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Supplement to "Insectae Borinquenses"

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By GEORGE N. WOLCOTT 33

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A SUPPLEMENT TO "INSECTAE BORINQUENSES"

Compiled by
GEORGE N. WOLCOTT

The purpose of "Insectae Portoricensis" was to give the records of all the insects (economic or otherwise, but especially and in considerable detail the notes concerning those of economic importance) from the Island then officially called Porto Rico (which includes Culebra, Vieques and minor islands on the east, and Desecheo and Mona Islands on the west), up to shortly before the date of publication, March 1924. Five months later a supplement was issued, to give the determinations received too late for inclusion in the original annotated list. "Insectae Borinquenses," issued as the January 1936 number of the Journal of Agriculture of the University of Puerto Rico, but actually not published until July tenth of that year, was intended as a record of all determinations up to the end of June 1935, for the same Island, now officially known as Puerto Rico. In the present supplement, references to these original lists are abbreviated to "IP" and "IB" with a dash followed by the page number. The MS was submitted for publication on July 1, 1940, and is intended to cover all records up to that date. Several important publications received shortly afterwards are, however, noted [in brackets] in the bibliography, although the additional records and numerous changes in the synonymy have not been made in the list of insects itself.

Mr. Richard Faxon, who left Puerto Rico in August 1935, had made available for publication in "Insectae Borinquenses" all the interception records of the San Juan office of the Plant Quarantine Service of the Federal Bureau of Entomology and Plant Quarantine, of which he was in charge at that time. For this supplement, Mr. W. T. Owrey, in charge until May 1940, made available all the records of the succeeding five-year period, June 1935 to June 1940. The personnel of the office for the period is as follows:

Date	*Date of Arrival*	*Date of Departure*
A. G. Harley	September 1929 (at Mayaguez)	August 1935
A. S. Mills	December 1929	July 1937
R. G. Oakley	April 1931 (at Ponce)	February 1937
W. A. McCubbin	July 1935	July 1939
H. G. Taylor	July 1935	August 1939
W. T. Owrey	August 1935	May 1940
G. A. Pfaffman	March 1937 (at Mayaguez)	April 1940
I. W. Berryhill	July 1937	January 1939
R. G. Smith	February 1939	April 1940
F. A. Johnston	March 1940	At present on duty in Puerto Rico

It should be especially noted that the records of insects collected by the men of this office as published in "Insectae Borinquenses" and in this supplement are preceded by "I No.", an abbreviation for "Interception Number," and all represent determinations by specialists of the U. S. National Museum.

The records of what was formerly the Insular Experiment Station, now the Agricultural Experiment Station of the University of Puerto Rico at Rio Piedras, are given as an accession number separated by a dash from the year of collection, and, unless followed by a note as to the person making the determination, the insect presumably was identified by the person making the collection. During the period covered, the compiler has been in charge of the Division of Entomology, with Mr. Francisco Sein working on the problem of coffee leaf-miner. The only change in personnel was the appointmen in September 1936 of Mr. Luis F. Martorell, to work on the problem of control of the sugar-cane moth-borer by *Trichogramma*. Mr. Martorell, graduated from the College of Agriculture in Mayaguez in 1932, received his M.S. from Ohio State in 1934, and for a year had been teaching (and collecting insects) in Venezuela. More recently he had been in the local Forest Service. He is an enthusiastic collector of insects, and most of the recent records in the Station catalog, especially from Mona Island, are due to his efforts.

Dr. Stuart T. Danforth, formerly Professor of Zoology and Entomology at the College of Agriculture at Mayaguez, shortly before his death sent all the records of Mallophaga identified up to that time from the birds which he had collected. Since then, Mr. J. A. Ramos, at present in charge of the Department, has sent all the more recent records of Mallophaga collected by Dr. Danforth, as well as of leaf-hoppers and Carabid and other beetles in his own collection. The latter are here recorded as "Ramos Col."

In contrast to the long period when no entomologist has been present at the Federal Agricultural Experiment Station at Mayaguez, for a number of years it has more recently been host for Mr. L. C. McAlister, Jr., and Mr. J. W. Balock, of the Division of Fruit Fly Investigations, Bureau of Entomology and Plant Quarantine. As stated on page 101 of the 1936 report of the Station, it "also furnished office and laboratory quarters for fifteen investigators engaged on entomological projects under funds provided by the Agricultural Adjustment Administration. These entomologists included M. R. Smith, who was engaged on investigations on the ant-scale-mealybug relationship on coffee and pineapples; H. K. Plank, working on the rhinoceros beetle and other coconut insects; L. C. Fife, engaged in a survey and life-history studies on pink bollworm and other cotton insects; H. L. Dozier, working on investigations of screw-worms, horn flies and other cattle insects; G. S. Tulloch, engaged in a survey and study of mosquitoes; L. B. Scott, engaged in a study of bean-pod borers and onion thrips; and A. H. Madden, engaged in an investigation of the mole-cricket and its control.

"S. H. Vandeburg, F. M. Wadley and H. D. Tate were engaged jointly in a study of the insect transmission of sugarcane mosaic, B. A. App was engaged in a study of the control of the corn earworm, the corn silk maggot, and the armyworm. K. A. Bartlett was engaged in the receipt and liberation of introduced beneficial insects, natural enemies of insect pests in Puerto Rico. S. M. Dohanian was engaged in exploration for natural enemies of Puerto Rican insects pests, and in this pursuit spent most of the year in Trinidad, British Guiana and Peru."

Such a wealth of entomological talent, however, could not long be retained at Mayaguez, and most of these men were in Puerto Rico only a little longer than one year. Despite the shortness of their stay, nearly every one has added to a knowledge of the insects in Puerto Rico by one or more published papers, and two of them, who eventually were more permanently appointed at the Mayaguez Station, Mr. K. A. Bartlett and Mr. H. K. Plank, have recently been very active in making available the results of their investigations.

Dr. Julio Garcia-Diaz, Dean of the College of Arts and Sciences, University of Puerto Rico; Mr. Boyd Palmer of the Polytechnic Institute at San German; Dr. W. A. Hoffman of the School of Tropical Medicine at San Juan; and one enthusiastic amateur in the collection and rearing of butterflies, Mr. Cesáreo Perez, have also materially added in studies of local insects.

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COLLEMBOLA

Entomobrya cubensis Folsom—det. H. B. Mills
Anon 39-118: from bamboo twigs.
Fife 39-11: on the underside of cotton leaves.

Salina wolcotti Folsom
Fife 39-11: numerous on the underside of cotton leaves.
in houses (38-39).

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ORTHOPTERA

FORFICULIDAE

Labidura riparia Pall.
at light, lighthouse, Mona Id. (261-40 det. A. B. Gurney).

Doru albipes F.
in hollow twigs of bucare at Maunabo (47-38); in saw-fly cocoon on atchiote at Bayamon (I No. 6205).

Doru lineare Esch.
Anon 39-120: injuring vanilla leaf-tips.

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Psalis americana var. **gagathina** Burmeister
Anon 39-109: found in tunnels of *Cosmopolites sordidus* Germar at Juana Diaz, and fed on larvae in captivity.

BLATTIDAE

Aglaopteryx absimilis Gurney, A. B., "Studies in certain Genera of American Blattidae (Orthoptera)." Proc. Ent. Soc. Washington, **39**(5): 101-112, pl. 1. Washington, D. C., May 1937: TYPE from Cayey, P. R., "in cocoons of *Megalopyge krugii* on trunk of bucare tree" (R. T. Cotton).

Aglaopteryx diaphana F. is a Cuban species, according to Gurney (above), and the records under this name for Puerto Rico should be under **A. devia** Rehn.
between leaves of *Samanea saman* at Salinas (261-39).

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Blattella germanica L.
in houses, Mona Id. (109-39, 255-40).

Ischnoptera rufa DeGeer
in bananas at Lares (282-39); in fruit fly trap at Bayamon (I No. 6917).

Symploce bicolor P. B.—det. A. B. Gurney
on Mona Id. (276-40).

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Pelmatosilpha coriacea Rehn
under bark of *Sideroxylon foetidissimum* at Ciales (417-40); on Mona Id. (106-39).

Periplaneta americana L.
Wolcott 37-81: in toad excrement.

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MANTIDAE

Callimantis antillarum Saussure
on Mona Id. (14-37 det. A. B. Gurney, 53-40, 252-40).

Diapherodes sp., near **longiscapha** Redtenbacher
on El Yunque (89-35 det. A. B. Gurney), at Rio Blanco (62-39).

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PHASMIDAE

Aplopus sp.—det. A. B. Gurney
on Mona Id. (16-37).

Antillophilus restrictus Redtenbacher, J., (as *Pericentrus*) "Die Insektenfamilie der Phasmiden." 1908, p. 357: TYPE from Puerto Rico.
Rehn, J. A. G. & Hebard, Morgan, "New Genera and Species of West Indian Mantidae and Phasmidae (Orthoptera)." Trans. Amer. Ent. Soc., **64**(1040): 33-55, pl. 2. Philadelphia, March 7, 1938: at Arecibo, P. R.

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ACRIDIDAE (LOCUSTIDAE)

Sphingonotus haitiensis Saussure
Rehn, J. A. G. & Hebard, Morgan, "New Genera and Species of West Indian Acrididae." Trans. Amer. Ent. Soc., **64**( ): 201-226, pl. 1. Philadelphia, August 5, 1938: at Ensenada, Coamo Springs and Manati.
at the airport, Mona Id. (105-39).

page 37

Schistocerca americana Drury
at Mayaguez (I No. 7425), on Mona Id. (104-39) abundant on the plateau in March (255-40); on sugarcane at Maunabo (316-39), at Fajardo (14-39) nymphs in November, adults in February and March.

TETTIGONIIDAE (LOCUSTIDAE)

Microcentrum triangulatum Brunner
on Mona Id. (147-39, 254-40); nymphs and adults feeding on leaves of moca, *Andira inermis,* at Cayey (118-40).

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GRYLLIDAE

Scapteriscus vicinus Scudder—the "changa"

Smith (37-845: eggs and nymphs eaten by *Pheidole subarmata* var. *borinquenensis* Wheeler (A. H. Madden).

Madden, A. H., "Notes on the Changa, or West Indian Mole Cricket, in Puerto Rico in 1935 and 1936." Jour. Agr. Univ. P. R., **21**(2): 115-120. San Juan, April 1937.

Wolcott 37-62 to 64: initiation of an attempt to introduce a parasite of.

Wolcott 38-96 to 98: difficulties encountered.

Wolcott 39-43 to 44: successful mass introduction of adult wasp parasites when accompanied by live parasitized hosts.

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Gage 39-21: a short economic account.

Fife 39-11: attacking young cotton seedlings in sandy soil.

Wolcott 39-509: establishment of *Larra americana* in Puerto Rico at two points.

[Wolcott, G. N., "The Establishment in Puerto Rico of *Larra americana* Saussure." Jour. Ec. Ent., **34**(1): 53-56, ref. 7. Menasha, Wis., April 23, 1941.]

adults at light at Guajataca (51-39); at top of mountains (elev. 1,500 ft.), Mountain Top Nursery, Patillas (10-39).

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Amphiacusta caraibea Saussure

in caves and houses, Mona Id. (146-39).

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ISOPTERA

Wolcott, G. N., "Comején y Polilla." Bol. No. 48. Estacion Experimental Agricola de Rio Piedras, p. 26, fig. 13. San Juan, March 20, 1939.

Dr. T. E. Snyder has prepared a list under the latest accepted names, here used, of all the authentic records of termites from Puerto Rico.

KALOTERMITIDAE

Kalotermes mona Banks 19-478: TYPE from Mona Id.

Kalotermes (K.) snyderi Light

all the previous records of *K. marginipennis* Latreille in Puerto Rico should be referred to this species, including the illustration of a soldier in Wolcott 39-24.

in sanguinaria tree, Mona Id. (169-39 det. T. E. Snyder).

Kalotermes (Neotermes) castaneus Burmeister

Kalotermes (Cryptotermes) brevis Walker
(as *Cryptotermes*) Wolcott 37-54 to 55: an investigation initiated (1935), preliminary tests with paradichlorobenzine and with "chlorasol."
Wolcott 38-83: preliminary results in wood resistance.
Wolcott 39-34 to 36: woods most resistant to attack.
Wolcott 39-14 to 23: an extended, illustrated account.
Wolcott 40-29: natural resistance of heartwood of mahogany and maga.
[Wolcott, G. N., "A List of Woods arranged according to their Resistance to the Attack of the 'Polilla,' the Dry-Wood Termite of the West Indies, *Cryptotermes brevis* Walker." Caribbean Forester, **1**(4): 1-10, fig. 2. New Orleans, La., July 1940.]

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Kalotermes (Cryptotermes) cavifrons Banks
Snyder: at Mayaguez in 1936.

Kalotermes (Calcaritermes) corniceps Snyder

Kalotermes (Glyptotermes) pubescens Snyder
in stump of *Miconia guianensis* on El Yunque (38-39 det. T. E. Snyder); in corner post of Sierra Palm cottage, El Yunque (114-40 det. T. E. Snyder).

RHINOTERMITIDAE

Heterotermes convexinotatus Snyder
Wolcott 39-23: mention.

Heterotermes tenuis Hagen
Wolcott 39-23 to 25: an economic account.
in houses at Aguadilla (55-39 det. T. E. Snyder); attacking books in concrete house, entrance through wooden doorsill, later through cracks between tiles of floor (54-38 det. H. R. Johnson).

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TERMITIDAE

Nasutitermes (N.) acajutlae Holmgren (?)
(as *N. creolina* Banks) Banks 19-484; from Vieques Id., and Porto Rico, "probably what Holmgren records from St. Thomas as *E. acajutlae*."
(as *N. creolina* Banks) Wolcott 21-3, IP-36 and IB-49: nest in algarrobo tree (170-21). "The workers bit viciously."

Nasutitermes (N.) costalis Halmgren
(as *N. sanchezi* Holmgren) Banks 19-487: "Practically identical as regards adults with *N. morio*." = *N. costalis*.
Wolcott 39-5 to 14: an illustrated, economic account.

[Martorell, L. F., "Some Notes on Forest Entomology IV." Caribbean Forester, **2**(2): 80-2. New Orleans, La., January 1941: listing 84 trees attacked.]

adults pursued by bat at Guajataca (50-39); destroying all the wood in almacigo fence-post at Vega Baja (156-40); nest in heartwood of live mahogany stump at Aguadilla (372-40), in mahogany tree at Aguadilla (270-39), at Dorado (383-40); nest in grenadilla tree, *Buchenavia capitata,* at Las Marias (271-39); nest in tabonuco tree, *Dacryodes excelsa,* at Matrullas Dam (310-39); nest in acacia tree, *Albizzia lebbeck,* at Lares (70-40); nest in roble tree, *Tabebuia pallida,* at Lares (70-40); nest in morál tree, *Cordia sulcata,* at Cayey (125-40); nest in guamá tree, *Inga laurina,* at Cayey (124-40); nest in cupéy, *Clusia rosea,* at Isabela (421-40); nest in guamá americano tree, *Pithecollobium* sp. at San Sebastian (425-40).

(page 47)

Nasutitermes (Tenuirostritermes) discolor Banks 19-489 (as *Constrictotermes*): TYPE from Culebra Id., Adjuntas, Manati and El Yunque, P. R.

in rotten tree on El Yunque, (343-39 det. T. E. Snyder).

Nasutitermes (Tenuirostritermes) wolcotti Snyder

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Anoplotermes (A.) sp.

Microcerotermes arboreus Emerson

Banks 19-482: "described from specimens in gum-copal, and Hagen identified it with specimens from Porto Rico."

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EMBIDINA

Oligotoma latreillei Rambur ? or near—det. A. B. Gurney

between pages of book (39-38).

CORRODENTIA

ATROPIDAE

Liptoscelis (Troctes) divinatorius Müller

scavenger or symbiotic with *Cryptotermes brevis* (1-37 det. N. Banks); on Hibiscus at Vega Alta (I No. 6312); from bird skins collected by Dr. Stuart T. Danforth on Vieques Id.—det. A. B. Gurney.

Ectopsocus sp.—det. A. B. Gurney

on casein-washed walls, School of Tropical Medicine (W. A. Hoffman).

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MALLOPHAGA

Eomenacanthus stramineus Nitzsch

Anon 36-23: in table 6, the species of lice found in Puerto Rico by Dr. H. L. vanVolkenberg, the only record not given in "Insectae Borinquenses" is of this species "on chicken."

Dr. H. E. Ewing has determined the following from birds collected by the late Dr. Stuart T. Danforth.

Menopon sp.

on Semipalmated Plover, *Charadrius haiticula semipalmatus,* at Cartagena Lagoon x-4-30.

Actornithophilus sp.

on Semipalmated Sandpiper, *Ereunetes pusillus,* at Cartagena Lagoon, ix-30-30; on Stilt Sandpiper, *Micropalama himantopus,* at Cartagena Lagoon, ix-30-30; on Mangrove Cuckoo, *Coccyzus minor teres,* at Cartagena Lagoon, x-4-30; on Southern Little Blue Heron, *Florida caerulea caerulescens,* at Cartagena Lagoon, x-4-30.

Heleonomus sp.

on Lesser Yellowlegs, *Tringa flavipes,* from Vieques Id., xii-26-35.

Menacanthus chrysophaeum Kellogg

on Grey Kingbird, *Tyranus d. dominicensis,* from Vieques Id., xii-28-35.

Colpocephalum flavescens Nitzsch

on Antillean Sparrow Hawk, *Falco sparverius loquaculus,* from Vieques Id., xii-28-35; on Pearly-Eyed Thrasher, *Margarops f. fuscatus,* from Vieques Id., xii 28-35.

Colpocephalum sp.

on Judio, *Crotophaga ani,* at Mayaguez, ii-8-36; another from Vieques Id., xii-26-35; on Jamaican Mockingbird, *Mimus p. orpheus,* from Vieques Id., xii-31-36; on Semipalmated Plover, *Charadrius h. semipalmatus,* at Mayaguez, x-21-30.

Myrsidea incerta Kellogg

on Grey Kingbird, *Tyranus d. dominicensis,* xii-28-35, on Antillean Sparrow Hawk, *Falco s. loquaculus,* xii-28-35, on P. R. Woodpecker, *Melanerpes portoricensis,* xii-31-35, on Judio, *Crotophaga ani,* xii-26-35, on Pearly-Eyed Thrasher, *Margarops f. fuscatus,* xii-28-35, all from Vieques Id.; and on P. R. Thrush, *Mimocichla a. portoricensis,* at Mayaguez, x-18-30.

Myrsidea sp.

on P. R. Thrush at Mayaguez, ii-7-36; on P. R. Petchary, *Tolmarchus taylori,* from Vieques Id., xii-26-35; on P. R.

Grackle, *Holoquiscalus n. brachypterus,* from Vieques Id., xii-30-35.

Amyrsidea aurifasciatum Kellogg—det. H. E. Ewing
on "rabijunco" or frigate bird, *Fregata magnificens,* from Mona Id. (387-39).

RICINIDAE

Ricinus invadens Kellogg
on Prarie Warbler, *Dendroica d. discolor,* at Mayaguez, ii-7-36; on warbler or reinita, xii-29-35.

Ricinus sp.
on Water-Thrush, *Seiurus n. noveboracensis,* from Vieques Id., xii-30-35; on P. R. Grackle, *Holoquiscalus n. brachypterus,* from Vieques Id., xii-30-35.

PHILOPTERIDAE

Lipeurus sp. ?
on Pearly-Eyed Thrasher, *Margarops f. fuscatus,* from Vieques Id., xii-28-35.

Philopterus quiscali Osborn
on P. R. Grackle, *Holoquiscalus n. brachypterus,* from Vieques Id., xii-30-35.

Philopterus subflavescens Geoffrey ?
on Martinique Dove, *Oreopeleia m. mystacea,* xii-28-35; on P. R. Ground Dove, *Columbigallina p. portoricensis,* xii-24-35, on Jamaican Mockingbird, *Mimus p. orpheus,* xii-31-35, on Pearly-Eyed Thrasher, *Margarops f. fuscatus,* xii-28-35, all from Vieques Id.

Degeeriella complexiva Kellogg & Chapman
on Stilt Sandpiper, *Micropalama himantopus,* at Cartagena Lagoon, ix-30-30.

Degeeriella eustigma Kellogg
on Jamaican Mockingbird, *Mimus p. orpheus,* from Vieques Id., xii-31-35.

Degeeriella illustris Kellogg
on P. R. Grackle, *Holoquiscalus n. brachypterus,* from Vieques Id., xii-30-35.

Degeeriella sp.
on Gray Kingbird, *Tyranus d. dominicensis,* from Vieques Id., xii-28-35; on Lesser Yellowlegs, *Tringa flavipes,* from Vieques Id., xii-26-35; on Southern Little Blue Heron, *Florida c. caerulescens,* at Cartagena Lagoon, x-4-30; on Semipalmated Plover, *Charadrinus h. semipalmatus,* at Mayaguez, x-21-30.

Esthiopterum gracilicornis major Kellogg—det. H. E. Ewing
on "rabijunco" or Frigate Bird, *Fregata magnificens,* from Mona Id. (388-39).

Esthiopterum sp.
on Gray Kingbird, *Tyranus d. dominicensis,* from Vieques Id., xii-28-35; on Judio, *Crotophaga ani,* at Mayaguez, ii-8-36; on P. R. Grackle, *Holoquiscalus n. brachypterus,* from Vieques Id., xii-26-35 and from the same host and locality, xii-26-35, possibly a new species.

Physconelloides near **zenaidurae** McGregor
on P. R. Ground Dove, *Columbigallina p. portoricensis,* from Vieques Id., xii-24-35; on P. R. Golden Warbler, *Dendroica p. cruciana,* from Vieques Id., xii-27-35.

Physconelloides sp., probably new
on Gray Kingbird, *Tyranus d. dominicensis,* from Vieques Id., xii-28-35.

Physconelloides sp.
on Martinique Dove, *Oreopeleia m. mystacea,* from Vieques Id., xii-28-35.

Columbicola sp. nov.
on Gray Kingbird, *Tyranus d. dominicensis,* xii-28-35, on Antillean Sparrow Hawk, *Falco s. loquaculus,* xii-28-35, on P. R. Ground Dove, *Columbigallina p. portoricensis,* xii-24-35, all from Vieques Id.

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EPHEMERIDA

Traver, Jay R., "Mayflies of Puerto Rico." Jour. Agr. Univ. P. R., **22**(1): 5-42, pl. 3, ref. 23. San Juan, (April 15) January 1938.

Neohagenulus julio Traver 38-9: TYPE from Adjuntas, P. R.

Neohagenulus tinctus Traver 38-12: TYPE from Luquillo Mts., P. R.

Neohagenulus luteolus Traver 38-13: TYPE from Luquillo Mts., P. R.

Neohagenulus spp. No. 1 & No. 2 Traver 38-16: nymphs.

Borinquena carmencita Traver 38-18: TYPE from El Yunque, P. R.

Borinquena contradicens Traver 38-20: TYPE from La Mina, El Yunque, P. R.

Caenis spp. No. 1 & No. 2 Traver 38-22: nymphs.

Callibaetis completa Banks ?
Traver 38-24: collected by F. Sein at Rio Piedras.
females (7-30).

Callibaetis sp. Traver 38-25: nymphs, possibly *C. completa.*

Baëtis garcianus Traver 38-26: TYPE from Rio Tamana, P. R.

Baëtis spp. No. 1 & No. 2 Traver 38-28, 29: nymphs.

Cloëodes maculipes Traver 38-33: TYPE from Luquillo Mts., P. R.

Cloëodes portoricensis Traver 38-36: TYPE from Lares, P. R.

Cloëodes consignatus Traver 38-37: TYPE from Rio Yunez, P. R.

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ODONATA

Garcia-Diaz, Julio, "An Ecological Survey of the Fresh Water Insects of Puerto Rico. I. The Odonata: with new Life-Histories." Jour. Agr. Univ. P. R., **22**(1): 43-97, pl. 8, ref. 44. San Juan, (April 15) January 1938.

LIBELLULIDAE

Orthemis ferruginea F.
common on Mona Id. (251-40 det. J. G. Needham).

page 57
Erythrodiplax umbrata L.
on Mona Id. (78-39, 250-40 det. J. G. Needham).

page 58
Cannacria herbida Gundlach
(as *Brachymesia*) Klots 32-51: IB-58:
Garcia-Diaz 38-58: generic transfer.

page 59
Idiataphe cubensis Scudder
(as *Ephidatia*) IB-59:
Garcia-Diaz 38-60: generic transfer.

page 60
Enallagma cultellatum Hagen
(as *E. cardenium* Selys—det. J. G. Needham) IB-60:
Garcia-Diaz 38-69: re-identification.

Enallagma civile Hagen
on Mona Id. (249-40 det. J. G. Needham).

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NEUROPTERA

MYRMELEONIDAE

Psammoleon bistichus Hagen—det. N. Banks
common at light, Mona Id. (153-39, 236-40).

ASCALAPHIDAE

Ululodes opposita Banks, Nathan, "Antillean Ascalaphidae." Jour. Agr. Univ. P. R., **22**(2): 177-180, pl. 1. San Juan, (May) April 1938: TYPE from Cabo Rojo Lighthouse, P. R.

a pair, resting on bushes, Faro de Cabo Rojo (65-37, 66-37 TYPES); at light, Mona Id. (154-39 det. N. Banks).

TRICHOPTERA

RHYACOPHILIDAE

Atopsyche sp.—det. C. Betten
Garcia-Diaz 38-96: No. 84.

PHILOPOTAMIDAE

Chimarrha albomaculata Kolbe 88-175: TYPE from P. R.
Gundlach.
IP-35 & IB-63: adults common at light at Mameyes (197-13 det. N. Banks).
Garcia-Diaz 38-96: No. 80.
Palmer, Boyd B., "A Contribution to the Life-History of *Chimarrha albomaculata* Kolbe from Puerto Rico (Trichoptera: Philopotamidae)." Ann Ent. Soc. America, **31**(1): 69-73, pl. 2, ref. 6. Columbus, Ohio, March 1938.

Chimarrha sp.—det. C. Betten
Garcia-Diaz 38-96: No. 81.

SERICOSTOMATIDAE

Helicopsyche sp.—det. C. Betten
Garcia-Diaz 38-96: No. 73, under Helicopsychinae.

CALAMOCERATIDAE

Phylloicus sp.—det. A. B. Gurney
in fruit-fly trap at Mayaguez (I No. 6861).

LEPTOCERIDAE

Setodes candida Hagen
Gundlach. Kolbe. IP-35 & IB-63.

Setodes sp.—det. C. Betten
Garcia-Diaz 38-96: No. 97.

HYDROPSYCHIDAE

Smicridea sp.—det. C. Betten
Garcia-Diaz 38-96: No. 74.

POLYCENTROPIDAE

New Genus—det. C. Betten
Garcia-Diaz 38-96: No. 82.

PSYCHOMYIDAE

Lype sp.—det. C. Betten
Garcia-Diaz 38-96: No. 83.

HYDROPTILIDAE

Hydroptila sp.—det. C. Betten
Garcia-Diaz 38-96: No. 75.

Neotrichia sp.—det. C. Betten
Garcia-Diaz 38-96: No. 76.

New Genera—det. C. Betten
Garcia-Diaz 38-96: No. 77.

Oxyethira sp.—det. C. Betten
Garcia-Diaz 38-96: No. 78.

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THYSANOPTERA

Heterothrips sericatus Hood
at Palo Seco (I No. 6504).

Chirothrips mexicanus Crawford
Wadley 37-107: in heads of *Eleusine indica.*

Heliothrips haemorrhoidalis Bouché
Fife 39-11: on wild and cultivated cotton, causing damage.
on grape-fruit at Palo Seco (I No. 5987).

Selenothrips rubrocinctus Giard
Anon 38-99: *Dasyscapus parvipennis* Gahan, a parasite of, introduced from the Gold Coast, via Trinidad, by S. M. Dohanian, reared and liberated in P. R. by K. A. Bartlett.
Anon 39-108: not recovered.
on almendra at Maunabo (7-40), at Dorado (I No. 6634); on *Coccolobis laurifolia* at Dorado (I No. 6532).

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Frankliniella insularis Franklin
Fife 39-11: of slight importance on cotton.
in flowers of gardenia at Caguas (I No. 6495); in flowers of cannon-ball tree, *Couroupita guianensis,* at Mayaguez (I No. 6857).

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Thrips tabaci Lindemann
Anon 37-45: experiments in control conducted by L. B. Scott.
Anon 39-108: host of *Dasyscapus parvipennis* Gahan in the laboratory.
on onions, Mona Id. (29-40).

Taeniothrips simplex Morison—det. F. André
on gladiolus (I No. 7207), at Barceloneta (97-40 det. J. R. Watson).

Haplothrips gowdeyi Hood
Fife 39-11: of slight importance on cotton.
on *Blechum blechum* at Guaynabo (I No. 7178); on tuberose flowers at Barceloneta (96-40 det. J. R. Watson).

Aleudrothrips fasciapennis Franklin
on coconut palm (I No. 6113).

Gynaikothrips uzeli Zimmerman
on *Ficus nitida* at Hda. Santa Catalina, El Yunque (354-39, 351-40).

page 70

ANOPLURA

for **Phthrirus,** read **Phthirius**

page 72

HOMOPTERA

CICADIDAE

Proarna hilaris Germar
at light in the Condado (I No. 7311, 7452); abundant on trees of *Samanea saman* at Salinas (247-39).

MEMBRACIDAE

Nessorhinus gibberulus Stal
on coffee at Mayaguez (I No. 6096); on maga at Villalba (403-40).

Page 74

Nessorhinus vulpes Amyot & Serville
on pigeon pea at Mayaguez (I No. 6058).

Monobelus fasciatus F.
on dama de dia, *Cestrum diurnum,* at Guajataca (53-38).

page 75

CERCOPIDAE

Clastoptera brevis Walker
on coffee at Mayaguez (I No. 6098).

Clastoptera sp. "neither *brevis* nor *signifera*" Oman
at Cidra (I No. 6783).

CICADELLIDAE (JASSIDAE)

Oman, P. W., "New Eupterygine Leafhoppers from Puerto Rico (Homoptera—Cicadellidae)." Jour. Agr. Univ. P. R., **21** (4): 567-570, pl. 1. San Juan, (November 12) October 1937.

Agallia albidula Uhler
Fife 39-10: on cotton.
abundant on tobacco at Utuado (10-38); on weeds, Mona Id. (307-40 det. P. W. Oman).

page 76

Agallia pepino DeLong & Wolcott

(as *Agalliopsis*) Anon 38-86: negative as vector of bunchy-top disease of papaya.

page 77

Krisna insularis Oman, P. W., "Two New Leafhoppers from Tropical America." Pan-Pacific Entomologist, **12**(3): 116-118. San Francisco, July 1936: TYPE, a male from Luquillo National Forest, P. R. (W. A. Hoffman).

at light on El Yunque (19-37 det. P. W. Oman, 39-39); a nymph on tender leaf of *Eugenia stahlii,* near El Yunque Rock (143-40).

page 78

Cicadella sirena Stal

Fife 39-10: on cotton.

numerous adults resting on stem of *Lantana camara* killed by fungus, *Isaria* sp., at Guajataca (274-39); on Mona Id. (265-40).

page 79

Cicadella similis Walker

Wadley 37-107: on *Panicum barbinode.*

Fife 39-11: on cotton.

page 80

Kolla fasciata Walker

Wolcott, G. N. & Martorell, L. F., "Leafhopper Reaction to Lawn Sprinkling." Jour. Ec. Ent., **33**(3): 584. Menasha, Wisconsin, June 1940.

an extensive and serious outbreak, attacking and killing gramma grass in lawn near Aguadilla (20-40).

page 81

The legends underneath the two cuts should be transposed.

Xerophloea viridis F.

Fife 39-10: on cotton.

page 83

Deltocephalus flaveolus Osborn—det. J. A. Ramos

at light at Mayaguez, May 24, 1938 (Ramos Col.).

page 84

Poeciloscata histrio F.—det. P. W. Oman

Fife 39-10: on cotton.

on castor bean, Mona Id. (176-39).

page 86

Cicadula maidis DeLong & Wolcott

(as *Baldulus*) Bartlett 39-497; parasitized by a Dryinid, *Gonatopus* near *bicolor* Ashmead.

Wolcott & Martorell 37-537: quoting Mackie on occurrence of this Puerto Rican insect in California.

page 88

Nesostelus incisus Mats.

Wadley 37-107: swept from grasses.

Anon 38-86: negative as vector of bunchy-top disease of papaya.

Protalebra aureovittatus DeLong

on morál, *Cordia sulcata,* at El Verde, Rio Grande (157-40 det J. S. Caldwell).

page 89

Protalebra brunnea Oman 38-567: TYPE from Villalba, P. R.

page 90

Empoasca fabalis DeLong

Anon 37-42: a limiting factor in dry bean production in western P. R. (det. H. L. Dozier).

Anon 38-61: control by pyrethrum-soap spray at 10-day intervals (L. B. Scott).

Anon 38-63: "caused premature defoliation of small-seeded lima bean varieties."

Empoasca gossypii DeLong

Fife 39-10: on cotton, "occasionally - - - abundant enough to attain an economic status."

page 91

Empoasca insularis Oman, P. W., "New Neotropical Empoascan Leaf-Hoppers." Jour. Washington Academy Science, **26**(1): 34-40, fig. 2. Washington, 1936: TYPE from P. R.

Empoasca minuenda Ball

Wolcott 40-30: on maga.

Empoasca papayae Oman 37-570: TYPE from Mayaguez, P. R., on papaya, collected by J. H. Jensen.

Anon 39-125: a possible vector of bunchy-top disease of papaya.

Joruma neascripta Oman 37-568: TYPE from Manati, P. R., from icaco, *Chrysobalanus icaco.*

Dikraneura cedrelae Oman 37-567: TYPE from Villalba, P. R., others from Aibonito and Maricao, on West Indian Cedar, *Cedrela odorata* L. (L. F. Martorell).

Martorell & Wolcott 39-44: defoliating cedro trees.

on leaves of West Indian Cedar at Camp Doña Juana, Toro Negro Unit (21-36 TYPE), others from Villalba, Yabucoa, Aibonito, and Maricao; on host at Lares and Toa Alta (33-38), at Aibonito and Cayey (44-37), at Maricao (390-40), at Patillas (429-40).

Dikraneura (Hyloidea) depressa McAtee

Wolcott 40-30: on maga.

on maga at Arecibo (156-40 det. J. S. Caldwell).

Dikraneura lentrosomae Oman 37-568: TYPE from Mayaguez, P. R., swept from *Centrosema* by F. M. Wadley.

page 92
Hybla maculata McAtee
on emajagua, *Pariti tiliaceum,* at Cayey (159-40), on Mona Id. (215-40 det. J. S. Caldwell).

Typhlocybella minima Baker
Wadley 37-107: swept from *Bradburyana.*

FULGORIDAE

page 93
Catonia cinerea Osborn
Wolcott 40-30: on maga.

page 94
Oliarus complectus Ball
Fife 39-10: on cotton.
on weeds, Mona Id. (307-40 det. P. W. Oman).

page 96
Epiptera floridae Walker—det. P. W. Oman.
at light (I No. 6784).

page 97
Neurotmeta viridis Walker
at light, Mona Id. (282-40 det. P. W. Oman) .

page 99
Colpoptera maculata Dozier
on Mona Id. (307-40 det. P. W. Oman).

page 102
Ormenis marginata Brunnich
Anon 38-92: on *Jasminum pubescens.*
on sea-grape and *Lantana,* Mona Id. (155-39); on *Coccolobis laurifolia,* Mona Id. (33-40); on *Inga vera* at Cayey (111-40).

Ormenis pygmaea F.
on *Lantana,* sea-grape and at light, Mona Id. (156-39); on *Coccolobis laurifolia,* Mona Id. (32-40).

page 103
Ormenis quadripunctata F.
on icaco at Joyuda (I No. 5912); on sea-grape, Mona Id. (170-39); on *Coccolobis laurifolia,* Mona Id. (34-40).

page 104
Flatoides punctata Walker
at light, Mona Id. (157-39 det. P. W. Oman, 264-40); on sea-grape, Mona Id. (158-39 det. P. W. Oman); on *Coccolobis laurifolia,* Mona Id. (35-40).

page 105

Flatoides brunneus Muir

on *Inga vera* at San Sebastian (50-38).

Cedusa santaclara Myers

Wolcott 40-30: on maga.

page 106

Peregrinus maidis Ashmead

Anon 36-15 & Anon 37-67: vector of a corn-stripe disease of corn.

Wadley 37-107: on corn.

page 111

CHERMIDAE (PSYLLIDAE)

Ceropsylla sideroxyli Riley—det. H. L. Dozier

a pit-forming Psyllid on leaves of *Sideroxylon foetidissimum* at Ciales (5-36), on Mona Id. (45-40).

APHIDIDAE

Sipha flava Forbes

Smith 37-832: attended by *Monomorium carbonarium ebeninum* Forel.

Smith 37-854: attended by *Wasmannia auropunctata* Roger.

Wadley 37-103 to 112: hosts, parasites and predators, "among the minor problems of cane growing."

Wolcott 37-47, Wolcott 37-55 & Wolcott 38-89: no suitable outbreaks of for conducting control experiments.

Wolcott 39-37: successful experiment in control by dusting with calcium cyanide dust.

Anon 39-98: control on lemon grass by *Acrostalagmus aphidum* Oud.

on lawn of *Polytrias amaura* at Mayaguez (I No. 5957); on sugar-cane at Arroyo (80-37), practically free from parasites and predators, and suitable for dusting experiment.

page 112

Aphis asclepiadis Fitch—det. P. W. Mason

on *Asclepias curassavica* at Vega Baja (I No. 7215).

page 113

Aphis gossypii Glover

Smith 37-845: attended by *Crematogaster steinheili* Forel.

Smith 37-867: attended by *Prenolepis fulva* Mayr and by *P. longicornis* Latreille.

Fife 39-9: economic importance on cotton, parasites and predators.

on okra at Isla Verde (I No. 7389); on Santa Maria at Vega Alta (I No. 6173); on *Hibiscus bifurcatus* (I No. 6312, 6342); on roble, *Tabebuia pallida,* (I No. 6691), at Cayey (355-40 det. P. W. Mason); on *Citrullus citrullus,* Mona Id. (213-40).

page 114

Aphis maidis Fitch

Wadley 37-103 to 113: hosts, parasites and predators, "Important in mosaic disease dissemination because more abundant in areas of rapid than of slow spread."

on Sudan grass (134-40).

page 116

Aphis spiraecola Patch

Smith 37-866: attended by *Brachymyrmex heeri* Forel.

on grapefruit at Rincón (I No. 6725).

Carolinaia cyperi Ainslie

Wadley 37-107: only on *Cyperus*.

page 117

Hysteroneura setariae Thomas

Wadley 37-103-113: hosts, predators and parasites, "more abundant in dry weather."

Toxoptera aurantiae Koch

Smith 37-845: attended by *Crematogaster steinheili* Forel.

Smith 37-854: attended by *Wasmannia auropunctata* Roger.

on lime (I No. 6600, 6812); becoming very abundant on tender leaves of coffee in air-conditioned greenhouse when humidity did not go below 70% (87-40); on leaves and young shoots of mantecado, *Rapanea ferruginea,* at Maricao, elev. 1,300 ft. (354-40 det. P. W. Mason).

page 118

Macrosiphum (Tritogenaphis) erigeronensis Thomas—det. P. W. Mason

on *Erigeron canadensis* at Dorado (I No. 7208).

Macrosiphum ambrosiae Thomas—det. P. W. Mason

on branches and leaves of straw flower, *Helichrysum bracteatum,* at Camp Doña Juana, Villalba (175-40); on leaves and branches of *Salvia spendens,* Mona Id. (297-40 det. P. W. Mason).

Myzus persicae Sulzer

on papaya fruit at Isabela (38-38 det. P. W. Mason); on turnip leaves (I No. 7211).

Phorodon menthae Buckton—det. P. W. Mason

on mint (I No. 6329).

Pentalonia nigronervosa Cockerell

Smith 37-845: attended by *Pheidole s. borinquenensis* Wheeler.

Smith 37-854. attended by *Wasmannia auropunctata* Roger.

Smith 37-866: attended by *Brachymyrmex heeri* Forel.

Trifidaphis phaseoli Pass—det. P. W. Mason

on lima beans at Cidra (I No. 6214).

Cerataphis lantaniae Boisduval
Anon 39-120: on vanilla.
on ? at Mayaguez (I No. 7294).

page 119

COCCIDAE

Crypticerya sp., prob. **C. rosae** Riley & Howard
Wolcott (38-82: on casuarina at Ponce.
on casuarina at El Vigia, Ponce (42-36), at Guanica (308-39); on lignum-vitae at Guanica (49-37).

Icerya montserratensis Riley & Howard
Wolcott 35-143: outbreaks at Barceloneta and Isabela.
on casuarina at Mayaguez (131-40—det. J. A. Ramos).

page 120

Icerya purchasi Maskell (introduced) The Cottony Cushion Scale
Wolcott 35-143: spread to Vega Baja and Rio Piedras.
Wolcott 37-46: of but minor importance in 1934-35.
Wolcott 37-54: spread to Manatí (July), Humacao (October), and Arecibo (December) in 1935.
Wolcott 39-82: spread to Camuy (October 1936).
Wolcott 39-33: spread to Isabela and Mona Id.
Wolcott 39-508: successful establishment in P. R. of predator upon.
Wolcott, G. N. & Martorell, L. F., "Epidemics of Fungus Disease Control Insect Pests in Puerto Rico." Jour. Ec. Ent., **33**(1): 201-2. Menasha, Wis., February 1940: control by *Spicaria javanica* 100% effective in humid citrus groves.
[Wolcott, G. N., "The Dispersion of the Cottony Cushion Scale in Puerto Rico in Eight Years." Caribbean Forester, **2**(3): 132-5, map. New Orleans, La., April 1941.]
on rose at Bayamon (I No. 6297), at Aibonito (187-40); on Don Tomás, *Adenoropium multifidum* (L.) Pohl.—det. J. I. Otero, (181-32); on lime at Punta Las Marias, Santurce (21-40); on casuarina at Manati (54-35), on Trujillo Alto road (9-36) controlled by fungus, *Spicaria javanica,* at Arecibo (88-35), at Camuy (29-36), at Camp Guajataca, Ponce village, Isabela (1-38), on Mona Id. (125-39, 37-40), at Pennock's, Sabana Llana (55-39), at Camp El Verde, Rio Grande (370-40), at Mayaguez (130-40 det. J. A. Ramos), at Guanica (181-40); on gandúl, *Cajanus indicus,* at Isabela (34-37); on peppers, Mona Id. (125-39); on capá de obispo, *Acalypha wilkesiana* (109-40 J. S. Simons).

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Orthezia insignis Douglass
on poleo, *Lippia stoechadifolia,* at Ponce (I No. 6938); on *Chenopodium ambrosoides* det. J. I. Otero, at Arecibo (305-32); on *Iresine* at Aguas Buenas (I No. 7458); on *Chione venosa* at Bayamon (I No. 7155).

Lecaniodiaspis sp. nov.—det. H. Morrison
on *Inga vera* at Maunabo (73-37).

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Asterolecanium bambusae Boisduval
Anon 38-36: on many species of bamboo at Mayaguez.
Anon 39-52 & 53: on bamboo, illustration.
on bamboo at Villalba (409-40).

Asterolecanium militaris Boisduval
Anon 38-36: on three species of bamboo at Mayaguez, especially *Bambusa vulgaris*.
Anon 39-52 & 53: on bamboo, illustration.
Bartlett 39-493: "usually attacks leaves" of bamboo.

Asterolecanium pustulans Cockerell
Bartlett 39-493: on culms and larger branches of bamboo.
Martorell 40-31: on *Cassia siamea* Lam. and other hosts.
[Wolcott, G. N., "An Outbreak of the Scale Insect, *Asterolecanium pustalans* Cockerell on Maḡz, *Montezuma speciosissima*." Caribbean Forester, **2**(1): 6-7. New Orleans, La., October 1940.]
killing *Sciacassia siamea* (Lam.) Britton (5-34), at Toa Baja (45-37); on *Rapanea guianensis* at Dorado (I No. 7007); on *Taonabo stahlii* at Dorado (I No. 7008); on *Amygdalus persica* at Mayaguez (I No. 6094); on *Zanthoxylum flavum* (358-40 det. H. Morrison); on *Conocarpus erectus* at Boca de Cangrejos (375-40); causing leaves to wither and killing twigs and smaller lateral branches of maga, *Montezuma speciosissima*, at Isabela, Arecibo and Vega Alta (153-40, 373-40), at Cayey (378-40) and at Corozal (420-40).

Asterolecanium sp. nov.—det. H. Morrison
on maga at Vega Alta (I No. 6069).

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Ceroputo barberi Cockerell—det. H. Morrison
on *Foristiera* or *Mayepea* at Guanica Insular Forest (I No. 5929).

Phenacoccus gossypii Townsend & Cockerell
on *Malacha capitata* (I No. 6172), on *Ambrosia peruviana* (I No. 6176).

Pseudococcus brevipes Cockerell
Smith 37-838: attended by *Solenopsis geminata* F.
Smith 37-843: attended by *Pheidole megacephala* F.
Smith 37-845: attended by *Pheidole s. borinquenensis* Wheeler.
Smith 37-845: attended by *Crematogaster steinheili* Forel.
Smith 37-854: attended by *Wasmannia auropunctata* Roger.
Smith 37-866: attended by *Brachymyrmex heeri* Forel.

Smith 37-867: attended by *Prenolepis fulva* Mayr and *P. longicornis* Latreille.
Anon 38-98, Anon 39-106 & Bartlett 39-67 to 71: introduction of two parasites of, and recovery of one in P. R.
Fife 39-9: on cotton.

Pseudococcus adonidum L.
for "*Averrhoa carambola* L.," read *Barringtonia asiatica;* also on *Dracena fragrans* (23-35); an amaryllis, *Hippeastrum puniceum,* at Mayaguez (I No. 7419); on hibiscus (I No. 6365); on emejagua at Cayey (380-40).

Pseudococcus citri Risso
Smith 37-873: attended by *Myrmelachista ramulorum* Wheeler.
Fife 39-9: on cotton.
Wolcott 40-29: on maga

page 125
Pseudococcus maritimus Ehrhorn
on chayote (I No. 6107).

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Pseudococcus nipae Maskell
Smith 37-845: attended by *Crematogaster steinheili* Forel.
Smith 37-873: attended by *Myrmelachista ramulorum* Wheeler.
Martorell 40-24: on anacaguitas, *Sterculia apetala.*
for "carambola tree," read, *Barringtonia asiatica;* also on avocado at Mayaguez (I No. 7418); on *Cenangium odoratum* at Dorado (I No. 4411); on *Sterculia apetala* at Guanica (76-40); on leaves of *Ficus lyrata* at Guayama (170-40); on *Callophyllum antillanum* at Guajataca (371-40); on laurél geo, *Ocotea portoricensis,* at Maricao (398-40); on laurél avispillo, (= geo) *Ocotea portoricensis,* at Ciales (419-40).

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Trionymus sacchari Cockerell
Smith 37-854: attended by *Wasmannia auropunctata* Roger.
Smith 37-867: attended by *Prenolepis fulva* Mayr.
Wadley 37-103 to 113: on sugar-cane, especially POJ 2878, and sorghum.

page 128
Pseudococcus (Ferrisia) virgatus Cockerell
Smith 37-854: attended by *Wasmannia auropunctata* Roger.
Smith 37-866: attended by *Brachymyrmex heeri* Forel.
Fife 39-9: on cotton.
on *Melicocca bijuga* (I No. 6109).

Antonina (Chaetococcus) bambusae Maskell
Anon 38-36: on bamboo at Mayaguez.

page 129
Pulvinaria psidii Maskell
on *Cedrella odorata* (341-39).

Pulvinaria urbicola Cockerell
on sea-grape (GNW—det. H. Morrison) at Pt. Cangrejos, 1921.

Ceroplastes denudatus Cockerell
Fife 39-9: on cotton.
on coconut palm, Puerta de Tierra (I No. 6114); formerly reported from the introduced African cloth bark tree, *Ficus nekbuda,* Muños Rivera Park, Puerta de Tierra (26-33), from which the present infestation on coconut palm presumably came.

Ceroplastes floridensis Comstock
on coconut palm (I No. 6110).

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Vinsonia stellifera Westwood
on *Garcinia* at Naguabo (I No. 7204).

Eucalymnatus tessallatus Signoret
on *Callophyllum antillanum* at Lares (359-40 det. H. Morrison).

Coccus accuminatus Signoret
on *Emelista tora* at Barceloneta (I No. 7160); on achiote at Salinas (I No. 6692).

page 131
Coccus hesperidum Green
on leaves of mango at Fajardo (116-39 det. H. Morrison), at Mayaguez (I No. 5990).

Coccus viridis Green
Smith 37-832: attended by *Monomorium c. ebeninum* Forel.
Smith 37-845: attended by *Pheidole s. borinquenensis* Wheeler.
Smith 37-854: attended by *Wasmannia auropunctata* Roger.
Smith 37-866: attended by *Brachymyrmex heeri* Forel.
Smith 37-873: attended by *Myrmelachista ramulorum* Wheeler.
Anon 38-80: on *Chinchona* spp.
Fife 39-9: on cotton.
on *Randiae* at Arecibo (I No. 7430); attacking eggplant, almendra, *Coccolobis uvifera* and *C. laurifolia* on Mona Id. (110-39); on teak at Patillas (427-40).

page 132
Saissetia nigra Nietner
Fife 39-9: on cotton.
on maga at Vega Alta (I No. 6069; tremendously abundant on *Ficus lentiginosa* at Ponce (38-36 det. H. Morrison).

page 133
Saissetia oleae Bernard
Fife 39-9: on cotton.
on capá prieta, *Cerdana allidora,* at Salinas (8-40); on guava at San German (I No. 6183); on maga at Vega Alta

(I No. 6069), at Villalba (405-40); on almendra, Mona Id. (80-39); on *Sideroxylon foetidissimum* at Guanica (328-40); on *Cedrela mexicana* at Villalba (405-40); on *Tectona grandis* at Patillas (415-40); on *Zanthoxylum flavum* (358-40 det. H. Morrison).

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Howardia biclavis Comstock

on *Bixa orellana* at Bayamon (I No. 6204); on *Myrcia citrifolia* at Dorado (I No. 7026); on *Tecoma pentaphylla* at Vega Alta (I No. 7152); on *Genipa americana* at San German (I No. 6184, 6474); on *Cedrela odorata* at El Verde, Rio Grande (355-40 det. H. Morrison).

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Aulacaspis pentagona Targioni

Wolcott 37-45, Wolcott 37-57 and Wolcott 38-88: spraying experiments in attempted control on papaya.

Wolcott 39-36: best control found by Mr. L. A. Serrano of Isabela Sub-station to be high-power spraying with water.

Anon 38-80: on *Chinchona* spp.

Anon 38-98: parasites of, released in P. R.

Anon 39-100: fed to the lady-beetles, *Chilocorus cacti* L., introduced from Texas.

Anon 39-104: on *Calotropis gigantea.*

Martorell 40-31: on *Fraxinus.*

on garden pepper (I No. 6419); on geranium at Cayey (I No. 6509); on *Amygdalus persicae* at Mayaguez (I No. 6094); on *Fraxinus* sp. in Maricao Insular Forest (48-36 det. H. Morrison) and at Las Cruces (75-40), defoliating and killing trees; on *Solanum verbascifolium* at Camp Doña Juana, Villalba (357-40 det. H. Morrison); on *Erythrina glauca* at Villalba (356-40 det. H. Morrison).

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Pinnaspis (Hemichionaspis) minor Maskell

(as var. *strachani* Cooley) Fife 39-9: on cotton and *Thespesia populnea.*

Wolcott 40-29: on maga.

on emajagua at Cayey (381-40): on "achiotillo" at Quebradillas (416-40); on tung oil tree at Patillas (430-40); on *Zanthoxylum flavum* (358-40 det. H. Morrison).

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Aspidiotus (Aonidiella) cocotiphagus Marlatt

on tamarind (I No. 6106), at Arecibo (I No. 6075); on coconut (I No. 6110); on avocado (I No. 6148); on hibiscus (I No. 6353); on *Chalcas exotica* (I No. 7282); on *Jasminum sambac* (I No. 6197); on grape at Guaynabo (3-36 det. H. Morrison); on rose at Ponce (15-36 det. H. Morrison), at Bayamon (I No. 6297); on aceitillo, *Zanthoxylum flavum,* at Guanica Insular Forest (15-38 det. H. Morrison).

Aspidiotus destructor Signoret
Dohanian 37-243: "the coconut scale."
Anon 38-97: "notably reduced" by lady-beetles introduced from Trinidad.
Anon 39-106: host of *Azya trinitatis*.
on *Psidium guajava* (I No. 6171); on *Terminalia catappa* at Bayamon (I No. 6598), at Mayaguez (I No. 6386); on *Cocos nucifera* (I No. 6111, 6116), on Mona Id. (70-39); for "carambola tree" read *Barringtonia asiatica* (35-35 det. H. Morrison), also on this host on Mona Id. (71-39).

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Aspidiotus herculeanus Doane & Hadden—det. H. Morrison
on *Phoradendron randiae* at Arecibo (I No. 7431); on *Tabebuia* at Vega Alta (I No. 7152).

Aspidiotus sp.—det. H. Morrison
on *Myrcia citrifolia* at Palo Seco (I No. 6500).

Selenaspidus (Pseudaonidia) articulatus Morgan—The "W. I. Red" Scale of Citrus
on wild orange (7-39) defoliating tree, on which introduced lady-beetles from Trinidad, *Hyperaspis belloti*, were released; on kumquat at Mayaguez (I No. 6398); on *Malachra alceifolia* at Bayamon (I No. 6712); on *Thyella tamnifolia* at Manati (I No. 7140); on *Emelista tora* at Barceloneta (I No. 7160); on *Pothomorphe peltata* at Guaynabo (I No. 7174); on *Callophyllum antillanum* at Lares (359-40 det. H. Morrison).

page 139
Chrysomphalus aonidium L.—the "Florida Red" Scale of Citrus
on *Taonabo stahlii* at Dorado (I No. 7008).

Chrysomphalus aurantii Maskell—the "California Red" Scale of Citrus
on lemon imported from California, at Trujillo Alto (14-36 det. H. Morrison) and on wild, unbudded citrus seedlings (33-37), on orange (I No. 6646), on kumquat (I No. 6647), on lemon (I No. 6648, 6649); on grapefruit at Bayamon (I No. 6099).

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Chrysomphalus dictyospermi Morgan
on rose at Bayamon (I No. 6297).

Chrysomphalus (Melanaspis) portoricensis Lindinger: Zeitschrift. f. Wissen., Insektbiol., Bd. VI, heft 12, p. 441, 1910 and Bd. VII, heft I, p. 9, 1911, TYPE from *Coccoloba excoriata* (= *venosa*), "Calambreña," at Cayay, P. R., near Las Cruces; possibly this sp., on sea-grape at Luquillo (702-40 det. H. Morrison).

Chrysomphalus sp.—det. H. Morrison
on *Coccolobis pyrifolia* at Maricao (360-40) leaves and branches heavily infested (not the above sp.).

Pseudischnaspis bowreyi Cockerell
on rose at Ponce (15-36 det. H. Morrison); on *Spondias purpurea* (I No. 6490).

page 141
Pseudoparlatoria ostreata Cockerell—the Grey Scale of Papaya
Wolcott 37-57, Wolcott 38-88: spraying experiments in attempted control on papaya.
Wolcott 39-36: Mr. L. A. Serrano of Isabela Sub-Station found most effective control to be high-power spraying with water.
Anon 39-100: fed to *Chilocorus cacti* L., lady-beetles imported from Texas.
on papaya on Mona Id. (38-40), at Bayamon (I No. 6147); on cultivated grape at Guaynabo (3-36 det. H. Morrison).

Pseudoparlatoria parlatorioides Comstock—det. H. Morrison
on leaves of *Laguncularia racemosa* at Faro de Cabo Rojo (55-37); on torchwood, *Amyris elemifera,* at Dorado (I No. 7210).

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Parlatoria pergandii Comstock
on kumquat at Barceloneta (I No. 6397).

Lepidosaphes gloverii Packard
on lime (I No. 7165).

page 143
Ischnaspis longirostris Signoret
Martorell 40-24: on Honduras mahogany, *Swietenia macrophylla.*
on *Ficus nitida* on El Yunque (352-39, 363-40); on *Swietenia macrophylla* at Rio Grande (369-40).

ALEYRODIDAE

Aleurodicus griseus Dozier
on *Eugenia ludibunda* at Palo Seco (360-39).

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Leonardius lahillei Leonard
on mistletoe on *Ficus* at Ciales (6-36 det. H. L. Dozier); on mistletoe on *Inga vera* at Jajome Alto (52-37).

Bemisia inconspicua Quaintance—det. M. D. Leonard
on sweet-potato (48-38).

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Aleurotrachelus trachoides Back
on *Solanum torvum* at Isabela (39-36).

Aleurotrachelus sp. nov.—det. L. M. Russell
on leaves of sea-grape at Quebradillas (33-39, 42-38).

Tetraleurodes acaciae Quaintance ?—det. P. W. Mason
on *Meibomia supina* at Guaynabo (I No. 7166).

Tetraleurodes sp.—det. L. M. Russell
on sweet-potato leaves (I No. 7281).

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HEMIPTERA

Barber, H. G., "Insects of Puerto Rico and the Virgin Islands—Hemiptera-Heteroptera (excepting the Miridae and Corixidae)." Scientific Survey of Puerto Rico and the Virgin Islands, **14**(3): 263-441, fig. 36. New York Academy of Sciences, New York, July 7, 1939. "Since the manuscript of this article was completed before the receipt of the "Insectae borinquenses" of George N. Wolcott, all references to the species and other items of interest in that treatise are omitted."

CORIXIDAE

Arctocorixa sp.—det. H. G. Barber
Ramos Col., at Barranquitas xii-35, at Rio Piedras vi-12-32.

Centrocorisa kollari Fieber—det. H. B. Hungerford
AMC: at Mayaguez x-32.

BELOSTOMATIDAE

Cummings, Carl, "The Giant Water Bugs, Belostomidae—Hemiptera." Sci. Bul. Univ. Kansas, **21**(2): 197-219, pl. 2, Lawrence, March 1933.

Belostoma boscii Lepeletier & Serville
Barber 39-425: with *B.* (*Zaitha*) *anura* in synonymy, at Mayaguez, Cayey and Coamo.

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Belostoma minor Duf.—det. H. G. Barber
Ramos Col., at Guanica Lagoon, i-11-36.

Lethocerus annulipes Herrich-Schaeffer
Cummings 33-203: collected by E. A. Waggerin.
Barber 39-426: at Ponce and Mayaguez.

Lethocerus del-pontei De Carlo
Cummings 33-206: at San Juan.
Barber 39-426: one specimen in USNM from Puerto Rico.

NEPIDAE

for "**Ranatra australis** Hungerford" and "sp.," read
Ranatra insulata Barber 39-423: TYPE from Las Marias, P. R., illustration.

NAUCORIDAE

Pelocoris femorata P. B.
Barber 39-422: at Guanica and Desengaño.

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NOTONECTIDAE

Buenoa femoralis Fieber (as *Anisops*) *in* "Rhynchota" 59, (1851): TYPE from P. R.
Barber 39-420: from San Juan, Coamo, Quebradillas, and Mona Id. (Lutz).

Buenoa macropthalma Fieber (not *B. macrophthalmus*)
Barber 39-420: from five P. R. localities.

Buenoa pallipes F.
Barber 39-241: from Mona and Culebra Ids., Coamo, Aibonito and Aguadilla.

Notonecta indica L.
Hungerford, H. B., "The Genus *Notonecta* of the World, Notonectidae—Hemiptera." Sci. Bul. Univ. Kansas, **21**(1):5-195, pl. 17. Lawrence, March 1933: p. 117, from Desengaño, P. R., June 1924 (Cornell Univ. lot 719).
AMC: at Mayaguez xii-34 det. Hungerford.
Barber 39-419: with *N. undulata* in synonymy, six P. R. localities.
all records as "*N. undulata*" and "*N.* sp." go here.

PLEIDAE

Plea punctifer Barber
Barber 39-418: illustration.

Plea puella Barber
(as *Plea striola* Fieber) Wetmore 16-35, 75: eaten by Gallinule and Black Swift.
Barber 39-417: illustration.

SALDIDAE

Pentacora signoreti Guerin—det. H. B. Hungerford
AMC: at Boqueron vii-32, Mayaguez i-35, Arecibo iii-35.
around brackish pools, on beach at Maunabo (10-40 det. H. G. Barber).

Pentacora sphacelata Uhler
Barber 39-415: "Porto Rico near shore (no other data)—A. M. N. H."

Saldula pallipes F.
Barber 39-415: at Ensenada.

Micracanthia humilis Say ? (not *Micranthia*)
Barber 39-417: "a single male specimen from San Juan."

Micracanthia sulcata Barber 39-415: TYPE from Coamo Springs, P. R., other from Ciales. Illustration.
the record "on weeds from Ciales (649-21)" goes here.

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VELIIDAE

Microvelia capitata Guerin
Barber 39-411: with *M. albonotata* Champion in synonymy.
(as "sp.") Wetmore 16-40, 41: eaten by Killdeer and Spotted Sandpiper.
the records of *M. albonotata* go here, also, on surface of water (250-16), at light (203-11); at Guanica (EGS).

Microvelia paludicola Champion
Barber 39-413: at Coamo, Adjuntas and Ponce.

Microvelia pulchella Westwood
Barber 39-410: at Coamo and Aibonito.

Microvelia robusta Uhler
Barber 39-411: on Mona Id. and at six P. R. localities.

Rhagovelia collaris Burmeister
(as *R. tayloriella* Kirkaldy) Barber 23-13 listed.
(as *R. angustipes* Uhler) AMNH at Naguabo and Maricao.
Barber 39-413; synonymy, at thirteen P. R. localities.
on El Yunque (95-35 det. H. G. Barber).

GERRIDAE

Limnogonus franciscanus Stal
(as *Tenagogonus* (*Limnometra*) *quadrilineatus* Champion) Van Zwaluwenburg's list: det. O. Heidemann.
(as *Gerris marginatus* Guerin) Stahl. Wetmore 16-22: eaten by Cuban Green Heron.
(as *Limnotrechus marginatus* Guerin) Gundlach.
(as *Tenagogonus* (*Limnogonus*) *guerini* Lethierry & Severin) Barber 23-13: listed.
(as *Gerris guerini* Lethierry & Severin) AMC collections.
(as *Limnogonus marginatus* Guerin) AMNH and AMC collections.
Drake, C. J. & Harris H. M., "Notes on some North American Gerrids (Hemiptera)." Arkiv. Zool., **28** B (1 No. 2): 1-4, fig. 1. Stockholm, 1935: synonymy.
Barber 39-407: from Vieques, Culebra and Mona Ids., and twelve P. R. records.
in water in ditch (712-16); at light at Guanica (614-13); in cistern, Mona Id. (74-39) and in pools (207-40 det. H. G. Barber).

Gerris cariniventris Champion
Barber 39-409: at Maricao and Barros.

Gerris remigis Say
Barber 39-408: at Quebradillas.
presumably here goes also the "sp. nov.", in water at Ponce (I No. 5738).

Rheumatobates imitator Uhler
Barber 39-407: from Guayabál Reservoir (Hildebrand).

Metrobates laudatus Drake, C. J. & Harris, H. M., Revista Entomologia, **7** ( ): Rio de Janeiro, 1937: TYPE ? from Juana Diaz and Rio Piedras, P. R.

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HYDROMETRIDAE

Hydrometra consimilis Barber
Barber 39-406: at Añasco.

CRYPTOSTEMMATIDAE

Ceratocombus vagans McAtee & Malloch
Barber 39-405: at Rio Piedras and Jayuya.
here goes the "*C. minutus* Uhler—det. H. G. Barber on dead leaves (I No. 5907)."

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MIRIDAE

Paracarnus cubanus Bruner—det. H. G. Barber
abundant on underside of leaves of *Fraxinus* sp. (ash) at El Verde, Rio Grande, and of *Cordia sulcata,* morál, and of emejagua, *Pariti tiliaceum,* there and at Cayey (352-40).

Hyaloides vitreus Distant
Wolcott 40-29: on maga.

Lygus apicalis Fieber
Fife 39-9: on cotton.
at light, Mona Id. (377-39 det. H. G. Barber).

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Polymerus cuneatus Distant
on sugar-cane at Salinas (258-39).

Creontiades rubrinervis Stal
Fife 39-8: on cotton.

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ANTHOCORIDAE

Paratriphleps pallidus Reuter
Barber 39-404: at San Juan. Illustration.

Orius insidiosus Say
Barber 39-403: many records.

Asthenidea picta Uhler
Barber 39-402: no new records.

Xylocoris sordidus Reuter
(as *Piezostethus*) Barber 23-13: listed.
Barber 39-401: from Mona Id. (Lutz).

Cardiastethus rugicollis Champion
(as *C. assimilis* Reuter) Dozier 27-280: on *Ficus nitida,* predaceous on thrips.
Barber 39-402:
on papaya at Arecibo (I No. 4678).

Macrotracheliella laevis Champion
Barber 39-403:

Macrotracheliella nigra Parshley
Barber 39-403: possibly a misidentification.

Lasiochilus divisus Champion
Barber 39-401: from Vieques Id.

Lasiochilus microps Champion ?
Barber 39-401: ?
presumably this is "*L. fusculus* Reuter—det. H. G. Barber, on decayed flower stalk of banana at Bayamon (I No. 2444 Leonard 33-132)."

Lasiochilus pallidulus Reuter
Barber 39-400: from Vieques Id. (Leonard).

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POLYCTENIDAE

Hesperoctenes fumarius Westwood
Barber 39-399: on bat from Vieques Id. (Busck).

CIMICIDAE

Cimex hemipterus F.
Riley, W. A. & Johannsen, O. A., "Medical Entomology," 1932, p. 157: presence in P. R.
Barber 39-398: many records.
on Mona Id. (75-39).

NABIDAE

Metatropiphorus drakei Harris, Halbert M., "A Monographic Study of the Hemipterous Family Nabidae as it occurs in North America." Entomologica America, **9**(1 & 2): 1-90, pl. 4, 1928: p. 73, TYPE from Utuado, P. R.
Barber 39-395: not seen.

Neogorpis neotropicalis Barber
Harris 28-83:
Barber 39-396: no new records, illustration.

Carthasis gracilis Harris
Barber 39-396: with *C. minor* Reuter in synonymy, at Aibonito, Aguirre (Box) and Rio Piedras.
(4-25).

Nabis capsiformis Germar—det. H. G. Barber
Fife 39-9: on cotton.
on string beans at Loiza (I No. 6781).

Nabis spinicrus Reuter
Barber 39-395: with *N. signatus* in synonymy, at Aibonito.

Nabis sordidus Reuter
Barber 39-395: at San Juan, Coamo and Tallaboa.

Pagasa fusca Stein
Barber 39-394: from Coamo Springs.

MESOVELIIDAE

Mesovelia mulsanti caraiba Jaczewski
Barber 39-393: at seven P. R. localities.
on lily pond (I No. 7180).

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REDUVIIDAE

Heza pulchripes Stal, Oefv. Vet.—Akad. Forh., 1859: p. 199, TYPE from P. R.
Barber 39-389: "apparently confined to P. R."

Heza angulifer Barber 39-389: TYPE from Bayamon, P. R., others from Ponce and Mayaguez. Illustration.
here belongs "*Heza* sp. nov.—det. H. G. Barber
on Crotalaria at Mayaguez (I No. 5816.)"

Stenopoda cinerea Laporte
Stahl. (as *S. culiciformis* F.) Gundlach.
Barber 39-388: synonymy.
AMC: at Luquillo vi-32, Coamo i-32, Mayaguez ix-30, v-31.
(284-12), at light (137-32).

Narvesus caolinensis Stal—det. H. G. Barber
AMC: at Luquillo vi-32.

Pnirontis infirma Stal
Barber 39-388: at Isabela (Leonard).
on flowers of Amaranthus (506-16 det. H. G. Barber).

Perigrinator biannulipes Montrouzier
Plank 39-151: records from P. R.

Zelus longipes L.
Barber 39-391: "convinced that Champion was correct in stating in reference to *Z. rubidus* 'perhaps not really distinct from *Z. longipes* L.' "
Fife 39-9: on cotton.

page 159 all the records of *Z. rubidus* should come here, as well as that of "(as "sp.") Wetmore 16-61, 77, 80: eaten by Ani, Kingbird and Petchary.", together with the following new records:

feeding on *Cycloneda sanguinea,* Mona Id. (101-39); on flowers of *Borreria verticillata* at Yabucoa (318-39); on flowers of *Heliotropum indicum,* Vieques Id. (103-40).

Zelus subimpressus Stal
Barber 39-392: at six P. R. localities.
on guava (493-16 det. H. G. Barber); all stages at Vega Alta (219-17 det. H. G. Barber).

Zelus nugax Stal
Barber 39-392: "should be referred to *Leptocoris filiformis* Fabricius."

Rasahus biguttatus Say
Barber 39-389: Danforth's and Cotton's collections.
(as *R. hamatus* F.—det. H. G. Barber) AMC: at Yabucoa vii-20.
on grapefruit tree (560-17).

Ploiaria gundlachi Dohrn
Barber 39-387: at Mayaguez, Coamo and Isabela.

Empicoris barberi McAtee & Malloch (not *Empicornis*)
Barber 39-386: generic transfer from *Ploiarodes.*
at light (I No. 5591, det. H. G. Barber as *E. subparallelus* McAtee & Malloch).

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Empicoris armatus Champion
Barber 39-387: at Aibonito and from Vieques Id. (Leonard).
on foliage of grapefruit at Vega Alta (222-17 det. W. L. McAtee as *Ploiarodes armatus*).

Empicoris rubromaculata Blackburn
Barber 39-386: generic transfer from *Ploiarodes,* the records in IP-243 and IB-160 under this generic name, and from Vieques Id. (Leonard).

Emesopsis nubilis Uhler
Barber 39-386: from Vieques Id. (Leonard).
under dead leaves (I No. 6000).

Ghilianella longula McAtee, W. L. & Malloch, J. R., "Revision of the American Bugs of the Reduviid Subfamily Ploiarinae." No. 2573. Proc. U. S. Nat. Mus., **67**(1): 1-153, pl. 9. Washington, 1925: TYPE from Cuba.
Barber 39-388: from El Yunque (Leonard).

Ghilianella varicornis Dohrn
McAtee & Malloch 25-96 & 101: female described.
Barber 39-387: listed.

Emesa tenerrima Dohrn
Barber 39-387: noting McAtee & Malloch 25-46, generic transfer from *Westermannia.*

ENICOCEPHALIDAE

Enicocephalus semirufus Barber 39-382: TYPE from Adjuntas, P. R., other from Yauco. Illustration.

PHYMATIDAE

Phymata marginata F.
Barber 39-373: Gundlach's record as *P. erosa* in synonymy, eight other P. R. records.

Macrocephalus crassimanus F.
Barber 39-378: seven P. R. records.
on *Inga laurina* at Lares (155-22 det. W. L. McAtee as *M. bergrothi* Handl.).

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Macrocephalus leucographus Westwood
Barber 39-379: re-determinations.
on coffee at Lares (287-21 det. W. L. McAtee as *M. granulatus* Champion); on *Inga laurina* at Adjuntas (I No. 3872 det. as "sp. nov.").

Macrocephalus pulchellus Westwood
Barber 39-379: not seen in P. R.

Macrocephalus productus Barber 39-376: TYPE from Aibonito, P. R., illustration.

Macrocephalus spiculissimus Barber 39-374: TYPE from Aibonito, P. R., illustration.
a very spiny nymph from leaves of *Inga vera* (80-23 det. GNW, confirmed H. G. Barber).

Extraneza nasuta Barber 39-380: TYPE from Yauco, P. R., Illustration.
on ? at Yauco (I No. 5767 det. as "*Macrocephalus* sp. nov.").

TINGITIDAE

Leptopharsa illudens Drake = *Atheas pallidus* Barber 23-6: TYPE from P. R.
Barber 39-370: at Arecibo and Mayaguez.

Corythucha gossypii F. (not *Corythuca*)
Anon 38-86 & Anon 39-123: negative results in experiments used as vector of bunchy-top disease of papaya.
Fife 39-9; on cotton.
Barber 39-368: description and economic summary.
Martorell 40-23: on aceitillo, *Zanthoxylum flavum;* carubio, *Z. monophyllum;* and espino rubiál, *Z. caribaeum.*

on castor bean, Mona Id. (172-39 det. H. G. Barber, 31-40); on *Ichthyomethia pispicula* and castor bean, Vieques Id. (101-40); on *Capparis baducca* at Guanica (345-40).

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Corythaica carinata Uhler
Barber 39-369: four P. R. records.
Fife 39-9: on cotton.

Corythaica planaris Uhler
Barber 39-369: all over P. R. on eggplant and *Solanum torvum.*
on eggplant (I No. 6331).

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Monanthia c-nigrum Champion
Barber 39-372: only Danforth's record from Joyuda.

Monanthia monotropidia Stal
Barber 39-371: at Aibonito and Arecibo.
Martorell 40-23: heavy investations on capá prieto, *Cerdana alliodora* R. & P. (= *Cordia Gerascanthus* Jacq.), at Cayey and Salinas.
all stages abundant on underside of leaves of capá prieto at Cayey (90-40), presumably on this host in mountains north of Yauco (266-22).

Teleonemia sacchari F.
Barber 39-371: with previous records of *T. prolixa* Stal from P. R. in synonymy, nine new P. R. records.

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Leptodictya bambusae Drake
Barber 39-370: also in Haiti.

PYRRHOCORIDAE

Dysdercus andreae L.
Barber 39-366: from Culebra and Mona Ids., many P. R. records.
Fife 39-7: on *Thespesia populnea, Abutilon hirtum, Sida* sp. and cotton.
Wolcott 40-30: feeding on seeds of maga.

Dysdercus sanguinarius Stal
Barber 39-366: six P. R. records.
Fife 39-7: on cotton, maga and *Thespesia populnea.*
on *Sterculia apetala* at Mayaguez (I No. 7224).

Dysdercus suturellus Herrich-Schaeffer
Barber 39-366: Ballou's 1906 record.

Largus obovatus Barber
Barber 39-164: generic transfer from *Euryophthalmus,* and with P. R. record of *Largus rufipennis* Castelnau and *L. varians* Stal in synonymy. Illustration.

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LYGAEIDAE

Oncopeltus aulicus F.
Barber 39-336: from Culebra Id. (Busck).
Fife 39-9: on cotton.
on Mona Id. (15-37 det. H. G. Barber, 98-39), on blossoms of *Colubrina colubrina, Moringa moringa* and *Pisonia albida* (206-40 det. H. S. Barber).

Oncopeltus fasciatus Dallas
Barber 39-325: many P. R. records.
on milkweeds at Vega Baja (I No. 7449).

Lygaeus albonotatus Barber
Barber 39-337: illustration.

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Lygaeus coccineus Barber
Barber 39-338: illustration.

Lygaeus collaris F.
Barber 39-337: at seven P. R. localities.
Fife 39-9: on cotton.
here should go all records of *Lygaeus bicrucis* Say, also the new records: at Aguadilla (22-40); on blossoms of *Pisonia albida,* Mona Id. (248-40).

Lygaeus pulchellus F.
Barber 39-336: from Mona Id.
abundant and mating on *Corchorus hirsutus* at Pt. Cangrejos (79-16 det. H. G. Barber).

Ortholomus jamaicensis Dallas
Barber 39-340: many P. R. records, Vieques Id. (Busck).

Nysius ericae Schilling
Barber 39-342: from Mona Id., Caguas and Adjuntas.

Nysius inaequalis Uhler
Barber 39-341: with *N. basalis* in synonymy, from Desecheo and Mona Ids. (Crampton).

Nysius strigosus Uhler
Barber 39-342: at Tallaboa and from Mona Id. (Lutz).

Cymoninus notabilis Distant (not *Cymonius*)
Barber 39-344: at Caguas, Coamo and Añasco.

Ischnorhynchus championi Distant
Barber 39-344: many P. R. records, from Mona Id. (Crampton).

Cymus virescens F.
Barber 39-343: at Aguirre, Ponce, Añasco and Santurce. Illustion.

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Ischnodemus sallei Signoret
Barber 39-345: Danforth's records.

Blissus leucopterus Say
(as var. *insularis* Barber) Wadley 37-107: on grass.
Anon 37-93: attacking *Polytrias amaura,* a Java grass at Mayaguez.
Barber 39-345: from Mona Id. (Crampton).
killing out extensive patches of malojillo grass as Manatí (266-39); on young sugar-cane at Canovanas (50-37); on grass, Mona Id. (99-39).

Geocoris thoracicus Fieber
Barber 39-346: with previous P. R. records as *G. lividipennis* in synonymy, at San Juan and Ensenada.
at Faro de Cabo Rojo viii-36 (J. A. Ramos).

Ninyas deficiens Lethierry
Barber 39-346: at Aibonito and Adjuntas.

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Clerada apicornis Signoret
Barber: 39-363: cosmopolitan.

Paragonatas divergens Distant
Barber 39-363: at Lares (Sein).

Ligyrocoris abdominalis Guérin
Barber 39-350: at Tallaboa.

Ligyrocoris litigiosa Stal
Barber 39-350: at Bayamon (Busck).

Paromius longulus Dallas
Barber 39-350: at many P. R. localities, Mona and Desecheo Ids.

Pachybrachius bilobatus Say
(as *Orthaea*) Fife 39-9: on cotton.
Barber 39-353: generic transfer from *Orthaea;* at many P. R. localities, also Vieques Id.

Pachybrachius intermedius Barber
Barber 39-353: generic transfer from *Orthaea;* at Cataño and Isabela, illustration.

Pachybrachius scutellatus Dallas—det. H. G. Barber
Ramos Col., at Mayaguez v-22-40.

Pachybrachius servillei Guérin
Barber 39-354: at Humacao.

Pachybrachius vinctus Say
Barber 39-353: many P. R. records, also Mona and Vieques Ids.

Heraeus guttatus Dallas
Barber 39-354: at light at Isabela (Leonard).

Exptochiomera minima Guérin
Barber 39-355: generic transfer from *Ptochiomera;* at Ensenada, Adjuntas, Aguirre and San German.

Pachygrontha bimaculata Distant
Barber 39-347: from Mayaguez (Danforth).

Pachygrontha parvula Barber
Barber 39-348: a single male from Mona Id.

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Ozophora atropicta Barber 39-356: TYPE from Manatí, P. R., others from five P. R. localities, the Bahamas and Hispaniola.
on grass at Bayamon (I No. 5464 det. as "sp. nov.").

Ozophora burmeisteri Guérin
Barber 39-355: at four P. R. localities.

Ozophora pallescens Distant
Barber 39-361: at San Juan, Dorado, Guayama, El Yunque and from Vieques Id.
at light (251-16 det. W. L. McAtee); at light at Palo Seco (I No. 6565).

Ozophora quinquemaculata Barber 39-359: TYPE from Vieques Id., others from six P. R. localities; previously reported as *O. concava* Distant. Illustration.

Ozophora subimpicta Barber 39-358: TYPE from Mayaguez, P. R., others from El Yunque, Aibonito and Adjuntas, also from Hispaniola. Illustration.

NEIDIDAE

Jalysus reductus Barber 39-331: TYPE from Mona Id., others from Hispaniola, Mexico and Central America. Illustration. Previously listed from P. R. as *J. spinosus* Say.

ARADIDAE

Mezira abdominalis Stal
Barber 39-330: at Mayaguez (Landrón).

Aneurus minutus Bergroth
Barber 39-330: from Adjuntas.
in decaying wood at Adjuntas (I No. 5491 det. as *A. politus* Say by HGB); nymph in dead leaves (I No. 5909).

COREIDAE

Leptoglossus balteatus L.
Barber 39-311: at Guanica.

Leptoglossus gonagra F.
Barber 39-310: common in P. R.
on *Lantana* at Guajataca (273-39); on *Borreria verticillata* at Aguadilla (283-39).

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Leptoglossus stigma Herbst
Barber 39-311: "chief food-plant apparently guava."
on guava at Sabana Grande (84-37).

Phthia picta Drury
Barber 39-312: from Culebra Id. (Busck).
on eggplant, Mona Id. (102-39).

? **Phthia rubropicta** Westwood
Barber 39-312: distinct from *P. lunata,* which is continental, but under which West Indian records have been given.

Spartocera batatas F.
Barber 39-314: illustration.

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Spartocera fusca Thunberg
Barber 39-313: many records.

Sephina erythromelaena White
Barber 39-316: re-determination of *S. indierae* Wolcott as identical with this continental species.

Chariesterus gracilicornis Stal
Barber 39-316: all *C. moestus* records from P. R. are this species.
Fife 39-9: on cotton.

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Althos obscurator F.
Barber 39-318: generic transfer from *Margus,* specimens from Aibonito.

Catorhintha guttula F.
Barber 39-318: from Vieques Id. (Busck) and Mona Id.
Fife 39-9: on cotton.

Catorhintha borinquensis Barber
Barber 39-319: illustration.

Anasa scorbutica F.
Barber 39-320: injurious to Curcurbitaceae.
on squash at Morovis (I No. 7397).

Zicca taeniola Dallas
Barber 39-320:

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Sphictyrtus whitei Guérin

Barber 39-321: illustration.

common on Mona Id. (97-39, 30-40) adults in swarms clinging to lower branches of trees in shade of cliff, no apparent preference as to kind of tree, and not feeding. At top of cliff, adults on tender leaves of *Coccolobis laurifolia,* possibly feeding (GNW).

Leptocorixa filiformis F. (not *Leptocoris*)

Fife 39-9: on cotton.

Barber 39-324: five P. R. records.

Barber 39-392: "*Zelus nugax* Stal, recorded by Wolcott from Porto Rico, should be referred to *Leptocorixa filiformis* Fabricius."

the records of *Zelus nugax* (IB-159) should thus come here, also: on Mona Id. (159-39).

Hyalmenus longispinus Stal

Barber 39-323: from Mona Id.

Megalotomus rufipes Westwood

Barber 39-323: many records.

Fife 39-9: on cotton.

Harmostes affinis Dallas

Barber 39-326: from Aguirre (Box).

Harmostes serratus F.

Barber 39-325: many records.

Exogenus extensum Distant (not *extensus*)

Barber 39-326: from San Juan.

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Corizus hyalinus F.

Barber 39-327: from Mona Id. (Lutz) and Vieques Id. (Busck).

Fife 39-9: on cotton.

on weeds at Mayaguez (I No. 5943).

Corizus sidae F. (with "? prob. *vincentii* Westw." penciled in by HGB)

Barber 39-327: from Mona and Desecheo Ids. (Lutz) and Vieques and Culebra Ids. (Busck).

Fife 39-9: on cotton.

Jadera rubrofusca Barber

Barber 39-328: all P. R. records of *Jadera* refer to *rubrofusca*; illustration, from *Scirpus validus* at Ponce (Oakley) and from Culebra Id. (Wheeler).

nymphs on *Serjania polyphylla* at Barceloneta (I No. 7162).

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PENTATOMIDAE

Megaris is a genus of the Scutelleridae and should be on p. 182.

Mormidea angustata Stal
Barber 39-288: from Mona Id.

Mormidea cubrosa Dallas
Barber 39-287: with *M. sordidula* Stal in synonymy.
Fife 39-9: on cotton.

Solubea insularis Stal
Barber 39-289: at Mayaguez (Danforth).

Solubea pugnax F.
Barber 39-288: at Coamo.

Euschistus acuminatus Walker
Barber 39-289: illustration.

Euschistus fiifibulus P. B.
Barber 39-290: many records.
on tobacco at Utuado (12-38).

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Euschistus crenator F.
Barber 39-291: from Culebra Id.

Proxys victor F.
Barber 39-291: Gundlach's record of *P. punctulatus* may be a misidentification.

Thyanta antiguensis Westwood
Barber 39-293:
on sugar-cane at Salinas (294-39).

Thyanta casta Stal
Barber 39-293: from Vieques Id., Aguirre, Coamo and Ensenada.

Thyanta perditor F.
Barber 39-292: from Mona Id.
Fife 39-9: on cotton.

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Loxa pilipes Horvath, *in* Ann. Mus. Nat. Hungary, **22:** 318, pl. 5, fig. 5, 1925: TYPE from P. R.
Barber 39-294: with *Loxa flavicollis* in synonymy; from Coamo Springs, El Yunque and Lares.
AMC: at Mayaguez x-37, det. H. G. Barber.

Loxa planifrons Barber & Bruner
Barber 39-294:

Fecelia minor Vollenhoven, *in* Verd. Akad. Amst. Nat. **2**(2): 178, (1868): TYPE from P. R.
Barber 39-294: at nine P. R. localities.
apparently puncturing grapefruit, at Las Marias (I No. 5941).

Fecelia sp. nov.—det. H. G. Barber
AMC: at Mayaguez viii-37, x-37.

Runibia perspicua F.
AMC: on Vieques Id. xii-35 det. H. G. Barber.
Barber 39-295: no P. R. record.

Vulsiera violacea F.
Barber 39-295: only Oakley's specimen from Ponce.

Nezara viridula L.
Wolcott 37-82: in pellet of toad excrement.
Anon 38-86 & Anon 39-128: negative as vector in bunchy-top disease of papaya experiments.
Barber 39-296: cosmopolitan.

Fife 39-8: on cotton.
on Mona Id. (96-39, 267-40); injurious to tobacco at Utuado (11-38).

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Acrosternum marginatum P. B.
Barber 39-296: TYPE from Hispaniola.
Fife 39-8: on cotton.
on Mona Id. (118-39).

? **Banasa herbacea** Stal
Barber 39-297: at Santurce, Ensenada and from Vieques Id.

Banasa humeralis Barber 39-297: TYPE from San German, P. R., illustration.
AMC: (as "sp. nov." det. H. G. Barber) at Luquillo vii-32 and Añasco xii-35.

Piezodorus guildinii Westwood (not *guildingi*)
Barber 39-299: many records.
Fife 39-8: on cotton.

Piezodorus tinctus Distant
Barber 39-299: from Aibonito.

Arvelius albopunctatus DeGeer
Barber 39-300: many records.
on pepper at Vega Baja (I No. 7390); apparently feeding on immature eggplant fruits, at Mayaguez (I No. 5942); on Mona Id. (95-39).

Brepholoxa rotundifrons Barber 39-300: PARATYPE from Ensenada, P. R., illustration.

Edessa cornuta Burmeister
Barber 39-302: with *E. bifida* in synonymy, many P. R. records.
on sugar-cane at Quebradillas (224-39).

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Edessa parvinula Barber
Barber 39-302: illustration.

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Alcaeorrhynchus phymatophorus P. B.
Barber 39-303: with *Mutyca grandis* Dallas in synonymy; at Cayey.
on palo verde, *Parkinsonia aculeata,* at Faro de Cabo Rojo (60-37 det. H. G. Barber).

Pharypia pulchella Drury
Barber 39-295: at Mayaguez.

Andrallus spinidens F.—det. H. G. Barber
in cane field at Guanica (70-37).

Podisus borinquensis Barber 39-305: TYPE from Ponce, P. R., others from Rio Piedras, illustration.
These are the specimens referred to as "*Podisus sculptus* Champion—det. W. L. McAtee, on coffee leaves (726-17)" and "*Podisus* sp. nov.—det. H. G. Barber, on weeds at Ponce (I No. 4629)."

Podisus mucronatus Uhler
Barber 39-304: at Guanica (Dozier).

Podisus sagitta F.
Barber 39-304: many records.
Fife 39-8: on cotton.

Piezosternum subulatum Thunberg
Barber 39-307: many records.
nymph on vine at Mayaguez (I No. 7380).

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CYDNIDAE

Allocoris minuta Uhler
Barber 39-269: generic transfer (after McAtee & Malloch) from *Corimelaena* and *Eucoria.* At five P. R. localities.

Aethus communis Uhler
Barber 39-271: at Bayamon (Busck).

Aethus indentatus Uhler
Barber 39-272:

Geocnethus reversus Barber & Bruner
Barber 39-272: no new records.

Amnestus diminuatus Barber 39-274: TYPE from Adjuntas, P. R., on coffee. Illustration.

Amnestus pusio Stal
Barber 39-274: "often confused with *A. pusillus* Uhler." From Vieques Id.
at light at Isabela (180-31 det. H. G. Barber), at Guajataca (74-38, 13-40).

Amnestus subferrugineus Westwood
Barber 39-273: from Adjuntas and Cayey.

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SCUTELLERIDAE

Pachycoris fabricii L.
Barber 39-282: "There is only one species in Porto Rico."
All the records under *P. torridus* Scop. are this species, also: resting on sugar-cane at Isabela (255-39); on ?, Mona Id. (99-39); adults and eggs on *Cordia nitida* at Maricao (388-40).

Megaris puertoricensis Barber 39-283: TYPE from Aibonito, P. R., on *Eugenia* ? (Oakley). Illustration.

Tetyra antillarum Kirkaldy
Barber 39-282: at Guanica (Smyth).
at light at Guanica (1097-13).

Diolcus boscii F.
Barber 39-280: "not yet discovered in Porto Rico."

Diolcus disjunctus Barber 39-281: TYPE from Ponce, P. R., others from Mayaguez and Rio Piedras. Illustration.
at Salinas (373-39).

Diolcus irroratus F.
Barber 39-280: many P. R. records, also from Culebra Id.
Fife 39-9: on cotton.

Symphylus caribbeanus Kirkaldy
Barber 39-278: with Gundalch's record of *Mesotrypa sinuosa* Uhler MS in synonymy: at Ponce (Oakley).

Sphyrocoris obliquus Germar
Barber 39-278: Gundlach's record.

Augocoris illustris F.
Barber 39-278: with Gundlach's record of *A. sexpunctatus* F. in synonymy; at Mayaguez (Danforth).

Geotomus spinolai Signoret
Ramos Col., at light at Humacao iii-18-40.

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COLEOPTERA

CICINDELIDAE

Tetracha sobrina Dejean, var. **infuscata** Mannerheim
Wolcott 37-82: in pellet of toad excrement.

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Cicindela boöps Dejean
thousands around salt pools, Faro de Cabo Rojo (58-37).

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Cicindela trifasciata F.
on beach of salt lagoons at Ensenada (37-36); at window of new Station building (230-39); in sandy cane fields at Yabucoa (236-39).

CABARIDAE

Darlington, Jr., P. J., "West Indian Carabidae II." Psyche, **42**(4): 167-215. Cambridge, 1935.
"West Indian Carabidae V, new forms from the Dominican Republic and Puerto Rico." Mem. Soc. Cubana de Historia Natural, **13**(2): 79-101. Habana, April 1939.

Scarites mutchleri Bänn
Darlington 39-81: with *S. montanus* Mutchler in synonymy.

Scarites danforthi Darlington 39-80: TYPE from Maricao Forest, at 3,000 ft., P. R.

Oxydrepanus coamensis Mutchler
Darlington 39-84: generic transfer from *Dyschirius;* collected on El Yunque.

Clivinia limbipennis Duval—det. P. J. Darlington.
AMC: at Cabo Rojo xii-31.

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Aspidiglossa aerata Putzeys—det. P. J. Darlington
AMC: at Mayaguez v-36.

Bembidion portoricense Darlington 39-86: TYPE from El Yunque, P. R.
AMC: paratypes from El Yunque v-38.

Bembidion viridicolle Laferte = *B. chevrolati* C. & H.
Ramos Col.: at Ensenada i-37—det. P. J. Darlington.

Tachys corruscus Leconte—det. P. J. Darlington
Ramos Col.: at Mayaguez viii-32, Añasco ii-37.

Tachys carib ?
Darlington 35-176: TYPE from Haiti, also in P. R.
Ramos Col.: at Mayaguez iii-36.

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Galerita microcostata Darlington
(597-16 det. P. J. Darlington).

Lebia marginicollis Dejean—det. P. J. Darlington
(252-12, 645-17 det. P. J. Darlington).

Apenes marginalis Dejean
the "as sp." records are this, det. P. J. Darlington.

Apenes pallipes F.—det. P. J. Darlington
Ramos Col.: at Mayaguez vi-31, ix-31.
(I No. 6167).

Apenes portoricensis Darlington 39-100: TYPE from Guanica Lagoon, P. R.

Perileptus dentifer Darlington 35-177: TYPE from Haiti, also in Puerto Rico.
AMC: in river gravel at Mayaguez iii-36.

Pentagonica picipes Darlington 35-212: TYPE from Jamaica, also in Puerto Rico.
Ramos Col.: at Mayaguez xii-36, Luquillo vi-32.

Brachinus brunneus Castelnau
at light at Guanica (377-13 det. A. J. Mutchler).

Loxandrus celeris Dejean—det. P. J. Darlington
Ramos Col.: at Guanica Lagoon i-36.

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Phloeoxena portoricensis Darlington 39-99: TYPE from El Yunque, others from Maricao, P. R.
Ramos Col.: paratypes from El Yunque v-38.

Selenophorus alternans Dejean
at light (I No. 6051), at Guanica (574-13 det. A. J. Mutchler).

Selenophorus beauvoisi Dejean—det. P. J. Darlington
AMC: at Ensenada iii-36.

Selenophorus chalybeus Dejean
at light at Guanica (691-13 det. A. J. Mutchler)

Selenophorus ramosi Darlington 39-97: TYPE from Guanica Lagoon, others from Ensenada, P. R.
at light at Guanica (1095-13 det. P. J. Darlington)

Selenophorus sinuatus Gyllenhal
at Caguas (SSC det. A. J. Mutchler); at Cayey, reported attacking tobacco leaves (343-23 det. P. J. Darlington).

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Colpodes estriatus Darlington 39-96: TYPE from El Yunque, P. R.
Ramos Col.: paratype from El Yunque v-38, elev. 3,000 ft.

DYTISCIDAE

Rhantus calidus F.—det. A. J. Mutchler
Garcia-Diaz 38-94: listed.

Laccophilus proximus Say
Garcia-Diaz 38-94: listed, det. A. J. Mutchler.

Pachydrus globosus Aubé
Garcia-Diaz 38-94: listed.

Pachydrus brevis Sharp
Garcia-Diaz 38-94: listed.

Hydrocanthus iricolor Say
Garcia-Diaz 38-94: listed.

Copelatus angustatus Chevrolat
Garcia-Diaz 38-94: listed.

Eretes sticticus L.—det. L. L. Buchanan
in salt lagoon at Ensenada (36-36).

page 192
Thermonectes basillaris Harris—det. A. J. Mutchler
Garcia-Diaz 38-94: listed.

Thermonectes circumscriptus Latreille
Garcia-Diaz 38-94: listed.

Thermonectes margineguttatus Aubé
Garcia-Diaz 38-94: listed.

Megadytes giganteus Castelnau
Wolcott 37-79: larvae of predaceous on tadpoles of *Bufo marinus L.*
in pool at Pt. Las Marias (41-36).

GYRINIDAE

Dineutus metallicus Aubé
Garcia-Diaz 38-94: listed.

Dineutes americanus L.—det. L. L. Buchanan
from reservoir at Malezas farm, Aguadilla (263-39).

Dineutus longimanus Olivier, var. **portoricensis** Ochs
Garcia-Diaz 38-94: listed.

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Gyrinus rugifer Regimbart
Garcia-Diaz 38-94: listed.

HYDROPHILIDAE

Derallus rudis Sharp—det. A. J. Mutchler
Garcia-Diaz 38-94: listed.

Enochrus nebulosus Say—det. A. J. Mutchler
Garcia-Diaz 38-94: listed.

Enochrus ochraeus Melsheimer—det. A. J. Mutchler
Garcia-Diaz 38-94: listed.

Berosus tesselatus Fleutiaux
Garcia-Diaz 38-94: listed.

Berosus guadeloupensis Fleutiaux & Sallé—det. A. J. Mutchler
Garcia-Diaz 38-94: listed.

Stethoxus insularis Castelnau
(as *Hydrophilus*) Garcia-Diaz 38-94: listed.

Stethoxus intermedius J. Duval
(as *Hydrophilus ater intermedius* J. Duval) Garcia-Diaz 38-95: listed.
at light (I No. 7331 det. L. L. Buchanan as *S. ater*), (336-39).

Nechydrophilus phallicus Orohymont—det. A. J. Mutcher
Garcia-Diaz 38-95: listed.
(291-22 det. A. J. Mutchler).

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Tropisternus collaris F.
Garcia-Diaz 38-95: listed.

Tropisternus lateralis F.
Garcia-Diaz 38-95: listed.

page 195
Paracymnus subcupreus ? Say—det. A. J. Mutchler
Garcia-Diaz 38-95: listed.

Ochthebus sp.—det. A. J. Mutchler
Garcia-Diaz 38-95: listed.

Pelosoma sp.—det. A. J. Mutchler
Garcia-Diaz 38-95: listed.

Phaenotypus palmarum Schwarz—det. A. J. Mutchler
Garcia-Diaz 38-95: listed.

Dactylosternum abdominale F.
the specimen recorded as *D. flavicorne* Mulsant "common under bark of decaying bucare tree, *Erythrina glauca,* at Cayey (30-217)" has been re-determined by A. J. Mutchler as this species; also, in cacao pods at Mayaguez (I No. 6385); in decaying fig at Mayaguez (I No. 6258).

Cercyon sp.
in cacao pods at Mayaguez (I No. 6375).

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STAPHYLINIDAE

Leiodes sp.—det. W. S. Fisher
in decaying wood at Mayaguez (I No. 6373).

Holotrochus cylindricus Erichson
in rotton wood at Añasco (I No. 6238), at Mayaguez (I No. 6361 det. as "sp.").

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Philonthus alumnus Erichson
in icaco pods at Mayaguez (I No. 6370 det. as "sp."); in guavas at Mayaguez (I No. 6381), at light at Palo Seco (I No. 6564).

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Coproporus pulchellus Erichson—det. E. A. Chapin
in guavas at Mayaguez (I No. 6383).

Gyrophaena sp.
common on a fungus, at Mayaguez (I No. 6371); in cacao pods at Mayaguez (I No. 6378).

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PTILIIDAE

Acrotrichis atomaria DeGeer
Leng & Mutchler.
three species in cacao pods at Mayaguez (I No. 6377, 6385).

SCAPHIDIIDAE

Scaphisoma sp.—det. H. S. Barber
in decaying wood at Añasco (I No. 6234).

HISTERIDAE

Plaesius javanus Erichson
Anon 38-101: a predator on *Cosmopolites sordidus* Germar introduced from Java.
Anon 39-109: not recovered.

Lioderma 4-dentatum F.
under bark of decaying bucare tree at Mayaguez (I No. 7269).

Hister sp. "near *coenescens* Erichson"—det. H. S. Barber
at Coamo (I No. 5932); in dung at Añasco (I No. 6264).

Omalodes ruficlavis Sharp
in flight at Salinas (298-39).

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LYCIDAE

The record of *Thonalmus dominicensis* Chevrolat is unquestionably in error, the specimens (re-determined LFM & GNW) being the following:

Thonalmus chevrolati Bourgeois
Wolcott & Martorell 37-578: did not eat egg-clusters of *Diatraea saccharalis* F. in captivity.
Wolcott & Martorell 37-535 to 536: definitely established in Puerto Rico.
adults in cane field at Guanica (17-36 det. GNW), at Yauco (5-37), at Guayanilla (27-37, 279-39, 323-39), at Aguadilla (137-40).

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CORYNETIDAE

Necrobia rufipes DeGeer
AMC: on dried meat at Mayaguez, December 1939, det. E. A. Chapin (H. Ayguabibas).

LYMEXYLIDAE

Atractocerus brasiliensis Laporte & Serville (not in PTINIDAE, IB-239)
at light at Lares, collected by Felipe Mora (76-38 det. H. S. Barber).

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OEDEMERIDAE

Oxacis litoris Wolcott
resting on leaves of sea-grape at Dorado (I No. 6531 det. H. S. Barber), on Mona Id. (383-39), also resting on leaves of Honduras mahogany and castor bean, and at light, Mona Id. (201-40).

Ananca vittata F.
resting on leaves of sea-grape, and at night (August) common at light, Mona Id. (91-39, 202-40).

page 207

MORDELLIDAE

Ray, Eugene, "Synopsis of the Puerto Rican Beetles of the Genus Mordellistena, with Descriptions of New Species." Proc. U. S. Nat. Mus., **84**(3020): 389-399, fig. 1, ref. 5. Washington, 1937.

Mordellistena annuliventris Quedenfeldt
Ray 37-390: "ventral surface bicolorous," at Aibonito (Oakley).

Mordellistena angustiformis Ray 37-390: TYPE from Yauco, P. R., others from Adjuntas.

Mordellistena barberi Ray 37-395: TYPE from Ponce, P. R. (Oakley) on moca, female on coffee at Juana Diaz.

Mordellistena danforthi Ray 37-392: TYPE from Villalba, P. R.

Mordellistena ephippum Ray 37-398: TYPE from Aibonito, P. R., other from Ponce on *Eugenia* (Oakley).

Mordellistena ferruginea F.
Ray 37-390: "entire body surface flavous," eleven specimens.

Mordellistena humeralis Ray 37-393: TYPE from Villalba, P. R.

Mordellistena leai Ray 37-396: TYPE from Bayamon, P. R. (Lesne), other from Maricao.

Mordellistena lineata Ray 37-395: TYPE from Guanica, P. R.

Mordellistena lucidovriga Ray 37-398: TYPE from Maricao, P. R. (Morrison).

Mordellistena marginicollis Mäklin, F. W., "Neue Mordelliden." Acta Soc. Sci. Fennicae, **10**( ): 561-595, 1875.

Mordellistena signaticollis Quedenfeldt
Ray 37-390: "hind basitarsus with 2 oblique ridges."

Mordellistena varietas Ray 37-391: TYPE from Adjuntas, P. R., others from Villalba and Maricao.

Mordellistena y-nigrum Ray 37-397: TYPE from Juana Diaz, P. R., on *Inga laurina* (Oakley).

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RHIPIPHORIDAE

Macrosiagon discicolle melanoptera Chevrolat
on leaves of sugar-cane at Isabela (2-38); on flowers of *Borreria verticillata* at Aguadilla (53-39), at Yabucoa (313-39), at Vega Baja and Rio Blanco (66-40).

Macrosiagon flavipennis Lea—det. G. E. Bryant (Brasilian specimens)
on flowers of *Hyptis atrorubens* (369-39) on flowers of *Borreria verticillata* at Vega Baja (64-40), at Luquillo (178-40).

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MELOIDAE

Tetraonyx quadrimaculatus F.
on flowers of lavender pea at Guajataca (272-39).

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ELATERIDAE

Chalcolepidius silbermanni Chevrolat (not *Chalcolepidus*)
at Aguadilla (40-38); reared from dead trunk of *Albizzia lebbeck* infested with Cerambycid larvae, at Ponce (65-39).

page 211

Pyrophorus luminosus Illiger
Jepson 36-6, 14 to 17: predacious on white grubs, collections and observations in Puerto Rico, and results of shipments to Mauritius.
Jepson, W. T., "A Summary of the Results of the Phytalus Investigation, 1933-36." pp. 19. Port-Louis, Mauritius, 1936: survival of the journey to Mauritius from Puerto Rico; more should be imported.
Anon 38-102: shipments to Mauritius.
Wolcott 37-44: negligible mortality in shipments totaling 3,500 larvae to Barbados.
Wolcott 37-81: in toad excrement.
at light at Rio Piedras and on sugar-cane at Aguadilla (163-40), the first noted in several years, since *Bufo marinus* became abundant.

page 212

Conoderus bifoveatus P. B. (not *Monocrepidus*)
on sugar-cane at Quebradillas (223-39), at Aguadilla (262-39); at Mayaguez (I No. 7296).

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Aeolus elegans F.
hiding in gall-deformed leaves of ucar, Vieques Id. (99-40).

Dicrepidius ramicornis P. B. ?—det. W. S. Fisher
under castor bean leaf, Mona Id. (88-39).

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BUPRESTIDAE

Acmaeodera gundlachi Fisher
resting on weeds, Mona Id. (94-39 det. W. S. Fisher).

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Polycesta porcata F.—det. W. S. Fisher
resting on cane leaf at Juana Diaz (17-37); reared from larva in furniture made of mahogany imported from Santo Domingo (182-40).

Polycesta thomae Chevrolat
on Mona Id. (20-37 det. W. S. Fisher).

Chrysobothris megacephala Castelnau & Gory
reared from aceitillo, *Zanthoxylum flavum,* at Guanica Insular Forest (62-38).

Chrysobothris tranquebarica Gmelin
on dead *Inga vera* tree at Ciales (35-36); on dead *Bucida buceras* tree at Guayanilla (43-37); on stump at Mayaguez (I No. 7271).

Chrysobothris wolcotti Fisher
all immature stages in crape myrtle (69-37); in cane field at Ponce (68-37 det. W. S. Fisher).

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Micrasta oakleyi Fisher
on castor bean leaf, Mona Id. (177-39 det. W. S. Fisher as "sp. nov., close to *oakleyi* Fisher").

ELMIDAE

Cylloepus danforthi Musgrave
Garcia-Diaz 38-94: listed.

Neoelmis gracilis Musgrave
Garcia-Diaz 38-94: listed.

Phanocerus hubbardi Schaeffer—det. P. N. Musgrave
Garcia-Diaz 38-94: listed.

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HELODIDAE

Ptilodactyla sp. "perhaps *emarginata* Chevrolat"
on decaying wood at Mayaguez (I No. 6382).

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DERMESTIDAE

Globicornis fulvipes Guerin
in dead butterflies (I No. 6865).

Dermestes caninus Germar—det. H. S. Barber
larvae and adults in shell of dead sea turtle, Mona Id. (262-40), and on goat hides.

OSTOMIDAE

Tenebroides mauritanicus L.
at light, Mona Id. (122-39).

page 219

NITIDULIDAE

Conotelus fuscipennis Erichson
in flowers of gardenia at Caguas (I No. 6496 det. as "sp.").

Carpophilus dimidiatus var. **mutilatus** Erichson
in stored mahogany seed at Cayey (22-37 det. E. A. Chapin).

Carpophilus hemipterus L.
Wolcott 40-30: in maga pods.

Haptoncus luteolus Erichson
in fruits of *Triphasia trifolia* at Palo Seco (I No. 6501); at light, Mona Id. (379-39 det. E. A. Chapin).

page 220
Lobiopa insularis Castelnau
in rotten guava fruits (I No. 7050); under bark of tree at Bayamon (I No. 6426).

MONOTOMIDAE

Europs apicalis Reitter
Wolcott 40-30: in maga pods.

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CUCUJIDAE

Silvanoprus scuticollis Walker—det. Ferd. Nevermann
at Mayaguez ix-28 (S. T. Danforth).

Ahasverus (Cathartus) advena Waltl
(I No. 6578); under bark of dead tree, Mona Id. (180-39 det. W. S. Fisher as "sp.").

page 223
Telephanus pallidulus Chevrolat
on grapefruit leaf at Bayamon (I No. 6002).

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COLYDIIDAE (not COLYDIDAE)

Synchita grannulata Say (not *granulata*)
under bark of fence post on El Yunque (355-39).

Bitoma undata Guerin
in decaying wood at Añasco (I No. 6240).

page 225
Philothermus puberulus Schaufuss—det. W. S. Fisher.
on El Yunque (I No. 6566); on decaying wood at Añasco (I No. 6239).

LATHRIDIIDAE (not LATHIDIIDAE)

Eufalia unicostata Belon—det. W. S. Fisher
[Hoffman, W. A., "*Eufallia unicostata, a Fungus Eating Beetle* New to Puerto Rico." Jour. Ec. Ent. **33**(5): 810-11. Menasha, Wis., October 1940.]
larvae (det. W. H. Anderson) reared on fungus growing on, and adults abundant on casein-wash walls, School of Tropical Medicine (W. A. Hoffman).

PHALACRIDAE

Phalacrus acutangulus Chevrolat—det. A. J. Mutchler
in old cotton bolls at Pt. Cangrejos (552-22); at light (340-39).

Euxestus erithacus Chevrolat
at light (I No. 6527).

Acylomus sp.—det. W. S. Fisher
at light, Mona Id. (379-39).

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COCCINELLIDAE

Bartlett, K. A., "A search in the Guianas and Trinidad for Predatory Beetles of the Bamboo Scales." Jour. Agr. Univ. P. R., **22**(4): 493-5. San Juan, March 23, 1939.

Coelophora inaequalis F.—Introduced
Anon 39-98: predaceous on aphids in Hawaii, released at Mayaguez, Cabo Rojo and Villalba.

Hyperaspis apicalis Mulsant
(as "sp.") Anon 39-98: predaceous on *Sipha flava* at Arroyo.
Martorell 40-24: attacking *Pseudoccus nipae.*

Hyperaspis belloti—Introduced
146 adults collected by K. A. Bartlett in Trinidad, B. W. I., released at Rio Piedras, P. R. (8-39).

Hyperaspis connectens Thunberg
Fife 39-10: predaceous on *Aphis gossypii.*

Hyperaspis trilineata Mulsant—Introduced
Wolcott 37-44: introduction from Barbados, releases at Isabela, Fajardo, Arroyo, Aguirre and Guanica.

Pentilia insidiosa Mulsant (= *castanea* Mulsant)—Introduced
Bartlett 39-494 and Anon 39-105: from Trinidad and British Guiana, reared in laboratory and released.

Delphastus sp.—Introduced
Bartlett 39-494 and Anon 39-103: from Trinidad, predaceous on bamboo scales.
(as "related to *Delphastus* sp.") abundant on papaya infested with scale at Isabela (44-39 det. E. A. Chapin).

Curinus sp.—Introduced
Bartlett 39-494 and Anon 39-103: from Trinidad, predaceous on bamboo scales.
Anon 39-106: from Martinique, F. W. I.

Platynotus lividigaster Mulsant—Introduced
Anon 39-99: from Australia via Hawaii, released at Lajas.

Scymnus aeneipennis Sicard—Introduced
Dohanian 37-244: from Trinidad.

page 228
Scymnus roseicollis Mulsant
Fife 39-10: predaceous on *Aphis gossypii.*
on castor bean plants, Mona Id. (174-39 det. E. A. Chapin); on maga leaves at Lares (422-40); on *Tabebuia pallida* at Cayey (353-40).

Decadiomus pictus Chapin
feeding on scales on coconut (I No. 6112 det. as "sp." E. A. Chapin).

page 229
Cryptolaemus montrouzieri Mulsant—Introduced
Wolcott 39-508: successful establishment in P. R.
Fife 39-10: predaceous on cotton mealybugs.
on guava bushes at Sabana Grande (97-37); on *Rauwolfia tetraphylla* infested with *Coccus viridis* at Aguadilla (6-38); feeding on cottony cushion scale at Isabela (54-39).

Rodolia (Vedalia) cardinalis Mulsant—Introduced
Wolcott 37-54, Wolcott 38-82, Wolcott 39-33; a supply maintained in the Insectary at the Experiment Station for release where outbreaks of the cottony cushion scale occur.
Wolcott 39-508: successfully established in P. R.
on Mona Id. (126-39, 40-40, 254-40); natural spread to Mayaguez from Guajataca (132-40).

Psorolyma maxillosa Sicard
at Mayaguez (I No. 6097), at Lares (423-40).

page 230
Scymnillus nunenmacheri Sicard
Martorell 40-24: feeding on *Pseudococcus nipae.*

Scymnillodes cyanescens violaceus Sicard (not *volaceus*)
Bartlett 39-493: feeding on bamboo scale.

page 231
Psyllobora nana Mulsant.
Fife 39-10: predaceous on *Aphis gossypii.*

page 232
Cycloneda sanguinea L.
Wolcott & Martorell 37-578: did not eat egg-clusters of *Diatraea saccharalis* F. in captivity.
Wadley 37-107: a predator on *Sipha flava.*
Anon 39-89: a predator on *Sipha flava.*
Fife 39-10: a predator on *Aphis gossypii.*
on weeds, Mona Id. (92-39).

Daulis ferruginea Olivier
abundant on leaves and flowers of *Inga laurina,* Peñon del Collao, Cayey (125-40).

Cryptognatha nodiceps Marshall—Introduced
Dohanian 37-244: attacking bamboo scales in Trinidad.
Anon 38-97: "well established" in P. R.
Bartlett 39-494: introduced from Trinidad.
Anon 39-104: feeds on coconut scales in P. R., not on bamboo scales.

Cryptognatha simillina Sicard—Introduced
Dohanian 37-244: attacking bamboo scales in Trinidad.
Anon 38-97: "well established" in P. R.
Bartlett 39-494: introduced from Trinidad.
Anon 39-104: feeds on coconut scales in P. R., not on bamboo scales.

Azya trinitatis Marshall—Introduced
Dohanian 37-244: attacking bamboo scales in Trinidad.
Anon 38-97: "well established" in P. R.
Bartlett 39-494: introduced from Trinidad.
Anon 39-104: feeds on coconut scales in P. R., not on bamboo scales.

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Egius platycephalus Mulsant—Introduced
Anon 39-102: from Cuba, predaceous on bamboo scales.

Chilocorus cacti L.—Introduced
Anon 39-100 to 102: introduced from Texas and Cuba, reared on papaya scales in P. R., released on scale-infested bamboo. Illustration.
feeding on papaya scales at Arecibo and Isabela (95-40).

ALLECULIDAE

Hymenorus sp. "probably new" det. E. A. Chapin
at light and on weeds, Mona Id. (123-39, 203-40).

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TENEBRIONIDAE

Opatrinus pullus Sahlberg (not *Hopatrinus*)
on Mona Id. (12-37 det. as "sp." E. A. Chapin, 192-39).

Blapstinus punctatus F.
on Mona Id. (195-39 det. as "sp." E. A. Chapin).

Phaleria variabilis Quedenfeldt
under seaweed on the beach at Pt. Cangrejos (390-22 det. A. J. Mutchler), at Santurce (I No. 7318), at Cataño (I No. 5966, 5967); at light, Mona Id. (195-39 det. as "prob." E. A. Chapin).

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Eutomus cornutus Arrow—det. E. A. Chapin
on fungus at Mayaguez (I No. 6376).

"genus near **Pentaphyllus**"—det. E. A. Chapin
in polypore fungus on El Yunque (I No. 6519).

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Dioedus sp.
at Mayaguez (I No. 6365).

Doliema pallida Say
on Mona Id. (221-39 det. E. A. Chapin, 39-40), under bark of *Elaphrium simaruba* at Guanica (332-40).

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ANOBIIDAE

Lasioderma serricorne F.
Gage 39-22: attacking tobacco in storage.
in cigar (I No. 6733); in imitation leather hat-box (28-39).

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Catorama herbarium Chevrolat
in binding of books (I No. 7092, 7093).

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BOSTRYCHIDAE

Dinoderus minutus F.
Anon 36-18: "not a termite, as the Spanish term 'polilla' might be taken to indicate."
Anon 37-30 to 38: experiments in control on bamboo conducted by Donald F. Gibbons and Harold K. Plank. Hot creosote effective.
Anon 39-29 to 36: summarizing the studies of H. K Plank in control as a pest on bamboo.
Anon 39-109 to 118: experiments in control by absorption of chemicals showed lowest infestation in bamboo cured in the clump (check).
Plank, H. K., "*Peregrinator biannulipes* Montr., a Predator on the Bamboo Powder-Post Beetle in Puerto Rico." Jour. Ec. Ent., **32**(1): 151. Menasha, Wisconsin, February 1939.

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Apate francisca F.
Martorell & Wolcott 39-44: effective control of an extensive outbreak in young mahogany trees near Guayanilla.
Martorell 39-251: host trees and control.
larvae, pupae and adults in mahogany log at Mayaguez (38-37); female beetles attacking Dominican mahogany, flamboyánt, ucar and casuarina seedlings, 3 to 4 years old, at Guayanilla (39-37); attacking cultivated grape vine at Ponce (63-38); attacking mangle poles used for drying tobacco, Tobacco Institute.

Zylomeira torquata F.
at light, Mona Id. (162-39, 375-39 det. W. S. Fisher).

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CISIDAE

Ceracis sp.—det. W. S. Fisher
on polypore fungus (I No. 6141, 6142).

Lyctus caribeanus Lesne—det. W. S. Fisher
Anon 39-118: in stored bamboo at Mayaguez.
in mahogany sapwood made up into furniture (31-39 det. W. S. Fisher).

Cis sp.
on fungus at Mayaguez (I No. 6364); in decaying wood at Añasco (I No. 6230).

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SCARABAEIDAE

Chapin, E. A., "A Revision of the West Indian Beetles of the Scarabaeid Subfamily Aphodiinae." Proc. U. S. Nat. Mus., **89**(3092): 1-41. Washington, D. C., May 23, 1940.

Canthon pilularius L. Introduced
Bartlett 39-2 and Anon 39-107: introduced from Texas, reared in P. R., released at Arroyo, Salinas, Fajardo, Penuelas and Ponce.

Phaenus triangularis Say—Introduced
Bartlett 39-2: introduced from Texas.

Copris incertus var. **prociduus** Say—Introduced
Bartlett 39-2: introduced from Hawaii.

Canthochilum histeroides Harold
in the mountains north of Yauco (I No. 6231).

Aphodius cuniculus Chevrolat
Chapin 40-7: many specimens from P. R., Vieques Id.

Aphodius lividus Olivier
Chapin 40-6: from P. R. and Vieques Id.

Psammodius bidens Horn
Chapin 40-10: "one specimen taken on the beach at Humacao, P. R., October 8, 1935, Blackwelder station 56."

Saprosites blackwelderi Chapin 40-11: TYPES from Mayaguez, P. R. (R. E. Blackwelder), another from Añasco (R. G. Oakley), both from rotting wood.

Ataenius darlingtoni Hinton, H. E., *in* Ann. Mag. Nat. Hist., ser. 10, **20**( ): 179, fig. 6-9: TYPE from Cartagena Lagoon, P. R.
Chapin 40-30: from P. R.

Ataenius edwardsi Chapin 40-26: TYPE from Jamaica, others from P. R.

Ataenius frater Arrow
Chapin 40-32: from P. R.

Ataenius gracilis Melsheimer
Chapin 40-25: from P. R. and Vieques Id.

Ataenius haroldi Steinheil
Chapin 40-15: seven specimens from P. R.

Ataenius luteomargo Chapin 40-36: TYPE from Dominica, B. W. I., others from P. R.

Ataenius strigicauda Bates
Chapin 40-31: from P. R.

Ataenius tenebrosus Arrow
Chapin 40-23: from P. R. and Vieques Id.

Ataenius versicolor Schmidt
Chapin 40-36: one specimen from Pt. Cangrejos, P. R., April 6, 1920 (G. N. Wolcott).

Ataenius vincentiae Arrow
Chapin 40-19: at Coamo, P. R. (S. T. Danforth).

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All the records under *Ataenius marginatus* F.—det. E. A. Schwarz should be transferred, according to re-determinations by E. A. Chapin and A. J. Mutchler, to *Ataenius terminalis* Chevrolat.

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Phyllophaga adjuntas Saylor, L. W., "Ten new West Indian scarab beetles of the genus *Phyllophaga,* with two new names." Jour. Washington Academy Science, **30**(7): 305-314, fig. 10. Washington, D. C., July 15, 1940; p. 312; TYPE from Isolina, P. R., others from Adjuntas.

one male at light Camp Doña Juana, Villalba (413-40 det. E. A. Chapin from drawing of genitalia).

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Phyllophaga vandinei Smyth

Jepson 39-3 to 30: distribution (p. 3): 3d instar grubs parasitized by *Elis zanthonotus,* 2nd instar by *Elis haemorrhoidalis,* 3d instar by *Campsomeris dorsata, C. trifasciata* and *C. tricincta.*

grubs attacking plantain roots at Mayaguez (I No. 6061); adults defoliating moca, *Andira inermis,* and eating leaves of sugar-cane down to the midrib, at San Sebastian (165-40, 424-40).

Phyllophaga portoricensis Smyth
Jepson 39-3 to 30: distribution, and parasitism by Scoliid wasps.
Wolcott 37-82: 195 adults in 58 pellets of excrement of the giant Surinam toad, *Bufo marinus* L., at Rio Piedras, April, 1936.
Wolcott 39-508: control by *Bufo marinus* in P. R.
adults feeding on leaves of sea-grape in mid-April, no rain (35-38); at light, El Yunque (50-36).

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Phyllophaga citri Smyth
Jepson 39-3 (distribution) to 29: parasitism of 2nd instar grubs by *Elis haemorrhoidalis*, of 3d instar by *Elis zanthonotus*, and rarely by *Campsomeris trifasciata*.
adults feeding on citrus leaves at Maricao (I No. 6810).

Phyllophaga crinitissima More
Jepson 39-3: "rare."
one female at light, El Yunque (51-36 det. GNW).

page 251
Phyllophaga guanicana Smyth
Jepson 39-3: distribution.

Phyllophaga monana Moser, J., *in* Stettiner Ent. Zeit., **82**( ): 181. Stettin, 1921: TYPE from Mona Id.
at light, Mona Id. (10-37, 187-39, 218-40 det. E. A. Chapin).

Phyllophaga yunqueana Chapin
one male at light, El Yunque, (37-39 confirmed E. A. Chapin).

Phyllophaga wolcotti Saylor 40-307: TYPE from El Yunque, P. R., others from mountains north of Yauco iv-20-36 (R. G. Oakley).
two males and two females at light, El Yunque (36-39 TYPE), April 6, 1939.

Phytalus apicalis Blanchard
Jepson 39-3 (distribution) and 27: 3d instar grubs parasitized by *Elis haemorrhoidalis*.
at light, Bayamon (I No. 6043); adults in spider web, Faro de Cabo Rojo (59-37 det. E. A. Chapin).

page 252
Parachalepus barbatus F.
Wolcott 37-81: abundance of adults in excrement of *Bufo marinus* L. at Rio Piedras.
at light (227-39).

page 253
Dyscinetus picipes Burmeister
Wolcott 37-83: scarcity of, in excrement of *Bufo marinus* L.
adults attacking yautia corms and roots at Cayey (59-38).

Ligyrus tumulosus Burmeister
Jepson 39-28: 3d instar grubs parasitized by *Campsomeris dorsata.*
Wolcott 37-80: scarcity due to *Bufo marinus* L.
on Mona Id. (83-39, 220-40).

page 254
Strataegus quadrifoveatus P. B.
(as *S. oblongulus* (Beauv.)) Anon 38-92: observations on continued by H. K. Plank.
burrowing into pineapple fruit at Palo Seco (I No. 7287).

page 256
Strataegus barbigerus Chapin
at El Verde Camp, Rio Grande, elev. 1,200 ft. (3-39); male and female from base of tree, *Metopium toxiferum,* on Mona Id. (82-39).

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LUCANIDAE

Paxillus (Passalus) crenatus MacLeay
in rotten wood, Lares-Yauco road (308-21 det. A. J. Mutchler); at Mayaguez (617) R. H. Van Zwaluwenburg, det. E. A. Chapin.

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CERAMBYCIDAE

Xystrocera globosa Olivier—det. W. S. Fisher
(I No. 6808).

Stenodontes bituberculatus P. B.
in old tree stump, Mona Id. (84-39).

Derancistrus (Solenoptera) thomae L.
(I No. 6526); adult on dead wood at Guayanilla (40-37); adult in flight at Quebradillas (284-39).

p. 259
Smodicum impressicole Lac.—det. W. S. Fisher
Ramos Col.: at Mayaguez v-36.

Methia necydalea F.
at light, Mona Id. (132-39 det. W. S. Fisher, 258-40).

Chlorida festiva L.
larvae in casuarina fence posts at Naguabo (1-39); adults at light at Villalba (410-40).

Eburia quadrimaculata L.
at light at Guajataca (32-38), on Mona Id. (87-39).

page 260
Elaphidion insulare Newman
on Mona Id. (13-37 det. W. S. Fisher).

Elaphidion irroratum L.
reared from dead *Albizzia lebbeck* at Ponce (63-39); adult from Mona Id. (85-39).

Elaphidion mutatum Gahan—det. W. S. Fisher
larvae in live tree of aceitillo, *Zanthoxylum flavum,* Guanica Insular Forest (13-38, 62-38).

Elaphidion spinicorne Drury
at light, Mona Id. (86-39, 257-40; reared from *Albizzia lebbeck* at Ponce (64-39).

Elaphidion tomentosum Chevrolat
larvae in wood of crape myrtle (78-37).

page 261
Heterachthes ebenus Neuman—det. W. S. Fisher
Ramos Col.: at Mayaguez iv-37.

Heterachthes 4-maculatus F. (not *Heterachthe*)
(56-39).

Merostenus attenuatus Chevrolat
at light, Mona Id. (278-40 det. W. S. Fisher).

Xystrocera globosa Olivier—det. W. S. Fisher
Ramos Col.: at Arroyo xii-37.

page 262
Cylindera flava F.
at light, Mona Id. (145-39 det. W. S. Fisher), at Ponce (146-40); all stages infesting logs of *Bucida buceras* at Guayanilla (41-37).

Acyphoderes arulenta Kirby
resting on sugar-cane at Toa Baja and Coloso (37-38); from stump at Mayaguez (I No. 7267).

Euryscelis suturalis Olivier
at Bayamon (I No. 6042).

Neoclytus araeniformis Olivier
in dead wood at Mayaguez (I No. 7243); all stages in logs of *Bucida buceras* at Guayanilla (42-37).

page 263
Leptostylus argentatus J. Duval
reared from aceitillo, *Zanthoxylum flavum,* Guanica Insular Forest (68-38 det. W. S. Fisher).

page 264
Leptostylus sp. nov.—det. W. S. Fisher
Ramos Col.: at Mayaguez vii-32.

Oreodera glauca L.—det. W. S. Fisher
Ramos Col.: at Mayaguez ii-35, xii-36, at Adjuntas ii-35.

page 265

Ataxia alboscutellata Fisher
Fife 39-10: larvae boring in cotton stalks at Sabana Grande.

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CHRYSOMELIDAE

Lamprosoma longifrons Suffrian (not *Lamprosema*)

Nodonota wolcotti Bryant
on weeds, Mona Id. (290-40 det. as "prob." H. S. Barber).

Metachroma antennalis Weise
at light at Guajataca (52-39).

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Leucocera laevicollis Weise
on *Malpighia punicifolia* at Mayaguez (I No. 7343).

Myochrous armatus Baly
resting on sugar-cane at Salinas (371-39).

Myochrous sp. (not the above)—det. H. S. Barber
Fife 39-9: on cotton
on weeds at Ponce (I No. 5930).

page 271

Diabrotica graminea Baly
Fife 39-10: adults feed on cotton leaves.

page 273

Luperodes antillarum Blake, Doris H., "Ten New Species of West Indian Chrysomelidae (Coleoptera)." Proc. Ent. Soc. Washington, **34**(4): 67-78, pl. 1. Washington, D. C., April 1937: TYPE from Rio Piedras, P. R. (R. T. Cotton) on *Jussiaea suffruticosa,* May 8, 1917.
(400-17 TYPE), also includes from IB-273:

"**Luperus** sp. det. H. S. Barber
on Caperonia and Jussiaea at Loiza (No. 4198).

"**Luperodes** sp.
Danforth: at Yabucoa vi-30, Cartagena Lagoon iii-27."

Ectmesopus vitticollis Blake, Doris H., "A New Genus of Galerucinae (Coleoptera) from the West Indies." Proc. Ent. Soc. Washington, **42**(5): 95-104, pl. 1. Washington, D. C., May 28, 1940: TYPE from Ponce P. R. (R. G. Oakley) on *Peiransia,* illustration.

Ectmesopus zonatus Blake 40-100: TYPE from Maricao Insular Forest, P. R. (P. J. Darlington).

page 275

Homophoeta albicollis F.
on Santiago Id., November 1939 (W. A. Hoffman); resting on sugar-cane at Isabela (8-38), at Guanica (329-39).

page 278

Hermaeophaga cubana Bryant—det. G. E. Bryant
millions of adults clustered on leaves of tree, top of hill near Guayama (50-22).

Hermaeophaga cylindrica Weise
on weeds at Mayaguez (I No. 7394); on "mata bellaca" at Guanica (359-39); on ?, Mona Id. (47-40).

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Epitrix cucumeris Harris
Gage 39-22: as a pest on tobacco leaves.
on potatoes at Cidra (I No. 6212).

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Epitrix parvula F.
Gage 39-22: as a pest on tobacco, riddling the leaves.
on Irish potatoes at Cidra (I No. 6215).

page 281

Chaetocnema apricaria Suffrian
on ? at Coamo (I No. 5927); on Santiago Id., November 1939 (W. A. Hoffman).

Systena basalis J. Duval
Gage 39-22: a pest on tobacco leaves.
Fife 39-10: adults feed on cotton leaves.
on Irish potatoes at Cidra (I No. 6215).

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Longitarsus varicornis Suffrian
adults abundant on *Psidium guajava* at Aguada (26-37 det. H. S. Barber).

Phyllotreta guatemalensis Jacoby
on *Cleome pentaphylla* at Mayaguez (I No. 7267).

page 284

Aphthoma compressa Suffrian
on *Stigmaphyllon ligulatum* at Camuy (20-24 det. A. J. Mutchler): resting on sugar-cane at Aguadilla (44-38); on *Clusia rosea* and "coral," Mona Id. (256-40).

Mesomphalia exclamationis L. (= *Hilarocassis*)
Fife 39-10: adults feed on cotton leaves.
on *Ricinus communis* at Ponce (I No. 4498, 6584, 13-36); on ? at Mayaguez (H. L. Dozier), October 1935 and (L. C. Fife), December 1935; resting on sugar-cane at Guanica (28-37), at Aguadilla (151-39), at Manati (113-39).

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Chelymorpha polysticha Boheman
resting on sugar-cane at Loiza (58-38).

page 278

Hermaeophaga cubana Bryant—det. G. E. Bryant
millions of adults clustered on leaves of tree, top of hill near Guayama (50-22).

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on ? at Coamo (I No. 5927); on Santiago Id., November 1939 (W. A. Hoffman).

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Chelymorpha polysticha Boheman
resting on sugar-cane at Loiza (58-38).

Described by G. N. Wolcott from 15 specimens collected by L. F. Martorell on Mona Island, August 8, 1939 (P. R. Acc. No. 130-39) most abundant on casuarina foliage, less abundant beneath eggplant leaves.

Prepodes 15-punctatus Olivier

a 21-spotted irridescent green weevil, feeding on corcho on corcho prieto, *Torrubia fragrans,* Yabucoa (495-40).

Prepodes roseipes Chevrolat

(as *Exophthalmodes*) Fife 39-10: adults eat cotton leaves.

at Mayaguez (I No. 6843, 6993); in fruit fly trap at Palo Seco (I No. 6990); resting on sugar-cane at Isabela (254-39); feeding on tender leaves of algarrobo, *Hymenaea courbaril,* at Vega Baja (171-40).

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Compsus maricao Wolcott

adult feeding on leaf of *Cecropia peltata* at Villalba (171-40).

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Diaprepes abbreviatus L.

Wolcott 35-44: a summary of the diapause paper.

Wolcott, G. N., "The Life History of *Diaprepes abbreviatus* L. at Rico Piedras, Puerto Rico." Jour. Agr. Univ. P. R., **20**(4): 883-914, fig. 5, tab. 3, ref. 21. San Juan (October 1936), January 1937.

Wolcott 37-41: summary of the above.

Wolcott 37-53: adults killed by "Dutox" (barium fluosilicate) dusted on foliage.

Wolcott 37-81: comparative scarcity in pellets of excrement of *Bufo marinus* L.

Fife: 39-10: adults eat cotton leaves.

adults eating leaves of unidentified tree, Mona Id. (212-40); of *Cedrela odorata* at Rio Grande (368-40), at Villalba (404-40); of *Conocarpus erectus* at Boca de Cangrejos (374-40); of young ratoon cane at Isabela (35-39); of espino rubiál, *Zanthoxylum caribaeum,* at Isabela (311-39). Eggs between leaves of caimito at Camuy (30-36). Larvae attacking mahogany seedlings, Mountain Top Nursery, Patillas (12-39).

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Lachnopus coffeae Marshall

adults feeding on grapefruit leaves (I No. 7212); in fruit fly traps (I No. 6820, 6855, 6980).

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Lachnopus curvipes F.

Fife 39-10: adults eat cotton leaves.

adults eating flowers and young fruit of cultivated grape at Ponce (41-39); on eggplant at Morovis (I No. 7399); at light at Guajataca (166-40).

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Lachnopus seini Wolcott

on *Rapanea ferruginea* at Aibonito (190-40).

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Lachnopus kofresi new species

Integument entirely black: no scales; short, silvery hairs on tibiae and tarsi, also towards apex of elytra, with an elongated tuft of longer hairs on the lateral margin at the posterior declivity. Considerably more robust than *Lachnopus curvipes, coffeae* or *bellus,* elytra broadest at middle; striae deep and regular, with deep regular punctures. Prothorax lightly and irregularly punctured, head almost impunctate. Length 26 to 38 mm., width 11 to 17 mm.

Described by G. N. Wolcott from 22 specimens collected by L. F. Martorell, August 8, 1939·(P. R. Acc. No. 129-39) from the underside of leaves of cultivated eggplant, Mona Island.

Named for an infamous pirate who made Mona Island his headquarters.

Apodrusus argentatus Wolcott

(as *Apodrosus*) Fife 39-10: adults eat cotton leaves.

on shoots of *Colubrina colubrina,* Mona Id. (283-40 det. as "near" L. L. Buchanan).

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Geraeus sp.—det. L. L. Buchanan

adults abundant on flowers of *Helichrysum bracteatum* at Villalba (414-40), of *Borreria verticillata* at Matrullas Dam (310A-39); also includes "*Centrinus* sp.—det. L. L. Buchanan, at Villalba (I No. 5151) on leaves of ? tree (Oakley)."

Anacentrinus sp.—det. L. L. Buchanan

on wild parsnip flowers at Cayey (30-39).

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Rhaptinus (Baris) torquatus Olivier

on *Solanum verbascifolium* at Aguas Buenas (I No. 7461); on *Solanum torvum* at Mayaguez (I No. 6095, 6944).

Diorymerellus obliteratus Champion

(as "near") Anon 39-119: a pest of vanilla.

on vanilla at Maricao (36-38).

Chalcodermus sp.

Fife 39-10: adults eating cotton leaves.

page 309

Pantophthalmus puertoricanus Buchanan, L. L., "A New Genus and four new Species of West Indian Cucrculionidae (Coleoptera)." Mem. Soc. Cubana Hist. Nat., **10**(3): 145-152. Habana, 1936: p. 147, TYPE from P. R.

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Anchonus anguilicollis Chevrolat
under bark of dead tree on El Yunque (344-39).

Anchonus sp.—det. L. L. Buchanan
from grapefruit at Bayamon (I No. 6433).

Cossonus canaliculatus F.
under bark and chips of wood of almácigo at Salinas (33-36 det. L. L. Buchanan); at Mayaguez (I No. 6372 as "sp.").

Stereoderemus sp.—det. L. Buchanan
in decaying wood at Mayaguez (I No. 6389).

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Metamasius hemipterus L.
Wolcott 37-82: five adults in one pellet of excrement of *Bufo marinus* L., collected in cane field at Vega Baja.
Wolcott 40-30: in maga pods.
adults in sugar-cane at Manati (I No. 6068); under pineapple plant at Mayaguez (I No. 6947).

page 313

Cosmopolites sordidus Germar
Wolcott 35-142: summarizing the work of F. Sein.
Wolcott 37-48: reporting experiments by Mr. Sein, no sign of infestation yet in plants from either pared or sterilized corms.
Wolcott 37-58: very light infestation after first year.
Wolcott 38-90: infestation had not increased by the second year to the point of seriously affecting yield.
Anon 38-101: the Histerid predator, *Plaesius javanus* Erichson, introduced from Fiji, released in P. R.
Anon 39-109: not recovered in P. R. A native earwig, *Psalis americana,* found in tunnels and fed upon the larvae of the weevil in captivity.
from plantain corms at Mayaguez (I No. 6059, 6060).

Calendra linearis Herbst
in tamarind seed pods (I No. 6522, 6089), at Arecibo (I No. 6076).

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SCOLYTIDAE

Stephanoderes brazilensis Hopkins
from grapefruit at Bayamon (I No. 6418).

Stephanoderes busckii Hopkins
in pods of algarrobo, *Hymanaea courbaril* (I No. 5905), at Arecibo (I No. 5958); in tamarind pods (I No. 6515).

Stephanoderes near *ferrugineus* Hopkins—det. M. W. Blackman
in pods of *Thespesia populnea* at Guayanilla (32-39).

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Hypothenemus near *parvus* Hopkins
in orange fruit, Mayaguez (I No. 5950).

Coccotrypes rollinae Hopkins—det. M. W. Blackman
in seeds of *Neowashingtonia robusta* palm (4-33).

Pseudothysanoes (not *Peudothysantes*) Blackman

Xyleborus affinis Eichoff
(as "sp.") Wolcott 37-62: appearing in lesions on *Inga vera* and *Inga laurina* caused by water-soluble salts of thallium in hormiguilla bait.

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DIPTERA

Johannsen, O. A., "New Species of Nemocera from Puerto Rico." Jour. Agr. Univ. P. R., **22**(2): 219-225. San Juan, May 1938.

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TIPULIDAE

Alexander, C. P., "New or little-known Species of West Indian Tipulidae (Diptera) II." Jour. Agr. Univ. P. R., **21**(2): 179-190, pl. 1. San Juan (July) April 1937.
"New or little-known Species of West Indian Tipulidae (Diptera) IV." Jour. Agr. Univ. P. R., **23**(2): 91-130, pl. 2. San Juan (September 7) April 1939.

Dolichopeza (Megistomastix) acutiloba Alexander 37-179: TYPE from El Yunque, P. R. (Garcia-Diaz).
Garcia-Diaz 38-95: listed.

Dolichopeza (Megistomastix) obtusiloba Alexander 37-180: TYPE from El Yunque, P. R. (Garcia-Diaz).
Garcia-Diaz 38-95: listed.

Limonia (Limonia) hoffmani Alexander
Alexander 39-108: at Villalba (W. A. Hoffman).

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Limonia (Neolimonia) diva Schiner
Garcia-Diaz 38-95: listed.

Limonia (Dicranomyia) brevivena Osten Sacken
Garcia-Diaz 38-95: listed.

Limonia (Dicranomyia) divisa Alexander
Alexander 39-113: at Villalba (W. A. Hoffman).

Limonia (Dicranomyia) distans Osten Sacken
Garcia-Diaz 38-95: listed.

Limonia (Rhipidia) domestica Osten Sacken
Garcia-Diaz 38-95: listed.
Alexander 39-113: at Villalba (W. A. Hoffman).

Limonia (Rhipidia) tetraleuca Alexander 37-182: TYPE from El Yunque, P. R.
Garcia-Diaz 38-95: listed.

Limonia (Geranomyia) antillarum Alexander
Garcia-Diaz 38-95: listed.
Alexander 39-113: at Villalba (W. A. Hoffman).

Limonia (G.) myersiana Alexander
Alexander 39-113: at Villalba (W. A. Hoffman).

Limonia (G.) subrecisa Alexander—det. C. P. Alexander
Garcia-Diaz 38-95: listed.

Limonia (G.) tibialis Loew
Alexander 39-113: at Villalba (W. A. Hoffman).

Limonia (G.) virescens Loew
Alexander 39-116: at Villalba (W. A. Hoffman).

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Helius (Helius) albitarsis Osten Sacken
Garcia-Diaz 38-95: listed.

Polymera (Polymera) geniculata Alexander
Garcia-Diaz 38-95: listed.

Shannonomyia hoffmani Alexander, C. P., "New or little-known Species of West Indian Tipulidae (Diptera) I." Jour. Agr. Univ. P. R., **20**(4): 877-882, fig. 4. San Juan (January 1937) October 1936: TYPE from El Yunque, P. R.

Shannonomyia leonardi Alexander
Garcia-Diaz 38-95: listed.

Shannonomyia triangularis Alexander
Garcia-Diaz 38-95: listed.

Hexatoma (Eriocera) trifasciata Roeder
Garcia-Diaz 38-95: listed.
Alexander 39-126: from El Yunque (Garcia-Diaz) and Las Mesas (A. H. Madden).

Gnophomyia (Gnophomyia) diazi Alexander 37-184: TYPE from El Yunque, P. R.
Garcia-Diaz 38-95: listed.

Gonomyia (Lipophleps) bicornuta Alexander
Garcia-Diaz 38-95: listed.

Gonomyia (L.) bifiligera Alexander
Alexander 39-128: at Villalba (W. A. Hoffman).

Gonomyia (L.) monacantha Alexander 37-184: TYPE from Vieques Id., others from Lares, Rio Blanco and Rio Yunez, P. R.
Garcia-Diaz 38-95: listed.

Gonomyia (L.) orthomera Alexander 37-185: TYPE from Tanama River, P. R., others from Cidra.
Garcia-Diaz 38-95: listed.

Gonomyia (L.) pleuralis Williston
Garcia-Diaz 38-95: listed.

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Gonomyia (L.) subterminalis Alexander
Garcia-Diaz 38-95: listed.

Teucholabis (Teucholabis) portoricana Alexander 37-180; TYPE from Villalba, P. R.
Alexander 39-126: quoting from the above.

Trentepholia (Paramongoma) niveitarsis Alexander
Garcia-Diaz 38-95: listed.

Erioptera (Mesocyphona) caloptera Say
Garcia-Diaz 38-95: listed.

Erioptera (Mesocyphona) portoricensis Alexander
Garcia-Diaz 38-95: listed.

Toxorhina (Toxorhina) fragilis Loew
Garcia-Diaz 38-95: listed.

BLEPHAROCERIDAE

Paltostoma argyrocincta Curran
Johannsen 38-223: from El Yunque and Rio Sabana.

PSYCHODIDAE

Maruina hirta Johannsen 38-224: TYPE from Rio Guaynabo, others from Rio Yunez, P. R.

CHIRONOMIDAE

Pentaneura marmorata Johannsen 38-219: TYPE from Rio Cidra, P. R.

Pentaneura monilis L. var. **peleensis** Walley
Johannsen 38-220: at Laguna Tortuguero.

Coelotanypus insulanus Johannsen 38-220: TYPE from Rio Yunez, P. R.

Coelotanypus concinnus Coquillett
Johannsen 38-220: at Cartagena Lagoon.

Cardiocladius obscurus Johannsen
Johannsen 38-220: at Cartagena Lagoon.

Cricotopus aberrans Johannsen 38-220: TYPE from Rio Tanamá, P. R., others from Rio Yunez and Rio Caguitas.

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Cricotopus conformis Curran
Johannsen 38-221: at five P. R. localities.

Cricotopus insolitus Curran
Johannsen 38-221: at four P. R. localities.

Corynoneura (Thienemaniella) similis Malloch
Johannsen 38-221: at Rio Yunez and Rio Cidra.

Pseudochironomus fulviventris Johannsen
Johannsen 38-221: from Rio Yunez and in Luquillo Mts.

Chironomus (Stenochironomus) furcata Johannsen 38-221: TYPE from Luquillo Mts., P. R.

Chironomus bulbosa Garry
Johannsen 38-222: at Cartagena, Guanica and Tortuguero Lagoons and from Rio Yunez.

Tanytarsus (Rheotanytarsus) meridionalis Johannsen 38-222: TYPE from Rio Yunez, P. R., others from five P. R. localities.

CERATOPOGONIDAE

Culicoides furens Poey
on Culebra Id., December 1937 (W. A. Hoffman).

Ceratopogon (Brachypogon) impar Johannsen 38-223: TYPE from El Yunque, P. R.

Atrichopogon sp.—det. Alan Stone
on cactus blossoms at Barceloneta (I No. 6593).

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CULICIDAE

Tulloch, G. S., "The Mosquitoes of Puerto Rico." Jour. Agr. Univ. P. R., **21**(2): 137-167, fig. 9, ref. 26. San Juan, April 1937.

"The Brackish Water Mosquitoes of Puerto Rico." Jour. Agr. Univ. P. R., **21**(4): 581-583. San Juan (November 12) October 1937.

"Ecological Notes on Mosquitoes Associated with Bromeliads." Jour. Agr. Univ. P. R., **22**(4): 499-501, tab. 1. San Juan (March 23, 1939) October 1938.

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Chaobrus festivus Dyar & Knab—det. R. Matheson
Garcia-Diaz 38-95: listed.

Chaobrus brasiliensis Theobald—det. G. S. Tulloch
Tulloch 37-153: the first record for the West Indies.

Corethrella appendiculata Grabham
Tulloch 37-153: predaceous on *Culex larvae*.
Tulloch 39-500: in bromeliads.

Wyeomyia mitchellii Theobald
Tulloch 37-141: in bromeliads in the mountains.
Tulloch 39-500: "larvae - - - are bright yellow and have slightly flattened bodies."

Anopheles albimanus Wiedemann
Tulloch 37-152: "most abundant."
Tulloch 37-582: in brackish water.
on Culebra Id., December 1937 (W. A. Hoffman).

Anopheles grabhamii Theobald
Tulloch 37-153: "second in abundance."
Tulloch 37-582: in brackish water.

Anopheles crucians Wiedemann—det. G. S. Tulloch
Tulloch 37-153: a single record from Guanica Lagoon.
Tulloch 37-582: in brackish water.

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Anopheles vestitipennis Dyar & Knab
Tulloch 37-153: only adults.

Megarhinus portoricensis Roeder
Tulloch 37-151: in tree holes and bromeliads.
Tulloch 39-500: in bromeliads at Maricao, elev. 2,000 ft.

Uranotaenia loewii Theobald
Tulloch 37-151: in water containing much vegetation.

Uranotaenia sapphirina Osten Sacken
Tulloch 37-151: rare.
(as "sp." or "spp.") Tulloch 37-582: in brackish water.

Psorophora jamaicensis Theobald
Tulloch 37-143: in temporary surface pools.

Psorophora pygmaea Theobald—det. G. S. Tulloch
Tulloch 37-142: fairly common on the south coast of P. R.
Tulloch 37-582: in brackish water.

Mansonia indubitans Dyar & Shannon—det. G. S. Tulloch
Tulloch 37-146: the first record for the West Indies.

Mansonia titillans *Walker*
Tulloch 37-146: at Mayaguez.

Aëdes (Stegomyia) aegypti L.
Tulloch 37-145: around dwellings.
on Culebra Id., December 1937 (W. A. Hoffman).

Aëdes condolescens Dyar & Knab
Tulloch 37-145: at Mayaguez.

Aëdes mediovittatus Coquillett
Tulloch 37-144: in tree holes.

Aëdes nubilis Theobald—det. G. S. Tulloch
Tulloch 37-143: at Dorado.

Aëdes scapularis Rondani—det. G. S. Tulloch
Tulloch 37-146: at Mayaguez.

Aëdes sollicitans Walker
Tulloch 37-143: at Guanica Lagoon.
Tulloch 37-500: "the salt-marsh mosquito," in salty or alkaline pools, even far from the ocean.

Aëdes taenorynchus Wiedemann
Tulloch 37-144: in the coastal plain.
Tulloch 37-582: in brackish water.

Aëdes tortilis Theobald—det. G. S. Tulloch
Tulloch 37-143: prefers higher altitudes.

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Culex bahamensis Dyar & Knab
Tulloch 37-148: "restricted to brackish water."
Tulloch 37-582: in brackish water.

Culex habilitator Dyar & Knab
Tulloch 37-149: in either fresh or brackish water.
Tulloch 37-582: in brackish water.

Culex secutor Theobald
Tulloch 37-150: in cool pools.

Culex nigripalpus Theobald
Tulloch 37-149: most abundant of all tropical *Culex*.
Tulloch 37-582: in brackish water.

Culex fatigans Wiedemann
(as *C. quinquefasciatus* Say) Tulloch 37-150: "most abundant in towns and cities."
on Culebra Id., December 1937 (W. A. Hoffman); at Bayamon (I No. 6900, 6901).

Culex pilosus Dyar & Knab
Tulloch 37-147: at Mayaguez.

Culex carcinophilus Dyar & Knab—det. G. S. Tulloch
Tulloch 37-148: at Cartagena Lagoon.

Culex americanus Neveu-Lemaire—det. G. S. Tulloch
Tulloch 37-148 and Tulloch 39-500: in bromeliads.

Culex janitor Theobald—det. G. S. Tulloch
Tulloch 37-150: in crab holes.

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Culex atratus Theobald
Tulloch 37-148: in permanent pools.
Tulloch 37-582: in brackish water.

Culex inhibitator Dyar & Knab
Tulloch 37-147: "most abundant of the Culex group."
Tulloch 37-582: in brackish water.

Culex antillum-magnorum Dyar
Garcia-Diaz 38-95: listed.

Deinocerites cancer Theobald
Tulloch 37-147: in crab holes.

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MYCETOPHILIDAE

Sciara sp.
at Guajataca in February (22-39), and in October and November, det. as all females — can not be identified" Elizabeth G. Fisher.

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CECIDOMYIDAE

Cecidomyia coccolobae Cook
making small cone-shaped galls in leaves of *Coccolobis uvifera,* Mona Id. (220-39).

BIBIONIDAE

Dilophus spinipes Say—det. Alan Stone
on guamá flowers at Cayey (127-40).

Dilophus sp. (not *spinipes*)—det. Alan Stone
on flowers of *Borreria verticillata* at Guajataca Dam (141-40).

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STRATIOMYIDAE

Hermetia albitarsis F.
in fruit fly trap (I No. 6966).

Hermetia illucens L.
abundant in fruit fly traps (I No. 6924); larvae in decayed grapefruit at Bayamon (I No. 6211); at Guajataca (288-39).

Neorondania sp. nov.—det. C. T. Greene
in fruit fly trap (I No. 6925).

Neorondania chalybea Wiedemann
on house screens, Mona Id. (133-39 det. C. T. Greene, 269-40); larvae under dead bark of yuma palm, *Cocotrynax argentea* (152-40 det. C. T. Greene).

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TABANIDAE

Dr. J. C. Bequaert, in preparing his paper on "The Tabanidae of the Antilles," Revista de Entomologia, **11**(1-2): 253-369, fig. 33. Rio de Janeiro, June 1940, examined and re-determined many of the specimens in the Station collection.

Chrysops variegata DeGeer
on grapefruit (I No. 7134); in citrus grove (556-17 det. J. C. Bequaert); on horses in coconut grove by ocean at Añasco (1028-13 det. J. C. Bequaert).

Leptiselaga crassipes F.—det. J. C. Bequaert
vanVolkenberg 39-: at Lake Guanica.
at San German (L. E. Gregory).

Tabanus hookeri Knab 15-48: TYPE from Mayaguez, P. R.
on the beach at Pt. Cangrejos (GNW—det. J. C. Bequaert).

Tabanus nervosus Curran (not *nervous*)
(as *Tabanus psamophilus* Osten Sacker det. C. T. Greene) IP-214: on the beach, resting on dry seaweed, as which it is the same color, and in which the larvae live, feeding on sand fleas, at Pt. Cangrejos (114-15 re-determined J. C. Bequaert), at Vega Baja (493-16).

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Tabanus caribaeorum Bequaert 40-323: TYPE from Grand Cayman, others from Mona Id. (L. F. Martorell). Illustration.

Tabanus stigma F.
from the beach at Cataño (unlabeled specimens—Leonard & Mills—det. J. C. Bequaert); on Mona Id. (204-39 det. Alan Stone).

Tabanus truquii Bellardi (= *T. lineola* from P. R.)
at San Juan

Tabanus brunettii Bequaert (= *Silvius punctipennis* Brunetti)
at Yauco (I No. 5570 det. as *Stenotabanus* sp. by Alan Stone).

Stenotabanus sp. nov. ?— det. Alan Stone
at Bayamon (I No. 6949), at Manati (I No. 6889).

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BOMBYLIIDAE

Hyperalonia cerberus F.
on Mona Id. (121-39).

Spongolostylum sp., near *pluto* Wiedemann
on Mona Id. (197-39 det. C. T. Greene).

Heterostylum ferrugineus F.
in cave on Mona Id. (161-39).

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Exoprosopa sp. near *dodrans* Osten Sacken
on Mona Id. (196-39 det. C. T. Greene).

Anthrax gorgon F.
at the airport, Mona Id. (160-39, 221-40 det. C. T. Greene).

Anthrax lucifer F.
Jepson 36-21: abundant at Guanica.
at Ponce (293-39).

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ASILIDAE

Atomosia incisularis Macquart
at Bayamon (I No. 6871).

Ommatius marginellus F.
on Mona Id. (198-39 det. C. T. Greene).

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Allopogon danforthi Curran, C. H., "New American Asilidae (Diptera)." Amer. Mus. Novitates **806:** 1-12. New York, 1935: p. 8, TYPE from P. R.

Proctacanthus rufiventris Macquart
in cane field at Aguadilla (41-38), at Loiza (289-39), at Salinas (290-39).

Plesioma sp. near *indecora* Loew
on Mona Id. (190-39 det. C. T. Greene).

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DOLICHOPODIDAE

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Psilopus melampus Loew—det. C. T. Greene
on weeds at Mayaguez (I No. 7423).

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Psilopus portoricensis Macquart
on weeds at Mayaguez (I No. 7423).

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PHORIDAE

Megaselida sp. "very close to *fungicola* Coq."—det. C. T. Greene
on polypore fungus (I No. 6143).

Megaselida scalaris Loew
from rotten silk of sweet corn at Mayaguez (I No. 6014); from rotten fruit of *Annona glabra* at Palo Seco (I No. 6514); at Adjuntas (I No. 6786).

Pseudaceton antiguense Crawford
Smith 36-839: from nest of *Solenopsis geminata* in mountains east of Mayaguez.

Syneura cocciphila Coquillett
from *Crypticeryia rosae* R. & H., on casuarinas at Ponce (32-37).

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SYRPHIDAE

Baccha clavata F.
Fife 39-9: larvae predaceous on *Aphis gossypii.*

Baccha conformis Loew
on Mona Id. (189-39 det. C. T. Greene, 271-40).

Baccha fasciatus Roeder
resting on sugar-cane at Salinas (372-39); on Mona Id. (270-40).

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Baccha latiusculus Loew
at Mayaguez (I No. 7298).

Baccha parvicornis Loew
(32-40, I No. 6952), in fruit fly trap (I No. 6936).

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Allograpta limbata F.
on Mona Id. (272-40).

Volucella horvathi Szilady—det. C. T. Greene
flying in shade of trees, Mona Id. (134-39).

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Volucella tricincta Bigot
in fruit fly trap at Mayaguez (I No. 6945).

Eristalis vinetorum F.
(I No. 6792), at Loiza (I No. 6795), at Palo Seco (I No. 6798); frequenting flowers of *Borreria verticillata* at Aguadilla (252-39), at Yabucoa.

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CONOPIDAE

Physocephala sp.—det. D. G. Hall
frequenting flowers of *Borreria verticillata* at Yabucoa (239-39), at Palo Seco (54-40); a pair in coitu on citrus at Isabela (120-32); on cane leaf at Ceiba (303-39).

Conops sp. "near *xanthopareus* Williston"—det. C. T. Greene
at Bayamon (I No. 6038).

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TACHINIDAE

Tricopoda pennipes F. (not *Trichopoda*)
in fruit fly trap at Mayaguez (I No. 7277); frequenting flowers of *Borreria verticillata* at Yabucoa (314-39 det. D. G. Hall).

Lydella stabulans var. **grisescens** Rond.—Introduced
Anon 38-96: not recovered from *Diatraea saccharalis* larvae.

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Cryptomeigenia aurifacies Walton
Jepson 36-5 and 12: "common in the wetter parts of the Island" but scarce when he came to look for it.

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Lixophaga diatraeae Townsend
Anon 38-96: a high of 31.9% parasitism of larvae of *Diatraea saccharalis* F. at Hormigueros (K. A. Bartlett).
Anon 39-97: reared and re-distributed in the field.

Theresia claripalpis van der Wulp—Introduced
Dohanian 37-241: collected in Peru for release in P. R.
Anon 38-96: not recovered.
Anon 39-96: reared in laboratory in P. R.

Eutrixoides jonesii Walton
Jepson 36-6: "a rarer species."

Leskiopalpus diadema Wiedemann—Introduced
(as *Stomatodexia*) Dohanian 37-239: from Demerara.
Anon 38-96: not recovered.

Metagonistylum minense Townsend—"The Amazon Fly"—Introduced
Dohanian 37-238: material collected and reared in Demerara.
Anon 38-96: not recovered in P. R.
Anon 39-95: recovered at Santa Isabel.
Bartlett, K. A., "The Second Introduction of the Amazon Fly from British Guiana into Puerto Rico." Agr. Notes **86,** pp. 4. Mayaguez, November 14, 1938. (Mimeographed.)

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Frontina bigeminata Curran
from almendra fruits at Vega Alta (I No. 5952 as *Achaetoneura*).

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Archytas analis F.
in cane field at Ceiba (302-39).

Archytas piliventris van der Wulp
at Mayaguez (I No. 5954).

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SARCOPHAGIDAE

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Sarcophaga lambens Wiedemann (= *S. sternodontis* Townsend)
Fife 39-6: parasitizing *Heliothis virescens* and *Alabama argillacea.*
reared from dead tobacco hornworm caterpillars (384-39 det. D. G. Hall).

Sarcophaga currani Hall—det. D. G. Hall
in cave on Mona Id. (124-39).

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Sarothromyia femoralis Schiner
at light, Mona Id. (374-39 det. D. G. Hall).

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MUSCIDAE

Cochliomyia macellaria F.
reported as so abundant and troublesome on Mona Island as to prevent drying of fish on the beach: no specimens.

Morellia scapulata Bigot
on grapefruit at Barceloneta (I No. 6791).

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Musca domestica L.
Anon 38-100 and Bartlett 39-6: host of *Spalangia philippinensis* Fullaway in breeding work.
Anon 39-100: parasitized by *Dirhinus giffardii* Silvestri in laboratory.
Anon 39-107: parasitized by *Muscidifurax raptor* Gir. & Saunders.
on Mona Id. (203-39 det. D. G. Hall, 208-39, 44-40).

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Haematobia irritans L.
Anon 39-107: host of *Spalangia philippinensis* from Hawaii.
Bartlett, K. A., "The Introduction into Puerto Rico of Beneficial Insects to aid in the Control of the Horn Fly of Cattle." Agr. Notes **88,** pp. 6. Mayaguez, March 31, 1939. (Mimeographed.)

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ANTHOMYIIDAE

Atherigona excisa Thomson
from cashew fruit at Bayamon (I No. 7241 as "sp.").

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BORBORIDAE

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Leptocera discalis Malloch
at Adjuntas (I No. 4061, 6789).

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SAPROMYZIDAE

Carpolonchaea pendula Bezzi
at Mayaguez (I No. 5944); on Mona Id. (184-39 det. D. G. Hall).

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Minettia aibonito Curran
at Guayama (I No. 6793).

Minettia slossonae Coquillett
at Adjuntas (I No. 4037, 6787), at Juncos (I No. 6796).

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ORTALIDAE

Xanthacrona bipustulata van der Wulp
at Mayaguez (I No. 7106).

Macrostenomyia guerini Bigot
in fruit fly trap at Mayaguez (I No. 6965).

Stenopa sp.—near *Neoacantheneura* sp.
in fruit fly trap at Mayaguez (I No. 6964).

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Euxesta eluta Loew
in silk of sweet corn at Mayaguez (I No. 6013).

Euxesta stigmatias Loew
App, B. A., "*Euxesta stigmatias* Loew, an Otitid Fly infesting ear corn in Puerto Rico." Jour. Agr. Univ. P. R., **22**(2): 181-188, pl. 1. San Juan, May 1938.
Anon 39-65: "most prevalent - - - - in sweet corn."
reared from rotten corn (I No. 6485, 6581, 7156, 7157, 7169).

Euxesta thomae Loew
in fruit fly traps (I No. 6968, 6988).

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Chaetopsis fulvifrons Macquart
reared from guava fruit at Naguabo (I No. 6718 as "sp.").

TRYPETIDAE

Toxotrypana curvicauda Gerstaecker
reared from papaya (I No. 5960, 5961), at Bayamon (34-39), at Guayama (I No. 6475).

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Anastrepha sp. nov. "F"—det. Alan Stone
in fruit fly traps at Mayaguez (I No. 6963, 7045).

Anastrepha mombinpraeoptans Sein (= *A. acidusa* Walker)
(as *A. acidusa* Walk.) Anon 36-32: laboratory maintained at Mayaguez, to study.

(as "sp.") Anon 37-101: studied by L. C. McAlister, Jr., and J. W. Balock.

(as "sp. probably *A. mombinpraeoptans* Sein") Anon 38-79: larvae in mango fruits killed by desiccation.

Anon 38-96: parasites reared by K. A. Bartlett.

reared from pomarrosa fruits (I No. 7301), at Las Mesas (I No. 5995); hybrids from pomarrosa fruits (I No. 7292); from *Spondias ciruela* fruits at Arecibo (I No. 6670); from jobo fruits at Arecibo (I No. 6200, 7336), at Caguas (I No. 6293, 6588, 6294), at Cayey (I No. 6334), at Patillas (I No. 7332); from mango fruit at Bayamon (I No. 6524, 6478), at Guaynabo (I No. 6498), at Rio Piedras (I No. 6489), at Coamo (I No. 6497), at Guayama (I No. 6479), at Aibonito (I No. 6622), at Mayaguez (I No. 5994); from guava fruits at Naguabo (I No. 6717), at Bayamon (I No. 6645); from cashew fruits at Dorado (I No. 6574, 6583); from grapefruit at Manati (I No. 6685), at Garrochales (I No. 7313, 7314), at Arecibo (I No. 7292).

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Anastrepha unipuncta Sein (= *A. suspensa* Loew)

(as "sp.") Anon 37-101: studied by L. C. McAllister, Jr. and J. W. Balock.

(as *A. suspensa* Loew) Anon 36-32: laboratory maintained at Mayaguez, to study.

(as *A. suspensa* Loew) Bartlett 39-3: host of *Spalangia philippinensis* Fullaway in breeding work.

reared from black heart cherry fruits, infected in the laboratory (I No. 7288, 7289); from grapefruit at Rio Piedras (I No. 6935, 7222, 6889, 6878, 6885), at Bayamon (I No. 6004, 6005, 6934, 6879, 7176, 7226, 7227, 7434), at Vega Alta (I No. 7213, 7223, 7235, 7431, 7446), at Vega Baja (I No. 6932, 7261), at Manati (I No. 6682, 6933, 7223), at Arecibo (29 interception records), at Barceloneta (I No. 7231), at Las Marias (I No. 5949, 6465), at Adjuntas (I No. 6447), at Juana Diaz (I No. 5974, 5983, 6407, 6461), at Aguada (I No. 6457), at Añasco (I No. 6387, 6268), at Mayaguez (I No. 5951, 6452, 6455, 6464, 6851, 6713, 6714, 6729, 6772); from orange at Lares (I No. 5973, 6458), at Guayanilla (I No. 5479), at Ponce (I No. 5978); from sour orange fruits at Mayaguez (I No. 6799, 6451, 6463), at Maricao (I No. 6453, 6460), at Las Marias (I No. 6454), at San Sebastian (I No. 6456, 6465), at Adjuntas (I No. 5879, 5901, 5930, 5982, 6462), at Yauco (I No. 5980), at Ponce (I No. 5981, 6467), at Juana Diaz (I No. 5975, 5984, 6009, 6001, 6003, 6053, 6232, 6262, 6459); from *Spondias dulcis* fruits (I No. 6632); fifteen interception rearings from fruits of guava, *Psidium guajava,* at Bayamon, at Palo Seco (I No. 6638), at Rio Piedras (I No. 6643), at Caguas (I No. 6292, 6659, 6660), at Vega Alta (I No. 6663, 6664, 6665, 6251,

6252), at Vega Baja (I No. 6519, 6641, 6667), at Arecibo (I No. 6181, 6200, 6283, 6666), at Aguadilla (I No. 6443), at Sabana Grande (I No. 5962, 5963), at Naguabo (I No. 6717); from fruits of almendra, *Terminalia catappa,* at Bayamon (I No. 6608), at Corozal (I No. 6607), at Dorado (I No. 6619, 6621, 7023), at Manati (I No. 6609), at Arecibo (I No. 6070, 6217, 6354, 6716, 6669, 6675, 7025); from fruits of pomarrosa, *Eugenia jambos,* at Bayamon (I No. 6525), at Caguas (I No. 6530), at Cayey (I No. 6562), at Las Marias (I No. 5005); from fruits and icaco, *Chrysobalanus icaco,* at Bayamon (I No. 6624); from fruits of malay apple, *Jambos malaccensis,* at Trujillo Alto (I No. 6595).

Tetraeuaresta obscuriventris Loew
on weeds, Mona Id. (302-40 det. C. T. Greene).

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EPHYDRIDAE

Ephydra gracilis Packard—det. D. G. Hall
Wolcott & Martorell 37-536: in salt lagoons at Guanica and Faro de Cabo Rojo.
including the AMC records as "sp. det. J. M. Aldrich, at Ensenada xi-26," and as "sp. nov. det. C. H. Curran, at Ensenada xi-26, Faro de Cabo Rojo i-31"; also, from salt lagoons at Ensenada (16-36), at Faro de Cabo Rojo (57-37).

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CHLOROPIDAE

"near *Meromyza*"—det. C. T. Greene
dark, elongated, diamond-shaped, scale-like larvae on leaves of sugar-cane, at Guanica (67-37), and at many other localities, especially on the south coast.

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DROSOPHILIDAE

Drosophila melanica Sturdevant ?—det. C. T. Greene
at Adjuntas (I No. 4057, 6788).

Drosophila repleta Williston (not Wollaston)
reared from grapefruit picked from tree at Barceloneta (I No. 7214).

Drosophila sp.
from ovary of flower of tibéy, *Isotoma longiflora,* at Vega Baja (I No. 7266).

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Leucophenga varia Walker—det. C. T. Greene
resting on sugar-cane at Coloso (332-39).

AGROMYZIDAE

Agromyza aeneiventris Fallen ?—det. C. T. Greene
on tender leaves of *Coccolobis laurifolia,* Mona Id. (43-40).

Agromyza caerulea Malloch
Bailey, W. K., and Plank, H. K., "An Agromyzid Fly Infesting Sweet-potato Seed in Puerto Rico." Jour. Ec. Ent., **33**(4): 704-5. Menasha, Wisconsin, August 1940.

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Cryptochaetum iceryae Williston—Introduced
adults from shipment of parasitized cottony cushion scale from Whittier, California, released on Mona Id. (200-40).

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HIPPOBOSCIDAE

Dr. J. C. Bequaert has checked the following records and indicated generic transfers and synonymy.

Ornithoctona erythrocephala Leach
Coquillett: on sparrow hawk at Adjuntas and from Culebra Id.
Johnson, C. W., *in* Psyche **29**( ): 84. Cambridge, 1922: on *Falco sparverius.*
on *Gymnasio nudipes* (H. E. Anthony); on *Buteo borealis* at Mayaguez.

Olfersia aenescens Thompson (= *O. diomedeae* Coquillett—det. J. M. Aldrich = *O. erythropsis* Bigot)

Olfersia fossulata Macquart
on booby, *Sula leucogaster,* Desecheo Id. (S. T. Danforth).

Olfersia spinifera Leach—det. Alan Stone
on frigate bird, *Fregata magnificens,* Mona Id. (152-39), at Mayaguez (J. R. Ramos).

Lynchia albipennis Say (= *Olfersia albipennis* Say)

Pseudolynchia canariensis Macquart (= *Lynchia maura* Bigot)

STREBLIDAE

Dr. J. C. Bequaert notes the following records.

Paradyschira dubia Rudow
(as *P. fusca* Spesier—det. J. C. Bequaert) Anthony, H. E., "Mammals of Porto Rico, Living and Extinct." Scientific Survey of Porto Rico and the Virgin Islands, **9**(1): 1-238, pl. 54. New York Academy of Sciences, New York, 1925: p. 18, on *Noctilio leporinus mastivus,* in cave, Piedra de la Cueva, Loiza Aldea.

Pterellipsis aranea Coquillett (not *araeneae*)
Anthony 25-39: on *Brachyphylla cavernarum,* det. J. C. Bequaert.
at Bayamon (Aug. Busck) det. J. C. Bequaert.

Trichobius dugesii Townsend
Jobling, J. W., *in* Parasitology, **30**( ): 383 (1938): from *Artibeus jamaicensis*.
at Bayamon (Aug. Busck) det. J. C. Bequaert.

Trichobius pseudotruncatus Jobling (= *T. kesselae* Jobling)—det. J. W. Jobling
from *Artibeus jamaicensis*.

Trichobius truncatus Kessel—det. J. W. Jobling
from *Artibeus jamaicensis*.

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SIPHONAPTERA

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ECHIDNOPHAGIDAE

Tunga penetrans L.
on man, Mona Id. (77-39).

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PULICIDAE

Ctenocephalus canis Curtis
on dog, Mona Id. (76-39).

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LEPIDOPTERA

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NYMPHALIDAE

Danaus menippe Hübner—det. C. Heinrich
reared from *Asclepias curassavica* at Corozal (I No. 7426).

Heliconius charitonius L.
on Mona Id. (168-39, 28-40), in gorge at Guajataca (67-38), in Peñon del Collao, Cayey (129-40).

Colaenis julia F.
in gorge at Guajataca (66-38).

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Dione vanillae L.
on Mona Id. (26-40, 224-40).

Synchloe tulita Gundlach
in gorge at Guajataca (269-39).

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Junonia genoveva Cramer
on Mona Id. (27-40); adults frequenting flowers of *Borreria verticillata* at Yabucoa (243-39).

Anartia jatrophae L.
adults very abundant in cane field at Salinas (249-39).

Eunica monima Cramer (not *Eunia*)
on Mona Id. (226-40).

Didonis biblis F.
adults at Faro de Cabo Rojo (54-37), at Salinas (304-39); larvae on leaves of pringamosa, *Tragia volubilis,* at Quebradillas, reared by Cesário Perez.

page 400
Victorina steneles L.
at Peñon del Collao, Cayey (128-40).

Hypolimnas misippus L.
adults of both sexes abundant at Colonia Jauca, Salinas, October 1939 (321-39).

Historis orion F.
(73-37); adults feeding on exuding sap of dying *Inga vera* tree at Ciales (32-36).

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SATYRIDAE

Calisto nubila Lathy
in mountains north of Yauco (277-39).

LYCAENIDAE

Lycaena filenus (= *L. hanno*) det. Wm. T. M. Forbes
larvae on buds, flowers and seeds of *Macroptilium lathyroides,* reared by Cesário Perez.

page 402
Lycaena theonus Lucas
Wolcott 35-144: summarizing rearing of larvae on buds and flowers of lima beans and *Crotalaria incana.*

Hemiargus sp. "near *zachaeina* B. & D."—det. C. Heinrich
on weeds, Mona Id. (244-40).

page 403

PIERIDAE

Pieris monuste L.
larvae very abundant on *Cleome gynandra,* from Guanica to Guayanilla (29-37), on Mona Id. (25-40) attacking onions when normal host was weeded out.

Phoebis agarithe Boisduval
larvae on *Pithecolobium dulcis,* reared by Cesário Perez.

page 404
Phoebis statira neleis Boisduval—det. F. E. Watson
larvae on tender leaves of quenepa, *Melicoca bijuga* L. (12-36), in July 1936, June 1937 and September 1939.

page 405

Eurema portoricensis Dewitz

Watson 38-2: "the outer margin of the primary rounded, and both primary and secondary with a narrow black border."

Eurema sanjuanensis Watson, F. E., "A New Eurema from Puerto Rico." Amer. Mus. Novitates **971,** pp. 2. New York, April 25, 1938: TYPE from San Juan, P. R.

page 406

PAPILIONIDAE

Papilio pelaus F.

reared from larvae on grapefruit at Palo Seco (I No. 5968, 6012, "a new local race" det. Wm. Schaus).

HESPERIIDAE

Goniurus proteus L.

adults abundant at flowers of *Moringa moringa* and *Pisonia albida,* Mona Id. (227-40).

page 407

Acolastus amyntas F.

Anon 38-93: larvae feed on leaves of *Derris eliptica* (det. J. F. Gates Clarke).

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Proteides idas Cramer

(as *P. pedro* det. Wm. Schaus) Anon 38-93: larvae feeding on leaves of *Derris eliptica* (H. K. Plank).

Hesperia syrichtus F.

on Mona Id. (163-39, 228-40).

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Choranthus hübneri Plotz

male and female reared from larvae feeding on leaves of areca palm by F. Sein (70-38 det. as *Atrytone* by J. F. Gates Clarke).

Catia otho Abbott & Smith

at Mayaguez (I No. 5939, 5940 det. as "sp., to the *othoresuria* group"); on Mona Id. (112-39, 229-40).

page 410

Lerodea tripunctata Herrich-Schaeffer

on Mona Id. (212-39).

Prenes ares Felder

on Mona Id. (212-39).

Prenes nero F.

(as *P. sylvicola* H. S.) at Mayaguez (I No. 5938).

page 412

Perichares corydon F.
Anon 39-118: larvae feed on leaves of bamboo at Mayaguez.

page 413

EUCHROMIIDAE

Eunomia rubripunctata Butler—det. J. F. Gates Clarke
at light, Mona Id. (243-40).

Cosmosoma auge L.
at light (15-39).

Horama panthalon F.
flying among weeds at Guayanilla (82-40).

Horama pretus Cramer
at light (I No. 6908); frequenting flowers of *Heliotropum indicum,* Vieques Id. (104-40); at Manati (339-39).

Empyreuma pugione L.
(I No. 6207, 6220); larvae on oleander (384-40).

Correbidia terminalis Walker
at light on El Yunque (40-39 det. J. F. Gates Clarke).

page 415

ARCTIIDAE

Progona pallida Möschler
Garcia-Diaz 38-96: listed.

Ammalo insulata Walker
in cane field at Quebradillas (24-39); at lighthouse, Mona Id. (237-40).

Calidota strigosa Walker
adult hiding under loose bark on fence post, Mona Id. (24-40), other at light (230-40).

Ecpantheria icasia Cramer
Anon 38-93: larvae eating vanilla leaves (det. J. F. Gates Clarke).
egg-mass on *Cedrela odorata,* Villalba (346-40), and adults at light at Villalba (412-40).

page 417

PERICOPIDAE

Composia sybaris Cramer
adults abundant on Mona Id. (223-40).

page 418

NOCTUIDAE

[Schaus, Wm., "Insects of Porto Rico and the Virgin Islands—Moths of the Family Noctuidae." Scientific Survey of Porto

Rico and the Virgin Islands, **12**(2): 177-290. New York Academy of Sciences, New York, June 7, 1940.]

Lycangesia sp. nov.—det. Wm. Schaus
at light at Bayamon (I No. 6761).

Heliothis obsoleta F.
Anon 39-65: "the most serious handicap in the production of sweet corn."
Fife 39-6: not observed attacking cotton in P. R.
adult resting on sugar-cane, Ceiba (301-39); larvae eating pigeon peas (I No. 7355).

Heliothis virescens F.
Fife 39-6; larvae numerous on *Abutilon hirtum* at Guanica, Lajas and Boquerón, November 1935.

page 419
Feltia annexa Treitschke
Gage 39-22: a pest of tobacco.
larvae attacking cucumber plants (72-37), weeds on Mona Id. (213-39).

Feltia subterranea F.
Fife 39-6: attacking young seedling cotton at Boquerón, August and September 1937.
completely destroying three plantings of cotton at Boquerón (61-37).

page 420
Xanthopastis timais Cramer
larvae exceptionally abundant on spider amaryllis on the beach between Arecibo and Hatillo (335-39).

Cirphis latiuscula Herrich-Schaeffer
at Bayamon (I No. 6754).

page 422
Catabena esula Druce
common at light, Mona Id. (240-40 det. G. F. Gates Clarke).

page 423
Laphygma frugiperda Smith & Abbot
Anon 38-101: attacked by wasps (W. K. Bailey).
Anon 39-63 and 65: a pest of sweet corn.
Fife 39-6: rare of cotton.
larvae very abundant on young sugar-cane at Juana Diaz (7-37), at Guanica (37-37) and their remains present in excrement of *Bufo marinus* L.; on corn at Mayaguez (I No. 5953); on alfalfa at Isabela (49-38); attacking peppers (I No. 6683), at Isabela (I No. 6286); burrowing into gladiolus bulb (69-40).

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Prodenia dolichos F.
Fife 39-6: rare on cotton.

Prodenia pulchella Herrick-Schaeffer
Fife 39-6: rare on cotton.

Prodenia ornithogalli Guenée
Anon 38-59: "serious damaged garden peas on Las Mesas."

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Xylomiges sunia Guenée
(as *Laphygma*) Fife 39-6: rare on cotton.

page 427

Atethmia repanda F. (= *Bagisara inusta* Guené det. F. E. Watson)
at light at Bayamon (I No. 6760 det. as = *subusta* Hübner = *inusta* Guenée).

Cydosa nobilitella Cramer
at light (I No. 6769).

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Paectes devincta Walker
at light at Bayamon (I No. 6025).

Stictoptera vitrea Guenée
at light at Bayamon (I No. 6024).

Charcoma nilotica Rogenhof
at light at Bayamon (I No. 6748).

page 431

Mocis repanda F.
adult at light (245-39); larvae abundant on young sugar-cane at Guanica (334-39)—not previously noted since 1932.

page 433

Phytometra oo Cramer
Gage 39-22: "on shade-grown tobacco."

Pseudohemiceras krugii Möschler
larvae boring in twigs of *Tabebuia heterophylla* at Guanica (337-40), of *T. pallida* at Maricao (385-40), of *T. lucida* and *heterophylla* on Mona Id. (316-40).

page 436

Melipotis acontioides Guenée.
Wolcott 35-143: an outbreak in Santurce and Hato Rey, August 1933.
adults resting on sugar-cane at Salinas (251-39); larvae defoliating flamboyánt at Guanica (35-37); larvae reared to adult from palo verde, *Parkinsonia aculeata,* at Faro de Cabo Rojo (53-37).

Melipotis januaris Guenée
at light at Bayamon (I No. 6021, 6022).

page 437
Thermesia gemmatilis Hübner
Wolcott, G. N. & Martorell, L. F., "Epidemics of Fungus Disease Control Insect Pests in Puerto Rico." Jour. Ec. Ent., **33**(1): 201-2. Menasha, Wisconsin, February 1940: outbreak at Isabela controlled by *Spicaria rileyi.*
at light at Bayamon (I No. 6023 det. as *Anticarsia*); defoliating cowpeas at Isabela (275-39).

page 438
Capnodes turtur Felder & Rogenhof
at light at Bayamon (I No. 6019 as *Massala*).

page 439
Sylectra erycata Cramer (not *Syllectra ericata*)
at light (222-39 det. J. F. Gates Clarke).

page 440
Anomis erosa Hübner
Fife 39-6: on *Sida cordifolia.*

Anomis illita Guenée
Fife 39-6: on *Malachra capitata.*

Alabama argillacea Hübner
Fife 39-5: the most important Noctuid attacking cotton in P. R.
Wolcott 40-29: the caterpillars do not feed on maga foliage.
on cotton 6 to 8 in. high, at Boquerón (63-37), on high cotton at Tallaboa (309-39) in October, at Patillas in November (347-39).

page 442
Trissophaes serpentinifera Walker—det. J. F. Gates Clarke
one adult at light at Guajataca (160-40), another at Camp Doña Juana, Villalba, April 30, 1940 (LFM & D. deLeon).

page 443
Mastigophorus dimissalis Möschler
at light at Bayamon (I No. 6753).

Epitomiptera orneodalis Guenée
Anon 39-118: larvae feeding on bamboo at Mayaguez.

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SPHINGIDAE

page 446
Phlegethontius s. jamaicensis Butler
Gage 39-22: "on nearly mature plants" of tobacco.
at light, Mona Id. (238-40).

Pseudosphinx tetrio L.
adults at light and larvae on *Plumiera alba,* Mona Id. (239-40).

page 449

Cautethia noctuiformis Walker
at light, Mona Id. (214-39).

Aellopos fadus Cramer
(I No. 6302, 6303).

Perigonia lusca F., var. **interrupta** Walker
at light at Bayamon (I No. 6018); larvae on *Duggena hirsuta* at Martin Peña, reared by Cesário Perez.

Celerio l. lineata F.
at light, Mona Id. (225-40).

page 450

GEOMETRIDAE

[Schaus, Wm., "Insects of Porto Rico and the Virgin Islands—Moths of the Families Geometridae and Pyralidae." Scientific Survey of Porto Rico and the Virgin Islands, **22**(3): 291-417. New York Academy of Sciences, New York, July 15, 1940.]

Scopula sp. nov.—det. W. Schaus
at light at Bayamon (I No. 6739).

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Pleuroprucha molitaria Möschler
at light at Bayamon (I No. 6751).

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EPIPLEMIDAE

Letchena myreusalis Walker—det. W. Schaus
at light at Bayamon (I No. 6752).

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PYRALIDAE

Desmia sp. nov.—Det. W. Schaus
at light at Bayamon (I No. 6758).

Maruca testulalis Geyer
Wolcott 37-56: not found in lima beans at Isabela, February to April 1936; abundant in snap beans the preceding autumn.
Anon 37-43: a limiting factor in dry bean production (L. B. Scott).
Wolcott 38-84: original host was the wild lima bean *Vicia faba* L., now most abundant in lima beans in autumn.
Anon 38-60: "approximately 85% of the entire borer population."

Latta, R., "Methyl Bromide Fumigation for Destruction of Pod Borer Larvae." Jour. Ec. Ent., **33**(1): 176-179. Menasha, Wisconsin, February 1940: experiments conducted at San Juan, P. R. Complete mortality of *Maruca* larvae at 0.5 pounds per 1,000 cu. ft., above 70° F. for 2 hours at atmospheric pressure, without injury to host.

abundant on lima beans at Isabela (40-36); in wild lima bean, *Vicia faba* L. (27-36).

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Synclera frondaria Guenée—det. W. Schaus & C. Heinrich

larvae eating shoots of *Tartago ematica* (I No. 7080, 7088).

Marasmia similis van Hedemann

injury of larvae to young cane leaves quite abundant at Aguadilla and Camuy (28-36).

page 459

Pilocrocis lauralis Walker

at light at Bayamon (I No. 6026), on Mona Id. (215-39 det. C. Heinrich).

Mesocondyla concordalis Hübner

[Martorell, L. F., "Notes on the Biology of *Mesocondyla concordalis* Hübner, and its Parasites." Caribbean Forester, **2**(1): 18-19, fig. 1. New Orleans, La., October 1940.]

larvae on leaves of calabaza at Ponce (341-40); on leaves of roble at Maunabo (6-40), of *Tabebuia heterophylla* and *T. lucida* (det. L. R. Holdridge), on Mona Id. (279-40).

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Dichogamma amabilis Möschler

at light, Mona Id. (216-39, 241-40 det. C. Heinrich).

Dichogamma redtenbacheri Lederer

at light, Mona Id. (234-40).

Phostria simialis Guenée—det. W. Schaus

at light at Bayamon (I No. 6027).

Phostria originalis Lederer—det. W. Schaus

Martorell 39-25: a pest on moca.

larvae on moca, *Andira inermis*, at Aibonito and Barranquitas (47-36), at Cayey (91-40, 113-40).

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Lamprosema indicata F.

Anon 37-74: larvae feed on *Derris eliptica* (H. K. Plank).

Anon 38-92: control by hand-picking.

Anon 39-108: parasitized by *Chrysocharis* sp. and *Apanteles* sp.

Sylepta gordialis Guenée

larvae on leaves of 4 o'clock (I No. 6939, 6973).

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Margaronia phlegia Cramer (not *flegia*)
larvae on *Thevetia thevetia* at La Fortaleza, San Juan (2-37).

Margaronia aurocostalis Guenée
at light, Mona Id. (167-39, 232-40).

Margaronia hyalinata L.
Anon 38-59: "seriously damaged calabaza plantings on Las Mesas, and muskmellon and cucumber plantings."
on pumpkin at Mayaguez (I No. 7364).

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Agathodes designalis Guenée
larvae boring in terminal shoots and eating leaves of *Erythrina glauca* at Cayey (89-40).

Syllepsis martialis Poey
at light at Bayamon (I No. 6029).

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Terastia meticulosalis Guenée
Anon 39-121: killing twigs of *Erythrina berteroana.*
larvae boring in twigs of capá blanco, *Petitia domingensis* at Maunabo (46-38), of *Erythrina berteroana* at Mayaguez (I No. 7012).

Crocidophora zinghalis Walker—det. H. G. Dyar
(810-14).

Psara periusalis Walker
Gage 39-22: "often attacks young tobacco leaves."
on *Amaranthus* at Manati (I No. 7139).

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Psara bipunctalis F.
on *Amaranthus* at Manati (I No. 7141).

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Pyrausta cerata F.
larvae abundant on *Citharexylon fruticosum* at Yabucoa, Maunabo, Cayey, Bayamon Isabela, Aguadilla, Cabo Rojo and Guanica (51-37), at Maunabo, Patillas, Arroyo, Salinas and Cayey (5-40), at Cayey (110-40), at Guanica (78-40), at Quebradillas and Isabela (73-40) and at San Sebastian (72-40).

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Paraponyx rugosalis Möschler
(as *Nymphula*) Garcia-Diaz 38-96: listed.

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Cataclyta sumptuosalis Möschler
(as *Argyractis*) Garcia-Diaz 38-96: listed.

GLAPHYRIINAE

Dicymolomia pegasalis Walker—det. C. Heinrich
on roble (I No. 6771).

ENDOTRICHINAE

Perforadix sacchari Sein
larvae boring in tender roots of sugar-cane at Adjuntas (276-39); adult at light at Bayamon (I No. 6763).

EPIPASCHIINAE

Pococera atramentalis Lederer
reared from flamboyánt buds (I No. 6974 det. as "?"), of almendra (I No. 6973).

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PYRALINAE

Herculia psammioxantha Dyar—det. C. Heinrich
larvae feeding on baled alfalfa hay, making it unsightly with webs, at Isabela (74-38).
According to Mr. Heinrich, in synonymy with Möschler's *Parasopia dissimilalis,* but not with *Pyralis manihotalis* Guenée.

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SCHOENOBIINAE

Scirpophaga longicornis Möschler
at light, Mona Id. (211-39).

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CRAMBINAE

Diatraea saccharalis F. (not *saccharlis*)
Dohanian 37-237 to 241: parasites of, introduced from British Guiana and Peru.
Anon 38-96: introduced parasites not recovered, but a native parasite of the larva, *Lixophaga diatraeae* TT, with a high of 31.9% parasitism at Hormigueros, and *Bassus stigmaterus* Cresson with a high of 4.8% at Hormigueros in 1936.
Anon 39-97: parasites of, introduced.
Wolcott 38-98 to 101: initiation of observations on natural control by *Trichogramma.*
Wolcott 39-38 to 40: experimental releases of laboratory—reared *Trichogramma.*
Wolcott, G. N., "*Prophanurus alecto* Crawford in Puerto Rico." Jour. Ec. Ent., **32**(1): 152-3. Menasha, Wisconsin, February 1939: sporadic appearance of, as parasite in eggs of *Diatraea.*
pupae in stems of rice at Fajardo (I No. 6049); adult at light, Mona Id. (235-40).

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GALLERINAE

Corcyra cephalonica Stainton
Fife 39-7: in stored cotton seed.

PHYCITINAE

Hypsipyla grandella Zeller (not *Hypsiphyla*)
for "a shoot-borer in cedro hembra, *Turpinia paniculata*" read, "a shoot-borer in West Indian Cedar or 'cedro,' *Cedrela odorata.*" The Cedar Shoot Borer, the Mahogany Moth.
becoming abundant in spring on *Cedrela odorata,* Doña Juana Camp, Villalba (349-40); in mahogany at Patillas (428-40).

Myelois ceratoniae Zeller (not *ceratonae*)
adults det. H. W. Capper from larvae in tamarind pods (I No. 7467), at Arecibo (I No. 6166).

Myelois decolor Zeller
reared from algarrobo pods at Arecibo (I No. 6074, 6088).

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Myelois notatilis Walker (= "*transitella* Walker" of authors) det. C. Heinrich
larvae completely destroying mamey seed at Mayaguez (I No. 6067).

Ephestia presumably *cautella* Walker—det. C. Heinrich
Fife 39-6: attacking injured cotton seed.
reared from icaco fruits at Bayamon (I No. 6611), from almendra fruits at Dorado (I No. 6576).

Etiella zinckenella Treitschke
Wolcott 35-144: more abundant in *Crotalaria incana* growing on sandy beaches than in heavy clay soil.
Wolcott 37-46 and 47: spraying with pyrethrum apparently inhibits oviposition on *Crotalaria incana.*
Wolcott 37-55 and 56: spraying with pyrethrum on lima beans apparently increased infestation.
Anon 37-43: a limiting factor in dry bean production (L. B. Scott).
Anon 37-74: larvae feeding on leaves of *Tephrosia toxicaria* (H. K. Plank).
Anon 38-71: heaviest infestation in pods of *Tephrosia* in summer (H. K. Plank).
Anon 39-108: parasitized by *Heterospilus etiellae* Rohwer at Isabela, and by *Argyrophylax* sp. nov.
Wolcott 38-84 to 88: "most common in lima beans and pigeon pea pods in spring and summer, but shows little seasonal variation in its original host, *Crotalaria incana* L." Partial control with cubé dust.
in pods of *Martinsia laurifolia* at Dorado (I No. 7206).

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Fundella cistipennis Dyar

Anon 37-43: a limiting factor in dry bean production (L. B. Scott).

Wolcott 37-56: abundant in lima beans in February (1936) at Isabela, none after beginning of April.

Wolcott 38-85: "its original wild hosts are the beach bean, *Canavali maritima* (Aubl.) Thou. and "hedionda," *Ditremexa* (*Cassia*) *occidentalis* (L.) Britton & Rose." Partial control by cubé dust.

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The data under the two species of *Elasmopalpus* should be reversed, and, with additions, should read as follows:

Elasmopalpus lignosellus Zeller

Möschler. Gundlach.

Dozier 26-117: notes. EEWI-194: a pest of sugar-cane.

Anon 37-43: attacking dry bean variety plantings at Las Mesas.

Anon 38-57: killed 90% of lima bean plants at Las Mesas, also peas and cowpeas.

larvae boring in stalks and stems of cowpeas (66-12 det. W. Schaus); larvae causing dead-hearts in ratoon shoots of young cane, trash burned, at Toa Baja (31-37).

Elasmopalpus rubedinellus Zeller

Möschler. Gundlach.

adults abundant, flying over land just plowed at Maunabo (541-12 det. W. Schaus).

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HYBLAEIDAE

Hyblaea puera Cramer

Martorell 39-25: an extensive outbreak in nurseries of capá blanco, *Petitia domingensis,* at Cayey. Control by spraying with arsenate of lead.

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PTEROPHORIDAE

Adaina praeusta Möschler

at light (I No. 6891).

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TORTRICIDAE

Platynota rostrana Walker (not *Plationota*)

Anon 39-120: larvae on vanilla.

reared from icaco fruits (I No. 6579).

Episimus sp. nov.—det. Wm. T. M. Forbes

a leaf-folder or leaf-roller on maria, *Callophyllum antillanum,* at Vega Baja (168-40).

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Laspeyresia sp.—det. C. Heinrich
reared from almendra fruits at Arecibo (I No. 6355).

Crocidosema plebeiana Zeller
larvae in seed heads of *Sida cordifolia* at Vega Alta (I No. 6416, 6417, 6420); adults at light at Bayamon (I No. 6767), at Manati (I No. 6285).

Balbis excitana Möschler
Garcia-Diaz 38-96: listed.

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PHALONIIDAE

Phalonia sp. nov.—det. Wm. T. M. Forbes
Garcia-Diaz 38-96: listed

COSSIDAE

Psychonoctua personalis Grote
larvae very abundant in *Laguncularia racemosa* at Boca de Cangrejos (28-38) and of greater size than in coffee; adults at light, Mona Id. (165-39).

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YPONMEUTIDAE

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Plutella maculipennis Curtis
adults always present at light at Guajataca, regardless of season or weather (GNW).

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COSMOPTERYGIDAE

Pyroderces rileyi Walsingham
Fife 39-7: in partly decayed cotton bolls.

Batrachedra sp. nov.—det. Wm. T. M. Forbes
feeding in underside of young pineapple fruits at Corozal (161-40).

page 487

GELECHIIDAE

? **Gnorimoschema** sp.—det. C. Heinrich
from pods of *Hecastophyllum ligulatum* at Dorado (I No. 6221).

Gnorimoschema gudmannella Walsingham
abundant on buds and in flowers of cultivated pepper and "ají," April 1940 (F. Sein).

page 489

Dichomeris rusticus Walsingham—det. A. Busck
at light at Bayamon (I No. 6737).

Brachyacma palpigera Walsingham
Anon 37-74: adults det. A. Busck from larvae reared by H. K. Plank, feeding on *Tephrosia candida* and *T. toxicaria.*
Anon 38-71: abundant in pods during summer.
in pigeon pea pods (I No. 6893).

Anacampsis sp.—det. A. Busck
from hibiscus bolls at Vega Alta (I No. 6415).

page 490
Phthorimaea operculella Zeller
a serious outbreak on tobacco at Cayey in January (9-38).

page 492
Stegasta capitella F.
at light at Bayamon (I No. 6764).

Pectinophora gossypiella Saunders
Wolcott 35-143: disappearance of cotton as a commercial crop did not cause a disappearance of the pink bollworm, as maga pods served as alternate host.
Noble & Hunt 37-842: parasites of, reared for release in P. R.
Anon 38-101: two species of parasites released.
Pastor Rodriguez, J., "Nuestra Industria Algodonera se ve Amenazzda por un Insecto Peligrosos." El Imparcial Dominical, pp. 29-30, fig. 1. San Juan, May 23, 1937.
Fife, L. C., "Status of the Pink Bollworm in Puerto Rico during 1935-36." Jour. Agr. Univ. P. R., 21(**2**): 233-235. San Juan, (July) April 1937.
Fife, L. C., "Alternate Host Plants of the Pink Bollworm, *Pectinophora gossypiella* (Saund.) in Puerto Rico." Jour. Agr. Univ. P. R., **22**(4): 483-492, ref. 18. San Juan, (March 23, 1939) October 1938.
Fife 39-4: a summary; parasites of, introduced into P. R.
Cushman 40-362: host of *Calliephialtes ferrugineus* sp. nov. from Boquerón, P. R. (K. A. Bartlett).
Wolcott 40-29: in seed-pods of maga.
in out-of-season cotton at Isabela (83-37, 13-39); in cotton, Vieques Id. (100-40), on Mona Id. (73-39).

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OECOPHORIDAE

Ethmia notatella Walker
abundant at light, Mona Id. (213-39, 231-40).

Ethmia nivosella Walker
at light at Bayamon (I No. 6745).

page 499

GRACILARIIDAE

Acrocercops dives Walsingham
larvae mining in leaves of *Inga vera* at Lares (46-36 det. A. Busck).

page 500

Leucoptera coffeella Guerin

Wolcott 35-144: *Chrysocharis lividus* Ashmead and four other new parasites reared by F. Sein.

Wolcott 37-48: ten parasites reared by F. Sein.

Wolcott 37-58 to 61: a summary of Mr. Sein's studies on parasitism of.

Wolcott 38-91: summary of Mr. Sein's work to date, the discovery of *Mirax insularis* Muesebeck in Guadeloupe, F. W. I., and that infestations are due to low humidity caused by rapid evaporation of moisture in localities not protected from the wind by soil contour.

Sein, F., "A Study of the Coffee Leaf-Miner, *Leucoptera coffeella* Guerin" and "Humidity a Factor in Leaf-Miner Infestations." *in* Ann. Rpt., Agr. Expt. Station, 1937-38, pp. 40-41. San Juan, 1939.

page 502

PSYCHIDAE

Oiketicus kirbyi Guilding

larvae on leafless trees, Guanica Insular Forest (4-37); on casuarina at Arecibo (76-37); on almendra at Caguas (34-38); on roble at Aibonito (45-38); on capá blanco at San Sebastian (71-40); on morál at Cayey (120-40); on casuarina, Mona Id. (128-39).

Achanodes antipathetica Forbes

(as "sp.") Garcia-Diaz 38-96: listed.

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TINEIDAE

Tinea mimutella F.—det. A. Busck

reared by A. S. Mills from pupa on grapefruit at Bayamon (I No. 6770) "a most interesting, striking species, which has never been re-discovered since Fabricius' description. No specimen in British Museum, here, or in Cornell, before this." A. Busck.

Tineola uterella Walsingham

on walls of cabins, Mona Id. (233-40).

Homostinea tischeriella Walsingham

Garcia-Diaz 38-96: listed.

Mea includella Forbes

Garcia-Diaz 38-96: listed.

Protodarcia sp.

Garcia-Diaz 38-96: listed.

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MEGALOPYGIDAE

Megalopyge krugii Dewitz
adult resting almendra at Vega Alta (I No. 5948); larvae on almendra, cocoons on concrete posts, at Arecibo (57-38); larvae on *Andira inermis* at Cayey (92-40), on *Inga vera* at Cayey (112-40); cocoons on trunk of guácima tree at Ponce (340-40).

NEPTICULIDAE

Nepticula gossypii Forbes & Leonard
Fife 39-7: "only at Boquerón."

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HYMENOPTERA

Box, H. E., "The Introduction of Braconid Parasites of *Diatraea saccharalis* Fabr. into certain of the West Indian Islands." Bul. Ent. Research, **18**(4): 365-370, pl. 1, fig. 2. London, May 1928.

Dozier, H. L., "Descriptions of Miscellaneous Chalcidoid Parasites from Puerto Rico (Hymenoptera)." Jour. Agr. Univ. P. R., **21**(2): 121-135. San Juan, April 1937.

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TENTHREDINOIDEA

TENTHREDINIDAE

Sterictiphora zaddachi Dewitz = *Schizocera krugii* Cresson
Martorell 40-32: on moralón, *Coccolobis grandifolia.*
[Martorell, L. F., "Biological Notes on the Sea-Grape Sawfly, *Schizocera krugii* Cresson, in Puerto Rico." Caribbean Forester, **2**(3): 141-4, pl. 1. New Orleans, La., April 1941.]
"*Xylosericocera* is a MS name" (I No. 6205); on moralón near Lares (25-37); on cucubano, *Coccolobis laurifolia,* Maricao Insular Forest (-40); on sea grape at Camuy (46-37), at Guajataca (77-37, 42-39, 286-39), at San German (47-37), along the coast from Patillas to Maunabo (82-37), at Bayamon (I No. 6205), at Jayuda (I No. 5911), at Fajardo (1-40), at Salinas (4-40).

ICHNEUMONOIDEA

ALYSIDAE

Goniarcha sp. nov.—det. C. F. W. Muesebeck
in fruit fly traps at Mayaguez (I No. 6841, 6842, 7255, 7276).

Alysia analis Cresson
in cane field at Toa Baja (71-38).

BRACONIDAE

Opius (Utetes) anastrephae Viereck
Anon 38-96: reared by K. A. Bartlett at Mayaguez from both species of *Anastrepha:* "an important part in biological control; parasitism as high as 49.9% has been recorded."
Anon 39-99: "prevalent" in jobo fruit infested with *Anastrepha mombinpraeoptans* Sein.
reared from fruit fly larvae in jobo at Añasco (I No. 6405), at Arecibo (I No. 7340), at Caguas (I No. 6294), at Maunabo (I No. 7342).

page 510
Opius sp. nov.—det. C. F. W. Muesebeck
from *Crocidosema plebeiana* Zeller at Dorado (I No. 6430).

Apanteles americanus Lepeltier
reared from sphinx caterpillar on papaya at Bayamon (I No. 5921), at Vega Alta (I No. 7184).

Apanteles disputabilis Ashmead—det. C. F. W. Muesebeck
adults abundant on flowers of *Malachra alceifolia* at Guayanilla (150-40).

Apanteles marginiventris Cresson
from cocoons on cane leaves (the host presumably *Laphygma frugiperda* caterpillars) at Salinas and Ponce (48-40 det. C. F. W. Muesebeck).

page 511
Apanteles sp. nov.—det. C. F. W. Muesebeck
Anon 39-108: reared from *Lamprosema indicata* F. at Isabela.

Microbracon cushmani Muesebeck—det. C. F. W. Muesebeck
reared from *Mesocondyla concordalis* at Maunabo (50-40).

Microbracon hebetor Say
Fife 39-7: a parasite of *Ephestia cautella*

Microbracon kirkpatricki Wilk.—Introduced
Noble & Hunt 37-843: 40,000 released in P. R.
Anon 38-101: a parasite of the pink bollworm.
Fife 39-4: released at Camuy, October and November 1935.

Microbracon sp. nov.—det. C. F. W. Muesebeck
Anon 38-96: reared from *Anastrepha mombinpraeoptans* Sein at Mayaguez (K. A. Bartlett).
reared from *Acrocercops dives* Walsingham, a leaf-miner in *Inga vera,* at Lares (46-36); reared from *Crocidosema plebeiana* Zeller (I No. 6430).

Macrocentrus ancylivorus Rohwer—Introduced
Anon 39-108: not recovered at Isabela from lima bean podborers.

Macrocentrus sp.—det. C. F. W. Muesebeck
from *Anacampsis* sp. on hibiscus at Vega Alta (I No. 6431).

Chelonus annulipes Wesm.—Introduced
Anon 39-97: released as a parasite of *Diatraea saccharalis* F.

Chelonus blackburni Cam.—Introduced
Noble & Hunt 37-843: 14,000 released in P. R.
Anon 38-101: a parasite of the pink bollworm.
Fife 39-4: released at Isabela, Quebradillas, Camuy, Hatillo and Boquerón.

Exeristes roborator F.—Introduced
Noble & Hunt 37-843: 3,000 released in P. R.

Anon 38-101: a parasite of the pink bollworm.
Fife 39-4: released at Camuy, Isabela and Boquerón.

page 512
Phanerotoma planifrons Nees—Introduced
Anon 39-108: a parasite of the lima bean pod-borer, received from France, released in P. R.

Trigonophasmus sp. nov.—det. C. F. W. Muesebeck
on Mona Id. (285-40).

Ipobracon grenadensis Ashmead—Introduced
Box 28-365: introduced as a parasite of *Diatraea saccharalis* F. from British Guiana and Venezuela.

Ipobracon rimac Wolcott—Introduced
Dohanian 37-241: a parasite of *Diatraea saccharalis* F. in Peru.
Anon 38-96: released but not recovered in P. R.

page 513
Stantonia lamprosemae Muesebeck, C. F. W., "Two Reared North American Species of the Genus Stantonia Ashmead (Hymenoptera: Braconidae)." Proc. Wash. Ent. Soc., **40**(3): 89-91, fig. 1. Washington, March 1938: TYPE from Cuba, but a female was collected at Mayaguez, P. R., by H. L. Dozier on October 18, 1935.

Bassus stigmaterus Cresson—Introduced, but probably endemic
(as *Microdus diatraeae* Turner) Box 28-365: established in P. R. by introduction from British Guiana.
Dohanian 37-239: introduced from British Guiana.
the record (IB-513) of "*Bassus* (*Microdus*) *sacchari* Myers—det. C. F. W. Muesebeck, reared from larvae of *Diatraea saccharalis* F. on sugar-cane, October 1935 at *Hormigueros* (K. A. Bartlett)." is this species.
Anon 38-97: 4.8% of parasitism at Hormigueros in January 1936 (K. A. Bartlett).
Anon 39-97: reared at Añasco, released at Fajardo.
adult in field of young plant cane at Isabela (56-38 det. GNW).

Aphidius testaceipes Cresson
Wadley 37-106 to 107: a parasite of *Aphis maidis* and *Hysteroneura setariae*.
(as *Lysiphlebus*) Fife 39-9: a parasite of *Aphis gossypii*.

Mirax insularis Muesebeck, C. F. W., "A New West Indian Species of *Mirax* Haliday parasitic on the Coffee Leaf-Miner (Hymenoptera: Braconidae)." Proc. Ent. Soc. Washington, **39**(6): 139-140, fig. 1. Washington, June 1937: TYPE from Guadeloupe, French West Indies.—Introduced.
Sein 39-40: approximately 2,000 adults released in P. R., recoveries several generations later at Lares and Quebradillas, additional releases made in June 1938.

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ICHNEUMONIDAE

Calliephialtes ferrugineus Cushman, R. A., "New Genera and Species of Ichneumon Flies, with Taxonomic Notes." Proc. U. S. Nat. Mus., **88**(3083): 355-372. Washington, 1940: p. 362, TYPE from Boquerón, P. R., reared from *Pectinophora gossypiella* Saunders (K. A. Bartlett).

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Ephialtes rufoniger Cresson—det. R. A. Cushman
at Arecibo (I No. 6774).

Tromatobia lateralis Cresson (= *T. cressoni* Dewitz)
Cushman 40-363: "reared from spider egg-cocoon from Lares, P. R., September 8, 1921."
parasitizing spider egg-mass on cane leaf at Guanica (72-38).

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Eiphosoma annulata Cresson
in cane fields at Salias (292-39), at Guayanilla (151-40); on flowers of *Borreria verticillata* at Aguadilla (260-39).

page 518

Stiboscopus thoracicus Ashmead
Wolcott 37-144: reported as a less common parasite of the coffee leaf-miner.
reared from *Apanteles* cocoons on tobacco hornworm (200-39 det. R. A. Cushman).

CYNIPOIDEA

FIGITIDAE

Eucoila (Hexamerocera) atriceps Ashmead & **E. (H.)** sp.
(as "sp.") Anon 38-96 & Anon 39-99: reared from *Anastrepha mombinpraeoptans* Sein and *A. suspensa* Loew at Mayaguez (K. A. Bartlett).

from fruit fly larvae in jobo fruits at San Sebastian (I No. 5991), at Caguas (I No. 6295); from larvae of *Euxesta stigmatias* Loew in rotten corn (I No. 7158).

CHALCIDOIDEA

AGAONIDAE

Colyostichus longicaudatus Mayr—det. A. B. Gahan
from figs at Arecibo (I No. 7450).

Idarnes carmae Walker—det. A. B. Gahan
abundant on *Ficus laevigata* and *F. stahlii* at Arecibo (I No. 6138, 6212, 7450).

Secundeisenia mexicana Ashmead—det. A. B. Gahan
on *Ficus stahlii* at Garrochales (I No. 7306); on *Ficus laevigata* at Arecibo (I No. 7450).

Blastophaga insularis Ashmead—det. A. B. Gahan
on *Ficus stahlii* at Arecibo (I No. 6138, 6212).

MYMARIDAE

Mymar antillanum Dozier 37-130: TYPE from Boquerón, P. R., others from Las Vegas, Mayaguez and Guanica.

Gónatocerus portoricensis Dozier 37-131: TYPE from P. R., swept from vegetation.

Gónatocerus antillensis Dozier 37-132: TYPE from Mayaguez, P. R.

Erythmelus longicornis Dozier 37-133: TYPE from Mayaguez, P. R.

Erythmelus miridiphagus Dozier 37-133: TYPE from Hormigueros, P. R.

Erythmelus nanus Dozier 37-134: TYPE from Mayaguez, P. R.

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TRICHOGRAMMIDAE

Xenufens ruskini Girault—det. A. B. Gahan
from eggs of *Prenes nero* at Canovanas (31-36).

Oligosita magnifica Dozier 37-135: TYPE from Cartagena Lagoon, P. R., others from Boquerón and Bayamon.

Trichogramma minutum Riley
Wolcott & Martorell 37-577 to 579: egg-clusters of *Diatraea saccharalis* F., both fresh and parasitized by *T. m.*, eaten by *Monomorium c. ebeninum* Forel.
Wolcott 38-98 to 101: initiation of observations on natural control by, of *Diatraea saccharalis* F.
Wolcott 39-38 to 40: experiments on release of laboratory-reared parasites in cane fields.

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TETRASTICHIDAE

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Tetrastichus haitiensis Gahan

Wolcott 35-144: abundance in spring.

Wolcott 37-53: "Deviation from a one year life-cycle is of tremendous importance to *Diaprepes abbreviatus* L. in enabling its eggs to escape attacks by this common parasitic wasp, which is most abundant during the late spring, but is very scarce during the autumn and winter."

Wolcott 37-90: changing the oviposition time of *Diaprepes abbreviatus* L.

Tetrastichus tatei Dozier 37-129: from *Gynaikothrips uzeli* on *Ficus nitida* at Mayaguez.

Tetrastichus marylandensis Girault

Wadley 37-106: a parasite of *Aphis maidis*.

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Tetrastichus sp. nov.—det. A. B. Gahan

Wolcott 35-144, Wolcott 37-59 and Wolcott 37-48: reared by F. Sein from leaf-miner infested coffee leaves.

in fruit of *Casearia decandra* at Vega Alta (I No. 6512).

ENTEDONTIDAE

Derastenus sp. near **fullawayi** Crawford

(as "sp.") Wolcott 35-144, Wolcott 37-48 and Wolcott 37-59; reared by F. Sein from coffee leaves infested with leaf-miner.

Closterocerus sp. near **cinctipennis** Ashmead

(as "sp.") Wolcott 35-144, Wolcott 37-48 and Wolcott 37-59: a less common parasite reared by F. Sein from coffee leaves infested with leaf-miner.

Closterocerus leucopus Ashmead

Wolcott 37-48 and Wolcott 37-59: Mr. Sein finds this the most abundant parasite of the coffee leaf-miner.

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Chrysocharis lividus Ashmead

Wolcott 35-144, Wolcott 37-48 and Wolcott 37-59: found by Mr. Sein to be the second most abundant parasite of the coffee leaf-miner.

Chrysocharis sp. det. A. B. Gahan

Anon 39-108: reared from *Lamprosema indicata* F. at Isabela.

Horismenus cupreus Ashmead

Wolcott 35-144, Wolcott 37-48 and Wolcott 37-59; third in order of abundance of parasites of coffee leaf-miner, as indicated by rearings conducted by Mr. Sein.

Horismenus sp.—det. C. F. W. Muesebeck
from *Apanteles americanus* Lep. at Vega Alta (I No. 7284).

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EULOPHIDAE

Dasyscapus parvipennis Gahan—Introduced
Dohanian, S. M., "Life History of the Thrips Parasite, *Dasyscapus parvipennis* Gahan, and the Technic for Breeding it." Jour. Ec. Ent., **30**(1): 78-80, ref. 6. Menasha, Wisconsin, February 1937.
Anon 38-99: Twelve generations reared in the laboratory and 26,000 released in P. R. but no permanent establishment noted.
Anon 39-108: not recovered.

SPALANGIDAE

Spalangia drosophilae Ashmean—det. A. B. Gahan
Bartlett 39-6: reared from horn fly puparium at Guanica Lake, September 22, 1936.

Spalangia haematobiae Ashmead—det. H. L. Dozier
Bartlett 39-6: recorded by Dozier

Spalangia muscidarum Richmond—det. A. B. Gahan
Bartlett 39-6: "parasitized as high as 30% of the puparia" of the horn fly in some collections.

Spalangia philippensis Fullaway—Introduced
Anon 38-100, Anon 39-99 and Bartlett 39-6: introduced as a horn fly parasite, recovered at Juana Diaz four months later from *Anastrepha acidusa.*

PTEROMALIDAE

Pachyneuron allograptae Ashmead
Fife 39-9: "the control of *Aphis gossypii* effected by *Baccha clavata* was to a large extent annulled by the action of a secondary pupal parasite."
from syrphid fly puparia, Mona Id. (214-40, 300-40 det. A. B. Gahan).

Pachyneuron siphonophorae Ashmead
Wadley 37-106 to 107: a parasite of *Aphis maidis* and *Hysteroneura setariae.*

Pachycrepoideus dubius Ashmead—det. C. F. W. Muesebeck
Bartlett 39-6: "reared in small numbers" from horn fly and/or house fly puparia.

Muscidifurax raptor Girault & Sandhouse—det. C. F. W. Muesebeck
Anon 39-107 and Bartlett 39-6: reared from horn fly and/or house fly puparia.

Neocatolaccus sp. nov.—det. A. B. Gahan
in puparium of *Baccha capitata* at San Sebastian (49-40).

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ELACHERTIDAE

Zagrammosoma seini Wolcott
(as "sp.") Wolcott 37-48 and Wolcott 37-59: a less common parasite of the coffee leaf-miner, as shown by the rearings made by Mr. Sein.

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Cirrospiloideus sp. nov.
Wolcott 37-48 and Wolcott 37-59: a less common parasite of the coffee leaf-miner.

Elachertus sp. nov.
Wolcott 35-144: reared from coffee leaves infested with coffee leaf-miner.

ELASMIDAE

Elasmus platyedrae Ferriére—Introduced
Noble & Hunt 37-843: 57,000 of this parasite of the pink bollworm released in P. R.

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APHELINIDAE

Encarsia nigricephala Dozier 37-129: TYPE, three females from whitefly, *Bemisia* sp., on *Euphorbia hypericifolia* at Mayaguez, P. R.

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Prospaltella berlesei Howard—Introduced
Anon 38-98: from Louisiana, released for control of scales on papaya.

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delete EUCALYMNATUS

ENCYRTIDAE

Aphycus sp. nov.—det. A. B. Gahan
(I No. 6290, 6585).

Metaphycus monticolens Dozier 37-124: TYPE from Maricao, P. R., another from Mayaguez.

Leptomastidea antillicola Dozier 37-121: TYPE, a single male from *Pseudococcus virgatus* on *Inga vera* at San Sebastian, P. R.

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Anagyrus similis Dozier 37-122: TYPE swept from grass at Santa Isabel, P. R., others from San German and Guanica.

Anagyrus graminicolens Dozier 37-123: TYPE swept from grass at Mani beach (Mayaguez), P. R.

Anagyrus coccidivorus Dozier—Introduced
Anon 38-98, Anon 38-107 and Bartlett 39-67 to 71: described from Haiti, introduced as a parasite of the pineapple mealybug from Hawaii, released in P. R. but not recovered.

Hambletonia pseudococcina Compere—Introduced
Anon 38-98, Anon 39-107 and Bartlett 39-67 to 71: from Brasil and Venezuela, introduced as a parasite of the pineapple mealybug from Hawaii, released in P. R. and recovered at Lajas.

Oöencyrtus sp. nov.—det. A. B. Gahan
Bartlett 39-497: a hyperparasite on *Gonatopus* sp.

Oöencyrtus sp. nov.—det. A. B. Gahan
from eggs of *Prenes* sp. at Guanica (16-38, 17-38), at Guajataca (65-38).

Aphidencyrtus aphidivorus Mayr
Wadley 37-107: a parasite of *Hysteroneura setariae.*

page 531
Homalopoda cristata Howard
Dozier 37-123: at Guayama and Mayaguez.

Pseudohomalopoda prima Girault
Dozier 37-124: reared from scales on lemon at Mayaguez.

Cheiloneurus pulvinariae Dozier
(as "sp.") Anon 39-100: reared from *Asterolecanium bambusae* by K. A. Bartlett.

Hunterellus hookeri Howard
Dozier 37-125: from *Rhipicephalus sanguineus,* the brown dog tick, at Mayaguez.

page 532
CALLIMOMIDAE, and transfer the following record to page 518, under AGAONIDAE

Colyostichus (not *Colostichus*) *biannulatus* Mayr—det. C. F. W. Muesebeck
infesting fruits of *Piper* at Cidra (I No. 1631 Leonard 33-131).

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EURYTOMIDAE

Bephrata cubensis Ashmead
reared from fruit of *Annona reticulata* at Yauco (6-37).

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EUCHARIDAE

Kalapa furcata F.—det. A. B. Gahan
resting on guava leaf at San Sebastian (51-38).

CHALCIDIDAE

Brachymeria incerta Cresson
Fife 39-6: parasitizing *Alabama argillacea.*
in cane field at Salinas (256-39); reared from chrysalis of *Pieris monuste* at Guanica (30-37); from pupa of *Psara bipunctalis* at Guanica (267-39); from pupa of *Mesocondyla concordalis* at Maunabo (51-40); at Cayey (226-39); on Mona Id. (268-40.)

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Brachymeria robustella Wolcott
resting on grapefruit at Pueblo Viejo (I No. 6773).

Spilochalcis flavopicta Cresson—det. A. B. Gahan
Fife 39-7: a parasite of *Pyroderces rileyi.*
on Mona Id. (178-39 "very near or possibly only a variant").

Spilochalcis femorata F.
at Vega Baja (I No. 7300), at Guanica (326-39).

Spilochalcis homaledrae Wolcott
on blossoms of *Pisonia albida,* Mona Id. (308-40 det. A. B. Gahan).

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Spilochalcis cocois Wolcott
in fruit fly trap (I No. 6921, 6925, 6895 as "near *cocois* Wolcott"), at Bayamon (I No. 6872).
The record "on corn at Isabela (107-31)" should be under *S. femorata* F., re-determined GNW.

Smiera eubule Cresson
at Salinas (259-39); reared from chrysalis of *Phoebis* (*Callidryas* or *Aphrissa*) *statira neleis* Boisduval on *Melicocca bijuga* (322-39).

Trigonura sp. nov.—det. A. B. Gahan
many adults on logs of *Inga vera* at la Yndiera (Lares-Yauco road) apparently attempting to parasitize Cerambycid eggs or larvae, *Neoclytus araeniformis* Olivier, under bark (320-21).

PROCTOTRUPOIDEA

DIAPRIIDAE

Ashmeadopria sp. nov.—det. C. F. W. Muesebeck
Bartlett 39-6: "a parasitism of 10%" of hornfly puparia.
Anon 38-96 and Anon 39-90: reared from *Anastrepha mombinpraeoptans* Sein.

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SCELIONIDAE

Prophanurus alecto Crawford

Wolcott, G. N., "*Prophanurus alecto* Crawford in Puerto Rico." Jour. Ec. Ent., **31**(1): 152-153. Menasha, Wisconsin, February 1939.

reared from eggs of *Diatraea saccharalis* F. at Quebradillas, Isabela and Coloso (64-38 det. C. F. W. Muesebeck), at Guanica (75-38).

Telenomus sp. near **convergens** Ashmead

Wolcott 37-48 and Wolcott 37-59: a less common parasite of the coffee leaf-miner, as indicated by the rearings by Mr. Sein.

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FORMICOIDEA

Smith, M. R., "The Ants of Puerto Rico." Jour. Agr. Univ. P. R., **20**(4): 819-875, fig. 19, ref. 16. San Juan (January 1937) October 1936: keys and notes on all ants found in P. R.; only new species or subspecies, and new records are noted below.

PONERINAE

Platythyrea punctata F. Smith

in termite nest at Ciales (613-22).

Ponera opaciceps var. **jamaicensis** Aguayo

Smith 36-826: at Ensenada and in the mountains north of Yauco.

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Ponera trigona var. **opacior** Forel

Smith 36-826: in the mountains east of Mayaguez.

Odontomachus haematodes L.

in nest of termite, *Nasutitermes costalis,* at Ciales (467-21); in rotten stump, Mona Id. (131-39 det. M. R. Smith as "var.").

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MYRMICINAE

Pseudomyrma flavidula delicatula Forel

at Bayamon (99-24 det. M. R. Smith), at Manati (I No. 5989).

Monomorium carbonarium ebeninum Forel

Wolcott, G. N. & Martorell, L. F., "The Ant, *Monomorium carbonarium ebeninum* Forel, in a new Rôle, as Predator on the Egg-Clusters of *Diatraea saccharalis* F., in Puerto Rican Cane Fields." Jour. Agr. Univ. P. R., **21**(4): 577-579. San Juan (November 12) October 1937: attacking about one-sixth of 9,000 egg-clusters examined.

Wolcott 38-95: occupying hormiguilla tunnels in guamá tree at Mayaguez, deserted by hormiguilla after fight with hormiga brava over thallium poison bait.
feeding on eggs of *Diatraea saccharalis* (22-36 det. M. R. Smith).

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Monomorium floricola Jerdon
nesting in stump, Mona Id. (181-39 det. M. R. Smith).

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Solenopsis geminata F.
Wolcott 37-42: defeated by hormiguilla in raids on poison meat bait on mango tree at Rio Piedras.
Wolcott 38-95: so weakened colony of hormiguilla in raids on thallium meat bait in guamá tree at Mayaguez that galleries were later occupied by *Monomorium c. ebeninum* Forel.
Fife 39-4: predacious on pink bollworm.
attending *Saissetia oleae* on capá prieto at Salinas (9-40); on grapefruit at Dorado (I No. 6409); attending scales on teak at Patillas (426-40); on Mona Id. (210-39), attending cottony cushion scale on casuarinas (312-40 det. M. R. Smith).

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Crematogaster steinheili Forel (not *Cremastogaster*)
on lignum-vitae tree, attending *Crypticerya rosae,* at Guanica (48-37 confirmed M. R. Smith).

Pheidole subarmata Mayr var. **borinquenensis** Wheeler (not *borinquensis*)

Pheidole fallax jelskii antillensis Forel
Anon 38-103: "harbors the intermediate or cystic stage of the tapeworms of the *Raillietina* group in the chicken (det. M. R. Smith)."

Macromischa isabellae Wheeler subsp. nov. *mutica* Smith 36-847: TYPE from Maricao Insular Forest, P. R.

Rogeria curvipubens Emery
Smith 36-851: at Ensenada.

Tetramorium lucayanum Wheeler
Smith 36-852: at Mayaguez.

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Wasmannia auropunctata Roger
on grapefruit tree (I No. 7328); on Mona Id. (183-39 det. M. R. Smith).

Sturmigenys eggersi Emery
Smith, 36-855: at Juana Diaz and Maricao Insular Forest.

Epitritus emmae Emery
Smith 36-858: at Arecibo and Ensenada.

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DOLICHODERINAE

Tapinoma melanocephalum F.
Wolcott 38-96: only temporarily interested in fresh meat thallium mixture.

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Dorymyrmex pyramicus niger Pergande
nesting in stump, Mona Id. (182-39 det. M. R. Smith) and attending cottony cushion scale on casuarinas (312-40 det. M. R. Smith).

FORMICINAE (not CAMPONOTIDAE)

Prenolepis (Nylanderia) microps M. R. Smith 36-868: TYPE from 14 Km. east of Mayaguez, P. R.

Prenolepis longicornis Latreille
Wolcott 39-96: individuals killed by fresh meat thallium bait, but the colony persists.
in house at Arecibo (I No. 7236); on Mona Id. (209-39).

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Myrmelachista ramulorum Wheeler
Wolcott 37-41 to 44: experiments in control by meat or fish mixed with thallium nitrate or thallium acetate.
Wolcott 37-61: fish oil repellant; continued experiments show no improvement in poison bait itself is needed, but in method of application, as water-soluble thallium compounds are very toxic to coffee shade trees.
Wolcott 38-93: collapsible metal foil tubes in which to apply poison bait only moderately successful.
Wolcott 39-41 to 43: unexplained failure of attractiveness of thallium bait.

Myrmelachista ramulorum subsb. nov. **fortior** Wheeler, Wm. M., "Neotropical Ants collected by Dr. Elizabeth Skwarra, and Others." Bull. Bussey Comp. Zoology, Harvard, **77**(5): 157-240, fig. 6. Cambridge, 1934: p. 189, TYPE from Mona Id., others from P. R.
Smith 36-873: quoting Wheeler.

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Camponotus ustus Forel
under bark of *Sideroxylon foetidissimum* at Ciales (418-40).

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SPHECOIDEA

BEMBECIDAE

Bicyrtes spinosa F.—det. G. A. Sandhouse
on Mona Id. (143-39).

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Stictia signata L.

on Mona Id. (127-39).

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SPHECIDAE (LARRIDAE)

Sceliphron caementarium Drury

Anon 38-102: on corn.

building nests of mud, provisioned with spiders, at Bayamon (I No. 6006), on underside of nearly horizontal coconut palm at Manati (155-40), in concavities of big rock at Aibonito (189-40); resting on guava bush at Villalba (98-37).

Notogonidea ignipennis Smith

at Bayamon (I No. 6033, 6036, 6039); in cane fields at Coloso (26-39); on fresas, Peñon del Collao, Cayey (121-40); on flowers of *Borreria verticillata* at Aguadilla (26-38); abundant on flowers of *Heliotropum indicum,* Vieques Id. (106-40).

Notogonidea trifasciata Smith

in fruit fly trap (I No. 6819 as "*Leptolarra*").

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Larra americana Saussure—Introduced

Wolcott 37-63: first attempt at introduction into P. R.

Wolcott 38-96 to 98: difficulties encountered in introduction.

Wolcott, G. N., "The Introduction into Puerto Rico of *Larra americana* Saussure, a specific Parasite of the "Changa," or Puerto Rican Mole-Cricket, *Scapteriscus vicinus* Scudder." Jour. Agr. Univ. U. R., **22**(2): 193-218, fig. 4, ref. 16. San Juan, (May) April 1938.

Wolcott, G. N. (translated by F. Sein), "Importando avispas del Brasil para acabar con las changas puertorriqueñas." El Mundo, p. 7, fig. 3. San Juan, October 30, 1938.

Wolcott, G. N., "Presence of Host Keeps Parasites alive in Captivity." Science, **87**(2259): 352. New York, April 15, 1938.

Wolcott 39-43: successful bulk shipments when accompanied by live parasitized hosts.

Gage 39-21: "In May 1938 it was demonstrated that these parasites can be brought alive to Puerto Rico."

Wolcott 39-508 and 509: successful establishment at Rio Piedras and at Isabela, P. R.

[Wolcott, G. N., "The Establishment in Puerto Rico of *Larra americana* Saussure." Jour. Ec. Ent., **34**(1): 53-6, ref. 8. Menasha, Wis., April 23, 1941.]

on flowers of *Hyptis atrorubens* at Paramaribo, Dutch Guiana (10-36); on flowers of *Borreria verticillata* at Caripito, Venezuela (L. F. Martorell—det. G. A. Sandhouse "all males"); on flowers of *Borerria verticillata* at Malezas

Farm, Isabela, seven months after the last release, in January (4-39), abundant in February (22-39), not so abundant in April (46-39), nor in July (49-39), none until November (307-39), in December (369-39), in January, March and April (14-40), sixty females collected at Punta Borinquen U. S. Army Air Base No. 1, nearly one-half mile east (against the wind) of point of original release at Malezas Farm, on bare ground with numerous changa tunnels, May 8, 1940, released one hour later at Isabela Sub-Station (167-40), dispersion one mile east to San Antonio and one-half mile west to cliff overlooking ocean, by end of June (195-40); on flowers of *Hyptis atrorubens,* Laguna San José, near Rio Piedras (5-39) in January, in November (337-39), in December 368-39); on flowers of *Borreria verticillata,* between Vega Baja and Camp Padilla, Laguna Tortuguero, nine months after release, in March (135-40) and in April, May and June.

Tachytes insularis Cresson

Dewitz. Gundlach, "rara."

"From a study of the specimens of this genus from Porto Rico, it appears that a single species is involved, and according to the material in the collection, the name should be *insularis* Cr., rather than *argentipes* Sm. However, the types would have to be seen to verify this." G. A. Sandhouse.

(as *T. argentipes* Smith—det. S. A. Rohwer) IB-559: many records.

at Barceloneta (I No. 6779); resting on guava bushes Sabana Grande (86-37); frequenting flowers of *Borreria verticillata* at Aguadilla (27-38); on flowers of *Heliotropum indicum,* Vieques Id. (105-40); at the airport, Mona Id. (141-39, 275-40).

Prionyx thomae F.

at the airport, Mona Id. (138-39) and abundant on the plateau (259-40); in cane field at Naguabo (2-40), at Santa Isabel (20-39 det. G. A. Sandhouse); dead adult in salt lagoon at Guanica (85-37), frequenting flowers of everlasting at Fajardo (60-38).

Tachysphex sp.—det. G. A. Sandhouse

(I No. 6780).

Ammobia ichneumonea L. var. **auriflua** Perty

in cane field at Arecibo (23-39); in Maricao Insular Forest, elev. 2,600 ft. (265-39), elev. 3,000 ft. (357-39).

Chlorion (Ammobia) singularis F. Smith

= *Chlorion* (*Ammobia*) *dubitatum* (Cress). "From a study of specimens from various localities, it is evident that these are conspecific, but the synonymy has not been published." G. A. Sandhouse.

(as *Chlorion dubitatum*) Van. Z. (P. R. 93).
(as *Ammobia dubitata*) AMC: at many localities.
(803-14 re-determined G. A. Sandhouse); with *Conocephalus fasciatum* DeG. in her burrow (675-12 re-determined G. A. Sandhouse); at Bayamon (I No. 6035); frequenting flowers of *Borreria verticillata* at Yabucoa (61-39 det. G. A. Sandhouse, 357-39); at Guanica (I No. 1656 Leonard 33-131), at Salinas (I No. 4648); on Mona Id. 274-40); on flowers of *Hyptis atrorubens* (350-39).

VESPOIDEA

BETHYLIDAE

Goniozus playtynotae Ashmead—det. C. F. W. Muesebeck
reared from larvae of *Agathodes designalis* Guenée, at Cayey (93-40).

Perisierola sp. nov. "near *nigrifemur* Ashmead"—det. C. F. W. Muesebeck
Anon 38-101: a parasite of the pink bollworm.
Fife 39-4: a native parasite of the pink bollworm.

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Gonatopus sp. nov.—det. C. F. W. Muesebeck
Bartlett, K. A., "A Dryinid Parasite attacking *Baldulus maidis* in Puerto Rico. Jour. Agr. Univ. P. R., **22**(4): 497. San Juan, (March 23, 1939) October 1938.

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SCOLIIDAE

Elis haemorrhoidalis F.
Jepson 36-5 and 20 to 22: "parasitic on *Phytalus apicalis* Blanchard"; observations on, in P.R.
females in cane field at Aguadilla (25-38); feeding on excrement from green scale on *Rauwolfia tetraphylla* at Aguadilla (3-38); frequenting flowers of *Bucida buceras,* Vieques Id. (102-40); frequenting flowers of *Borreria verticillata* at Aguadilla (25-38, 253-39, 15-40) at Yabucoa 59-39, 240-39); on flowers of *Colubrina colubrina* and *Pisonia albida,* Mona Id. (216-40).

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Elis ephippum F.
(as *Elis xanthonotus* Rohwer) Jepson 36-5, 18 to 25, 26: "reared on second stage grubs of the larger *Lachnosterna*"; observations on, collections and shipment to Mauritius; summary.
females frequenting flowers of *Hyptis atrorubens* (4-38, 364-39) confirming observations of E. G. Smyth, but, contrary to his observations, also on flowers of *Borreria verti-*

cillata (= *Mitracarpus portoricensis*) at Manati (338-39), at Yabucoa (60-39, 28-40), at Aibonito (191-40).

Myzine nitida Smith
(as "sp.") in fruit fly trap at Mayaguez (I No. 6863).

Tiphia argentipes Cresson
Jepson 36-5: not found.

Tiphia sp.
very small males, apparently differing from *T. hispaniolae* Wolcott, TYPE from Haiti, only in size: at light (67-40), on guava at San Sebastian (69-38), at Coloso (325-39); very small female on the beach at Mayaguez (43-39).

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Campsomeris atrata F.
female in cane field, Central Fortuna, Ponce (2-39); dead on the beach, Mona Id. (111-39), and frequenting flowers of *Moringa moringa, Pisonia albida* and *Colubrina colubrina,* Mona Id. (205-40) much more abundant than on the island of Puerto Rico.

Campsomeris dorsata F.
Jepson 36-5, 19 to 25, 28: "Long known as a common parasite of *Ligyrus tumulosus* Burm. in Puerto Rico"; observations on, collections and shipments to Mauritius; summary.
Jepson, W. F., "A Summary of the Results of the *Phytalus* Investigation 1933-36." pp. 19. Port-Louis, Mauritius, 1936: eighteen females survived the trip from P. R. to Mauritius, 53 days en route, were released in Mauritius, but with no recovery to date.
Wolcott 37-80: quoting Mrs. Dexter: 5.1% of the food of *Bufo marinus* L.
Anon 39-75: visiting sweet potato flowers.
females on flowers of *Borreria verticillata* at Vega Baja (61-40), of *Kallstroemia maxima* at Yauco (36-37), of malva, *Malachra alceifolia,* at Guayanilla (80-40), of aveyuelo and *Moringa moringa,* Mona Id. (217-40); males, on Mona Id. (139-39), on flowers of *Borreria verticillata* at Yabucoa (58-39).

Campsomeris trifasciata F.
Jepson 36-5, 18 to 25, 28: "normally a parasite of *L. portoricensis,*" observations on, summary.
(I No. 7137), both sexes abundant on flowers of *Waltheria americana* at Aguadilla (16-40), of *Hyptis atrorubens* (365-39), of *Melanthera confusa* at Manati (136-40), of *Borreria verticillata* at Yabucoa (57-39, 244-39), at Manati (114-39).

Campsomeris tricincta F.
Jepson 36-5, 20, 29: mention, collected at Cidra, summary.

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PSAMMOCHARIDAE

Pepsis rubra Drury

(I No. 6907), at Bayamon (I No. 6032); at Pt. Cangrejos (396-22 det. N. Banks) frequenting flowers of *Borreria verticillata,* at Aguadilla (52-38); at Mayaguez (I No. 7381), at Naguabo (231-39).

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Pepsis ruficornis F.

at Coloso (25-39) at sea-level; in Maricao Insular Forest, elev. 2,600 ft. (264-39).

Notiochares cubensis Cresson (= *Pompiloides propinquus* Fox) det. N. Banks

carrying legless spider at Coloso (73-38); frequenting flowers of *Heliotropum indicum,* Viequez Id. (107-40).

Cryptocheilus flammipennis Smith

at Bayamon (I No. 6037).

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VESPIDAE

Polistes crinitus Felton

Anon 38-101: attacking *Laphygma frugiperda* caterpillars on corn (W. K. Bailey).

at Guaynabo (I No. 7138 as "var. *americanus* F." det. G. A. Sandhouse); in fruit fly traps at Bayamon (I No. 7073); enormous numbers on El Yunque rock (45-39) with no other wasp present; on Mona Id. (135-39, 247-40); on tender foliage of *Coccolobis laurifolia,* Mona Id. (41-40); frequenting flowers of *Heliotropum indicum,* Vieques Id. (108-40); at Aibonito (188-40).

presumably the record of "*Polistes canadensis* L., Wetmore 16-77; eaten by Kingbird." should come here.

Polistes major P. B.

Bequaert, J. C., "Two New Color Forms of *Polistes major* Palisot de Beauvois from California and Arizona." Ent. News, **47**(1): 7-13. Philadelphia, 1936: the first record from P. R., collected by F. Sein at Lares; presumably blown in by the hurricane of 1928.

Anon 38-101: attacking caterpillars of *Laphygma frugiperda* on corn (W. K. Bailey).

at Lares (100-31 det. J. C. Bequaert); in fruit fly trap at Vega Alta (I No. 7259); frequenting flowers of *Borreria verticillata* at Palo Seco (361-39, 55-40), at Aguadilla (47-39); resting on sugar-cane at Aguadilla (281-39); nesting on sea-grape and casuarina trees, Mona Id. (137-39 det. G. A. Sandhouse).

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Mischocyttarus cubensis Saussure

Anon 38-102: attacking caterpillars of *Laphygma frugiperda* on corn (W. K. Bailey).

on Mona Id. (136-39); attached to citrus leaves by an entomogenous fungus (385-39 F. Mora) at Lares.

EUMENIDAE

Zethus rufinodus Latreille

at Bayamon (I No. 6034); on flowers at Lares (154-40); on flowers of *Hyptis atrorubens* (6-39); on flowers of *Lantana camara,* Mona Id. (140-39); on tender foliage of *Coccolobis laurifolia,* Mona Id. (42-40); nesting in rotten fence-posts of almacigo and other woods, Laguna Tortuguero (494-40).

Eumenes ornatus Saussure

(as "var. *abdominalis* Drury") at Loiza (I No. 6906); in fruit fly trap at Palo Seco (I No. 6922 as "var. *ornatus* Saussure").

Pachodyneurus (Monobiella) atratus F.

in mud-wasp nest, of *Sceliphron caementarium* Drury ?, on rock cliff near Utuado (30-38); frequenting flowers of *Borreria verticillata* at Yabucoa (317-39), at Cayey and Isabela (18-40), of *Hyptis atrorubens* (349-39).

Pachodyneurus nasidens Laterille

frequenting flowers of *Hyptis atrorubens* (60-40), of *Borreria verticillata* at Yabucoa (238-39 det. G. A. Sandhouse).

Pachodyneurus tibialis Saussure

frequenting flowers of *Lanatana camara,* Mona Id. (144-39 det. G. A. Sandhouse), of *Colubrina colubrina* (273-40).

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Ancistrocerus dejectus Cresson

in fruit fly trap at Mayaguez (I No. 6860 as "sp.").

APOIDEA

HALICTIDAE

Agapostemon portoricensis Cockerell (not a variety of *radiatus*)

at Bayamon (I No. 6041), at Dorado (I No. 6904); in flight, Salinas-Cayey road (228-39 det. G. A. Sandhouse); on flowers of *Lantana camara,* Mona Id. (149-39 det. G. A. Sandhouse).

Augochlora buscki Cockerell—det. G. A. Sandhouse

at Bayamon (I No. 6040), at Dorado (I No. 6905).

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ANTHOPHORIDAE

Centris haemorrhoidalis F.
nesting in clay bank at Guajataca (279-39); frequenting flowers of *Borreria verticillata* at Aguadilla (138-40, of *Moringa moringa* and *Pisonia albida,* Mona Id. (210-40).

Centris lanipes F.
on Mona Id. (150-39 det. G. A. Sandhouse), on flowers of *Moringa moringa* (208-40).

Centris versicolor F.
on the beach at Mayaguez (I No. 7417 as "*C. decolorata* Lep."), on the beach at Humacao (115-39, females 233-39, males 232-39 det. G. A. Sandhouse); frequenting flowers of *Lantana camara,* Mona Id. (117-39 det. G. A. Sandhouse), of *Moringa moringa,* Mona Id. (209-40).

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Exomalopsis globosa F.
frequenting flowers of *Hyptis atrorubens* (367-39) and of *Borreria verticillata* (139-40) at Guajataca Dam.

Anthophora krugii Cresson
nesting in clay bank of roadside at Guajataca (278-39); in walls of cave, Mona Id. (81-39); frequenting flowers of *Moringa moringa* and *Colubrina colubrina,* Mona Id. (211-40).

EUCERIDAE

Mellisodes trifasciata Cresson
Anon 39-75: visiting sweet potato flowers.
at Palo Seco (I No. 6776); frequenting flowers of anamú, *Petiveria alliacea,* at Guayanilla (24-37).

MEGACHILIDAE

Hypochrotaenia (Pasites) pilipes Cresson
on flowers of pepper at Guaynabo (I No. 6775).

Coelioxys abdominalis Guerin
in cane field at Guajataca (27-39).

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Megachile lanata F. (= *M. martindalei* Fox)
Anon 39-75: visiting sweet potato flowers.
at Barceloneta (I No. 6778).

Megachile vitrasi Pérez
at Loiza (I No. 6777); frequenting flowers of *Borreria verticillata* at Yabucoa (237-39); resting on cane leaf at Guanica (225-39); on Mona Id. (142-39 det. G. A. Sandhouse) on flowers of *Moringa moringa* and *Pisonia albida* (246-40).

XYLOCOPIDAE

Xylocopa brasilianorum L.

frequenting sunflowers at Vega Alta (I No. 7217); abundant on Mona Id. (120-39).

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APIDAE

Apis mellifera L.

Wolcott 37-49: Mr. Sein's experiments indicating that neither bees nor other insects are necessary for the setting of the coffee crop.

nest in rocks near Guanica lighthouse (3-37), in hollow mamey tree, Sabana Llana (GNW); adults almost the only large Hymenopteron present on *Hyptis atrorubens* near Mountain Top Nursery, Patillas (11-39); adults on flowers of guamá, Cayey (123-40), of malva, *Malachra alceifolia.* at Guayanilla (83-40).