

NOTES ON THE ARCHITECTURE, NESTING HABITS, AND  
LIFE HISTORIES OF AUSTRALIAN ARANEIDÆ, BASED  
ON SPECIMENS IN THE AUSTRALIAN MUSEUM.

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(Figs. 37-38-39.)

PART IV.—ENTELEGYNÆ.

This group, according to Simon's classification embraces twenty-four families, many of which are exceedingly numerous in species and widely distributed. Indeed, some are cosmopolitan. The families occurring in Australia, so far as is at present known to me, are as follows:—

Drassidæ	Thomisidæ
Zodariidæ	Clubionidæ
Hersiliidæ	Agelenidæ
Pholcidæ	Pisauridæ
Theridiidæ	Lycosidæ
Mimetidæ	Oxyopidæ
Argiopidæ	Salticidæ.

In addition to these, two other families occur so close at hand, that it is quite possible representatives may yet be found in Australia also. They are:—*Prodidomidæ* and *Palpimanidæ*,

In connection with the first of these, the genus *Prodidomus*. Hentz, is widely distributed, its range being, "Regio mediterranea calid.; Hispania merid., Barbaria, Ægyptus et Syria; Africa occid.; Africa austr.; Arabia merid.; India orient; Nova-Caledonia; America sept. et merid.: Venezuela."<sup>1</sup> A second genus, *Zimiris*, E. Simon, is recorded by that author to contain three species, one of which occurs in "Arabia merid.,"<sup>2</sup> and another in India<sup>2</sup>; the third is a Malaisian form, but its habitat is uncertain.

The *Palpimanidæ* is represented in Malaisia and the Phillipines by the genus *Colopea*, E. Simon<sup>3</sup>, and this also by a single species, *C. pusilla*, E. Simon. Another genus, *Huttonia*, Cambr.,<sup>4</sup> occurs in New Zealand, and this also contains, so far as is known, only one species—*H. palpimanoides*, Cambr.

<sup>1</sup> Simon—Hist. Nat. des Araignées, 2nd Ed., i., 1892, p. 337.

<sup>2</sup> Simon—*Loc. cit.*, pp. 337, 338.

<sup>3</sup> Simon—*Loc. cit.*, p. 397.

<sup>4</sup> Simon—*Loc. cit.*, p. 398; Cambridge—Proc. Zool. Soc., 1879, p. 685.

## FAMILY DRASSIDÆ.

Simon divides the Drassidæ into four sub-families, viz.;—Hemicleinæ, Drassodinæ, Cithærominæ, and Cybæodinæ, and of these the two first named occur in Australia.

*Sub-family* HEMICLEINÆ.

Seven genera, six of which are distinct and one doubtful, are included in this sub-family, and of these, five are almost exclusively Australian. Of the foreign genera *Platyoides*, Cambr., occurs in South Africa, and *Trochanteria*, Karsch, published by Simon<sup>5</sup> under the heading, "Genus Invisum et Inserite Sedis," is recorded from Central America.

The *Hemiclea* were included by L. Koch in the Sparassid group, but naturalists now regard them as being of Drassid origin, and they have been so classified by Simon. Koch in his work, "Die Arachniden Australiens" records sixteen species under the generic name *Hemiclea*, Thor., but these have been revised by Simon<sup>6</sup> and distributed over four genera.

The genus *Hemiclea* occurs in Australia and New Zealand. They are dull-coloured, flat spiders, with legs so modified as to enable them to run forwards or sideways. They delight to lurk in nooks and crannies of rocks, and under the loose exfoliating bark of our native trees. By bushmen they have a bad reputation, which arises rather from prejudice or ignorance of their habits, than from any power to inflict injury. Naturally shy and retiring, these "triantelopes" as they are called, scuttle away to any safe retreat at hand, if disturbed. The Hemicleinæ do not construct webs for the capture of prey, but rush forth and seize any intruder whose temerity or curiosity lead it to invade such localities as indicated above. At night, however, these spiders sally forth in quest of prey, which they take either by stealth or pursuit. They, however, are not immune from attack, but are themselves hunted for by predatory beetles, centipedes, lizards, and birds. Their cocoons or ova-sacs vary in size according to the species; all are discular or cushion-shaped. *H. sundevalli*, Thor., constructs an ova-sac about 15 mm. in circumference and 3 mm. thick; it is slightly convex above; white; the outer covering consists of a very close texture which is strong and hard to tear; within the sac there is a little flocculent silk; the eggs are yellowish. Empty ova-sacs which I have examined have always had a small hole at the outer edge, through which the spiderlings after hatching out escaped. The

<sup>5</sup> Simon—*Loc. cit.*, p. 348.

<sup>6</sup> Simon—*Loc. cit.*, pp. 346, 347.

ova-sacs of those spiders frequenting trees are secured under the bark, sometimes attached to the latter, and sometimes to the trunk of the tree. This species has been recorded from Rockhampton, Port Mackay, and Sydney. *H. major*, L. K., one of the largest species of the genus, occurs around Sydney. It is frequently met with in rock-shelters, in the nooks and crannies of which it seeks shelter. Koch has a note at the foot of his description<sup>7</sup> of the species, in which he says that there are two dried specimens and a good spirit specimen in the Museum at Stuttgart, from Sydney; also, the Godeffroy Museum possessed another example from Sydney, and this accompanied with an ova-sac measuring 22 mm. in circumference and 3 mm. in thickness; it was according to Koch, plano-convex, flat and smooth beneath, slightly arched above, rough, covered with coarse grit; the whole surrounded with a fine membrane. The animal lives under flat stones in rocky districts.

I have seen at different times many of these ova-sacs, but have never observed one covered with coarse grit—they were all clean and white; indeed, the one before me as I write is so. Nevertheless it is quite possible for a specimen to exhibit the peculiarity mentioned by Koch; it would, I take it, largely depend upon surroundings. The sac is always placed in a protected position, so as to secure it as far as possible from the attacks of predatory foes. This, however, does not always secure it from the raids of ants, for the latter frequently break through the tough silky covering for the purpose of robbing the eggs.

For the reception of Koch's *Hemiclæa lugubris*, Simon established the genus *Rebilus*.<sup>8</sup> This species occurs around Sydney, but it has also been recorded from Bowen. The genus is remarkable for the form of its spinnerets, by which it may be easily distinguished. These organs were delineated by Simon in his work, and are here refigured to assist those students to whom the work quoted is inaccessible (Fig. 37). These hairy creatures are also found under stones in rocky situations.

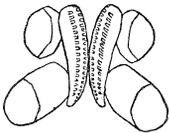


Fig. 37.  
Spinnerets, *Rebilus*  
*lugubris*.

The northern form described by Thorell under the name of *Hemiclæa somersetensis*<sup>9</sup> is unknown to me. This species also came in for revision by Simon, who founded the genus *Hemicleiina*<sup>10</sup> for its reception, and of which it is the sole representative.

<sup>7</sup> Koch—Die Arach. Aust., i., 1871, p. 625.

<sup>8</sup> Simon—Hist. Nat. des Araignées, 2nd Ed., i., 1892, p. 346

<sup>9</sup> Thorell—Studi sui Rag. Mal. e Papuani, 1881, iii., p. 307.

<sup>10</sup> Simon—Hist. Nat. des Araignées, 2nd Ed., i., 1892, p. 346.

Thorell's specimen was collected at Somerset, Cape York, by D'Albertis, but nothing is said as to its life history.

*Prymus*<sup>11</sup>, Simon, was established for the reception of Koch's *Hemiclœa fulva* and *H. flavitarsus*, of which the former is indicated as the type of the genus. Koch gave no locality for *P. fulva*, but merely remarked: <sup>12</sup>“Ein Exemplar in Mr. Bradley's Sammlung.” Many of Mr. Bradley's specimens were collected around Sydney; probably this was one of them. The type of *P. flavitarsus* was collected at Sydney. Simon, in defining this genus, wrote: <sup>13</sup>“Genus ignotum, a *Rebilo*, cui valde affine est, tantum differt, secundum L. Koch, cephalothorace paulo latiore quam longiore,” and added a footnote to the effect that Koch had not described the spinnerets. In the specimen before me—*P. flavitarsus* (Fig. 38)—the spinnerets are short, tubiform, and clothed with long, coarse hairs; the upper pair are slightly longer and stouter than the lower; the median pair are very

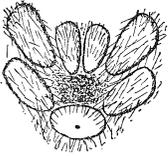


Fig. 38.  
Spinnerets, *Prymus flavitarsus*.

short, simple, and conical; the group occupies a somewhat quadrangular area. Koch's example of *P. flavitarsus* was an immature form, he was unable, therefore, to describe or figure the epigyne; this organ is now figured (Fig. 39.).

*Trachycosmus*,<sup>14</sup> Simon, is a Tasmanian form, and includes only one species, *T. sculptus*, Simon.

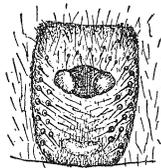


Fig. 39.  
Epigyne, *Prymus flavitarsus*.

#### Sub-family DRASSODINÆ.

This is an exceedingly difficult group, and will give much trouble before anything like order is established. A number of species described as *Drassus* certainly belong to other genera, and sometimes other families, and many of these errors have been unavoidable. Simon records five genera as occurring in Australia, three of which are widely distributed, whilst two are peculiar to this continent.

The range of the genus *Drassodes*, Westr., is given as<sup>15</sup> “Orbis utriusque reg. subtrop et frig.” It has been divided into several groups. Of these “Group D,” to which Simon is of

<sup>11</sup> Simon—*Loc. cit.*, p. 347.

<sup>12</sup> Koch—*Die Arach. Austr.*, i., 1871, p. 619.

<sup>13</sup> Simon—*Hist. Nat. des Araignées*. 2nd Ed., i., 1892, p. 347.

<sup>14</sup> Simon—*Loc. cit.*, p. 347.

<sup>15</sup> Simon—*Loc. cit.*, p. 359.

opinion the majority of our native forms belong, has for its type *D. perexiguus*, Simon, of New Caledonia. *D. invenustus*, L. K., and *D. silaceus*, L. K., occur in the vicinity of Sydney.

The *Drassodes* are variable in size and are usually of a yellow or reddish-brown colour, clothed with satiny pubescence. They are invariably found under stones. The habits of our native species have not been completely studied, but their ova-sacs are discular, with the upper and under surface slightly convex; the texture is strong, rather difficult to tear, and white. The female usually rests close by, guarding her cocoons.

*Obs.*—Mr. H. R. Hogg has described<sup>16</sup> an interesting form which he places provisionally in the genus *Drassus*, Walck. This species, *D. debilis*, Hogg, was collected at Macedon, Victoria, and the reader is referred to the description and comments.

The range of *Euchemus*, Simon,<sup>17</sup> is "Europa merid.; Africa sept., occid. et austr.; India; ins. Taprobane; Nova Hollandia; America antillana et andina." To this genus *Drassus dilutus*, L. K., recorded from Rockhampton, and *D. griseus*, L. K., "Neuholland," probably belong. Nothing has been recorded of their life histories.

*Melanophora*, C. Koch, has a wide range<sup>18</sup>: "Orbis utriusq. reg. temp. et calid." L. Koch's *Prosthesima*<sup>19</sup> is a synonym. One species, *M. (Prosthesima) flavens*, L. K., is described and figured by L. Koch in his standard work on Australian Araneidæ.<sup>20</sup> This species was recorded from the Swan River. The genus is rich both in species and individuals, about one hundred and fifty forms from different parts of the world having been described. It is quite possible that other species will hereafter be made known from Australia.

*Lampona*, Thor., is an exclusively Australian genus. Koch has described and figured eleven species.<sup>21</sup> I have taken these spiders from under stones and loose bark. They are not flat creatures like the *Hemiclaeina* group. The cephalothorax is longer than wide, somewhat ovate and either black or reddish-brown; legs short, robust, concolorous; abdomen oblong, convex, pubescent, dull-coloured, sometimes ornamented with large whitish spots, in addition to which there is frequently present a small whitish spot at the extremity—just above the spinnerets.

The *Lampona* are active spiders, and take their prey by pursuit. They construct cells in convenient nooks. The silk of

<sup>16</sup> Hogg—Proc. Roy. Soc. Vict., xiii., 1900, p. 90.

<sup>17</sup> Simon—Hist. Nat. des Araignées, 2nd Ed., i., 1892, p. 370.

<sup>18</sup> Simon—*Loc. cit.*, p. 373.

<sup>19</sup> Koch—Abhand. naturalist, Ges. Nürnberg, v., 1872, p. 139.

<sup>20</sup> Koch—Die Arach. Austr., i., 1871, p. 393, pl. xxx., figs. 9, 9a, 9b.

<sup>21</sup> Koch—*Loc. cit.*, pp. 372-379, pls. xxviii. and xxix.

which these cells is constructed is opaque, white, gauzy, and of a close texture. The tissue is not very strong, and is easily torn. The female when about to deposit her eggs, which are of a yellowish colour, spins a sheet of web over the surface of the stone, timber, or bark, as the case may be, but always in a secluded place. Upon this sheet of silk the eggs are deposited. The latter, being sticky, readily adhere. When the task of ovipositing is complete a thin sheet of white transparent gauzy silk is spun over the whole. The eggs are further protected by the female constructing her dwelling cell over them, so that during the period of incubation they are never left unguarded, for the anxious parent will not desert them for an instant, even for food. Should prey come her way she will take it, but not at the risk of leaving her eggs unprotected. This I have proved by keeping them in captivity for observation purposes. *L. sor-dida* recorded by Koch from "Neuholland" constructs its cell or "retreat tube" under loose bark. I have collected it at Tempe, near Sydney. *L. fasciata*, L. K., was originally recorded from Port Mackay, but there are examples in our cabinets from Jenolan and Sydney. *L. obscaena*, L. K., and *L. murina*, L. K., occur around Sydney. The former has been recorded from the Swan River and the latter by Koch from "Neuholland."

The last Australian genus of this family is *Gnaphosoides*, Hogg, and it is represented by a single species, *G. signatus*, Hogg. This is a Victorian form,<sup>22</sup> the species having been collected at Macedon.

#### FAMILY ZODARIIDÆ.

The family Zodariidæ is represented in Australia by two sub-families—Cryptothelinæ and Zodariinæ. Of these the first-named contains only one genus, whilst the second contains thirteen genera, as enumerated by Simon.

##### *Sub-family* CRYPTOHELINÆ.

The range of *Cryptothele*, L. K., was defined by Simon<sup>23</sup> as "Ins. Seychellæ; ins. Taprobane; penins. Malayana; Nova-Guinea; ins. Latronum; ins. Viti et Samoa." To this distribution I now add Fitzroy Is., Great Barrier Reef, N. Queensland, for there in 1901 my colleague, Mr. Charles Hedley, collected *C. doreyana*, Simon, a New Guinea species.

This genus, as will be noted from above, is a distinctly tropical one, so that the occurrence of *C. doreyana* on Fitzroy Island, considering how close it is to New Guinea, is only what one

<sup>22</sup> Hogg—Proc. Roy. Soc. Vic<sup>t</sup>., xiii., 1900, p. 92.

<sup>23</sup> Simon—Hist. Nat. Araignées, 2nd Ed., i., 1892, p. 422.

might expect. The genus is a limited one in point of species, seven only having been recorded. Nothing is known of their habits.

*Sub-family ZODARIINÆ.*

The genus *Storena*, Walck., is widely distributed, its range being <sup>24</sup>“Regio mediterranea occid. et orient; Africa trop.; Indo-China; Malaisia; N. Guinea; N. Hollandia; N. Caledonia et Polynesia; Amer. septentr., æquator et australis.”

This genus is well represented in our native Arachnid fauna. Koch described<sup>25</sup> and figured a number of forms under the generic name of *Habronestes*, L. K., but this, however, has been sunk by Simon as a synonym.

The *Storena* are rather small spiders and bear some resemblance to the Lycosid group. The eyes of the species are very varied, no two forms being quite alike; they, therefore, present an admirable means for specific determination. The cephalothorax is strongly arched, black, and glossy; the legs are robust and moderately long; the abdomen ovate, arched, glossy and ornamented with white or yellow spots and markings.

Nothing is known of the life-history of these spiders. They are ground-running and very active. I have found that disturbing forest debris, such as accumulations of dead branches and leaves, is a good method of bringing these animals to light when collecting. They probably construct silken retreat tubes in secluded nooks. Our Australian species have been described chiefly by Koch<sup>26</sup> and Cambridge<sup>27</sup>; Walckenaer<sup>28</sup> described one; Hogg<sup>29</sup> described another; and I have described one.<sup>30</sup>

*Obs.*—Since the above was written, Mr. Frank Taylor, of Belmore, has presented to the Trustees a living specimen of *Storena albomaculata*, mihi, and this was kept alive for three or four days. During the interval it constructed its ova-sac and deposited its eggs. The sac is nearly round and measures 4.8 mm. in circumference. It consists of an upper and lower layer of closely-knitted, tough, shining papyraceous silk. Between these layers the eggs, of which there are about thirty, are deposited. The latter are grouped together, spherical, and orange-yellow.

*Obs.*—Mr. Hogg has described a Victorian species for which

<sup>24</sup> Simon—*Loc. cit.*, p. 429.

<sup>25</sup> Koch—*Die Arach. Austr.*, i., 1871, pp. 299-321, pl. xxv.

<sup>26</sup> Koch—*Loc. cit.*

<sup>27</sup> Cambridge—*Ann. Mag. Nat. Hist.*, (4), iii., 1869, pp. 52-59, pl. iv.

<sup>28</sup> Walckenaer—*Tabl. des Aranéides*, 1805, p. 83, pl. ix., figs. 85 and 86.

<sup>29</sup> Hogg—*Proc. Roy. Soc. Vict.*, xiii., 1900, pl. xiv., fig. 4.

<sup>30</sup> Rainbow—*Proc. Linn. Soc. N.S. Wales*, xxvii., 1902, p. 485, pl. xviii., figs. 1, 1a.

he erected the genus *Storenosoma*,<sup>31</sup> and in the diagnosis he points out wherein it differs from the Egyptian and Syrian *Laches*, Thor., and *Storena*, Walck. Simon, however, contends that *Storenosoma* is a synonym of *Storena*,<sup>32</sup> but states no reason for regarding it as such. I have not had the good fortune to see a specimen of Hogg's *Storenosoma* but there appears from the author's description sufficient reason to justify at least sub-generic rank. The type of Hogg's genus is *S. lycosoides*. Five specimens were collected at Macedon.

#### FAMILY HERSILIIDÆ.

This is a very small family, embracing only four genera; of these one occurs in Australia, and that includes only three species, two of which were described by L. Koch<sup>33</sup> and one<sup>34</sup> by myself.

The Hersiliidæ are all striking forms, and may easily be distinguished by their spinnerets, which are characteristic. The superior spinners are very long; the basal joint is robust, cylindrical, and exceeds the entire length of the other spinnerets, whilst the terminal joint is tapering, and in the genera *Hersilia*, Aud. in Sav., and *Tama*, Simon, very long and attenuated.

The genus *Tama*, Simon, to which our Australian species belong, is distributed over "Africa septentr.; Asia occid.; Malaisia; N.-hollandia; America merid.: Venezuela, Paraguay."<sup>35</sup> The two forms described by Koch were assigned to the genus *Chalinura*, Dalm. Simon, in a footnote,<sup>36</sup> points out that *Chalinura* was proposed by Dalman for an Araneid (*C. longipes*) found in copal gum, and that it is contemporaneous with the genus *Hersilia*, Aud. in Sav., and further, that it is difficult to decide which name has priority.

Simon, in commenting upon their habits, says that the *Hersilia*<sup>37</sup> are found on trunks of trees and old walls, where their colouration, grey or whitish, is beneficial, by enabling them to conceal themselves; they do not make a web. *Tama*, Simon, and *Hersiliota*, Thor., are found under stones or in fissures of rocks, and construct an irregular web after the manner of spiders of the genus *Pholeus*, Walck.

<sup>31</sup> Hogg—Proc. Roy. Soc. Vict., xiii., 1900, p. 95, pl. xiv., fig. 3.

<sup>32</sup> Simon—Hist. Nat. des Araignées, ii. (Supp. Gén.), 1903, p. 987.

<sup>33</sup> Koch—Die Arach. Austr., ii., 1883, pp. 827-830, pl. lxxi, figs. 1 and 2.

<sup>34</sup> Rainbow—Proc. Linn. Soc. N. S. Wales, xxv., 1900, p. 485, pl. xxiii., figs. 1, 1a.

<sup>35</sup> Simon—Hist. Nat. des Araignées, i., 1892, p. 446.

<sup>36</sup> Simon—*Loc. cit.*, p. 440.

<sup>37</sup> Simon—*Loc. cit.*, pp. 444 and 445.

Simon's observation of the habits of *Tama* does not quite agree with mine so far as our Australian forms are concerned. Specimens collected by me at Balmoral, Sydney, were taken from the trunks of Eucalyptus trees, the grey bark of which they closely simulated. I have also collected them in other localities, and have always found them on trees; indeed I have never met with them on rocks, even in districts where the latter was plentiful, nor have I observed webs constructed by them. By their movements, which are exceedingly rapid, I should say that they relied upon their dexterity for food. At the foot of his description of *T. (Chalinura) novæ-hollandiæ*, Koch added a short note<sup>38</sup> to the effect that that species was collected at Sydney by Mr. Bradley from shrubs and plants, but that no webs were found.

The native forms of this family are *Tama novæ-hollandiæ*, L. K., Sydney; *T. fickerti*, L. K., Sydney; and *T. eucalypti*, mihi, Balmoral.

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<sup>38</sup> Koch—Die Arach. Austr., ii., 1883, p. 830.