

I have not taken a note of them or cannot find a note at the moment. The species were *Xenopsylla cheopis* and an American '*Ceratophyllus*' of some kind". I was very pleased when the specimen of *X. cheopis*, as referred to above, was found some weeks ago. (The collecting-data of the specimen are : Satara, Bombay Presidency ; January 1920 ; host unknown ; leg. Major F. W. C r a g g). It is a great merit of the mounted specimen that it shows the ducts, albeit that high power had to be used to trace them. As the drawing shows, everything is double ; so there are also two bursae copulatrices. It is very remarkable that the second spermatheca is nearly as well developed as the normal one ; it also has the same shape, but is a little smaller and its blind duct (ductus obturatorius) and ductus seminalis are somewhat shorter. The normal spermatheca lies upside down ; this is probably due to the accidents of preparation, though the present arrangement of the two spermathecae is quite symmetrical. It proved to be impossible to trace the connection of the second bursa copulatrix with the vagina. There is only one vagina, so I suppose the orifice of the second ductus bursae must be between that of the first ductus bursae and the vaginal gland.

This is not a case of atavism at all ; it is merely a duplication of an organ, such as occurs now and then in many insects. So we are still uncertain as to the origin of the blind duct, for I call in question Holland's supposition of the blind duct being a remnant of the ductus seminalis of the ancestral second spermatheca (Canad. Ent. 75 (9): 175—176). It is another question in what manner duplication of an organ originates. Is it due to splitting of the primitive germ cell or was that cell double, just like the two ways in which human twins come into existence ? I wonder.

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Notes on the occurrence of *Trioza nigricornis* Frst. (Hem. Hom. Psyllidae) in the Netherlands

by
W. H. GRAVESTEIN.

A note on the occurrence of *Trioza nigricornis* Frst. in the Netherlands was first published by Blöte (1927). The Psyllid was swept, most probably from *Rumex acetosella* L. in the Meyendel-area (near The Hague). The species remained unobserved until it was found at Wageningen in 1947 on its foodplant *Brassica Rapa* L. forma *rapifera* Metzg.

During the autumn of 1947 the Phytopathological Service at Wageningen received several rape-leaf-samples with homopterous larvae. These larvae could not at first be identified until they were found in great numbers on *Brassica Rapa* f. *rapifera* on the trial-plot of the Ph. Service. The entomologists G. van Rossem and C. F. van de Bund reared the larvae successfully. The adults were identified by the author and proved to be *Trioza nigricornis* Frst. The above mentioned workers of the Ph-Service paid further attention to the life-cycle of the species. During the period between 14-10-1947 and 2-12-1947 adults and larvae were found together on the hostplants. Further it

became evident that there are at least 3 generations a year of this Psyllid. This is not the case with many other Psyllidae. Hibernation takes place in the adult stage on hardy herbaceous plants.

Heinze and Profft (1939) who studied the biology of *Trioza nigricornis* on potato found the first eggs, laid by hibernated adults, on Senecio towards the end of April. After the first week in June they found a daily increasing number of newly laid eggs on potato-leaves. Heinze and Profft concluded that these eggs must have been laid by adults which had developed during the early spring on other hostplants. The first period of oviposition on potato-leaves lasts till the end of June. Larvae originating from the first laid eggs change into the adult stage in the beginning of July. A second period of oviposition starts towards the second half of July and reaches its peak during the month of August. During this period eggs are not only deposited on potato-leaves but also on Brassica-species and other hostplants. There is no change of hostplants by the larvae as their means of locomotion are small. Eggs and larvae may still be found on different herbaceous hostplants during the months of September and October. So far the information of Heinze and Profft. Hibernating adults were found on Brassica R. f. rapifera at Wageningen on the 2nd of December 1947.

It seems profitable to give a further short summary of the results of other investigations of the biology of *Tr. nigricornis*. One of the first investigators of the life-cycle of this insect was Lundblad (1929). This author describes the oviposition and the larvae stages. Brassica is the only hostplant mentioned by Lundblad.

Schewket Bey published more information on the biology of *Tr. nigricornis*. The total period of development took 36 days in a glasshouse with an average temperature of $18\frac{1}{2}^{\circ}\text{C}$. Schewket Bey calls *Tr. nigricornis* a polyvoltine species, which means, that the species produces as many generations as the weather conditions allow. Reproduction comes to an end as soon as low temperatures occur which do not allow the further progress of life-functions. Between Aug. 1929 and Jan. 1930 Schewket Bey was able to rear 3 generations in a heated glasshouse. The strong polyphagous character of the species supports its polyvoltinism.

In 1935 Haupt published his monograph on the Psylloidea, but he had had no access to the paper by Schewket Bey, l.c., as he stated that the hostplant of *Trioza nigricornis* was as yet unknown.

Damage to the hostplant. Heinze and Profft, l.c., recorded small light spots on potato-leaves, also the underside of the leaves showed slightly red spots as a result of the feeding of the larvae. When a great number of larvae were present the authors noted a slight leaf-curling. The authors have not been able to show that *Tr. nigricornis* transmits potato-viruses. Schewket Bey recorded a strong leaf-curling effect from the feeding of older larvae and adults of *Trioza viridula* Zett. on *Daucus carota* L. He also showed a serious decrease in weight of the roots (carrots). This amounted to 34.9 % of the 100-root-weight. He observed *Tr. nigricornis* on carrots, but he found no leaf-curling or other damage as a result of the feeding of this species.

Hostplants of *Trioza nigricornis*. According to authors the following plants are on record as the hostplants of *Tr. nigricornis*: Beta, Papaver?, Erysimum, Viola tricolor, Erodium, Petroselinum, Convolvulus, Myosotis, Solanum nigrum, Galinsoga, Senecio, Artemisia, Centaurea, Taraxacum. The main hostplants are Solanum tuberosum and Brassica species.

Other species. Two other Psyllid-species have been captured by Van Rossem and Van de Bund at Wageningen on Brassica Rapa f. rapifera, viz. *Aphalara calthae* L., which is also found on potato, and *Trioza salicivora* Reut., a species which up till now has not been recorded for the Netherlands fauna. The last mentioned Psyllid was found on Brassica rapifera on the 24th of November 1947, but the insect most probably originated from adjacent willows.

LITERATURE.

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 Amsterdam-Z. 2, Rubensstraat 87, March 1949.

Korte mededelingen

Toegepaste Entomologie. Bij het West African Cocoa Research Institute te Accra (Goudkust) kunnen een aantal toegepaste biologen worden geplaatst. Belangstellenden kunnen zich met de Secretaris in verbinding stellen.

G. L. VAN EYNDHOVEN, Eindhovenstr. 36, Haarlem.

Rhamphus oxyacanthae Marsh. V. HANSEN onderzocht van *Rh. pulicarius* Hbst. en *oxyacanthae* Marsh. het genitaalapparaat der ♂♂, waarbij o.m. bleek dat van terzijde gezien de aedeagus bij *oxyacanthae* veel sterker gebogen is dan bij *pulicarius* (1944, Ent. Meddelelser 24: 96). Verder ontdekte hij het volgende uitstekende kenmerk: bij *pulicaria* is de zijrand der dekschilden in het midden veel meer afgeplat dan bij *oxyacanthae*, zodat de dekschilden bij *pulicaria* duidelijk buikiger zijn. Met behulp van dit kenmerk is nu onderscheiding der beide soorten ook zonder genitaliën-onderzoek zeer goed mogelijk. De afmetingen der beide soorten bieden geen houvast, evenmin als de bestippeling en de microsculptuur. *Rh. oxyacanthae* bleek in aantal voor te komen bij Nisse (Z. Beveland) op meidoorn (24-7-49), *Rh. pulicarius* komt hier voornamelijk voor op wilg, speciaal op *Salix repens* L. in de duinen.

P. J. BRAKMAN, Nieuw en St. Joosland.