

TABLE II

Total Numbers and Percentages of selected members of the genus *Hadena* trapped at Dungeness, Kent, 1962-64.

Species	1962	1963	1964
	(% of year's total)	(% of year's total)	(% of year's total)
<i>w-latinum</i>	352 (6.5%)	80 (2.0%)	136 (2.0%)
<i>nana</i>	1279 (24.5%)	1435 (35.5%)	1772 (27.5%)
<i>lepida</i>	2614 (50.0%)	1550 (38.5%)	2960 (45.5%)
<i>conspersa</i>	580 (11.5%)	781 (19.5%)	1215 (19.0%)
<i>albimacula</i>	345 (6.5%)	166 (4.0%)	344 (5.5%)
<i>serena</i>	64 (1.0%)	26 (0.5%)	41 (0.5%)

Note: The percentage gives an idea of the abundance of the species in relation to all species in a particular year.

Some Orthopteroid Insects from the Island of Santa Maria, Azores

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In general the insect fauna of the Azores is poor and a very high proportion of the species are introduced. There are, however, a few endemic species and others restricted to the Atlantic, or Macaronesian, Isles generally. The orthopteroids of the Azores have been described, listed, or discussed, wholly, or in part, by Drouet (1861), Bolívar (1892, 1894, 1898, 1905, 1915), Chopard (1932, 1942, 1946), Uvarov (1948) and Princis (1963). There are, however, very few records (and none this century) from Santa Maria, the most easterly island of the archipelago. In earlier times the island was seldom visited (Chopard, 1946), but it gained importance during the Second World War, particularly as an air base, and is now used as a stop-over by certain transatlantic airlines. Until recently, however, for military reasons, it was a restricted area. It is not surprising that its fauna has been little studied.

On a recent visit to Santa Maria (11-13.vi.1964), a number of insects were collected by the writer, mostly in the rather drier, flat, north-eastern part of the island between Vila do Porto and Aeroporto (the latter, as its name suggests, is the village in the vicinity of the airport). The season was rather early and conditions for collecting not particularly favourable, but, in view of the paucity of published information regarding the orthopteroids of the island, the following list of species, taken in the area referred to, may be of interest. Species marked with an asterisk (*) have not previously been reported from Santa Maria.

Only *Loboptera decipiens* (Germar), determined by Dr. E. Princis of Lund, and *Platypleis sabulosa* Azam have not hitherto been reported from the Azores.

DICTYOPTERA

BLATTOIDEA. BLATTIDAE: **Periplaneta americana* (Linnaeus)—A cosmopolitan domiciliary species; observed in a cannery, Vila do Porto.

EPILAMPROIDEA. BLATTELLIDAE: **Blattella germanica* (Linnaeus)—Another cosmopolitan domiciliary species; observed in a shop, Vila do Porto.

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**Loboptera decipiens* (Germar)—A widespread Mediterranean littoral species; in the Macaronesian Islands, so far only recorded from Madeira (Princis, 1963); under stones, etc.; very common in all instars including copulating adults and females carrying oothecae.

ORTHOPTERA

GRYLLOIDEA. GRYLLIDAE: *Gryllus bimaculatus* Degeer—A very widely distributed species in the warmer parts of the Old World; under large stones, etc.; not uncommon as adults and last instar nymphs. **Tartarogryllus* [formerly *Acheta* or *Gryllus*] *burdigalensis* (Latreille)—A widespread Mediterranean species; under stones; very common as adults and late-instar nymphs.

TETTIGONIOIDEA. TETTIGONIIDAE: *Decticus albifrons* (Fabricius)—A widely distributed species in the Mediterranean region and western Asia; among long grass; rather common, but as young nymphs only (distinguishable from *Platycleis* nymphs by having a complete medio-dorsal carina on the pronotum, longer hind femora and usually four, instead of three, externo-dorsal spines on the front tibiae; the ovipositor also is straight and not curved). *Platycleis* (*P.*) *falx* (Fabricius) [formerly called *P. laticauda* Brunner von Wattenwyl]—A widespread Mediterranean species; among long grass and low herbage; very common as nymphs of most ages, rare as adults. **Platycleis* (*P.*) *sabulosa* Azam—A western Mediterranean species known also from the Canary Islands and not hitherto recorded from the Azores; grassy sandy locality near Vila do Porto, 12.vi.1964, two nymphs only (unfortunately no adult was observed, but this seems the only possible species the specimens could represent; the female nymph is clearly distinguishable from the last species on account of its much longer, more slender, and less strongly curved ovipositor). PHANEROPTERIDAE: **Phanoptera nana* Fieber [formerly called *Ph. quadripunctata* Brunner von Wattenwyl]—The more northerly subspecies of a very widely distributed African and western Palaearctic species; abundant on bushes, shrubs and low vegetation; only as nymphs of all instars (the subspecies is assumed to be the same as that known from other islands in the Azores (Ragge, 1956)).

ACRIDOIDEA. ACRIDIDAE: **Oedipoda canariensis* Krauss—An endemic Macaronesian species; fairly common in dry grassy situations; as young nymphs only (determination beyond genus assumed, but *canariensis* is probably the only species found in the Azores—see below). *Locusta migratoria* Linnaeus, subsp. aff. *gallica* Remaudière—A small-sized, probably local and non-migratory "race" allied to the western Mediterranean "subspecies" of the very widely distributed Old World Migratory locust; in areas of rather long grass; reasonably common as nymphs, adults not common.

DERMAPTERA

LABIDUROIDEA. LABIDURIDAE: **Euborellia* [formerly *Anisolabis*] *annulipes* (Lucas)—A widely distributed cosmopolitan species; under stones; not uncommon but mostly immature.

Other species of orthopteroids previously reported from Santa Maria are, by inference, the European Field cricket, *Gryllus campestris* Linnaeus, and the Desert locust, *Schistocerca gregaria* (Forskål). The former was said by Drouet (1861) to be common throughout the archipelago (he mentioned no specific island), but Chopard (1932) suggests, presumably correctly, that this is an error for *G. bimaculatus* (also recorded by Drouet for the greater part of the archipelago, although only Florès and Corvo are mentioned by name). The record of *S. gregaria* is inferred from the fact that Drouet (*op. cit.*) cited the "Gafanhoto" as being very common on Santa Maria. He had been told that the species had come from the coast of Africa, and that it sometimes covered the sea. He used the name "*Oedipoda migratoria*", but, as explained by Bolívar (1894), this was probably due to the confusion that existed in the literature. Bolívar (*op. cit.*) mentions that *S. gregaria* has been taken from time to time on one or other of the islands of the Azores. He includes the species in his later list (Bolívar, 1915). Chopard (1932) expresses the contrary view that Drouet's reference was in fact to the local population of *Locusta migratoria*, but this would be questionable if Drouet's information that the insects were immigrants from Africa is to be accepted. There is good evidence that, from time to time, *S. gregaria* has reached the Azores from Morocco (Waloff, 1946; 1960), and Santa Maria is the most easterly island.

The following species have been recorded from other islands in the Azores, but not yet from Santa Maria.

DICTYOPTERA

- ✓ POLYPHAGOIDEA. EUTHYRRHAPHIDAE: *Zetha vestita* (Brul'é) [formerly as *Z. chavesi* (Bolívar) and *Z. freyi* Chopard] (Macaronesian endemic).
 ✓ BLABEROIDEA. PYCNOSCELIDAE: *Pycnoscelus surinamensis* (Linnaeus) (cosmopolitan). OXYHALOIDAE: *Leucophaea maderae* (Fabricius) (cosmopolitan).
 ✓ BLATTOIDEA. BLATTIDAE: *Blatta orientalis* Linnaeus (cosmopolitan).
 EPILAMPROIDEA. BLATTELLIDAE: *Loboptera fortunata* Krauss (Macaronesian endemic—for synonymy, see Princis, 1963). ECTOBIIDAE: *Ariblatta chavesi* (Bolívar) (Macaronesian endemic).

PHASMATODEA

PHYLLOIDEA. PSEUDOPHASMIDAE (BACILLINAE): *Clonopsis gallica occidentalis* (Bolívar) (endemic form of a Mediterranean species).

ORTHOPTERA

- GRYLLOIDEA. GRYLLIDAE: *Acheta domesticus* (Linnaeus) (cosmopolitan); *Nemobius sylvestris* (Bosc) (European and N. African).
 TETTIGONIOIDEA. MECONEMATIDAE: *Cyrtaspis variopicta* Costa (Mediterranean). CONOCEPHALIDAE: *Conocephalus chavesi* (Bolívar) (endemic).
 [ACRIDOIDEA. ACRIDIDAE: *Oedipoda caerulescens* (Linnaeus) (W. Palaearctic) and *Oe. fuscocincta* Lucas (Mediterranean)—Chopard (1932) was unable to confirm the presence of the latter species; both have presumably been confused with *Oe. canariensis* Krauss, which is very similar in appearance.]

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LABIDUROIDEA. LABIDURIDAE: *Anisolabis maritima* (Bonelli) (cosmopolitan); *Labidura riparia* (Pallas) (cosmopolitan). LABIIDAE: *Labia minor* (Linnaeus) (cosmopolitan).

FORFICULOIDEA. FORFICULIDAE: *Forficula* (F.) *auricularia* Linnaeus (cosmopolitan).

The material reported is deposited in the Lyman Entomological Museum, Macdonald College, Province of Quebec.

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More New Forest Mercury Vapour Light Records

By L. W. SIGGS

It is pleasing to be able to report another good year with my mercury vapour trap at Minstead (*Ent. Rec.*, 76: 25). Another 16 species arrived for the first time:—

Acherontia atropos L.
Herse convolvuli L.
Trichiura crataegi L.
Utetheisa pulchella L.
Graphiphora augur Fabr.
Eurois occulta L.
Apamea sublustris Esp.

Nonagria dissoluta Treits.
Lithophane socia Rott.
Cosymbia annulata Schultz
Hydrelia flammeolaria Hufn.
Pelurgia comitata L.
Eupithecia laricata Freyer
E. dodoneata Guen.
Ennomos quercinaria Hufn.

The total number of species recorded during 1964 was 352 (5 less than the peak year of 1963).

It was a good year for migrants, which included *A. atropos*, *H. convolvuli* (2), *U. pulchella*, *Lithosia quadra* L. (11), *Laphygma exigua* L., *Rhodometra sacraria* L. (5), and *Nycterosea obstipata* L. (5). The *E. occulta* was probably also an immigrant. There were 1172 *Agrotis ipsilon* Rott. (previous maximum 119) and 91 *Peridroma porphyrea* Schiff. (previous maximum 13). On the other hand *Plusia gamma* L. were fewer than usual, 672 compared with the usual 800-1000.

The following table shows the total and average catch per night for each month.

	1964		
	No. of nights	Total catch	Average
March	10	428	43
April	24	3098	129
May	28	2054	74
June	30	4245	141
July	28	6092	217
August	31	6748	218
September	30	3800	127
October	25	1637	65
November	25	590	24
Total	231	28,692	124

Overall, these figures are much the same as for 1963, but there was a considerable variation in most individual months.

An appreciable reduction in certain "abundant" species was noted in 1963. Some have continued to fall:—

Agrotis exclamatoris L. to 1216
Diarsia rubi View. to 251
Apamea monoglypha Hufn. to 271

The others have made various degrees of recovery:—

Lycophotia varia Vill. to 775
Ochropleura plecta L. to 1697
Amathes xanthographa Schiff. to 281
Noctua pronuba L. to 2672
Phlogophora meticulosa L. to 292
Leucania pallens L. to 372
Apamea secalis L. to 653

There would seem to be no apparent reason for such fluctuations. Others could be quoted, but perhaps the most curious was the increase of *Orthosia cruda* Schiff. from 368 to 705, *O. incerta* Hübn. from 323 to 469 and *O. gothica* L. from 694 to 867, while *O. stabilis* View. decreased from 1576 to 1154. The number of species showing an appreciable increase was nearly twice that of species showing an appreciable decrease.

There were a few late emergences, e.g. *Ceramica pisi* L. on 9.ix (normally finishes in July), *Plusia chrysis* L. on 14.ix (normally finishes in October), *Caradrina clavipalpis* Scop. on 25. and 26.ix (normally finishes in October), *Thera variata* Schiff. on 10.xii (normally finishes in November), and most remarkable of all, *O. stabilis* on 26.xi (but this is perhaps "early" rather than "late").