

A NEW AFRICAN TICK PARASITE, *HUNTERELLUS THEILERAE* sp. n.

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Only two species of small Hymenoptera, belonging to the family of Encyrtidae (Chalcidoidea), are as yet known to parasitise ticks. Both forms, which have been described as *Ixophagus texanus* Howard (1907) and *Hunterellus hookeri* Howard (1908) syn. *I caurcurtei* du Buysson (1912), were originally found in North America, where they attack a large number of tick species. Whereas the first parasite seems to be entirely endemic to the American continent, the latter species can be regarded as cosmopolitan, and Cooley recorded *H. hookeri* from the Union of South Africa (Transvaal) for the first time in 1934.

Only the nymphal stage of the tick is attacked by these parasites and as far as South Africa is concerned, the parasitised ticks were always observed on the wild hare, *Lepus zuluensis* Thos. & Schw. The following tick species have been reported by Cooley to serve as hosts of hymenopterous parasites in Africa:

*Hyalomma aegyptium* L. (probably *H. transiens* P. Schulze).

*Rhipicephalus evertsi* Neum.

*Rhip. appendiculatus* Neum.

*Rhip. oculatus* Neum.

Two more host species can now be added to this list:—

1. *Rhipicephalus sanguineus* Latr. from Malange, Angola, coll. F. Pires, and from Fort Portal, Uganda (1946), coll. J. J. Steyn.
2. *Amblyomma tholloni* Neum. from Maputo, Moçambique, coll. T. Dias in August 1947.

During the course of a study on African tick parasites a hitherto unknown, but distinct, form with remarkable features has been found. It will be described as a new species and given the name of *Hunterellus theilerae*, which has been chosen in honour to Dr. Gertrud Theiler, who kindly placed the material at my disposal and incited this study.

The new parasite has been placed into the genus *Hunterellus* as it shows the two main characters of this particular group, namely, the three ocelli on top of the head which are widely separated from each other and the antennae which are inserted well above the middle of the face.

DESCRIPTION OF *Hunterellus theilerae*, sp. n.

An almost entirely black species, very much darker than the other two species.

*Female*.—Length about 1.40 mm. Head semicircular in front, the large eyes covering three quarters of its length. The bristles on the cornea are very short and few in number. Distance between lateral ocelli and eye margin considerably shorter than the distance between them and the median ocellus.

The black-brown antennae are moderately hairy and relatively short, measuring 0.45 mm. The scape is inflated, its width being half that of its length. The funicle joints are broader than long (Fig. 31). The maxillary palps consist of three articles, joints one and two are equal in length, joint three is nearly twice as long as number one and two together (Fig. 33). The labial palps have two short joints. Head and mesonotum are finely shagreened and furnished only with few and very fine short bristles. Scutellum with a dozen bristles at the most, and each of its triangular lobes possesses one bristle only (Fig. 34). The abdomen is slightly longer than the thorax, and its few short bristles are arranged at the middle of its tergites. The legs are also very dark, but the tarsi are slightly lighter in colour. Wings measure  $1.05 \times 0.45$  mm., the vein is brownish. There are no macrotrichia in the coastal cell and only a small patch of them in the anal area of the wing (Fig. 35). Two infuscated and band-like patches extend from the vein, towards the hind margin of the wing, which is covered from the middle to the tip by a dense fringe of hairs.

*Male*.—Slightly larger than female (1.65 mm.). Front of head with a broad and forked processus. The eyes are only half the size of those of the female. Antennae slightly longer but equally compact as in the female. The scape has a drop-like shape, the funicle joints are broader than long (Fig. 32). The femur and tibia, especially of the front legs, are relatively short and very thick (Fig. 37). The wings are rudimentary (Figs. 36 and 38).

The species is described from 22 females and 4 males, hatched from a nymph of *Hyalomma transiens* P. Schulze off a wild hare at Uhlenhorst, District Marienthal, South West Africa on 26.9.1951. The types are in the Onderstepoort collection.

The new parasite was identified a second time emerging from a nymph of *Rhipicephalus oculatus* Neum. which was attached to a wild hare in the Potchefstroom District, Transvaal. Only 10 females hatched in this case.

The structures of the three species concerned differ distinctly in many points from each other as shown on the attached illustrations. The following table represents the average length of the main parts of the body measured in millimetres.

	<i>I. texanus.</i>	<i>H. hookeri.</i>	<i>H. theilerae.</i>
<i>Female.</i>			
Length of Body.....	1.55	1.40	1.40
Length of Head.....	0.25	0.30	0.25
Length of Thorax.....	0.60	0.60	0.50
Length of Abdomen.....	0.70	0.50	0.65
Length of Antennae.....	0.70	0.60	0.45
Length of Wing.....	1.10	1.30	1.05
Width of Wing.....	0.50	0.60	0.45
<i>Male.</i>			
Length of Body.....	1.25	1.25	1.65
Length of Head.....	0.25	0.30	0.30
Length of Thorax.....	0.45	0.55	0.60
Length of Abdomen.....	0.55	0.40	0.75
Length of Antennae.....	0.70	0.80	0.55
Length of Wing.....	0.75	1.10	0.35
Width of Wing.....	0.33	0.50	0.10

Length and shape of the antennae furnish reliable and easily detectable characters for the identification of the species and of the sex. The measurements of the forewing as well as the arrangement and number of macrotrichia in its proximal part are other characteristic features confirming the taxonomic identity.

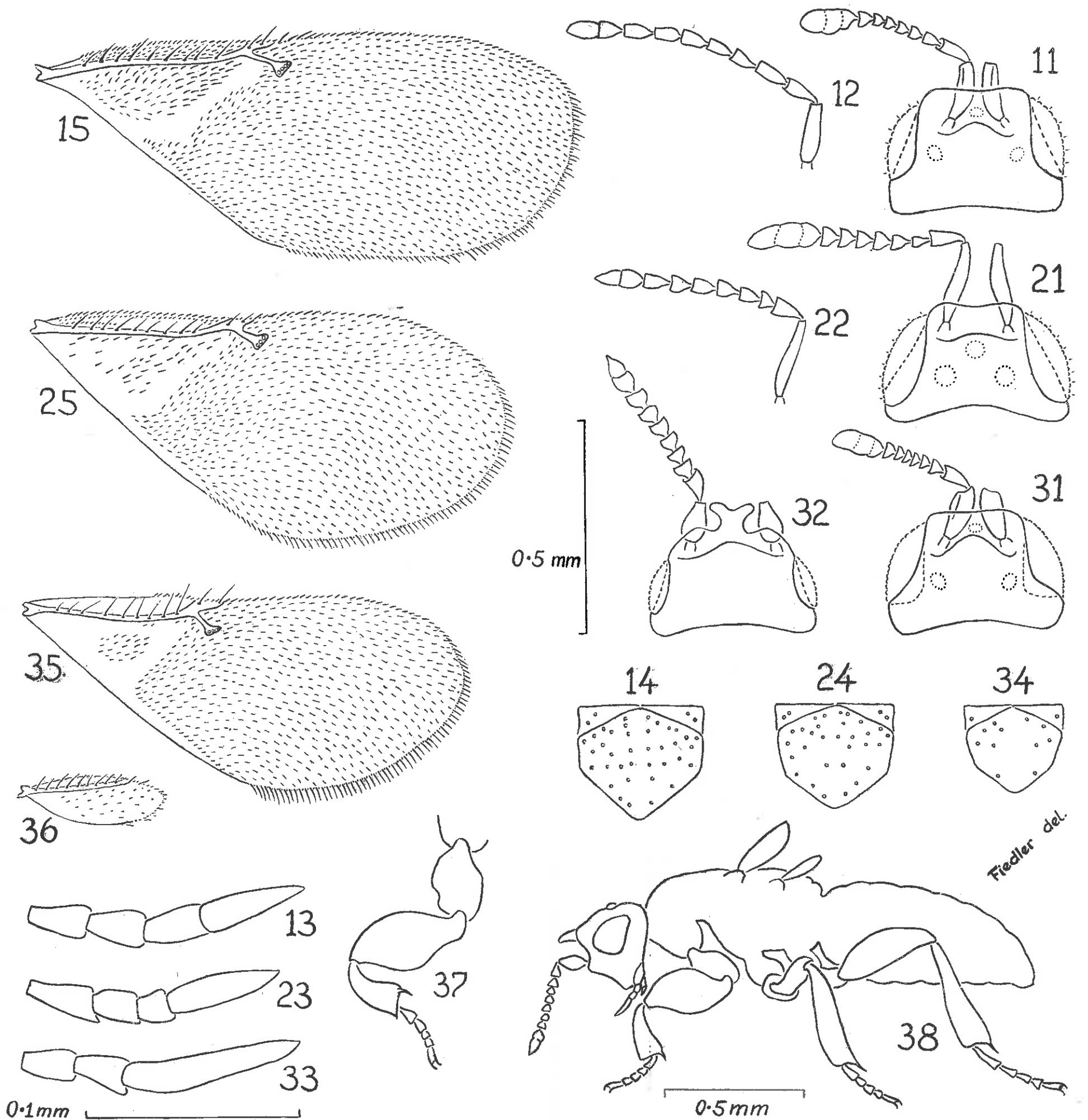
The rudimentary and functionless wings and the compact pair of forelegs in the male of the new species strongly support the conjecture that the males may remain throughout their lives in the fur of the mammal host of the tick where mating also will take place.

#### ACKNOWLEDGMENT.

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#### REFERENCES.

- COOLEY, R. A. (1934). A search for tick parasites in South Africa. *Onderstepoort J.*, Vol. 3, No. 1, pp. 23-42.
- HOWARD, L. O. (1907). A chalcidid parasite of a tick. *Entom. News*, Vol. 18, pp. 375-378.
- HOWARD, L. O. (1908). Another chalcidoid parasite of a tick. *The Can. Entom.*, Vol. 40, pp. 239-241.



*Hunterellus hookeri* Howard.

- FIG. 11.—Head of female.
- FIG. 12.—Antenna of male.
- FIG. 13.—Maxillary palp.
- FIG. 14.—Scutellum.
- FIG. 15.—Forewing of female.

*Ixodophagus texanus* Howard.

- FIG. 21.—Head of female.
- FIG. 22.—Antenna of male.
- FIG. 23.—Maxillary palp.
- FIG. 24.—Scutellum.
- FIG. 25.—Forewing of female.

*Hunterellus theilerae* sp. n.

- FIG. 31.—Head of female.
- FIG. 32.—Head of male.
- FIG. 33.—Maxillary palp.
- FIG. 34.—Scutellum.
- FIG. 35.—Forewing of female.
- FIG. 36.—Forewing of male.
- FIG. 37.—Front leg of male.
- FIG. 38.—Side-view of male.