

MATING AND MATERNAL BEHAVIOUR IN *TELYPHONUS CAUDATUS* L. (PEDIPALPI, HOLOPELTIDIA, UROPYGI)¹⁾

by

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The behaviour of Uropygids has received little attention in the past. A description of the mating of one species of the minute Schizopeltidians, *Trithyreus sturmi* KRAUSS was given by STURM (1957); *Admetus barbadosis* POCOCK an Amblypygidan, was observed by ALEXANDER (1961). GRAVELY (1915) described the initial movements in the precopulatory activity of *Telyphonus sepiaris*. During an ethological research expedition²⁾ through South East Asia in 1961 I was able to observe the mating and maternal behaviour of *Telyphonus caudatus* L., a species found in abundance in limestone caves in the vicinity of Bogor, Java.

The mating game begins with the ♂ tapping the ♀ with his feeler legs and at the same time spasmodically lunging forward. A responsive ♀ stretches her feeler legs forward; the ♂ catches hold of them with his pedipalps and seizes them at their tips with his chelicerae. The ♀'s feeler legs are crossed twice, once in their middle and again just before the chelicerae of the ♂. The partners are standing opposite each other. The ♂ now walks alternately backwards, pulling the ♀ with him, and forward, pushing her backward. At the beginning she follows him rather reluctantly but after some time, usually a few hours, but sometimes days, she follows him quite calmly. Throughout the process the ♂ taps the ♀ with his feeler legs. (Fig. 1).

Next the ♂ steps forward over the front part of the ♀, touching and stroking her opisthosoma with his feeler legs. This activity is repeated several times. In between, the couple resume the pulling and pushing. The ♂ then steps over the prosoma of the ♀ and turns (Fig. 2) through 180°. The partners now face in the same direction, the ♂ standing directly in front of the ♀. In the process of turning, the ♂ releases the ♀'s feeler legs

1) The work was carried out at the Museum Zoologicum Bogoriense, Bogor, Indonesia. My thanks are due to Mr. SADIKIN SUMINTAWIKARTA, Director of the Botanic Gardens, Mr. SAMPURNO KADARSAN, Director of the Museum, and their staff for the use of their facilities and their assistance.

2) Sponsored by the Deutsche Forschungsgemeinschaft, Bad Godesberg, Germany.

from his pedipalps but still holds them with his chelicerae. The ♀ holds the opisthosoma of the ♂ from below with her pedipalps (Fig. 3).

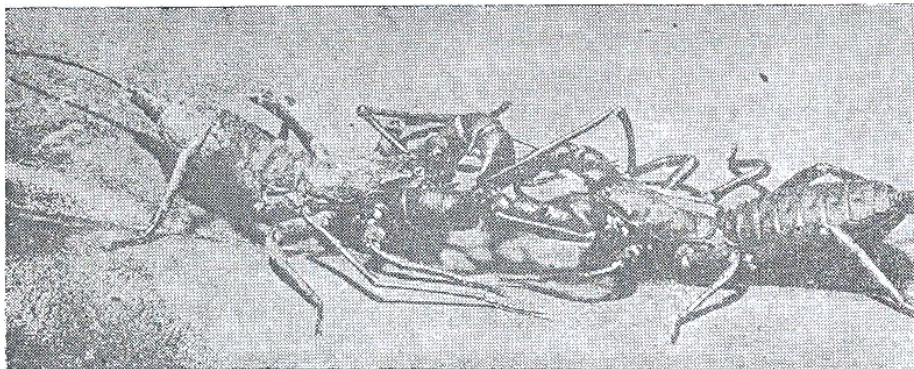


Fig. 1. The ♂ (left) pulling and pushing the ♀ (right).

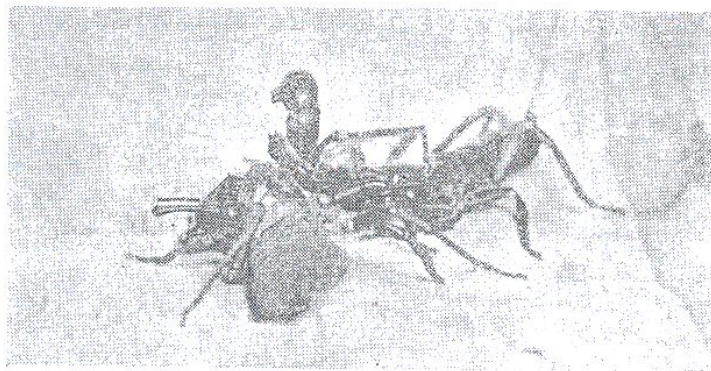


Fig. 2. The ♂ (foreground) during the turning.



Fig. 3. The ♀ (left) holds the ♂ from below.

The action up to this stage takes at least 10 hours, but often several days. The following phases, however, lasted without exception about 3

hours. The mating game is often cut short by the partners abandoning each other, but once the stance is reached where the ♂ stands directly in front of the ♀, the action always continues and leads to the transferring of the sperm. After a few minutes walking around in a close embrace, the couple stay in one place. The ♂ introduces some forward and backward jerking movement, during which the partners still move forward a fraction of a mm each time. The ♂ then produces a drop of secretion and fixes the stem of the spermatophore to the ground (Fig. 4). He then resumes the jerking, moving at the same time very slowly forward and thus pulling the stem of the spermatophore out of his genital opening. At this stage the ♂ beats backward with his feeler legs, this obviously being a signal for the ♀: the partners simultaneously move suddenly forward for $\frac{1}{2}$ cm, thus completely releasing the spermatophore (Fig. 5).

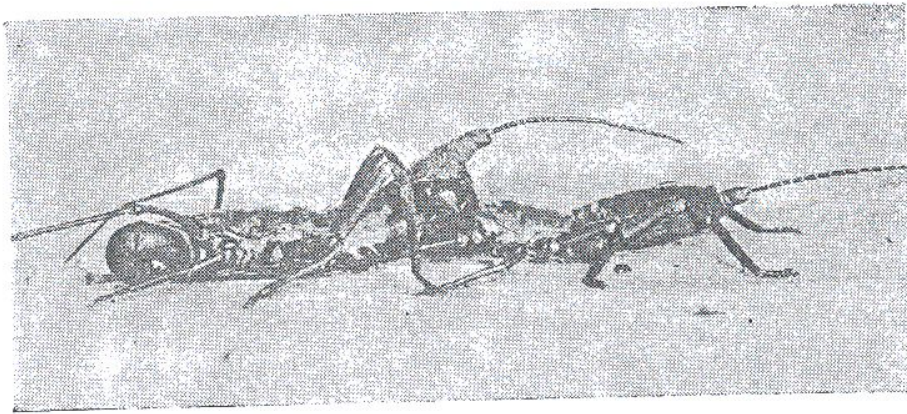


Fig. 4. The ♂ (left) fixes the stem of the spermatophore.

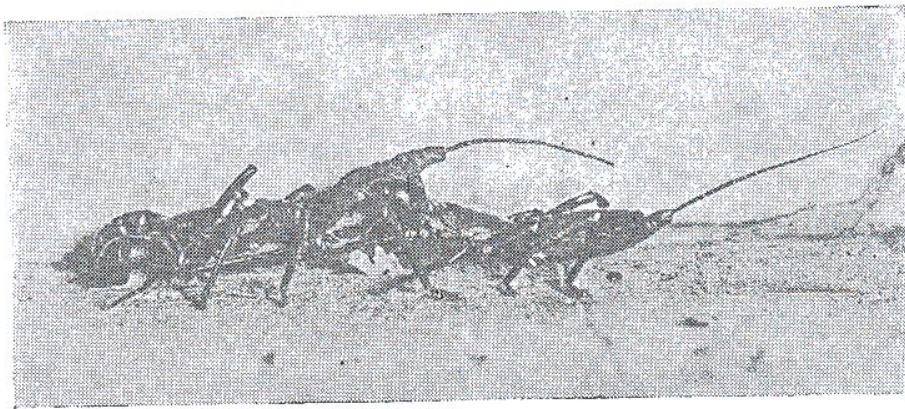
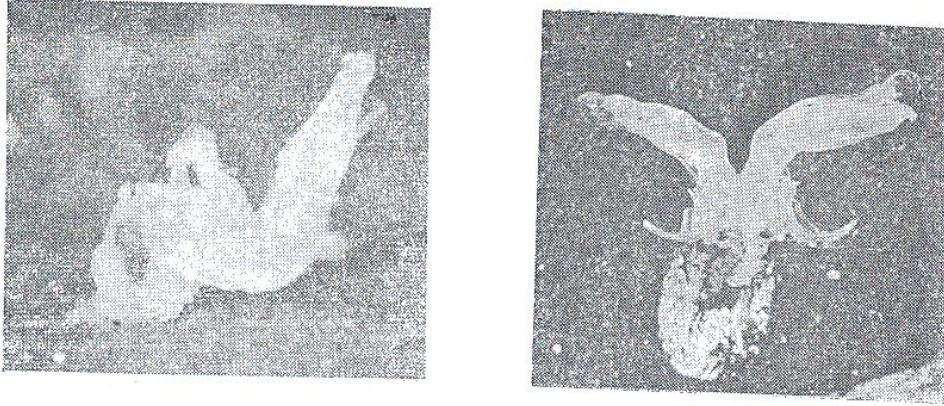


Fig. 5. The partners moving forward. The spermatophore is in front of the ♀ (right).

The spermatophore, consisting of hardened secretion, is highly complicated in its structure: 2 wings, each 6 mm in length, are obliquely attached to a stem 1.5 mm high. Each wing encloses a cavity filled with

sperm and has a hook on the proximal end by which the wing can be split along its length (Fig. 6).



(a)

(b)

Fig. 6. The spermatophore, (a) from the side; (b) from above.

The partners move slowly forward, till the spermatophore is just in front of the ♀'s genital opening. The ♀ grabs the hooks of the wings with the sternite of her genital segment, and, by moving forward again, tears the containers open (Fig. 7) and presses them against her genital opening, thus picking up the sperm. The embrace is still maintained, and the ♂ strokes the ♀ opisthosoma with his whip for about 20 minutes (Fig. 8). The wings of the spermatophore are torn off the stem and remain hanging at the ♀'s genital opening for several hours. Finally the partners separate. First the ♀ loosens the ambrace, then the ♂ steps back, facing her again, and later releases her feeler legs.

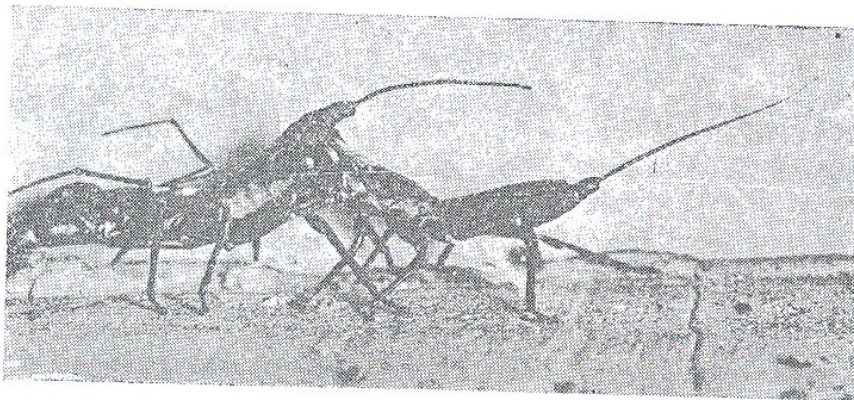


Fig. 7. The ♀ (right) has torn the spermatophore wings open.

Eventually, the ♀ excavates a spherical cavity of about 5 cm in diameter under a stone, wherein she lays her eggs. After hatching the young climb onto the ♀'s opisthosoma to which they adhere by a means as yet

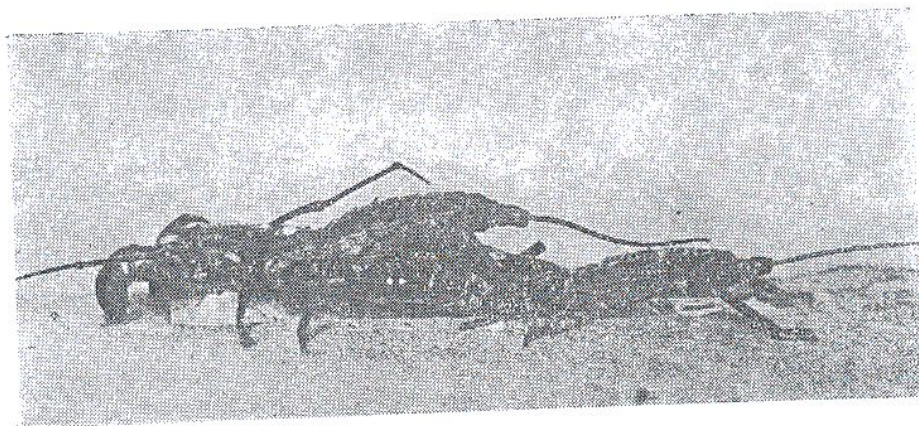


Fig. 8. The ♂ (left) stroking the ♀ with his whip.



Fig. 9. Mother with young.

unknown until the first molt (Fig. 9). Subsequently they remain in the cavity for several months with their mother, who shares her prey with them. The 2 broods observed contained 12 and 17 young, respectively. The behavioural components of the indirect transfer of spermatozoa by means of a spermatophore in *Telyphonus caudatus* are roughly comparable to those of *Trithyreus sturmi*, but have little resemblance to those of the Amblypygi who establish no close contact during their mating game.

LITERATURE

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