

1927
IV

EXTRAIT DU BULLETIN
DE LA
SOCIÉTÉ ROYALE ENTOMOLOGIQUE
D'ÉGYPTE
FONDÉE LE 1^{er} AOUT 1907

Année 1926

**Miscellaneous notes on Egyptian Coccidae
with descriptions of three new species.**

by W. J. HALL, A.R.C.Sc., F.E.S.,
Senior Entomologist, Ministry of Agriculture, Cairo.



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**Miscellaneous notes on Egyptian Coccidae
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Owing to my approaching departure from Egypt I have written the present paper to deal with the new species collected since the last bulletin on the subject was sent to the press. With the miscellaneous notes that are added all the work on this family up to the date of leaving the country will then have been published. The total number of species that have been recorded is 127.

I should like to take this opportunity of pointing out that the Coccid fauna of Egypt is by no means worked out and there still remains a wide field for future workers. I trust that someone will be sufficiently interested to take up the work and carry it on. I would particularly recommend a study of the desert fauna which I am quite certain would produce very many more species than have already been found.

The economic importance of the COCCIDAE cannot be overestimated; it is probably the most important family from the point of view of the economic entomologist. One particularly important aspect of the work is the detection and recognition of non Egyptian species on plants and plant produce imported into the country. Timely intervention in such cases may save the country an incalculable amount. The

study of the COCCIDAE is a systematic one of great importance to the economic welfare of the country and should on no account be neglected.

126. PHENACOCCLUS GYPSOPHILAE SP. NOV.

Adult female oval in shape with 9 segmented antennae, the 9th segment being the longest with the 2nd and 3rd subequal and only a little shorter, the 1st and 8th are again subequal and slightly shorter whilst the 4th, 5th, 6th and 7th are subequal and the shortest. Of these the 4th is sometimes slightly shorter and the 5th slightly longer than the others.

Limbs well developed, femora and tibiae of hind pair subequal with the tarsi $\frac{3}{5}$ the length of the tibiae. Translucent pores wanting. Claw with a minute denticle on its inner surface. Tarsal digitules very fine short and simple; unguis digitules stouter, minutely knobbed and extending just beyond the apex of the claw.

Rostral loop not quite extending to the line of insertion of the median pair of limbs. Anterior and posterior osteoles present the former being rather obscure. Eyes prominent.

Cells of the anal ring not contiguous, the same is also true of the minute setiferous pores of the outer ring. Anal setae rather more than $\frac{1}{2}$ the length of the caudal setae. The caudal setae are associated each with a seta about $\frac{2}{5}$ their length.

Cerarii poorly developed. The anal pair consists of two slender spines with three or four obscurely trilocular pores near the base — not sufficient to

make an apparent group. The cerarii of the penultimate segment consist of two smaller spines associated with usually two trilocular pores. On the remaining abdominal segments the cerarii are represented by one or two even smaller spines usually with not more than one trilocular pore at the base. These cerarii are extremely difficult to make out as spines of a similar nature are found scattered over the dorsal dermis.

Ventral dermis with a few scattered setae of varying lengths, large ring shaped pores more or less confined to the posterior abdominal segments and a few scattered minute obscurely trilocular pores. Dorsal dermis with scattered minute spines, obscurely trilocular pores and a few large ring shaped pores again on the posterior abdominal segments.

Length of adult female 1.75 - 2.25 mm. Breadth 1.2 - 1.5 mm.

HOST PLANT.

Caryophyllaceae

Gypsophila rokejeka.

PART OF PLANT ATTACKED.

The roots.

REMARKS.

Collected in the desert near Khanka on the 24th February 1926 by Mohd. Taha. Unfortunately the record of the characters of the living insect has been mislaid. This species can be readily separated from the other representatives of the genus PHENACOCCLUS known in Egypt.

I am indebted to Mr. N. D. Simpson, Botanist

to the Irrigation Department of the Ministry of Public Works for identifying the host plant.

127. PHENACOCCLUS HIRSUTUS GREEN

VAR. **GRESSAE** VAR. NOV.

* BIBLIOGRAPHY :

Phen. hirsutus GREEN, Mem. Dept. Agric. India, II, 2, p. 25, (1908).

Adult female in the living state indistinguishable from *Phen. hirsutus* GREEN.

This variety may be distinguished from typical *hirsutus* under the microscope by

1. The antennae may be either 8 or 9 segmented. In most examples the antennae are 8 segmented but in many cases the terminal segment shows partial division. In a few examples the division was complete giving a 9 segmented antenna indistinguishable from that of *hirsutus*.

2. The coxae of the hind pair of limbs carry many minute translucent pores. There are no translucent pores at the distal extremity of the tibiae as in *hirsutus*.

3. The tarsal digitules are of unequal length; one being markedly longer and stouter than the other.

4. There is a distinct though small group of minute obscurely trilocular pores at the base of the

(*) Only the reference to the original description is given. It is unnecessary to quote here the numerous references to this species in the Egyptian literature.

spines of the anal cerarii and the tissues immediately surrounding the base of the spines show faint signs of chitinization.

5. The body setae appear to be smaller and less numerous than in *hirsutus*.

In other respects the var. *cressae* agrees with *Phen. hirsutus* GREEN.

HOST PLANT.

Convolvulaceae

Cressa cretica.

PART OF PLANT ATTACKED.

Just above ground.

REMARKS.

Collected in the desert near Khanka by Mohd. Taha on the 22nd April 1926. A rather obscure species distinct from, but apparently closely allied to, *Phen. hirsutus* GREEN.

128. TRIONYMUS EUPHORBIAE SP. NOV.

Adult female oval or elongate oval a dull grey green in colour with brown legs and antennae; some specimens are a darkish grey with only the slightest touch of green. Secretionary covering sparse, segmentation distinct. Four short caudal filaments present — two on either side of the anal orifice.

Before beginning to lay eggs the female encloses herself in a white sack of matted fibres. The eggs are laid within this sack in a loose mesh of fibres the female gradually decreasing in size as the eggs are laid.

Eggs brownish.

Larvae pale green with a tinge of yellow or brown.

The ovisac is elongate oval in shape with a small orifice at the anterior end and is situated between the short fleshy leaves and the stem. The plant had a type of growth superficially resembling *ARAUCARIA* and the general appearance of the scale on the plant is reminiscent of *Eriococcus araucariae* MASK.

Length of adult female 2.25 - 2.75 mm. Breadth 1.25 - 1.6 mm.

Antennae of adult female 8 segmented the terminal segment being the longest with the 1st and 2nd subequal and next longest, the 3rd is only slightly shorter than the 2nd whilst the 4th, 5th, 6th and 7th are subequal and the shortest. In some examples the 4th and 6th are slightly shorter than the other two. The hairs on the segments rather longer than usual.

Limbs well developed, the tibiae of the hind pair slightly longer than the femora and the tarsi rather less than $\frac{1}{2}$ the length of the tibiae. Translucent pores wanting. Tarsal digitules of unequal length one being longer and stouter than the other; unguinal digitules minutely knobbed and extending to just beyond the apex of the claw. Hairs on the femora rather stouter and on the tibia rather longer than usual.

Rostral loop not quite extending to the median coxae. Anterior and posterior osteoles present.

Anal ring normal. Anal setae the same length as, or rather shorter than, the caudal setae.

Cerarii confined to the four posterior abdomi-

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nal segments. Anal cerarii consisting of two spines and a stout seta surrounded at the base by a small group of minute obscurely trilocular pores. There is a well defined chitinized area surrounding the base of these spines. The spines in the anterior cerarii are successively slightly smaller with a smaller group of minute trilocular pores at their bases and no circumscribed chitinized area.

Both ventral and dorsal dermis with conspicuous tubular pores with ring shaped orifices and minute obscurely trilocular pores; the former are more numerous on the ventral dermis and the latter on the dorsal dermis.

The dermis is moderately hairy.

HOST PLANT.

Euphorbiaceae

Euphorbia sp.

PART OF PLANT ATTACKED.

Aerial between the small leaves and the parent stem.

REMARKS.

Collected at Sollum the north westerly frontier town of Egypt by Kasem Eff. Mohd. on the 24th August 1926.

The characters of this species are such that it can be readily separated from allied Egyptian species. It is curious that it should show tarsal digitules of unequal length as in the case of *Phen. hirsutus* var. *cressae*. I do not remember to have seen this characteristic before.

The habits and characteristics of the living insect

are not typical of the genus *TRIONYMUS* but the microscopic characters clearly place it in this genus.

129. CHRYSOMPHALUS PERSONATUS COMST.

BIBLIOGRAPHY :

Comstock, Second Report p. 66, (1883).

Newstead, Mon. of Brit. Cocc. Vol. 1, p. 83, (1901).

Egyptian examples appear to be quite typical of this characteristic species. The following is an extract from Newstead's description (*l.c.*).

«Puparium of the female obconical or thimble shaped, the height almost equalling the greatest diameter, surface roughly and irregularly laminate but shining usually tilted to one side. Colour black, blackish brown, piceous or sometimes smoky grey; laminae grey or white; denuded examples more polished than those with the laminae perfect. Exuviae, at the highest part of the puparium, dull red, secretory coverings black, the extent of each indicated by white concentric rings, and there is usually a central boss or nipple.

Ventral scale about half the greatest diameter of the whole ventral surface; unicolorous pale brown. The remainder of the ventral scale consists of a broad, thick flange, which is undoubtedly a continuation of the upper part of the puparium. A very thin secretion generally remains attached to the plant which is ochreous, with two small dark concentric rings followed by others of pale blue and dark brown. Tissues of the leaf immediately surrounding these dull orange

The colour of Egyptian examples is uniformly black.

Diameter of scale of adult female 0.75 - 1 mm.

HOST PLANT.

Palmae

Latania sp.

PART OF PLANT ATTACKED.

The fronds.

REMARKS.

Collected at Alexandria in August 1926.

MISCELLANEOUS NOTES ON PREVIOUSLY
RECORDED SPECIES.

41. **AULACASPIS CINNAMOMI VAR. MANGIFERAE**
NEWST.

BIBLIOGRAPHY :

Newstead, Bull. Ent. Res. Vol. II, p. 86, (1911).

Hall, Min. of Agric. Bull. No. 22, p. 34, (1922).

Hall, Min. of Agric. Bull. No. 36, p. 47 (1923).

This species presents an interesting case: It has been recorded by Willcocks (Sult. Agric. Soc. Bull. No. 1, p. 209, 1922) that it was introduced into Egypt on seedling mangoes imported from India. The original material from which the species was described was collected at Giza on the 31st August 1910 on small mango trees imported from Ceylon.

The only material of this species in the collections of the Ministry was a very few specimens labelled « Mango, Ismail Bey Shaker's garden at Helwan August 1918 ».

In the 7 years that I have been collecting COCCIDAE in Egypt I must have examined hundreds of mango trees in various parts of the country without ever coming across this species. About the middle of August 1926 some very heavily infected material was sent in from Matai (Minia Province) from a garden belonging to Ismail Bey Shaker the same owner in whose garden it had been found at Helwan 8 years previously. In the Matai garden 70 large mango trees out of 170 were heavily infected.

The mango is a valuable tree probably worth anything from £ 50 to £ 100 so the problem is a serious one. There are a large number of mango trees in Egypt producing a valuable crop and if this pest becomes generally established it may cause considerable loss to cultivators. The obvious remedy is to eradicate the infected trees without delay but whether this can be done in view of the value of the trees remains to be seen. The pest might possibly be kept down by fumigation or spraying but it is unlikely that it would be exterminated and in a case like this, where the future of the mango crop is at stake, drastic measures are called for. Before any such measures are adopted first a systematic examination of the mango gardens should be undertaken at once to ascertain whether the infection is confined to this garden and the one at Matai. Secondly so far as possible all the mango trees emanating from both gardens for as many years back as possible should be traced. Thirdly investigation is required to ascertain if the mango is the sole host plant.

A reinspection of Ismail Bey Shaker's garden at

Helwan resulted in 3 seedling mangoes being found infected. At present there are only a few seedling trees in this garden. The Matai garden was, I understand, stocked from Helwan.

70. CERONEMA AFRICANA MACFIE.

BIBLIOGRAPHY :

- Macfie, Bull. Ent. Res. Vol. IV, p. 31, (1913).
Hall, Min. Agric. Bull. No. 36, p. 13, (1923) under *C. acaciae*.
Hall, Min. Agric. Bull. No. 64, p. 21, (1925).

This species has only been collected twice in Egypt and in both cases the material was very poor and heavily parasitized. On the 24th August 1926 some excellent material was obtained from Kom Ombo, Upper Egypt, where it was said to be causing damage to the Sunt trees (*Acacia arabica* var. *nilotica*).

85. PINNASPIS ZILLAE HALL.

BIBLIOGRAPHY :

- Hall, Min. of Agric. Bull. No. 36, p. 27, (1923).
Hall, Min. of Agric. Bull. No. 64, p. 22, (1925).
Hall, Min. of Agric. Bull. No. 72, p. 32, (1926).

An additional host plant for this species is *Citrullus colycynthis* (CUCURBITACEAE) on which it was collected in Wadi Digla by Hassan Bey Efflatoun on the 11th July 1926.

108. PHENACOCCLUS ZILLAE HALL.

BIBLIOGRAPHY :

- Hall, Min. of Agric. Bull. No. 72, p. 5, (1926).

This species was collected on an unknown desert plant at Sollum the north western frontier town of Egypt on the 24th August 1926 by Kasem Eff. Mohd. The original material was collected at Fayed near Suez on *Zilla spinosa* so it must be a widely distributed desert species.

109. PSEUDOCOCCUS ALHAGII HALL.

BIBLIOGRAPHY :

Hall, Min. of Agric. Bull. No. 72, p. 7, (1926).

An additional host plant for this species is the Composite *Artemisia judaica* (roots) collected in Wadi Araba on the 3rd March 1926. The original material was collected in the vicinity of Cairo some 100 miles away.

121. COCCOMYTILUS FARSETIAE HALL.

BIBLIOGRAPHY :

Hall, Min. of Agric. Bull. No. 72, p. 23. (1926).

This species was collected on *Pithyranthus tortuosus* (UMBELLIFERAE) between the 6th and 7th Towers on the Suez Road on the 6th July 1926. The original material was taken on *Farsetia aegyptiaca* in the desert near Masara so it is probable that it is a widely distributed desert species.

122. COCCOMYTILUS RETAMAE HALL.

BIBLIOGRAPHY :

Hall, Min. of Agric. Bull. No. 72, p. 24. (1926).

A new locality for this species is between the 6th and 7th Towers on the Suez Road where it was found

on *Retama raetam* on the 6th July 1926. This species is already known to be widely distributed in the desert and to occur in Palestine.

125. TARGIONIA HALOXYLONI HALL.

BIBLIOGRAPHY :

Hall, Min. of Agric. Bull. No. 72, p. 27, (1926).

The original material of this species was collected in the wadis east of Beni Suef. It has since been taken on the same host plant — *Haloxyton schweinfurthii* — on the 7th July 1926 between the 6th and 7th Towers on the Suez Road which must be about 150 miles from the localities where it was originally found.

Note on the « MANNA » of the Old Testament.

The question of "Manna" has interested me very much since I have been in Egypt. Recently I received some specimens of *Trabutina elastica* MARCHAL on *Tamarix* sp. from Mr. Balachowsky collected in Algeria. I was struck with the similarity between this insect and *Coccus manniparus* EHR (the "Manna insect") as figured by Ehrenberg (Sym. Phys. 1829). I have not yet had the opportunity of comparing *T. elastica* with Ehrenberg's original description of *C. manniparus* but it seems likely that the latter is really a TRABUTINA and might conceivably prove to be the same as *T. elastica*. Unfortunately I understand that Ehrenberg's type consists only of twigs of TAMARIX — all the insect specimens have

disappeared — so the matter must be largely one of surmise.

Mr. Alfred Kaiser who has spent many years in Sinai and has made a special study of "manna" informs me that he has never observed any insect associated with it or that he has suspected of being in any way connected with its production. He also tells me that "manna" is not confined to TAMARIX but is found on HALOXYLON and other plants bearing no botanical relationship to TAMARIX.

This makes one suspect that "manna" or manna production is not the work of a Coccid at all. It seems quite conceivable that *Coccus manniparus* EHR. may have been collected on a tree on which "manna" was present without there being any connection between the two.

Mr. Kaiser has recently left for Sinai and he has promised to send me some "manna" for examination and to make a special search for any insect associated with it. I hope that this will furnish some further information on the subject.

I should like to take this opportunity of acknowledging the encouragement and invaluable assistance I have received from Mr. E. E. Green throughout my work on the COCCIDAE of Egypt.

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PLATES

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EXPLANATION OF PLATE I.

Phenacoccus gypsophilae SP. NOV.

Fig. 1. Adult female ×30.

- » 2. Antenna of adult female ×250.
 - » 3. Hind limb of adult female ×250.
 - » 4. Posterior extremity of abdomen of adult female ×250.
-

PLATE 1.

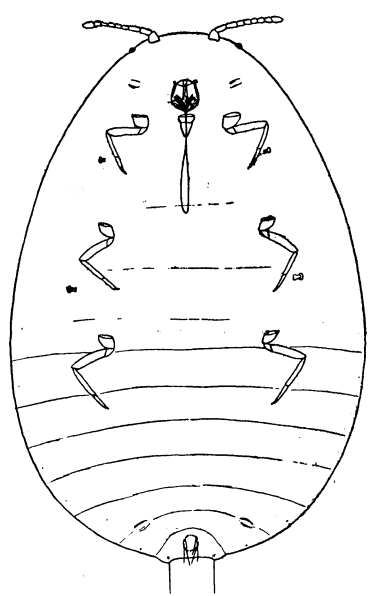


FIG. 1.



FIG. 2.

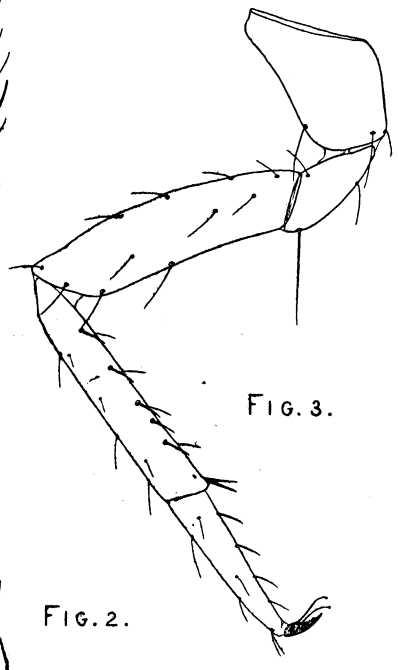


FIG. 3.

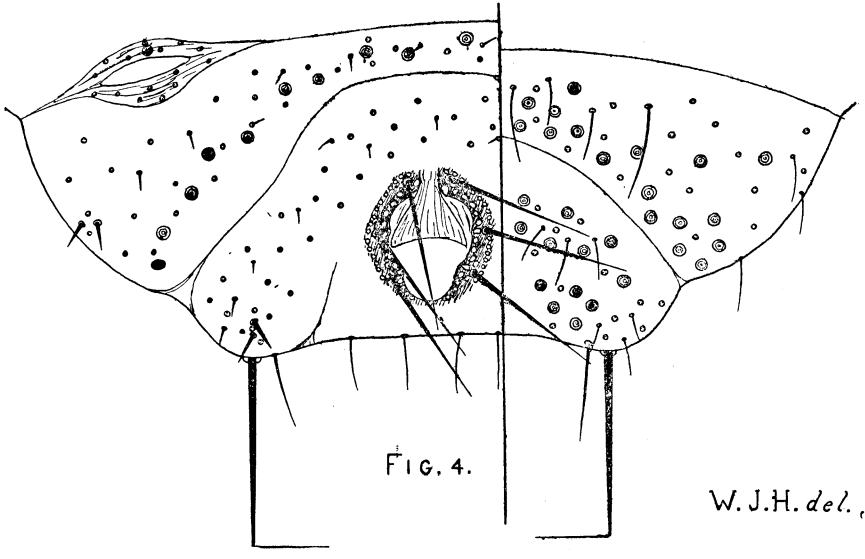


FIG. 4.

W. J. H. del.

EXPLANATION OF PLATE II.*Phenacoccus hirsutus* VAR. *cressae* VAR. NOV.

Fig. 1. Adult female $\times 28$.

» 2. Hind limb of adult female $\times 200$.

» 3. Antenna of adult female $\times 250$.

» 4. Posterior extremity of abdomen of adult female
 $\times 200$.

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PLATE 2.

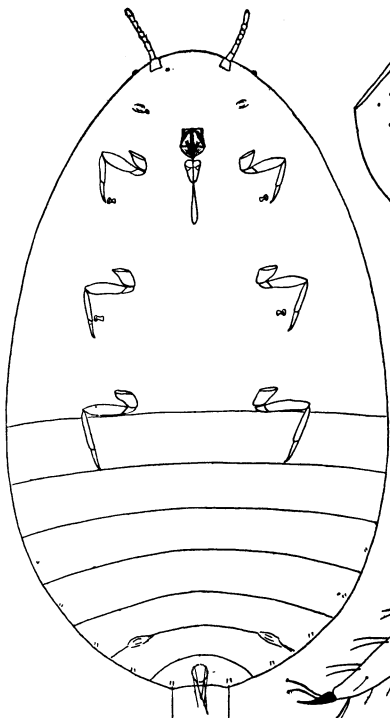


FIG. 1.



FIG. 2.



FIG. 3.

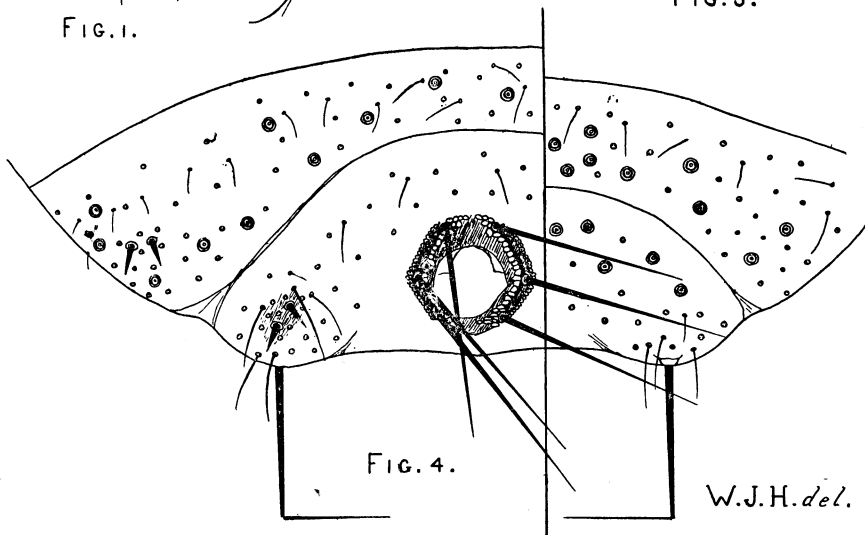
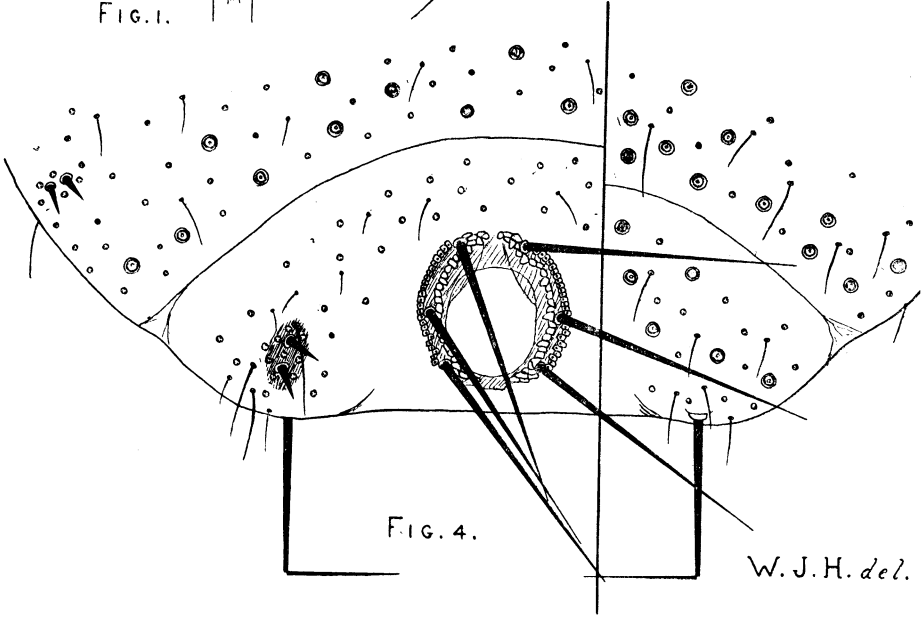
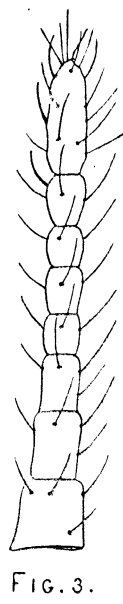
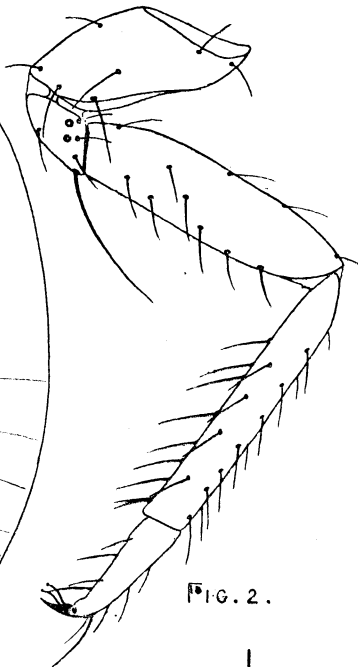
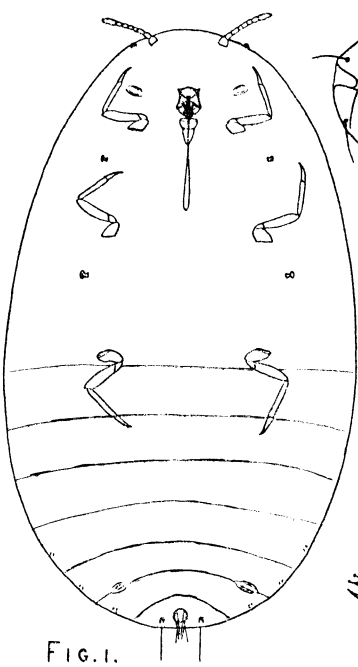


FIG. 4.

W.J.H. del.

EXPLANATION OF PLATE III.*Trionymus euphorbiae* SP. NOV.

- Fig. 1. Adult female $\times 25$.
- » 2. Hind limb of adult female $\times 175$.
 - » 3. Antenna of adult female $\times 250$.
 - » 4. Posterior extremity of abdomen of adult female $\times 300$.
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W. J. H. del.