

THE TETRANYCHINI OF THE U.A.R.
I. — THE GENUS *TETRANYCHUS* DUFOUR
(ACARINA, TETRANYCHIDAE)

BY

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Members of the tribe Tetranychini as described by PRITCHARD and BAKER (1955), possess a well developed empodium which is represented by several pairs of ventrally directed proximoventral hairs, and a dorsomedian claw may or may not be developed. The previous authors divided the tribe Tetranychini into two groups according to the presence or absence of an additional pair of para-anal setae in the female, i.e. the postanal setae. The genera *Panonychus*, *Allonychus*, *Schizotetranychus*, *Neotetranychus* and *Eotetranychus* have two pairs of para-anals while these latter are represented by only one pair in the genera *Oligonychus* and *Tetranychus*. To accept this theory we have to consider the caudal pair of setae in *Oligonychus* and *Tetranychus* females as clunals. In the writer's opinion this is not the case. The caudal pair in *Tetranychus* and *Oligonychus* species has to be considered a postanal for the following reasons :

1) Clunals in species of the genera *Panonychus*, *Allonychus*, *Schizotetranychus*, *Neotetranychus* and *Eotetranychus* are dorsal in position while the caudal pair of setae in species of *Tetranychus* and *Oligonychus* arise immediately posterior to the anus. As there is no definite limit between the dorsal and ventral integument of the body the caudal pair of setae in the two latter genera appears in a dorsal position only in slide preparations where the "anal plate" is bulging behind the body contour (fig. 4), a case which is more usual in preparations of young females which are not engorged with food (fig. 2). In preparations where the anus is completely ventral the caudal setae are clearly postanal in position (fig. 3).

2) Anterior and posterior para-anals are of the ventral type of setae, thin and almost nude, while clunals are of the dorsal type, thick and pubescent, a case which is clear in different species of the genera *Panonychus*, *Schizotetranychus* etc. In the mean time caudal setae in species of the genera *Tetranychus* and *Oligony-*

chus are of the ventral type resembling exactly the anterior para-anals and quite different from the dorsal type (figs. 1, 2, 3, 4). This is quite obvious in species whose dorsal setae are densely pubescent as *Oligonychus platani* (Mc. Gregor) and *Oligonychus aceris* (Shimmer).

For the above reasons the tribe Tetranychini in this work is divided into two groups according to the presence or absence of one pair of clunal setae. This pair is lacking in the two genera *Tetranychus* and *Oligonychus* and present in the others.

The tribe Tetranychini in the U.A.R. is represented by four genera as indicated in the following key.

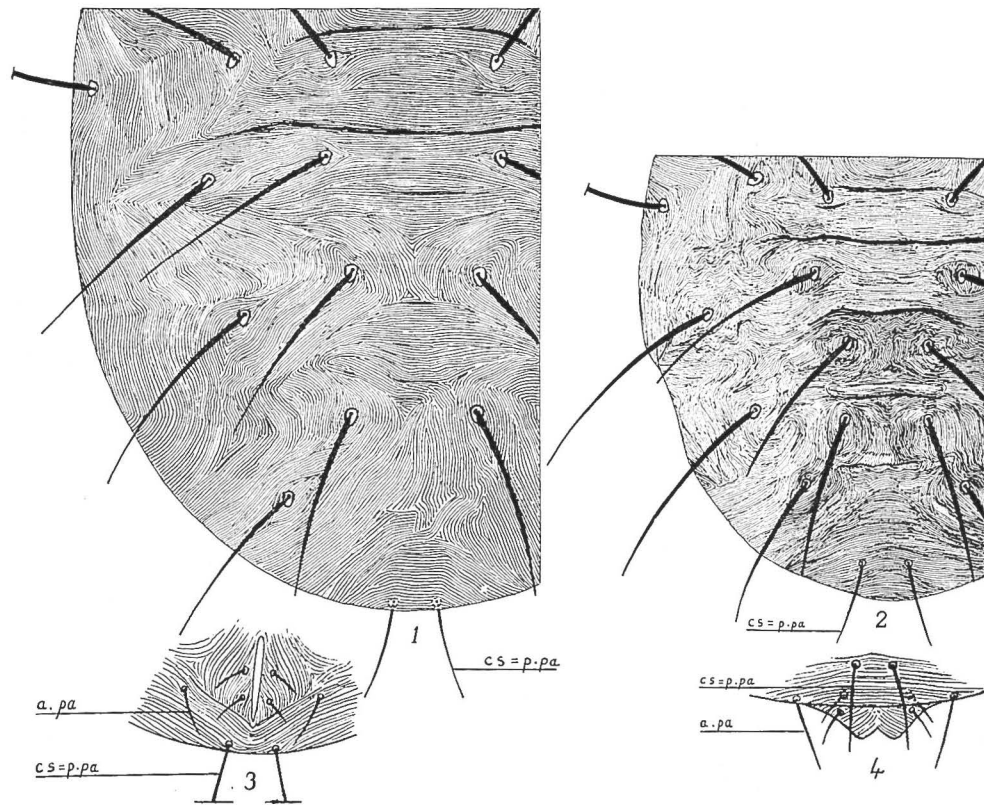


FIG. 1 : Hysterosoma of a female of *Tetranychus* sp., 7 days old.

FIG. 2 : Same, a female one day old.

FIG. 3 : Caudal end of a female 7 days old, ventral view.

FIG. 4 : Same of a female one day old, dorsal view.

cs = caudal seta ; *a.pa* = anterior para-anal ; *p.pa* = Posterior para-anal.

Key of the tribe Tetranychini of the U.A.R.

- | | |
|---|-----|
| 1. Opisthosoma with one pair of clunal setae..... | (2) |
| — Opisthosoma without clunals..... | (3) |

2. Empodium with a simple clawlike dorsal member and with paired proximoventral hairs *Panonychus*
- Empodium with two proximoventral hairs enlarged forming two clawlike appendages, the dorsal hairs very short if present..... *Schizotetranychus*
3. Empodium clawlike and with paired proximoventral hairs, peritreme usually straight distally and ending in a simple bulb, tarsus I usually with duplex setae adjacent and placed near distal end..... *Oligonychus*
- Empodium with clawlike dorsal member rudimentary; peritreme recurved distally; tarsus I with duplex setae widely spaced on dorsum of segment.... *Tetranychus*

Genus *Tetranychus* Dufour.

Since BOUDREAUX (1956) has published his valuable work concerning differentiation between members of the complex *Tetranychus telarius* it was desirable to reconsider the taxonomic status of the common spider mite in the U.A.R., known before as *T. cucurbitacearum* (Sayed) which comprise two forms, green and red. Attempts of hybridization between these forms revealed that they are reproductively isolated, suggesting that they are two different species. These findings were supported by toxicological tests which revealed that the green mites are more tolerant to representatives of both phosphorous and chlorinated acaricides. Except for colour, morphological differences between females of the two species are very minute. The dorsal integumentary folds in females of both species carry a mix of semi-oblong and triangular lobes, however the majority of the lobes are triangular in the red mite and oblong in the green females.

Some workers stated that the shape and form of the cuticular lobes are dependent upon the age of the female. DOSSE and BOUDREAUX (1963) revealed that this theory is erroneous. The writer examined sisters of ages 1, 3, 5 and 7 days in both red and green species; the shape and size of lobes were constant, however the number of folds existing in a given area of the dorsal integument was higher in young females than in older ones. In the green species this number was around 20 transverse folds in a longitudinal area of 19 μ for females of one day old while it was 13-14 folds in the same area for females of 3, 5 and 7 days. In the red mites the number of folds were 21-25 for females of one day old and 14-16 for females of 3, 5 and 7 days. These results indicate that in older females the cuticle is stretched by the engorgement of the female by feeding and hence the spaces between the integumentary folds become wider. For this reason the dorsal striations appear more tortuous in young females than in older ones (figs. 1 and 2). Engorgement of older females by feeding could be revealed by measurements of length and breadth of females of different ages. The one day old female of both species averaged 530 μ in length (including rostrum) and 317 μ in breadth while those of 3, 5 and 7 days old measured 580-614 μ in length and 385 μ in breadth.

The present studies of lobes according to age were done on laboratory cultures reared under 25°C. temperature and around 60 % relative humidity.

Separation between males of the two common Egyptian species is more reliable

according to the characters of the aedeagus. ATTIAH (under publication), has given the name *Tetranychus arabicus* n. sp. to the green mite and the name *T. cucurbitacearum* (Sayed) to the red form.

Besides the two mentioned species, two more species of the genus *Tetranychus* were found injurious to many hosts in the U.A.R., one of which is considered new.

Key to the U.A.R. species of *Tetranychus*.

1. Tarsus I with proximal pair of duplex setae in line with most other proximal setae.
Male with aedeagal knob sigmoid..... ***T. ludenensis*** n. sp.
- Tarsus I with proximal pair of duplex setae distad of other proximal tactile setae.. (2)
2. Male with aedeagal knob berry shaped, posterior angulation absent.....
T. neocalidonicus
- Male with aedeagal knob having both anterior and posterior angulations.... (3)
3. Female with basic colour green. Male with aedeagal knob about one 1/4 th as long as dorsal margin of shaft; anterior projection of knob rounded, posterior projection acute *T. arabicus*
- Female with basic colour red. Male with aedeagal knob about one 1/5 th as long as dorsal margin; posterior angulation of knob acute, anterior angulation acute or else very slightly rounded..... *T. cucurbitacearum*

Tetranychus ludenensis n. sp.

(Figs. 5-6).

Female : Bright red in colour including area anterior to eyes, legs yellowish ; shape slightly elliptical or rather round, 620 μ long (including rostrum) and 375 μ wide in widest part. Dorsal integumentary striae with widely spaced triangular lobes at upper edge of folds, heads of triangles rounded (Fig. 6), striae between third pair of dorsocentral hysterosomals and also between inner sacrals longitudinal (Fig. 5). Tarsus I (Fig. 7) with proximal pair of duplex setae in line with most other proximal setae, tibia I with 9 tactile and one sensory setae. Body with dorsal setae long reaching to base of second seta caudad, tapering and pubescent. Genital flap with transverse striae, area immediately anterior to the flap with longitudinal striae; ventral striations including those in the area bounded by the ventral-most setae with lobes.

Male : Aedeagus (Fig. 16) with dorsally directed knob very gentle, neck of knob very short, knob very small, sigmoid with both anterior and posterior angulations acute, posterior angulation curved down. Length of knob around 1/6th that of external shaft.

Hosts and locality : this mite was found infesting cotton and some vegetables as squash and egg-plants in Alexandria and some districts of Beheirah Governorate during June 1965.

General remarks : *T. ludenensis* falls in the *desertorum* group of the genus *Tetra-*

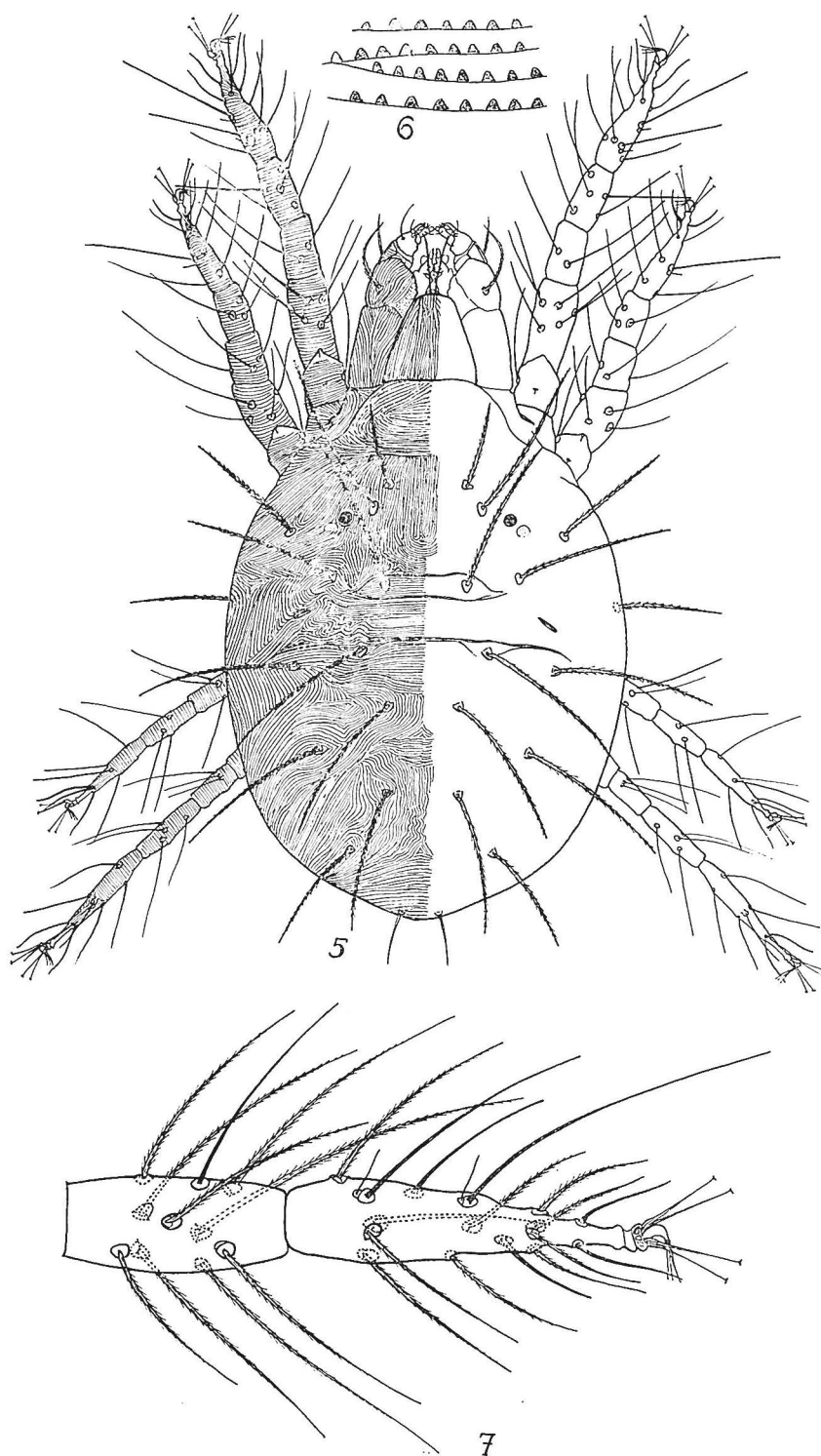


FIG. 5-7 : *Tetranychus ludenensis*, female.
 5. — Dorsal view. 6. — Dorsal lobes. 7. — Tarsus and tibia I.

nychus, very close to *T. ludeni* Zacher, differing in the knob of the aedeagus of the male which lacks a posterior angulation in *T. ludeni*. The writer has not examined ZACHER's material of *ludeni*, which might have a posterior angulation not seen if the knob is slightly tilted in slide preparation. In that case *T. ludenensis* should be considered synonym of *T. ludeni* Zacher.

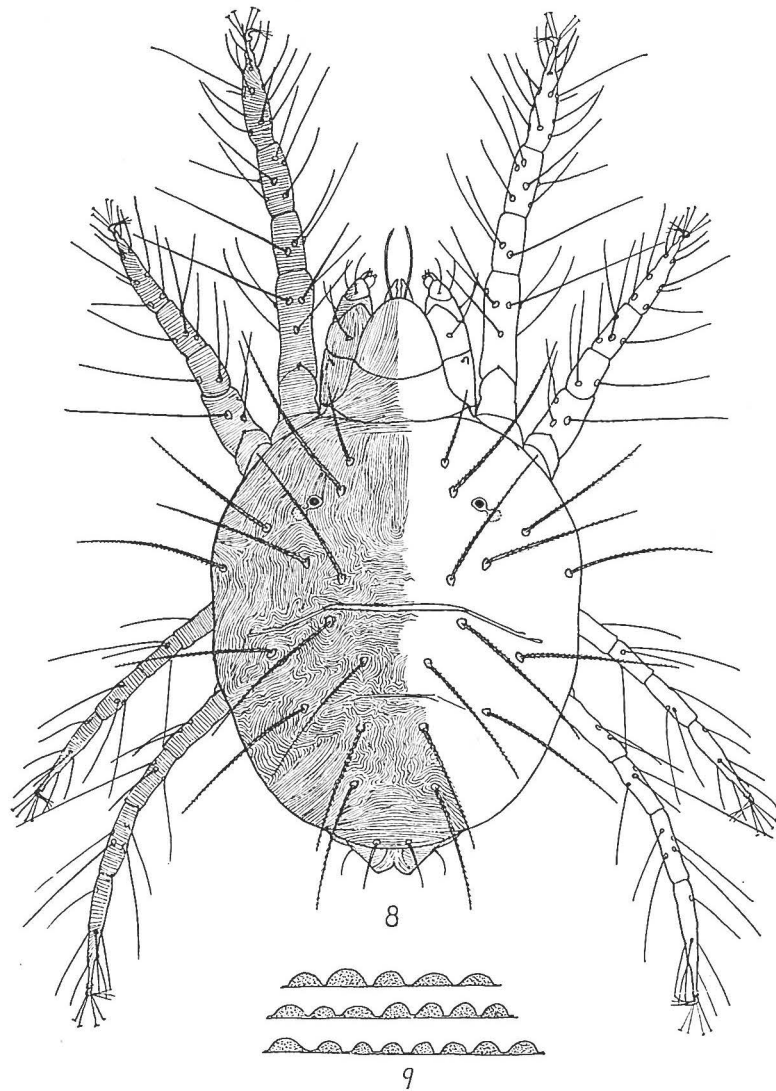


FIG. 8-9 : *Tetranychus neocaledonicus*, female.
8. — Dorsal view. 9. — Dorsal lobes.

Tetranychus neocaledonicus André.

(Figs. 8, 9).

This mite falls in the *telarius* group. All the body of the females including the area anterior to the eyes are red in colour ; males are also red. Lobes of the dorsal integumentary folds are hump shaped (Fig. 9). The male is characterised by the berry shape of the aedeagal knob. The anterior angulation of the knob is broadly rounded and the posterior angulation is absent (Fig. 19).

This mite was found infesting leaves and fruits of mandarine and orange trees at Abou Hommos (Beheira Gover.) causing yellowish blotches on fruits.

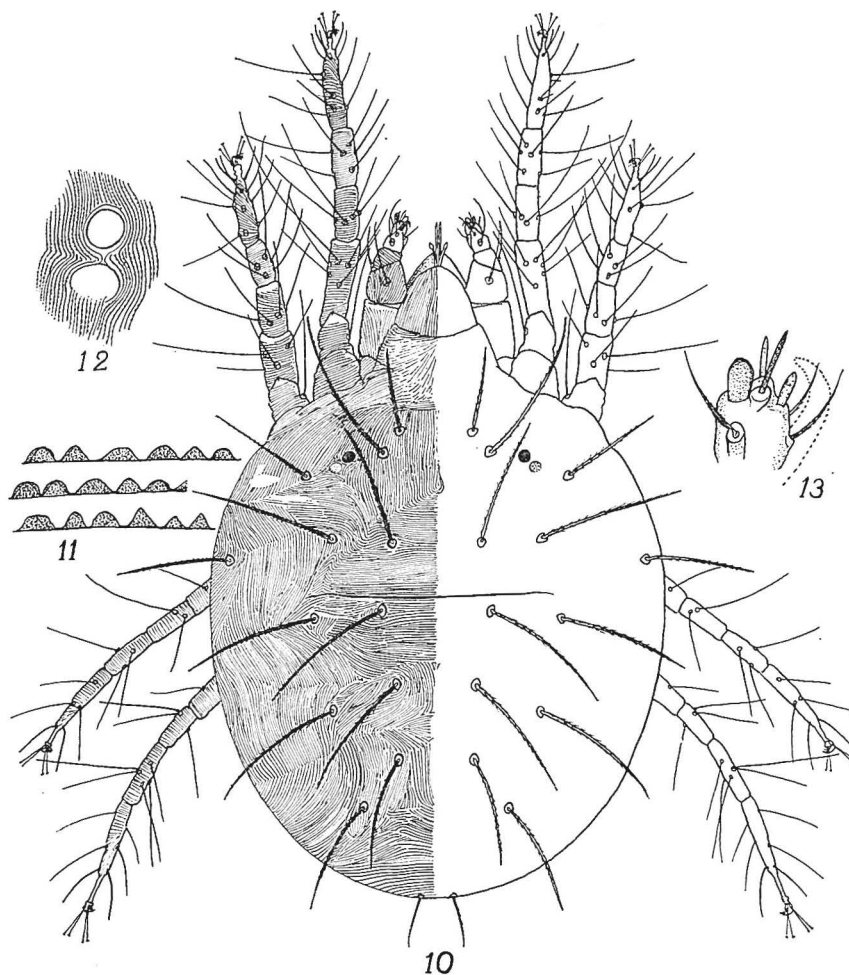


FIG. 10-13 : *Tetranychus arabicus*, female.

10. — Dorsal view. 11. — Dorsal lobes. 12. — Eyes. 13. — Palpal thumb.

Tetranychus arabicus Attiah

(Figs. 10-15).

This is the common green mite in Egypt. Female with mixed lobes on the dorsal striae (Fig. 11), though the oblong ones are more usual. Male with aedeagal knob around one fourth the length of external shaft. Anterior projection of knob is narrowly rounded and posterior angulation is small and acute, upper surface of knob obtusely angulate (Figs. 17, 18).

Tetranychus cucurbitacearum (Sayed)

This is the common red spider mite in Egypt. Female with dorsal integumentary striae carrying a mix of triangular and oblong lobes, the majority are of the former type. Male with aedeagal knob around one fifth the length of external shaft. Aedeagi are variable (Figs. 20, 21, 22), some are typical to *T. urticae* i.e. the axis of knob is parallel to the axis of shaft and the anterior and posterior pro-

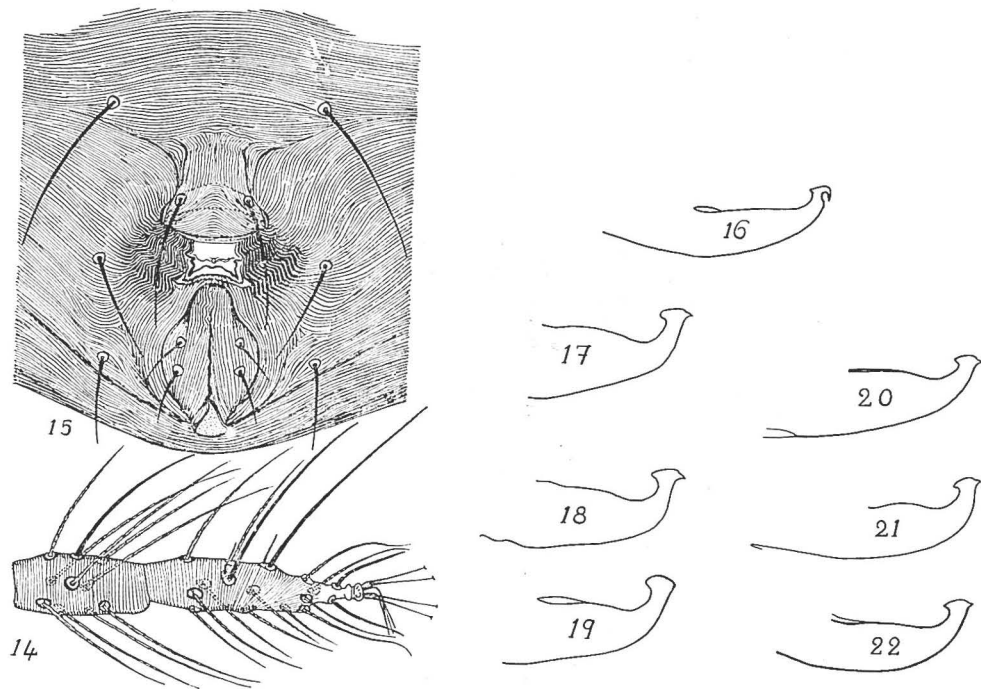


FIG. 14-15 : *Tetranychus arabicus*, female.

14. — Tarsus and tibia I. 15. — Opisthosoma, ventral view.

FIG. 16-22 : Aedeagi of *Tetranychus* spp. of U.A.R. (drawn in the same scale).

16. — *T. ludenensis*. 17, 18. — *T. arabicus*. 19. — *T. neocaledonicus*.

20, 22. — *T. cucurbitacearum*.

jections of the knob are both acute ; in others, the axis of knob forms a slight angle with the shaft and the anterior angulation is rounded and thus resemble aedeagi of *T. cinnabarinus*. Still in others (but rarely) the axis of the knob is parallel to that of the shaft and the anterior projection is very slightly rounded.

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