificus* ROEWER, 1963 from Micronesia.

***Opopaea sauteri* n. sp.**

Examined material:

Formosa, Takao, 23.4.08, H. Sauter leg., 1 ♂ (holotypus; Zool. Mus. Hamburg).

Description—♂ (♀ unknown): prosoma not elevated, posteriorly declining somewhat abruptly, reddish brown; 6 eyes, 4 posterior in a straight row; PM somewhat larger than the others (6:5); clypeus vertical, very short. Chelicerae, s. fig. 20; pedipalp, s. fig. 19: as always in this genus with very enlarged patella and bulbus fused with the tarsus. Labium triangular, as broad as long; sternum dark yellowish, heartshaped, ending with a small point which separates the 4th coxae of their diameter. Legs spineless, yellowish, hairy; all articles somewhat short and thick. Opisthosoma elongated, completely covered by dorsal and ventral shields, these are yellowish brown, hairy, finely granulated.

Dimensions (in mm, somewhat approximated; ♂ holotype): prosoma 0.48 long, 0.40 wide; opisthosoma 0.66 long. Total length: 1.14.

Legs	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Total
I	0.31	0.15	0.18	0.15	0.10	0.89
II	0.27	0.15	0.16	0.15	0.09	0.82
III	0.21	0.12	0.15	0.11	0.08	0.67
IV	0.31		all lacking			

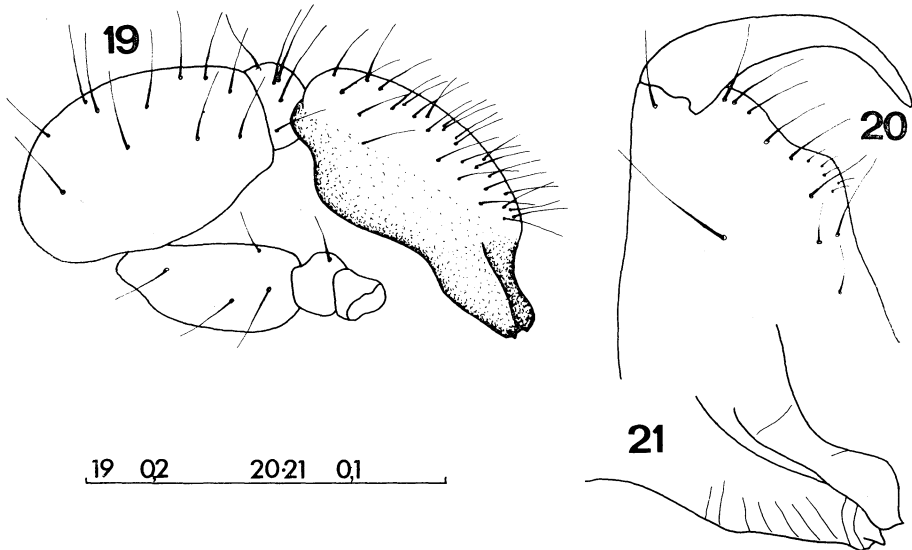
*Opopaea sauteri* n. sp.

Fig. 19: pedipalp of the ♂; fig. 20: chelicera; fig. 21: embolus; scale in mm.

Derivatio nominis: this species is dedicated to its collector, H. SAUTER.

Discussion: notwithstanding that SIMON (1892, 1893) had illustrated and discussed the peculiar morphology of the ♂ palp of the generotype of *Opopaea* (*O. deserticola* SIMON, 1892 of St. Vincent, West Indies), the diagnosis of this genus seems to have left in doubt many authors. In *O. deserticola* (and in many other Oonopidae) the patella of the pedipalp is extremely enlarged, whereas the tibia is very small and globular. I incline to consider this character apomorphic (sensu HENNIG) and therefore to attribute to *Opopaea* all species with a similar pedipalp. Only future research shall enable to decide on the opportunity of splitting or not this genus.

To *Opopaea* belong many species described as *Gamasomorpha*: one Japanese f. i. ("*Gamasomorpha*" *syarakui* KOMATSU) which is also the nearest to *O. sauteri* n. sp.

Opopaea syarakui (KOMATSU, 1967), comb. nov. can be easily distinguished by the morphology of the pedipalp from *O. sauteri* n. sp.; to the same group belongs also *O. lena* SUMAN, 1965 from Hawaii. On the contrary, *O. foveolata* ROEWER, 1963 from Micronesia seems to belong to another phyletic line and remembers f. i. the species illustrated by SIMON (1893) under "*Ischnothyreus peltifer*."

KOMATSU (1967) has considered the most enlarged article of the palp of *O. syarakui* as the tibia; through this interpretation, he has been obliged to consider the last article as the bulbus (which is impossible, as in no spider the bulbus bears hairs); in his fig. 5 it can be clearly seen that also the coxa of the pedipalp had been amputated, this coxa corresponds to what KOMATSU called trochanter; in very sclerified spiders it is quite easy to detach the coxa from its expansion (the lamina maxillaris).

Summary

Gamasomorpha cataphracta KARSCH, 1881 is redescribed on the types; synonym of it is *Oonops corticalis* BÖSENBERG & STRAND, 1906 (types examined; new synonymy). *Pseudotriaeris* n. gen. is described; type: *Gamasomorpha karschi* BÖSENBERG & STRAND, 1906, of uncertain affinities this genus is peculiar by the extreme complexity of the ♂-palp. *Pseudotriaeris karschi* (BÖSENBERG & STRAND, 1906) comb. nov. is redescribed on the types. From Formosa are recorded or described: *Gamasomorpha cataphracta* KARSCH; *Ischnothyreus formosus* n. sp. (♂ ♀; type. loc.: Akau), near to *I. narutomii* (NAKATSUDI, 1942), distinguishable from this and the other species by the genitalia; *Opopaea sauteri* n. sp. (♂, ♀ unknown; typ. loc.: Takao), near to *O. syarakui* (KOMATSU, 1967) comb. nov. (described as *Gamasomorpha*), distinguishable by the genitalia. Some considerations are made over taxonomical problems in the genera *Gamasomorpha* and *Opopaea*.

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