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TWO NEW THOMISIDS.

By W. J. RAINBOW, F.L.S., Entomologist.

(Plate xxx.)

THE present paper contains descriptions of two new species of Thomisidæ, exceedingly interesting forms. The first, for which I propose the name *Misumena tristania*, was collected by Mrs. C. T. Starkey, of Neutral Bay, Sydney, at Cobbity, and presented by her to the Trustees. The spider was found upon some flowers of *Tristania laurina*, R. Br. (N.O. Myrtaceæ) a tall shrub or small tree, which (according to Mr. J. H. Maiden, Director of the Botanical Gardens, Sydney, who kindly identified the flowers for me), is found near watercourses, and is not uncommon in mountain gullies. The flowers of this shrub are bright yellow, and the colour is closely simulated by the spider, so that, unless it happens to move, it is difficult to detect. And, to colour must be added the form of the animal itself, when studying it in connection with the question of mimicry, because, when at rest, the body is posed in such a manner as to add greatly to the effect. The mimetic resemblance, therefore, must be regarded as *protective* and *attractive*: the former, because it would assist the Arachnid in evading insectivorous foes, and the latter, because it would be the means of attracting insects upon which it feeds.

The second species, *Saccodomus formivorus*, is remarkable not alone on account of its form, but also for the reason that, contrary to all previously recorded facts based upon accurate observations of the habits of the Thomisidæ, it constructs a bag-like nest. It is in consideration of this, that in founding the genus diagnosed below, I propose the generic term *Saccodomus*.

It has long been regarded as an axiom that all those individuals and species embraced within the vast family Thomisidæ, popularly known as "Crab" or "Flower" Spiders, are essentially wanderers, constructing neither webs nor nests for the capture of prey, but relying solely upon their activity, cunning, or mimetic resemblance to surrounding objects.

Another interesting feature in connection with this species is its food. Both Mr. W. W. Froggatt and Mr. George Masters, in speaking to me upon the subject, said that so far as their

observations went, these spiders lived entirely upon small ants—*Leptomyrmex erythrocephalus*, Fab. These insects were, Mr. Froggatt says, drawn into the nests by the spiders, where they sucked the vital juices from their bodies, and then threw them out. Mr. Masters, who collected some specimens and nests at Glen Oak, Williams River, informed me that the nests were covered with small ants, and that it was their great numbers on the trees that attracted his attention.

Mr. D. A. Porter, of Tamworth, who has kindly donated both spiders and nests to the Trustees, wrote me as follows :—"The trap is a 'bag,' or *cul-de-sac*, with the opening upwards, and generally fixed between the small branches [in a fork]. The ants travel *over* and *on* it in going *upwards*, but often 'fall in,' probably when coming down." Further, my correspondent says that he has observed the ants inside, travelling round and endeavouring to escape, but that he has never noticed one succeed, or try to climb out; he has also seen fragments of dead ants in the traps. Mr. Porter is, without doubt, an admirable observer, and his remarks are therefore of value. In his letter he says, that although he had never noticed a spider in or upon one of these traps, he had always found them not far away, and as "they were always of the same kind, concluded that they were the owners." It is possible, however, that some of the spiders were not at home, when Mr. Porter examined the nests, or that they may have escaped his observation, because upon closely examining the group of nests presented, I found a living example hiding deep down in one of the bags. The colour of the animal's abdomen, and the web of which the nests are made, are so much alike that detection is very difficult, and under some conditions impossible.

Mr. Porter informs me that in the Tamworth District these nests or traps, so far as he can say, are only found upon one variety of bush, known to the aborigines as "Dthluby." I am again indebted to Mr. J. H. Maiden for his kindness in identifying this species. It is the common "Whitethorn," *Bursaria spinosa*, Cav. (N.O. Pittosporæ). From specimens I have handled, however, it is evident that this spider constructs its nest in various trees or shrubs. The one obtained by Mr. Froggatt at Aelong was taken from one of the tea-trees *(Leptospermum sp.)*, and that by Mr. Masters from a Eucalypt. Mr. Porter says in concluding his note that the traps are generally situated at two to four feet from the ground.*

* For description and figures of nests the reader is referred to a previous paper by me in Proc. Linn. Soc., N.S.W., xxii., 3, 1897, p. 549, pl. xviii., figs. 6 and 6*a*.

Family THOMISIDÆ.

Sub-family MISUMENINÆ.

Genus Misumena, *Latr.*

MISUMENA TRISTANIA, *sp. nov.*

(Pl. xxx., Figs. 1, 1*a*.)

♀. Cephalothorax 2·8 mm. long, 3 mm. broad; abdomen 5·5 mm. long, 5·8 mm. broad.

Cephalothorax obovate, arched, broader than long, orange-brown relieved by chrome yellow and pitchy-black markings. *Pars cephalica* arched, truncated in front, orange-brown, ornamented by a median line of chrome yellow and a few small concolorous spots; in addition to these there are also upon the upper surface two fine lateral chrome yellow lines: these commence well forward, curve gently first in an outward direction, and then more sharply inwards, ultimately meeting at the base; on the outer side of each of these lines, and commencing at a point immediately below, but in a line with the posterior lateral eyes, there is a broad, wavy, longitudinal pitchy-black line, which does not terminate until near the centre of the cephalic segment; these lines are narrowest in front, become gradually wider, and terminate in an obtuse point; immediately below the anterior row of eyes (the *clypeus*) there is a broad, strongly recurved bar of chrome yellow; from below each lateral eye of the anterior row, there is directed backwards and outwards, a narrow, wavy, concolorous line, and immediately below the posterior median eyes, there is a rather sharp depression or pit which is broadest in front, and has its margins chrome yellow. *Pars thoracica* arched, broad, orange-brown with a large triangular patch of chrome yellow at junction of cephalic and thoracic segments, and enclosed between the pitchy-black lines referred to above. *Marginal band* chrome yellow, broad.

Eyes small, black, normal.

Legs orange-brown, extremities of tibiæ of first and second pairs nearly encircled with a deep, black band; extremities of each haunch, trochanter, femur, patella, and tibia encircled with a band of chrome yellow; femurs, tibiæ, and metatarsi clothed with fine adpressed hairs upon their upper surface, and armed with small lateral spines; tarsi hairy; tarsal claws black. Relative lengths 1, 2, 4, 3.

Palpi short, strong, orange-brown, clothed with fine black hairs, and terminating with a small black spine.

Falces strong, convex, orange-brown, sparingly hairy.

Maxillæ yellow, moderately long, convex, slightly constricted at their centre, sparingly pubescent, apices inclining inwards.

Labium concolorous, rather longer than broad, truncated at tip.

Sternum yellow, glossy, convex, shield-shaped, sparingly clothed with rather long, strong hairs.

Abdomen broadly obovate, strongly arched, slightly projecting over base of cephalothorax, very finely pubescent, chrome yellow, relieved towards anterior extremity and sides with a series of black and dark brown markings, and irregularly shaped large and small concolorous spots; in addition to these there is also present, and running down the centre, a delicate net-work of tracery, barely visible to the naked eye; the inferior surface is also finely pubescent, chrome yellow and ornamented down the centre with a series of twelve dark brown spots, arranged in pairs, rather widely apart, the posterior pair especially so.

Epigyne as in figure.

Hab. Cobbity, New South Wales.

Genus Saccodomus,* *gen. nov.*

The species for which a new genus is now proposed was first brought under my notice some years ago by Mr. W. W. Froggatt, who gave me both the specimen and its nest. These have since been added to the collection of the Australian Museum. When examining it at the time it appeared to me there could be little doubt as to the position it should occupy, namely, in the sub-family Misumeninæ. But, whilst many features appeared to point to this sub-family as its correct place, there were nevertheless, some that were decidedly conflicting, and these suggested certain important analogies with the sub family Stephanopsinæ. Indeed, the form was so novel, that I hesitated to describe it until I could obtain more specimens, and devote more time and labour to the elucidation of the problems presented.

In my studies I was, happily, assisted by my esteemed friend, Mr. H. R. Hogg, M.A., of Melbourne, who, writing to me upon the subject said :—"In this group [*i.e.*, Misumeneæ] it has the nearest affinity with the sub-group Diæeæ, and I place it as a new genus between *Heriœus*, E. Simon, and *Diœa*, Thorell, the chief points keeping it out of either being: forehead sloping instead of vertical; legs smooth instead of having certain bespinements; rear row of eyes less recurved than front row."

During the interval that has elapsed since the above was written the subject has been further studied, with the result that both Mr. Hogg and myself still incline to the opinion that this species should form a new genus to be placed—provisionally—between *Heriœus* and *Diœa*.

Nevertheless there are yet, to my mind, some very debateable points to be removed before the subject can be satisfactorily settled, and it may even be necessary hereafter, either to amend one of the existing sub-families, or to found a new one for its

* Derivation: Σάκκος, a bag or purse; δόμος a dwelling place.

reception, and by way of illustration the following tables are submitted:—

Points showing wherein the genus *Saccodomus* differs from genera included in the sub-families Stephanopsinæ and Misumeninæ:

Sub-family Stephanopsinæ.	Genus *Saccodomus*.
First pair of legs longer than second;	First and second pairs equal;
Maxillæ parallel;	Maxillæ slightly inclined inwards;
Forehead vertical;	Forehead sloping;
Both rows of eyes equally recurved;	Posterior row of eyes less recurved than anterior row;
Teeth on lower margin of falx;	Lower margin of falx smooth;
No row of hairs upon exterior margin of falx.	Hairs present upon exterior margin of falx.

Sub-family Misumeninæ.	Genus *Saccodomus*.
Second pair of legs longest;	First and second pairs equal;
Forehead square, vertical;	Forehead square, sloping;
Both rows of eyes equally recurved.	Posterior row of eyes less recurved than anterior row.

Points in which the genus *Saccodomus* agree with—

Sub-family Stephanopsinæ.	Sub-family Misumeninæ.
Labium (with some genera);	Maxillæ inclining inwards;
Forehead not attenuated;	Shape of labium;
Front femur not bespined;	Lower edge of falx smooth;
Anterior row of eyes not near together.	Tarsi without claw tufts;
	Front row of eyes;
	Hairs upon clypeus;
	Skin bristly;
	Forehead square;
	No spines on tarsi or metatarsi.

It will be seen, from the above comparative tables, that the majority of points rests in favour of the sub-family Misumeninæ, in which for the present it is placed; and again, if the reader will refer to pl. xxx., figs. 2 and 2*b*, he will note, so far as the abdomen is concerned, a striking resemblance in contour to those species forming the sub-family Stephanopsinæ.

Until quite recently our collection contained only one specimen of this remarkable spider, and this fact made me dubious about describing it. Fortunately, however, an esteemed correspondent, Mr. D. A. Porter, of Tamworth, to whom reference has already been made, forwarded additional specimens to the Trustees, by the aid of which supplementary material, I feel I am now justified not only in describing the species, but also in founding a new genus for its reception.

Characters of Genus.

Cephalothorax longer than wide, high; sides and posterior angle sharply declivous. *Pars cephalica* sloping sharply forward, broad, square in front, and truncated. *Clypeus* hairy. *Pars thoracica* high, sides declivous, and deeply indented laterally.

Eyes small; posterior row less recurved than the anterior; of the four comprising the anterior row, the median pair is smallest and much the closest together, whilst the series constituting the posterior row, are widely separated from each other, and equidistant.

Legs long, hairy. Relative lengths 1 = 2, 4, 3.

Palpi short, hairy.

Falces robust, hairy.

Maxillæ moderately long, outer angles constricted near their centre; apices inclining inwards, obtuse, and not divergent.

Labium coniform.

Sternum oval, convex, truncated in front, obtuse behind.

Abdomen oval.

Saccodomus formivorus, *sp. nov.*

(Plate xxx., figs. 2, 2*a*, 2*b*, 2*c*, 2*d*, 2*e*.)

♀. Cephalothorax 2·7 mm. long, 2·2 mm. wide; abdomen, 4 mm. long, 3·7 mm. wide.

Cephalothorax longer than wide, high, sparingly clothed with fine, hoary pubescence, dark brown, encircled with exception of clypeus, by a deep cream-coloured band. *Pars cephalica* dark brown, sloping forward, truncated in front, sides declivous. *Clypeus* dark brown, hairy. *Pars thoracica* dark brown, high, sloping forward, sides and posterior angle sharply declivous; there is also on each side and near the junction of the cephalic and thoracic segments, a long, deep depression. *Marginal band* broad, cream-coloured.

Eyes small, black, arranged in two recurved rows of four each; second row less recurved than the anterior; of the four comprising the anterior series, the median pair is the smallest, much the closest together and separated from each other by a space equal to about four times their individual diameter, but each lateral eye is removed from its neighbour by many times its individual diameter; the posterior series are slightly larger than their anterior lateral neighbours, widely separated from each other, but equidistant or nearly so.

Legs robust, hairy; anterior pairs dark brown, joints annulated white, but, judging from the specimens before me, these limbs are

subject to a slight variation in colour; posterior pairs pale yellowish, with dark brown markings. Relative lengths 1 = 2, 4, 3.

Palpi short, dark brown, hairy.

Falces robust, concolorous, clothed with short stiff hairs.

Maxillæ dark brown above, outer angles yellowish, moderately long, arched, inclining inwards, apices obtuse, surface clothed with short, stiff hairs.

Labium dark brown, coniform, convex, clothed with coarse greyish hairs.

Sternum greyish, oval, moderately convex, truncated in front, obtuse behind, clothed with coarse greyish hairs.

Abdomen oval, moderately arched, truncated in front, projecting over base of cephalothorax; anterior, lateral, and posterior angles furrowed; superior surface and sides sparingly clothed with short black hairs; near the posterior angle, and in the median line, there is a rather deep puncture; below this, and at about one-third the length of the abdomen, there is a row of two punctures, equally as deep and large as the one referred to above, but widely separated from each other; below these, and just beyond the centre, there is another row of two, but these are much larger than the preceding, and rather wider apart; a little below the second pair there is a recurved row of punctures, the lateral individuals of which are smaller than those already described, whilst the intermediate series (six) is much smaller still; below this again there is another recurved row of six small punctures; each of the recurved rows here described are seated in two transverse furrows; lateral angles furrowed longitudinally and finely punctured; dorsal, ventral, and lateral surfaces dull yellowish.

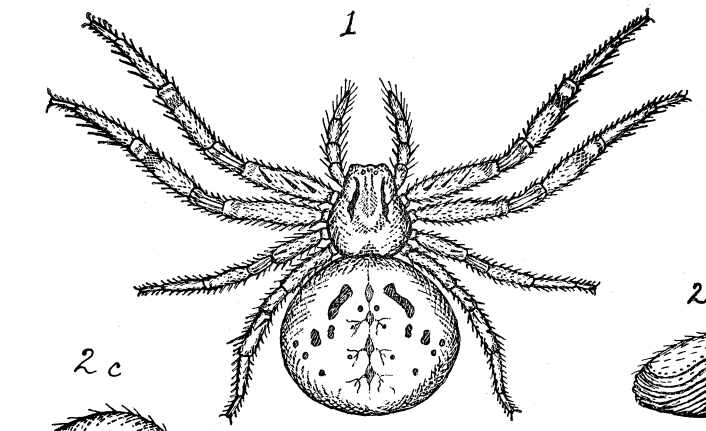
Epigyne as in figure.

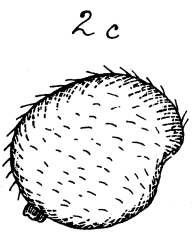
Obs.—In gravid specimens the abdomen assumes a somewhat spherical form, the furrows and small punctures are entirely absent, whilst the deep, dorsal punctures so prominent in normal examples, are only barely visible.

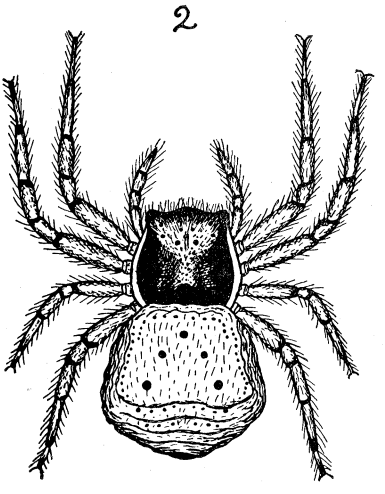
Hab. Aelong (W. W. Froggatt); Williams River (G. Masters); Tamworth (D. A. Porter).

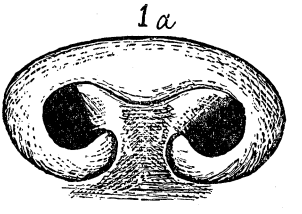
EXPLANATION OF PLATE XXX.

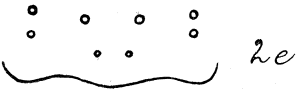
Fig. 1. *Misumena tristania*, ♀, Rainbow.
Fig. 1*a*. ,, ,, Epigyne.
Fig. 2. *Saccodomus formivorus*, ♀, Rainbow.
Fig. 2*a*. ,, ,, Cephalothorax, profile.
Fig. 2*b*. ,, ,, Abdomen, profile, normal.
Fig. 2*c*. ,, ,, Abdomen, profile, gravid.
Fig. 2*d*. ,, ,, Epigyne.
Fig. 2*e*. ,, ,, Eyes.

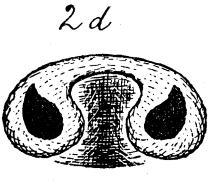












W. J. Rainbow, del.