

have been noticed in the neighbouring communes of Jokoinen (J), Tammela (T), Somerniemi (S) and Ypäjä (Y), but not in Somero.

<i>Orgyia gonostigma</i>	T, Y	<i>Chloridea dipsacea</i>	Y
<i>Palimpestes ocularis</i>	T	<i>Eupithecia inturbata</i>	J
<i>Diphthera alpium</i>	T, S	<i>E. hyberboreata</i>	T
<i>Agrotis segetum</i>	T	<i>E. innotata</i>	S
<i>Rhyacia xanthographa</i>	T	<i>Lomaspilis opis nigrita</i>	S
<i>Calophasia lunula</i>	T	<i>Boarmia roboraria</i>	J
<i>Gripesia aprilina</i>	J	<i>Celama confusalis</i>	J
<i>Conistra rubiginea</i>	T	<i>Synanthedon spheciformis</i>	Y
<i>Parastichtis unanimis</i>	T	<i>S. culiciformis</i>	Y
<i>P. pabulatricula</i>	T		

Literature: ANTHONI, H. 1953. SW-Tavastlands macrolepidopterafauna. M.S. Helsinki. — 1956. Suurperhoshavaintoja Lounais-Hämeessä vuonna 1951. Lounais-Hämeen Luonto 2, p. 31–34. — BRANDER, T. 1954. Strödda iakttagelser i Urdiala (Ta) om den abnormala väderlekens inverkan på djurvärlden under början av 1950-talet. Mem. Soc. F. Fl. Fenn. 30, p. 53–55. — 1955. Lounais-Hämeen eläinmaailmaa koskevasta tutkimustyöstä ennen v. 1951. Lounais-Hämeen Luonto 1, p. 37–44. — 1959 a. Lounais-Hämeen suurperhoset (Macrolepidoptera) Ibid. 5, p. 5–19. — 1959 b. Luettelo lepidopterologisista lisähavainnoista Lounais-Hämeessä 1959. Ibid. 6, p. 47–52. — 1961 a. Luettelo lepidopterologisista lisähavainnoista Lounais-Hämeessä 1960. Ibid. 10, p. 43–48. — 1961 b. Eläintieteellisestä tutkimustyöstä Lounais-Hämeessä IV. Selkärangattomat eläimet, Evertebrata, 1951–1961. Ibid. 10, p. 49–57. — BRANDER, T., JOKI, J., KANTEE J., & KUUSINEN J. 1961. Lounais-Hämeen suurperhoset, Macrolepidoptera. Ibid. 11, p. 86–98. — BRYK, F., 1935. Parnassiidae pars II (Subfam. Parnassiinae). Das Tierreich. 65. Lieferung. — HIPPA, H. 1959. Perhoshavaintoja Somerolla 1959. Hyönteishavainnoja Lounais-Hämeessä 3. Ibid. 6, p. 40. — KAISILA, J. 1959. Vanhimmat tiedot Suomen perhoslajistosta. Ann. Ent. Fenn. 25, p. 80–102. — KROGERUS, H. 1955. Några synpunkter på förändringarna i Finlands fjärlifauna under de senaste decennierna. Norsk Ent. Tidsskr. IX, p. 139–140. — KUUSINEN, J. 1958 a. Hyönteishavainnoja vuosina 1957–58. Hyönteishavainnoja Lounais-Hämeessä 2. Lounais-Hämeen Luonto 4, p. 27–28. — 1958 b. Pääkallokiittäjä Somerolla. Pääkallokiittäjä (*Acherontia atropos* L.) Lounais-Hämeessä. 3. Ibid. 4, p. 29. — 1959 a. Kirjopapurikon, *Pararge aehine* Sc., levinneisyydestä Lounais-Hämeessä. Ibid. 6, p. 35–38. — 1959 b. Myöhästyneitä perhosia 1959. — Hyönteishavainnoja 1959. Hyönteishavainnoja Lounais-Hämeessä 8, 9. Ibid. 6, p. 43–45. — 1960 a. Rämperhosten *Hesperia centaureae* RBR., *Orgyia ericae* Germ., ja *Aspiates gilvaria* Schiff. levinneisyydestä Lounais-Hämeessä. Ibid. 9, p. 29–31. — 1960 b. Kokemuksia halvasta perhossyötistä. — Poikkeavia lentoaikoja 1960 – Suurperhoshavainnoja Lounais-Hämeessä 1960. Perhostutkimuksia Lounais-Hämeessä 1960. 4, 5, 6. Ibid. 9, p. 33–36. — 1961 a. Uusia suupehoisia Lounais-Hämeessä 1961. Ibid. 11, p. 85. — 1961 b. Havainnoja Pääkallokiittäjästä, *Acherontia atropos* L. Ibid. 11, p. 195–196. — NORDMAN, A. 1952. Insekternas uppträdande under den i klimatologiskt hänseende sammaren 1951. Not. Ent. XXXII, p. 158–164. — 1956. Sommaren 1955 ur entomologisk synpunkt med särskilt beaktande av fjärlarnas frekvensfluktuationer. Not. Ent. XXXVI, p. 22–32. — NORDSTRÖM, F. 1955. De fennoskandiska dagfjärilarnas utbredning. Lunds Universitets Årsskrift N.F., Avd. 2, Bd 51, Nr 1. — NYHOLM, E. 1958. Hyönteishavainnoja 1958. Hyönteishavainnoja Lounais-Hämeessä. 3. Lounais-Hämeen Luonto 4, p. 28. — PULKKINEN, A. — PIPPING, E.

1956. Perhoskirja. 2 edition. Porvoo. — UDDMAN, I. 1753. Novae insectorum species. Aboae. — VALTONEN, T. 1956 a: Suomen suurperhosfauna ja suurperhosten frekvensistä Somerolla. Manuscript. Helsinki. — 1956 b: Someron pitäjän suurperhosfaunasta. Lounais-Hämeen Luonto 2, p. 25–30. — 1960. Pikkuapollosta Somerolla ja muualla Hämeessä. Luonnon Tutkija 64. 2, p. 60–61.

The insect fauna of the nests of the sand martin (*Riparia riparia* L.) in Finland.

PEKKA NUORTEVA and UNTO JÄRVINEN

(Zoological Museum of the University, Helsinki)

In his extensive work on the biology and ecology of the animals living in the nests of Finnish birds, NORDBERG (1936) reported from nests of the sand martin (*Riparia riparia* L.) six determined insect species, namely four Staphylinid beetles (*Atheta sodalis* ER., *Microglossa pulla* GYLL., *M. nidicola* FAIRM. and *Aleochara sparsa* OLCER.) and two fleas (*Ceratophyllus styx styx* ROTHs and *C. riparius freyi* NORDBG.). In a separate paper, NORDBERG (1935) reported in addition a find of *Frontopsylla lapponica* NORDBG. Later the occurrence on sand martins in Finland of two mallophages (*Cypseloecus excisus* NITZSCH. and *Menopon rusticum* NITZSCH.) (MERISUO 1944) and the specific nidicolous blowfly parasite *Protocalliphora chrysorrhoea* (MEIG.) has been reported (NUORTEVA 1960) but no other contributions are to be found in the literature.

On October 8, 1960, one of us (U. J.) collected the nest material and underlying sand from 18 nests of a colony of sand martins living on a old sand-pit near the town of Oulu (Kempeleen Vihiluoto, 64°56'20" N, 25°27' E, Fig. 1). The material of the individual nests were kept in separate polythene bags at an outdoor temperature until November 6, 1960. The adult insects, dead or alive, were then removed from the samples and the larvae or pupae were placed in glass containers with the nest material as a substrate for further development. The containers were kept at room temperature (19–22°C) and the emerging adults were collected as soon as they appeared. The material obtained by this means was not especially extensive, but beneath each of the species listed below represents an addition to the list of nidicolous insects for the sand martin given by NORDBERG (1936). One species was new to the Finnish fauna. The undescribed larva of *Fannia hirundinis* RINGD. and male of *Frontopsylla lapponica* NORDBG. were also in the material. The occurrence of the different nidicolous insects was as follows:

Nuorteva & Järvinen, 1961

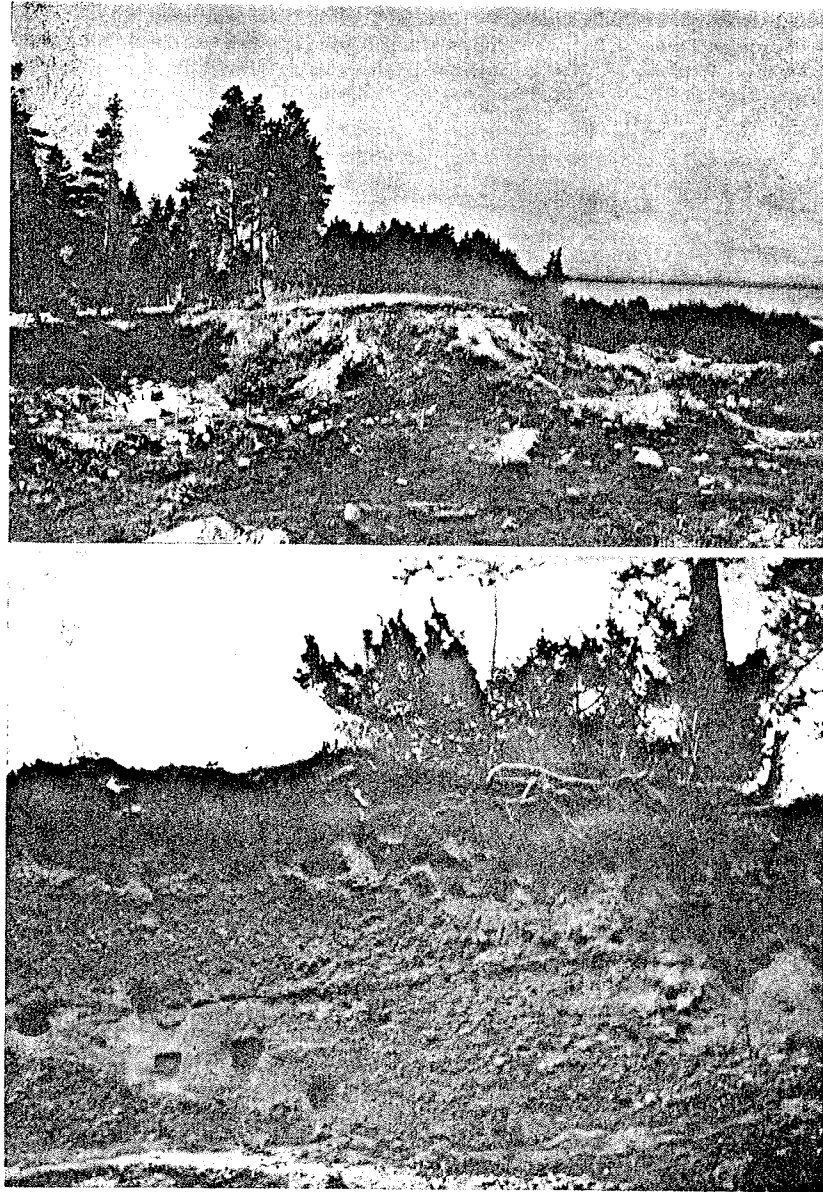


Fig. 1. The locality from which the samples were taken for the present investigation. Above: a general view of the sand-pit inhabited by the sand martin colony. The bay Kempeleenlahti is seen in the background. — Below: openings of some of the nests from which the samples were taken. — Photo: U. JÄRVINEN.

Frontopsylla lapponica NORDBG. (*Aphaniptera*, *Leptopsyllidae*)

Four of the 18 nests investigated were infested with this flea. In three cases it lived as a mixed population with *Ceratophyllus styx styx* and only in one case as the sole flea species. It was most abundant (9 specimens) when it was living without *C. styx styx*. Of the 16 specimens obtained, two were males. The male sex of this species has hitherto eluded the aphanipterologists (see SMIT 1956). A description of the male will be published in «The Entomologist» by Dr. F. G. A. M. SMIT (British Museum, Zoological Museum at Tring, Herts, England) who has also performed the determination. The species has previously been reported from one locality (Tornio) in Finland (NORDBERG 1935).

Ceratophyllus styx styx ROTSC. (*Aphaniptera*, *Ceratophyllidae*)

This species occurred in seven nests and altogether 9 males and 6 females were obtained. It is the common flea of the sand martin throughout most of Europe. In Finland, it has been found in the northernmost and southernmost parts of the country but not from the central areas (NORDBERG 1935). The present record from central Finland seems to show that it probably occurs in all parts of Finland. The determination was performed by Dr. F. G. A. M. SMIT.

Lycoriella cellaris (LDF.) (*Diptera*, *Sciaridae*)

Larvae of this species occurred in the material of two nests, from which the adults emerged in the indoor culture on 15 – 18. I. 1961. From one of these nests 13 males and 16 females emerged and from the other 3 females. The determination was performed by Prof. R. TUOMIKOSKI (Botanical Institute of the University, Helsinki). According to him (personal communication) this species shows a preference for dark localities and often develops in faecal material. FREY (1948) has collected the species (= *Bradysia stramentosum* FREY) from a great heap of decaying straws. TUOMIKOSKI (1960) reports that the species is widely distributed in Finland, although it has only been collected from four localities.

Lycoriella brevipila (TUOMIK.) (*Diptera*, *Sciaridae*)

Nine females of this species emerged in the indoor culture of the material from one nest on 18 – 20. I. 1961. The determination was performed by Prof. R. TUOMIKOSKI, who states (personal communication) that the species inhabits a variety of dirty localities. In Finland it is very common and occurs throughout the country (TUOMIKOSKI 1960).

Scatopse fuscipes MEIG. (Diptera, Scatopsidae)

One adult specimen of this species was found in a nest inhabited by an especially large number of nidicolous insects (*Lycoriella cellaris*, *Fannia hirundinis*, *Protocalliphora chrysorrhoea* and *Monopis rusticella*). The determination was performed by Prof. R. TUOMIKOSKI, who states (personal communication) that the species is common and widely distributed in Finland.

Protocalliphora chrysorrhoea (MEIG.) (Diptera, Calliphoridae)

26 empty puparia identical with the puparia of this species in the collections of the Zoological Museum of the University of Helsinki, were found in eight of the 18 nests investigated (1 + 1 + 1 + 1 + 3 + 5 + 5 + 9). In the larval stage this species is a specific blood-sucking parasite of sand martin nestlings. According to PEUS (1960), there exist only two certain records of this blowfly in Europe and STADLER (1948) as well as GREGOR & POVOLNY (1959) have searched for it unsuccessfully in sand martin nests in France and Czechoslovakia. As reported recently (NUORTEVA 1960), this species has been collected from many localities in Finland, especially during the 19th century and from the northern parts of the country. The present observation indicates that this blowfly inhabits about half the nests of this bird at the latitude of Oulu. Very recently, we have obtained two additional samples from two nests at Ivalo in North Finland collected on 10. VIII. 1961, by Mr. K. AHOLA, Mr. R. VIRTANEN and Mr. E. PÄTIÄLÄ. Both these nests were heavily infested but only empty puparia were present at the time when the samples were taken. (In Dachau, Germany, at the same time of year (9. VIII. 1918) ENGEL (1920) found living larvae and puparia of the blowfly in question in sand martins' nests.) By contrast the 6 South Finnish sand martins' nests investigated by NORDBERG (1936) were not infested with *Protocalliphora chrysorrhoea*. — The total absence of *Protocalliphora* species in the 422 nests of different birds investigated by NORDBERG is also very baffling, because the number of infested nests is considerable in other parts of Europe and adult flies have often been captured in Finland and an infested bird has also been found (FREY 1916).

Fannia hirundinis RINGD. (Diptera, Muscidae)

Four larvae of this rare species were found in two nests (3 + 1 specimens). Two of the larvae were reared at room temperature and they emerged 1. II. 1961 and were of different sexes. The assumption of RINGDAHL (1948) that this species should develop in the nests of the sand martin was thus verified. The larva of this species has hitherto been unknown to science. Its morphology is illustrated in Fig. 2. This species has not previously been reported from Finland. The deter-

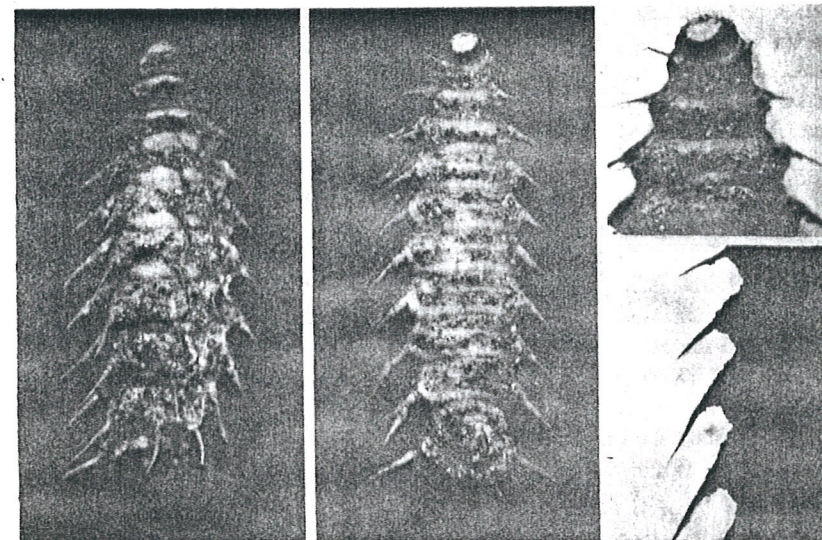


Fig. 2. The larva of *Fannia hirundinis* RINGD. Dorsal view, ventral view, the head seen ventrally and the contours of some spines. The larva was 7 mm in length. The specimen is in the collections of the Zoological Museum of Helsinki University. — Photographed by the Institute of Photography of Helsinki University.

mination was performed by Dr. W. HACKMAN (Zoological Museum of the University, Helsinki).

Meoneura lamellata COLL. (Diptera, Milichiidae)

When nest material was kept in glass containers at room temperature, two specimens of this small fly emerged from two different nests (3. I. and 1. II. 1961). The determination was performed by Dr. W. HACKMAN. According to NORDBERG (1936), this species occurs in the nests of many different bird species and shows no particular preference for any particular nest types. In the Milichiid collections of the Zoological Museum of the University of Helsinki (which have recently been revised by Dr. W. HACKMAN) there are 61 specimens of *Meoneura lamellata* taken from different localities situated south of latitude 66°N. In checking the find records of these specimens it was discovered that the species has been taken from sand martins' nests by R. FREY on 4. VII. 1927 at Tornio, by S. NORDBERG on 24. VII. 1932 at Svartmara in the commune of Finström in the southwestern archipelago of Finland, and by A. NORDMAN at the same place on 5. VII. 1946. According to a personal communication from Mr. A. NORDMAN, M. A., the

species occurred in huge numbers at the openings of the nests. NORDMAN found the species in a mixed population with the other milichiid species *Madiza glabra* FALL. and FREY with the species *Meoneura vagans* FALL. and *M. lacteipennis* FALL. The milichiid fauna of the nests of the sand martin thus contains at least four milichiid species.

Meteorus vexator HAL. (Hymenoptera, Braconidae)

One specimen was reared from a nest in which the only other nidicolous insect was *Protocalliphora chrysorrhoea*. The species of the genus *Meteorus* are generally parasites of sawflies and lepidopterans. The only lepidopterous larva occurring in the nests of the sand martin in this locality was *Monopis rusticella*. The determination was performed by Dr. W. HELLÉN (Zoological Museum of the University of Helsinki). Evidence of the occurrence of this species has only been found previously in the southern part of the country (HELLÉN 1945).

Monopis rusticella HB. (Lepidoptera, Tineidae)

Numerous larvae of this species were observed in two nests, but in the conditions used only two adults emerged (26 and 27. I. 1961). This species occurs throughout Finland and in the northern part of the country it flies in July. The larvae are known to devour hairs and feathers on carcasses, in the nests of birds and in feathers in storage. In Finland it has been observed as a destroyer of stored feathers by NORDMAN (1940). The determination was performed by Dr. H. KROGERUS (Helsinki).

Depressaria applana F. (Lepidoptera, Gelechiidae)

Two, probably hibernating, adult specimens were found in one nest. The species is common and widely distributed in Finland and habitually hibernates as the adult. The determination was performed by Mr. A. NORDMAN, M.A., (Zoological Museum of the Helsinki University).

Acarina

Beside the insect fauna described above, mites also occurred beneath all the nests. Some representative specimens were collected and they were later kindly determined by Dr. W. M. TILL (British Museum, Natural History Dept.). The occurrence of the following three mites was thus established: *Macrocheles decoloratus* (KOCH.), *Eulaelaps novus* VITZTHUM and *Haemogamasus alaskensis* EWING [= *ambulans* (THOR) sensu BREGETOVA]. Of these, *Eulaelaps novus* was also found by NORDBERG (1936) in sand martins' nests.

When ringing the sand martins of the present populations the junior author (U. J.) found two engorged ticks attached to the neck of one bird. During the ringing work more than 600 sand martins were inspected, but only this one was observed to be infested with ticks. One of the ticks was sent to Dr. GORDON B. THOMPSON (Cambridge, England) for determination. In his letter, dated 5th November, 1961, he writes: »The ticks are a species of *Ixodes* which is normally determined as *canisuga* but I have always felt this is not so and my friend Dr. D. R. ARTHUR agrees with me. At present it is not possible to give you a name for it and it is best referred to as *Ixodes* sp.»

Our knowledge of the insect fauna of sand martins' nests in Finland is far from complete. Even at this stage, however, it is apparent that the species composition of the fauna of sand martins' nests in Finland differs greatly from the respective fauna in Central Europe. This is well exemplified by the fact that of the 41 nidicolous insects reported by STADLER (1948) to occur in the nests of sand martins in France, only two belong to the above-described Finnish fauna of 19 species.

S u m m a r y: The occurrence of 11 insect and 3 mite species found in or reared from 18 sand martins' nests in Oulu, Finland, is reported. Eight of the nests were infested with fleas (*Ceratophyllus styx styx* ROTHS. and *Frontopsylla lapponica* NORDB.) and eight with the blood-sucking blowfly parasite *Protocalliphora chrysorrhoea* (MEIG.). With the exception of a hymenopterous insect parasite and an overwintering moth, the other insects were Diptera and Lepidoptera living in the nest material. The undescribed male of *Frontopsylla lapponica* and larva of *Fannia hirundinis* RINGD. were found, the latter being new to the Finnish fauna. The species composition of the insect fauna in the sand martins' nests differs greatly from the respective fauna in Central Europe.

A c k n o w l e d g e m e n t s: The authors wish to express their sincerest thanks to all those mentioned above who assisted in the determination of the material.

References: ENGEL, E. O. 1920. Dipteren, die nicht Pupiparen sind, als Vogelparasiten. Zeitschr. wissensch. Insektenbiol. 15, p. 249–258. — FREY, R. 1916. Årsredogörelse för de zoologiska samlingarnas tillväxt under året 1915–1916. Memor. Soc. Fa. Fl. Fenn. 42, p. 138–141. — 1948. Entwurf einer neuen Klassifikation der Mückenfamilie Sciaridae (Lycoriidae) II. Die Nordeuropäischen Arten. Notulae Ent. 27, p. 3–92. — GREGOR, F. & POVOLNY, D. 1959. Kritischer Beitrag zur Kenntnis der Tribus Phormiini (Diptera, Calliphoridae). Acta Soc. Ent. Cechosloveniae 56, p. 36–53. — HELLÉN, W. 1945. Für die Fauna Finnlands neue Braconiden (Hym.) II. Notulae Ent. 25, p. 130–137. — MERISUO, A. K. 1944. Notulae mallophagologicae I. Ann. Ent. Fenn. 10, p. 198–266. — NORDBERG, S. 1935. Aphanipterologisches aus Finnland I. Verzeichnis der bisher in Finnland gefundenen Aphanipteren nebst Diagnosen über 8 für die Wissenschaft neue Arten. Memor. Soc. Fa. Fl. Fenn. 10, p. 254–369. — 1936. Biologisch-Ökologische Untersuchungen über die Vogelnidicolon. Acta Zool. Fenn.

21, p. 1–168. — NORDMAN, A. 1940. Tapetmalen (*Trichophaga tapetiella* L.) som skadedjur på dun i Al Föglö. *Notulae Ent.* 20, p. 77–79. — NUORTEVA, P. 1969. *Protocalliphora chrysoorrhoea* (Meig.) kärpäset törmäpääskyn loisina [Summary: *Protocalliphora chrysoorrhoea* (Meig.) as a parasite of *Riparia riparia* (L.) in Finland]. *Ornis Fenn.* 37, p. 122–124. — PEUS, F. 1960. Zur Kenntnis der ornithoparasitischen Phormiinen (Diptera, Calliphoridae). *Deutsche Ent. Zeitschr. N.F.* 7, p. 193–235. — RINGDAHL, O. 1948. Dipterologische Notizen 4. Zwei neue Musciden. *Opuscula Ent.* 13, p. 100. — SMIT, F. G. A. M. 1956. Redescription of fleas described by Nordberg in 1935. *Ibid.* 21, p. 132–146. — 1961. A description of the male of *Frontosylla lapponica* (Nordberg) (Siphonaptera: Leptopsyllidae). *Entomologist* (in the press). — STADLER, H. 1948. Les inquilins et parasites des nids de l'hirondelle de rivage *Riparia riparia* (L.) *Alauda* 16, p. 40–54. — TUOMIKOSKI, R. 1960. Zur Kenntnis der Sciariden (Dipt.) Finnlands. *Ann. Zool. Soc. Vanamo* 21: 4, p. 1–164.

On the contribution of *Mesopolobus graminum* (Hårdh) (Hym., Pteromalidae) to the shrivelheads of spring wheat.

MIKKO RAATIKAINEN

Department of Pest Investigation, Agricultural Research Centre, Tikkurila, Finland.

The shrivelheads of spring wheat have attracted the interest of Finnish investigators since about 1950. HÄRDH (1953) suggested as the organisms responsible for the damage to spring wheat the fungus *Cercospora herpotrichoides* FRON and the Hymenopteran *Amblymerus graminum* (HÄRDH 1950), described by him as new to science. A remarkable amount of systematic and ecological investigation has since been done on the latter.

Mesopolobus graminum

At first, VON ROSEN (1956, p. 18) considered *A. graminum* to be identical with *Eutelus elongatus* THOMS. Later, GRAHAM (1957, p. 228–229) maintained that they were two different species belonging to the genus *Platymesopus*, *P. elongatus* (THOMS.) and *P. graminum* (HÄRDH). Then VON ROSEN (1958) transferred *P. graminum* to the genus *Mesopolobus* under the appellation *M. graminum* (HÄRDH).

According to VON ROSEN (1956, p. 18), the lectotypes of *M. graminum* deposited by HÄRDH belong to two species, *Mesopolobus graminum* (cf. VON ROSEN (1960, p. 26) and *M. aequus* (WALK.) (= *Ahlbergiella aequa*). It is conceivable indeed that HÄRDH has not been able to distinguish between these two closely related species. For instance, HÄRDH (1953) says nothing about *M. aequus*, although he several times mentions *Panstenon oxylus* (WALK.) (according to HÄRDH *P. assimilis* NEES), which lives in wheat stems, and also deposited samples of it with the Entomological Museum of the University of Helsinki. In the years

1956–1960, *M. aequus* has been commoner in wheat and oats than *M. graminum* in the area previously investigated by HÄRDH in EP. It is true that the life cycle described by HÄRDH for *M. graminum* is in the main consistent with later observations concerning *M. graminum*. However, some of the individuals that emerged in the late summer are likely to have been *M. aequus*, the emergence of which occurs at this time. On the other hand, *M. graminum* has partially two generations. A small number of individuals emerge in the autumn, beginning in late August, the majority in the spring (cf. VON ROSEN 1956, p. 35).

It is also rather surprising that in the years 1950–1953 HÄRDH should have found *P. oxylus* in only two localities, Ylistaro (EP) and Ruukki (KP), whereas he obtained *M. graminum* (HÄRDH op. cit., p. 145–151) in very great numbers. However, *P. oxylus* does not seem to have been rare during that period, at least not in Ylistaro, where HÄRDH (op. cit., p. 91) caught it with a net in greater quantities than *Mesopolobus*. The spring wheat samples collected in 1956–1960 from the provinces V, St, EP, KP, and PH contained more *P. oxylus* than *M. graminum*.

The part of the wheat material derived from EP which HÄRDH (op. cit., p. 145–151) described was taken during the period 18. VIII.–8. IX., according to OSARA (1956, p. 37). At this time, a number of the *Mesopolobus* individuals had already emerged according to HÄRDH (op. cit., p. 81). For instance, the first adult of *M. graminum* was encountered in 1951 at Hirvineva, close to Oulu, on 14. VIII. The autumn generations of *M. aequus* and *P. oxylus* began to emerge earlier than those of *M. graminum* in the years 1957–1960, according to the present writer's observations. HÄRDH (op. cit., p. 92) was unaware of the existence of the autumn generation of *P. oxylus* and the existence of *M. aequus* was obviously entirely unknown to him. But it is hard to believe that the autumn generations of these species were not present in the wheat in the years 1950–1953, seeing that they did occur in the region in question in the period 1956–1960 and according to VON ROSEN (1956) in Sweden at the time of HÄRDH's investigation.

Once the Hymenoptera individuals have left the wheat stems, it is exceedingly difficult to decide which species may have been there. Assuming, therefore, that HÄRDH considered as *M. graminum* all individuals which had already left the stems it is obvious that the autumn generation of the species *P. oxylus* and *M. aequus* was at least to some extent included among it. If, on the other hand, HÄRDH did not count the individuals that had already emerged, then not all the *M. graminum* individuals are included in his reckoning, because some of them had already emerged, as HÄRDH himself says.

On the nutrition of *Mesopolobus graminum*.

HÄRDH (1953, pp. 88–89) has shown by means of experiments that *M. graminum* is a facultative phytophage. Later, VON ROSEN (1960, p. 26) has tried