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

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(Fig. 3.)

PART V.—**ENTELEGYNÆ** (*continued*).

FAMILY PHOLCIDÆ.

The genus *Pholcus*, Walck., was erected by C. Koch, in 1850, to family rank.¹ Prior to this date, it had been included in the family Theridiidæ. Simon, in his masterly work,² has defined its position, and to this the student is referred.

The family Pholcidæ has since been divided into two sub-families—the Pholcinæ and Ninetidinæ. With the first of these, twenty genera are now associated, of which three occur in Australia; the second embraces only one (*Ninetis*, Sim.), and its habitat is defined as “Arabia felix.”³

The genus *Artema*, Walck., has a wide range, its distribution being: “Africa tota; Arabia; Asia occid., centr. et merid.; Malaisia et Polynesia; America antillana et merid.”⁴ This being so, it is quite possible that it may hereafter be recorded from the Australian region.

The genus *Pholcus*, Walck., is exceedingly ubiquitous, its range being: “Orbis utriusque reg. calid. et temp.”⁵ Only one species—*P. litoralis*, L. K.—is known to me as occurring in Australia. It has been recorded from Rockhampton and Brisbane, and is very common in the neighbourhood of Sydney, where it is known popularly as “Daddy Longlegs.”

The Pholcidæ are of sedentary habits, and are most frequently met with in buildings, where they construct their webs in the angles of walls and ceilings. Their snares are irregularly constructed, the lines comprising them being drawn in every conceivable direction. The Pholcidæ have been formed into a group under the name of Filitèles, from their habit of spinning long filaments of silk whenever or wherever they move. When an insect

¹ C. Koch—Ueb. Ar. Syst., v., 1850, p. 31.

² Simon—Hist. Nat. des Araignées, 2nd Ed., i., 1892, p. 456.

³ Simon—Loc. cit., p. 487.

⁴ Simon—Loc. cit., p. 466.

⁵ Simon—Loc. cit., p. 471.

is captured in the web of one of these spiders, the owner immediately shakes the snare violently in order to secure its prey. When irritated or disturbed they will gyrate round and round most rapidly, usually describing circles from right to left. When resting in the web, they invariably hang body downwards, as illustrated in the figure (fig. 3); occasionally they may be detected resting in a vertical position, in which case the usual posture is head downwards. The eggs are held together in an agglutinated spherical mass; sometimes they are covered with silk.

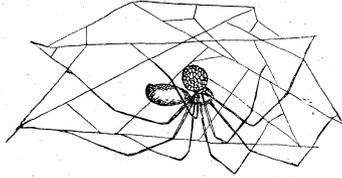


Fig. 3, *Pholcus litoralis*, L. K.

The female carries the mass of ova with the falces, and always approximated to her sternum; nor will she for one moment relinquish her burden until the spiderlings have hatched out. The eggs included in the spherical mass are numerous, and are usually of a whitish-yellow tint.

These spiders may sometimes be collected from under overhanging rocks, in rock-shelters, and in the hollows of trees.

In 1877, Mr. H. B. Bradley erected the genus *Micromerys*, for the reception of a species collected by the "Chevert" Expedition at Cape York. The genus, however, is widely distributed. Simon gives its geographical area as "Africa occid.; ins. Madagascar (*madagascarensis*, E. Sim.); ins. Philippinæ (*vermiformis*, E. Sim.); Nova-Hollandia septr. (*gracilis*, Bradl.); America trop.; Venezuela (*conica*, E. Sim., etc.)."⁶

M. gracilis, Bradl., is long and cylindrical, being about 8 mm. long and 1 mm. broad, with excessively long and thin legs.

Psilochorus, Sim., occurs in "America sept. et merid.; India orient.; Oceana."⁷ In this genus also, only one species is known to occur in Australia—*P. sphaeroides*, L. K. It was placed by its author in the genus *Pholcus*, but Simon has removed it to *Psilochorus*. This species occurs at Rockhampton. Nothing has been recorded of its life habits.

FAMILY THERIDIIDÆ.

This family includes upwards of seventy genera, and an immense number of species. Of the genera recorded at least a dozen are known to occur in Australia, and one in Tasmania. These spiders are also sedentary, and form a group by themselves

⁶ Simon—*Loc. cit.*, p. 474.

⁷ Simon—*Loc. cit.*, p. 482.

—the Retitèles, spiders which form webs with open meshes and irregular chambers, and which lurk in the centre or at their sides.

Individually considered, the members of this family are small, the largest being those of the genus *Latrodectus*, Walck.—spiders having a somewhat evil reputation.

Many of the species are remarkable for their bright and striking colours, as well as interesting and curious forms. All—or nearly all—sedentary spiders construct webs for the capture of prey, and these are of two distinct types—(1) the irregularly-formed snare, or *retitelarian* web; and (2) the wheel-like, or *orbicular* web. The first of these is characteristic of the Theridiide.

Morphologically, this family is a most interesting one. It has been studied by many authors, no two of whom are wholly in accord as to its classification, while some are absolutely at variance. The reader who desires to pursue the subject further should carefully peruse Simon's remarks on this family.⁸

In order, however, to satisfactorily study this group, it would be necessary not only to bring together an extensive collection, but to devote possibly years to patient and laborious investigation. Simon found he could not satisfactorily divide this family into sub-families, but in order to facilitate its study he broke it up into about eighteen groups, of which six occur on the mainland of Australia and one in Tasmania.

ARGYRODEÆ.

This group embraces three genera, each of which is widely distributed. They are *Ariamnes*, Thor., *Rhomphæa*, L. K., and *Argyrodes*, Sim. The range of the first of these is defined as "Orbis reg. tropic. omn.;"⁹ and of the second and third, "Orbis totius reg. trop. et sub-trop."¹⁰ *Ariamnes* and *Argyrodes* each occur in Australia.

Ariamnes colubrinus, Keys., was originally recorded from Peak Downs, but I have had it from various parts of this State. Mr. A. M. Lea collected it in the Northern Rivers District, and I have collected it at Guildford and Waterfall. It is a long, vermiform spider, and constructs a small web amongst the branchlets or spurs of shrubs and coarse herbage. When disturbed or alarmed it drops out of its web and hangs suspended by a thin silken line. Owing to its colour, and the manner in which it folds its legs when dangling in the air, it has the appearance of a piece of dead stick hanging on a web.

⁸ Simon—*Loc. cit.*, pp. 488, *et seq.*

⁹ Simon—*Loc. cit.*, p. 502.

¹⁰ Simon—*Loc. cit.*, pp. 502 and 503.

The spiders of the genus *Argyrodes* are small, and many of them exceedingly brilliant, looking, when suspended in their webs, like atoms of burnished silver, or dewdrops glistening in the sun. In habits they are parasitic, and usually construct their irregular webs among the outer lines of the snares of large orb-weavers such as *Cryptophora*, Sim., and *Nephila*, Leach. Their food consists of the smaller insects that have become entangled in the huge orb-webs, and which are too minute to attract the attention of the legitimate tenant. *A. antipodiana*, Cambr., occurs both in New Zealand and Australia. I have collected specimens around Sydney in the autumn. *A. incisifrons*, Keys., has been recorded from Bowen and Sydney; and Mr. Lea collected *A. margaritarius*, mihi, at the Clarence River, N. S. Wales.

EPISINÆ.

Nine genera are included in this group, two of which, *Episimus*, Latr., and *Janulus*, Thor., occur in Australia. The spiders of the former genus are, according to Simon, "walking Theridiides," and are most frequently met with outside their webs. All these spiders are of striking form. The first, second, and fourth pairs of legs are long, and the third pair very short. The abdomen is usually rhomboidal, wide and high in front, and attenuated behind. The genus occurs in "Europa et reg. medit.; Asia centr.; ins. Taprobane; Africa austr.; N. Hollandia (*australis*, Keyserl.); N. Zealandia (*antipodanus*, Cambr.); America sept. et merid.; Venezuela, Brasilia, Paraguay."¹¹ Keyserling's species, *E. australis*, originally recorded from Peak Downs, is the only form so far recorded from Australia.

The genus *Janulus*, Thor. (of which our Australian form, *J. bicornis*, Thor., is the type species), is recorded from "ins. Taprobane; pen. Malayana; N. Hollandia sept.; America merid.; Antillæ, Venezuela, Brasilia."¹² Although so widely distributed, only a dozen species have, so far, been assigned to this genus. *J. bicornis* is at present unknown to me; the type was collected by D'Albertis, at Somerset, Cape York.

EURYOPEÆ.

There are six genera in this section, three of which occur in Australia. The first of the Australian series, *Euryopsis*, Menge, is widely distributed, its range being: "Europa et. reg. medit.; Asia centr., merid. et orient; Nova-Hollandia et Polyn.; Ameri. sept. et merid."¹³ Only one species occurs in Australia—*E. um-*

¹¹ Simon—*Loc. cit.*, p. 520.

¹² Simon—*Loc. cit.*, p. 521.

¹³ Simon—*Loc. cit.*, p. 529.

bilicata, L. K. This species is widely distributed. I have seen specimens from many localities. Koch's type specimen came from Port Mackay. The species is common around Sydney, and may be collected all the year round. It lurks under stones, or almost any refuse lying upon the ground, under which it may rest in security. When disturbed it rushes off in quest of shelter with great rapidity. It constructs a small web, consisting of a few lines, but this is useless for the capture of prey. I have often sought, and in vain, for the ova-sac.

Diaprocorus, Sim., is recorded from "Nova-Hollandia merid."¹⁴ This contains only one species, *D. multipunctatus*, Sim., from "Nova-Hollandia merid.," and it is unknown to me.

Phylarchus, Sim., contains six species. The range of this genus is "Asia centr.; ins. Taprobane; ins. Philippinæ; N.-Hollandia; N.-Caledonia."¹⁵ *P. splendens*, Sim. (= *Euryopsis elegans*, Keys.), occurs in Australia and New Caledonia. Keyserling's type came from Peak Downs. This species has the same habit as *E. umbilicata*.

THERIDIEÆ.

The spiders of this group are distinctly sedentary. They are to be found inside buildings, in caves, under rock-shelters, on the spurs and branches of shrubs and trees, and sometimes on the trunks of trees. Their reticularian snares are of indeterminate form, and are composed of brilliant threads, which cross each other at every conceivable angle. The cocoons are, as a general rule, globose in form, rarely elongate. They are composed of a tough, silken tissue, closely woven and opaque; the outer and inner walls have a somewhat woolly appearance. The colour varies: some are white, some yellowish, some brown, and some are of a dull greyish tint. With few exceptions, the cocoons are attached to and suspended from the web. *Theridion bimaculatum*, Linn., and *Theridula*, spp., are recorded by Simon as carrying their ova-sacs attached to their spinnerets, in exactly the same manner as those of the genus *Lycosa*, Latr. Those species which suspend their cocoons to the web, usually construct three or four, or even more, and these are generally placed close to each other; but those which carry their ova-sacs make only one. Each ova-sac contains an immense number of eggs. In addition to being sedentary, the Theridiæ are, as a rule, solitary. *Theridion eximium*, Keys., of South America, is a social species, many individuals living together, each uniting its web to that of its neighbour, the whole thus making, apparently, one large, comprehensive snare.

¹⁴ Simon—*Loc. cit.*, p. 529.

¹⁵ Simon—*Loc. cit.*, p. 529.

Ten genera have been assigned by Simon to this group, and of these one occurs in Australia, namely, *Theridion*, Walck. This genus is widely distributed, its geographical area being: "Orbis totius reg. calid., temper. et frigid."¹⁶ Some of the species associated with it are also ubiquitous, for instance, *T. rufipes*, Lucas, and *T. tepidariorum*, C. Koch. The latter is common around Sydney, and sometimes invades buildings. It occurs in Europe, Africa, Asia, and America. The snare constructed is large and usually dome-shaped, and the lines of which it is composed, although exceedingly fine, are nevertheless strong enough to arrest large insects. Some of the victims, if there be too many for the owner's immediate needs, are carried to the upper part of the web, and enswathed with silk. The ova-sacs are more or less round, and are usually of a reddish-brown tint.

The genus *Theridion* is one of the most numerous of the entire order. Koch has recorded ten species from Australia in his standard work.¹⁷ One of the species, *T. albo-striatum*, L. K., is widely distributed, and occurs not only on our Australian mainland, but also in the South Pacific Islands. Keyserling, in the supplement to Koch's monograph,¹⁸ records four others, all of which appear to be peculiar to Australia.

PHORONCIDÆ.

The Phoronciidæ includes some very striking and grotesque forms. The abdomen is large, and in some species, such as *Phoroncidia*, Westw., armed with long, strong spines. This genus does not occur in Australia, so far as we know at present, but seeing that its geographical area is "India et ins. Taprobane; Malasia et Papuasias; ins. Madagascar; Africa trop. occid."¹⁹ we may certainly expect it to occur in Northern or Tropical Australia.

Ulesanis, L. K., is distributed over "Reg. medit. occid.; Africa trop. orient, et Afr. austr.; ins. Taprobane; ins. Philippinæ; N. Hollandia, N. Zealandia et Polynesia; Amer. sept., trop. et austr."²⁰ Six species of this genus are recorded from Australia and Polynesia. *U. sextuberculata*, Keys., occurs in Queensland, where it was originally recorded from Gayndah; it is also found in the Richmond River District. These spiders are usually found on shrubs or bushes, where they construct their retitelarian snares.

¹⁶ Simon—*Loc. cit.*, p. 550.

¹⁷ L. Koch—*Die Arachniden Australiens*, i., 1871, p. 256, *et seq.*

¹⁸ Keyserling—*Die Arachniden Australiens*, Suppl., 1890, pp. 241, *et seq.*

¹⁹ Simon—*Loc. cit.*, p. 561.

²⁰ Simon—*Loc. cit.*, p. 560.

DIPENÆ.

This is a small group, consisting of three genera, only one of which occurs in Australia, namely *Latrodectus*, Walck. The range of this genus is "Orbis totius reg. trop. et sub-trop."²¹ For this genus Thorell described what he supposed to be two distinct Australian species—*L. hasseltii* and *L. scelio*.²² They are, however, synonymous, and *hasseltii* must be accepted as the specific name.

L. hasseltii is widely distributed throughout India, Malaysia, Papua, Australia, New Zealand, and Polynesia. The Indian form (*L. hasseltii* var. *indicus*, Sim.) has been recorded by Simon from Arabia.²³ In Australia it is known as the "Venomous Spider," and in New Zealand by the Maori name "Katipo, which is said to mean "night-stinger." In respect of the bite and its effects, the matter is at present under investigation, and will be dealt with on a future occasion.

The webs of this species are established in all sorts of dark corners, in old and empty cans, or amongst any loose rubbish; they also occur under stones and rock shelters.

The snare is of the usual reticularian type, somewhat dome-shaped; the lines are very strong, and are capable of arresting large and powerful beetles. The cocoons are yellow, closely-knitted, somewhat woolly in appearance, and each encloses a large number of eggs. The inner walls have much the same appearance as the outer. A large number of cocoons are made, and these are always suspended together.

ASAGENEÆ.

This is a group of stridulating Theridions. It is remarkable that of the ten genera referred to it by Simon—some of which are most widely distributed—none are known to occur on the mainland of Australia. There is only one genus which may be considered as part of our fauna, namely, *Ancocelus*, Sim., of Tasmania, and that has only one species—*A. vivens*, Sim. This genus is most nearly allied to the European and American *Steatoda*, Sund. The Tasmanian species is unknown to me.

²¹ Simon—*Loc. cit.*, p. 569.

²² Thorell—*Aranea nonnullæ Nova Hollandia*, in *Öfv. Kongl. Vet.-Akad. Forhandl.*, 1870, 4, p. 369; also Koch—*Die Arachniden Australiens*, i., 1871, pp. 276 and 279.

²³ Simon—*Bull. Mus. Hist. Nat.*, 1897, 3, p. 95; and 1902, 4, p. 252.