

Board of Commissioners of Agriculture  
and Forestry.

TERRITORY OF HAWAII

A CATALOGUE  
OF THE  
HEMIPTEROUS FAMILY ALEYRODIDAE

BY G. W. KIRKALDY.

(Hawaiian Sugar Planters' Experiment Station)

AND

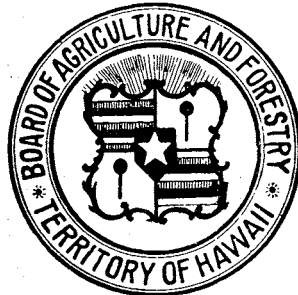
ALEYRODIDAE OF HAWAII AND FIJI

With Descriptions of New Species.

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## ILLUSTRATIONS

Plate I.—Aleyrodidae of Hawaii and Fiji.

## LETTER OF TRANSMITTAL

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To the Board of Commissioners of Agriculture and Forestry,  
Honolulu, T. H.

GENTLEMEN:—I herewith submit for publication Bulletin No. 2 of this Division entitled "A Catalogue of the Hemipterous Family Aleyrodidae" by G. W. Kirkaldy (Assistant Entomologist of the H. S. P. A. Experiment Station) and "Aleyrodidae of Hawaii and Fiji with Descriptions of New Species" by Jacob Kotinsky (Assistant Entomologist of the Territorial Board of Agriculture and Forestry). The Catalogue compiled by Mr. Kirkaldy is the result of work performed by him in 1904 whilst in the employ of the Territorial Board of Agriculture.

Respectfully Submitted,

ALEXANDER CRAW,  
Supt., Division of Ent. and Inspector.

Approved by  
Board of Commissioners of  
Agriculture and Forestry,

Honolulu, T. H., April 29, 1907.

## Corrections

- p. 23, line 11 from top after pp. insert 93-102.  
 p. 40, for ANONAL read ANONÆ.  
 p. 43, line 23, insert *Aleurodes* before "Amyot."  
 p. 43, " 28, for *Quaintanc* read *Quaintance*.  
 p. 45, " 21, for *Gen.* read *Ges.*  
 p. 46, " 10, after p. add 35.  
 p. 48, " 5 from bottom, after p. insert 98. Pl. 1. f. 5.  
 p. 52, " 7, for *Veh* read *Verh.*  
 p. 53, " 14 from bottom, after p. insert 100. Pl. 1. f. 6.  
 p. 56, " 7 from top " p. " 94. Pl. 1. f. 1.  
 p. 57, " 9 " " " p. " 96. Pl. 1. f. 3.  
 p. 57, " 17, for *Hemple* read *Hempel*.  
 p. 59, " 7 from top, after p. insert 95. Pl. 1. f. 2.  
 p. 59, " 14, after p. add 35.  
 p. 59, " 27, " p. " 36.  
 p. 59, " 33, " p. " 98.  
 p. 65, " 3, " p. " 36.  
 p. 70, " 7 " top, after p. insert 97. Pl. 1. f. 4.  
 p. 72, " 9, after p. add 37.  
 p. 75, " 2, " p. " 38.  
 p. 76, " 11. for *Pyill*— read *Phill*—.  
 p. 78, " 11 from bottom, for *Packardii* read *Packardi*  
 p. 83, " 7 from top, for *maculspes* read *maculipes*.  
 p. 83, " 9, for *Aeyrodes* read *Aleyrodes*.  
 p. 85, " 9 from top, for *Alerodid* read *Aleyrodid*.  
 p. 85, " 8 " bottom, add "do."  
 p. 91, " 17 " " for *Spiraea* read *Spiraeae*.  
 p. 93, " 5 " " for *julifora* read *juliflora*.  
 p. 96, " 10 " top, for *Beaumontja* read *Beaumontia*.  
 p. 96, " 22, for *Lanatana* read *Lantana*.  
 p. 98, " 7 from bottom, for *Sacchans* read *Sacchari*.  
 p. 102, " 3 " top, for *giffradi* read *giffardi*.

NOTE:—Owing to corrections and addenda this Bulletin was issued on Sept. 21, instead of Sept. 16.

## PART I.

### (a) BIOLOGIC SUMMARY

*Aleyrodes* is said to have been first described by Cestone, who (or his publisher, Vallisnieri) first observed the parasitism of the nymph by "tiny flies".

The oviposition of *Aleyrodes proletella* was well described 170 years ago, in his usual leisurely manner, by Reaumur, and has recently been confirmed in other species by Britton, Morrill and others, who describe and figure the various instars. Reaumur states that the eggs take from 11 to 14 days to hatch while the insects assume the perfect form within another 14 to 17 days, that is to say, the entire transformations take about a lunar month in *A. proletella*. (1).

Reaumur, supposing some seven generations each year during the temperate or warm months, calculates that the descendants, during these seven months, of a single female would, if undisturbed, amount at the lowest estimate to 195,310, and probably more than 200,000. (2). In Hawaii, broods of some species continue almost throughout the year. Very soon after emergence, the sexes unite (3), the female

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(1.) Gossard says that in *A. citri* the eggs take from 3 to 20 days to hatch, and gives about 40 days for the entire transformations. Morrill states, for *A. vaporariorum*, 10 to 12 days for hatching and about 40 days for the entire transformations. I have been prevented, by press of other work, from completing my preliminary observations on Hawaiian forms.

(2.) Kirby and Spence (Introd. Ent. III, 89) are said to have misunderstood Reaumur and supposed 200,000 to be the number of ova deposited by one female, but I have not recently seen their account.

(3.) Gossard (p. 609) remarks "the courtship of the white fly, as observed with a pair in confinement, is quite curious. The male showed evidence of having detected the presence of the unimpregnated female at a distance of one-fourth of an inch or more, and approached her nervously, stopping at intervals, especially as the distance was lessened, and swinging his body about excitedly in a semicircle, the head being used as a pivot, his wings in the meantime opening and closing spasmodically, while no movement was made by the female, several retreats were made and she was repeatedly approached from many directions before coition occurred. Upon the trees the males and females rest side by side and two males, one on either side, may often be seen giving their attentions to the same female."

commencing to deposit ova from 18 hours to several days after emergence, according to temperature, etc.

Reaumur observes that the eggs, varying from 8 to 36 in number (Kellogg gives three as the lowest) are arranged around a circular space, previously covered with white powder. Britton cites Westwood's account in the "Gardeners' Chronicle", viz: that Reaumur states that the female first thrusts her beak into the leaf, and depositing an egg, swings about with the beak still inserted and this serving as a pivot, she continues to deposit eggs in a circle of about one millimetre in diameter. There is however, nothing about this pivoting in Reaumur, or in "Westwood's Introduction", and it is probably an additional observation by Westwood himself (4). This pivoting is a well-known characteristic in *Aleyrodes*, but is not universal, as in the same species eggs are often deposited singly and scattered over the surface of the leaf, especially on hairy plants (see Britton, Davis, etc., (5).) The eggs are usually deposited on the underside of the leaves, and this is indeed where the nymphs also live, though in neither case is this universal. The eggs are transparent whitish (often powdered with the same mealy matter as in the adult) or light green, darkening as the embryo develops. The newly hatched nymph is mobile for a short time but soon becomes stationary, resembling a young scale insect. All the later nymphs (pupae) secrete "honeydew" from the lingua, sometimes so copiously that the case and the adjoining leaf surface are covered with it, the secretion thickening and hardening after emission. Fungus spores germinate in this, and ants visit it for food.

There are four nymphal instars (larvae and pupa); the antennae and legs are functional in the first, rudimentary in the others, being not even externally visible in the second.

The Embryology and Anatomy have been dealt with recently by Cary. Tozzetti published in 1867 a few remarks of comparatively little importance on the anatomy; he des-

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(4.) A very good abstract of Reaumur's observations is given in Amyot & Serville (pp. 614-6); I have however read Reaumur's account also.

(5.) The female of *A. bergii*, with the circle of eggs around her, has been depicted by Zehntner.

cribed the filaments arising from the lateral margins of the body and figured them and also the pores which produce the farinaceous matter, noting that they differed in the various species; he further described and figured the digestive apparatus. The structure of the wax-secreting organs has been briefly described by Nasonov.

Morrill believes that *Aleyrodes* is partially parthenogenetic and that the number of adult males and females is in direct proportion to the number of unfertilized eggs; he estimates the proportion occurring in nature as twenty males to sixty-five females (1:3.25); later he makes another count and estimates it as twenty-three to seventy-seven (1:3.35); that is, there are about two males to every seven females.

The injuries caused by the Aleyrodidae are, as a rule, not nearly so serious as those caused by Coccids or Aphids, and it is rarely that a tree dies from an Aleyrodid attack alone, this being confined almost entirely to the leaves; when a tree does succumb, the attacks of the "white flies" are usually followed by those of *Meliola camelliae* (Call), a black saprophytic fungus, which accompanies insects excreting honeydew in any quantity. On the other hand three species of fungi are known to grow naturally in Aleyrodid nymphs, two of them being very successful in reducing *Aleyrodes citri* in Florida; these are an undetermined brown fungus, *Aschersonia aleyrodis* Webber, and *Sphaerostilbe coccophila* Tulasne, while the above-mentioned black fungus, often destroys the nymphs it accompanies (see Gossard pp. 617-27).

The majority of Aleyrodidae are, so far as is known, scarcely of economic importance, though certain species may at any time make a sudden attack upon valuable plants. *A. vaporariorum* and *A. citri*, the two most pernicious forms, are probably species introduced into alien countries, unaccompanied by the parasites and predators that assail them in their endemic habitat; for the present, therefore, artificial remedies, discussed fully by Britton, Morrill, Gossard and others, are largely used in their attempted control. In Hawaii the species attacking Citrus, Hibiscus, Coffee, etc., seem to be kept well under control both by Coccinellids and Hymenopterous Parasites and no very serious damage need be feared

at present. Owing, however, to the minute size of the Aleyrodidae, it is often difficult to detect the eggs on introduced plants, and to prevent the introduction of pernicious forms, it would be advisable to fumigate all imported plants whatsoever.

#### (b) SYSTEMATIC SUMMARY

The first known Aleyrodid is said to have been noticed by Cestone in the 17th century, but his account is inaccessible; shortly after, it was described and discussed as a moth by the celebrated Reaumur, this sagacious observer noting however that the farinaceous matter on the organs of flight was not of a similar nature to the "powder" in other moths, and also that the "beak" was constituted very differently. About a quarter of a century later, the father of modern nomenclatorial systems named it *Phalaena (Tinea) proletella*, thus likewise considering it to be a moth. The first to recognize its Hemipterous nature was Latreille, who in 1796 conferred upon it the generic title of *Aleyrodes* (from the Greek "*aleuron*"—flour); in 1835 Burmeister unnecessarily altered the name to *Aleurodes* and this spelling has continued up till a recent date. Systematic monographs have been published by Signoret in 1868 and Maskell in 1896, while a revision of the family and generic characters was made recently by Cockerell. Previous to this, a new genus *Aleurodicus* was erected by Douglas in 1892, altered to *Aleyrodicus* by Howard. Of subgenera, *Asterochiton* was formulated as a Coccid by Maskell, while Cockerell is responsible for three subgenera of *Aleyrodes* and one of *Aleurodicus*. Of recent extensive systematic researches may be mentioned those of Quaintance, Gossard, Bemis and Peal.

It may be noted, in passing, that the date of the first edition of Geoffroy's "Histoire abrégée" is 1762, not 1764; of Maskell's Monograph 1896, not 1895, and of Signoret's Monograph 1868 and not 1867, as usually quoted.

The Aleyrodidae were, as already stated, originally included in the Lepidoptera, and at various later dates considered to be Aphidae, Chermidae or Coccidae, but are now universally deemed to form a separate family, allied to Aphidae on the one hand, and Coccidae on the other.



Cockerell's family diagnosis, slightly altered verbally, is as follows:

"*Adults* of both sexes with two pairs of wings, which are rounded apically and appear more or less mealy; the edges of the wings are ornamented with a distinct sculpture or little bunches of bristles. Antennae simple in form, composed of seven segments; first two segments short and stout. Legs six, all well developed. Eyes often constricted in the middle, or even completely divided, Tarsi with two claws. Size always small.

*Egg* elliptical, with a short peduncle.

*Larva* oval, with short, stout legs.

*Pupa* quiescent, oval, often with a waxy fringe. Margin variously sculptured. Abdomen sometimes with large secretory pores. On the dorsal surface of the abdomen is an orifice, known as the vasiform orifice, provided with a more or less rounded flap, the operculum and a usually elongate narrow bisegmentate structure, the lingua" (1902, Proc. Ac. Nat. Sci. Philadelphia LIV p. 279).

Two genera only are recognized, viz: *Aleurodicus* Douglas 1892 and *Aleyrodes* Latreille 1796. The former, though only separated little more than a decade ago, is the older form, having the median vein of the tegmen forked; in *Aleyrodes* this is degraded to a single unforked vein; the pupal lingua in the latter is also usually much smaller, in *Aleurodicus*, on the contrary, very large, with two or four terminal bristles. *Aleurodicus* is entirely confined to warmer America, with the exception of *A. holmesii* (Maskell) from the Viti Islands, which according to Cockerell, has probably been introduced there from America. *Aleyrodes* is distributed all over the world, almost to the northern limits of the temperate regions. One fossil species (*aculeatus* Menge) from Prussian Amber of the Ligurian Horizon, is known.

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\* A large proportion of these entries is worthless, but it seemed better to include everything possible, so as to show of what each citation consisted.

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Ann. Soc. Ent. France (4) VIII, pp. 369-400. Pls. 9,  
10 fs. 1 & 3-5.

1879. Bull. Soc. Ent. France (5) IX p. LXXXV.  
Description of *Spondylaspis* as an Aleyrodid; it is really a  
Chermid.

1881. Bull. S. E. France (6) I, p. CLVIII.  
Description of *A. lauri* sp. n.
1883. Bull. S. E. France (6) III, p. LXIII.  
Description of *A. lacerdae* sp. n.
- SLINGERLAND, M. V.**
1901. "Three unusual strawberry pests and a greenhouse pest." Bull. Cornell Exp. Sta. 190, 154-8. (textfs. 45-6).  
*A. packardi*. (The figs. do not refer to this species).
- SMITH, J. B.**
1896. "Economic Entomology". p. 121-2, tf. 91.  
*A. citri*.
- STEPHENS, J. F.**
- † 1829. Systematical Catalogue of British Insects. II, p. 367.  
Only names; no value.
- STEWART**
- † 1802. "Elements of Natural History, Insects." II, p. 199.  
[Ed. 2 1817, identical (?) ]
- SULZER, J. H.**
1776. "Abgekürzte Geschichte der Insecten nach dem Linneischen System". p. 163, Pl. 23 f. 17-28.  
*Phalaena (Tinea) prolella*.
- SWINTON, A. H.**
1878. "Aleyrodes sp. in Italy sucked by nymph of *Harpactor iracundus*," Ent. Mo. Mag., XV, 118.
- SWINGLE, W. T., & WEBBER, H. J.**
1896. "The principal diseases of citrous fruits in Florida", Bull. U. S. Div. Veget. Phys., VIII, 25-8, Pl. VII.  
*Aschersonia tahitensis* on *A. citri*.
- THOMPSON, W.**
- † 1848. "On the habits of *Aleyrodes phillyreae*". Pr. Ent. Soc. Lond. V, p. XLVIII.

**TIGNY, F. M. G. T. de-**

† 1802. "Histoire Naturelle des Insectes" etc. I, p. 232  
Pl. 5, f. 2.

Ed. 2 (1828) revised by Brongniart and Guérin-Méneville

**TOWNSEND, C. H. Tyler**

1896. "Report of a trip to investigate insects of economic importance in Mexico". Bull. U. S. Ent. Techn. 4 p.

**TOZZETTI, A. Targioni**

1867. "Studii sulle Cocciniglie," Mem. Soc. Ital. Nat. III, No. 3, ex pp. 1-87; Pl. 1 fs. 20, 23; Pl. 2 f. 7, 8 & 6; Pl. 5 f. 3.

† 1891. "Animali ed Insetti del Tabacco in erba e del Tabacco secco."

**TRAIL, A.**

"Illustrated Dictionary of Gardening" I, p. 229.

**TULASNE**

† (?) "Selecta Fungorum Carpologia" III, 105.  
*Sphaerostilbe coccophila* on *A. citri*.

**UTRA, G. d'**

† 1900. Bol. Agr. S. Paulo, 2, p. 356.

**VALISNIERI, A.**

† 1715. "Istoria del Camaleonte africano et di vari animali d' Italia," p (?)

Apparently reprinted as "Istoria della Grana del Kermes" etc. on pp. 457-65 (with figs.) of "Opere fisico-mediche, etc. (1733) I. Contains letter by CESTONE on *Aleyrodes proletella* noting its parasitization. These references are uncertain; Reaumur & Linné cite" I, p. 372 in the 1733 edition.

**Van der HOEVEN**

1856. "Handbook of Zoology, Ed. 2, (Engl. Transl.) II, p. 432.

(I have not seen the original).

**WALCKENAER, Baron C. A. de**

† 1802. "Faune Parisienne".



**WALKER, F.**

1852. "List of specimens of Homopterous Insects in the British Museum". pp. 1090-1.

*A. brassicae, fragariae, loniceræ*, sp. nov.

1858. Supplement to above, p. 307.

**WALSH, B. D.**

1867, Feb. "Answers to Correspondents D. F. C., III".  
Pract. Ent. II, p. 58.

**WEBBER, H. J.**

1894, Aug. 15. "Preliminary notice of a fungous parasite on *Aleyrodes citri* R. & H." Journ. Mycology VII, 363-4.

† 1894, Dec. "'The White Fly' & 'Sooty Mould.'" P. Florida State Hort. Soc. 74-8.

*A. citri*.

1895. "How to exterminate White Fly." Florida Dispatch.

Reprinted in Hawaiian Planters' Mo. XIV, pp. 326-9.

1897 "Sooty mold of the orange and its treatment",  
Bull. U. S. Div. Veget. Phys. XIII, pp. 20-34, Pl. 1-5.

**WEBSTER, F. M.**

1894. "Report of the Entomologist." 12th Rep. Ohio Agr. Sta. 1893, p. XXXV.

**WEED, C. M. & CONRADI, A. F.**

1903. "The White Fly of Greenhouses." Bull. N. Hampshire Agr. Sta. 100, pp. 45-52. 1 fig.

**WEIR, J. J.**

1891, June. "Some traits of the English Sparrow in England." Ins. Life, III, 394.

*A. vaporariorum*.

**WESTWOOD, J. O.**

1839-40. "An introduction to the Modern Classification of Insects," II, pp. 417 & 442-3, f. 118, nos. 1-6., & 'Synopsis of British Ins'. p. 118.

## WESTHOFF, Fr.

1887. "Die Phytophthiren-Gattung *Aleurodes* und ihre in der umgegend von Münster aufgefundenen Arten". 15th Jb. Zool. Westfal. Vereins Wiss. für 1886-7, pp. 55-63.

*A. xylostei* sp. nov., *A. proletella* & *carpini*; considers *Aleurodes* a highly developed Coccid.

† 1856. "The Aleyrodes of the Greenhouse". Gardeners' Chron. p. 852.

(*A. vaporariorum*.)

## WOODWORTH, C. W.

1901, June 3. "Notes on the Respiration of *Aleurodes citri*. Canad. Ent. XXXIII, p. 173.

(Note also in Psyche IX, pp 311-2, Feb. 1902).

## WOODWORTH, H. O.

1901, Feb. "Notes on Aleurodidae". Ent. News XII, p. 51-4.

List of food plants of *A. pergandei*.

## ZEHNTNER, L.

1896, Oct. 1. "De Plantenluizen van het Suikerriet op Java". Archief voor de Java Suikerindustrie, IV, 937-950, Pl. XX.

*Aleurodes bergii*, metamorphoses & parasites. (Also separately as Med. Proefst. Oost-Java, n. s. 29, pp. 31-4, Pl. XX).

† 1897. [title?], op. c. V. 381.

*A longicornis*, sp. nov.

1897. "Overzicht van de Ziekten van het Suikerriet op Java. 2 Deel. Vijanden uit het Dierenrijk". op. c., V, pp. 556-9.

*A. bergii* & *longicornis*; *A. lactea* sp. nov. (Also separately as Med. Proefst. Oost Java n. s. 37 pp. 32-5).

1899. "De Plantenluizen van het Suikerriet op Java VIII & IX. op. c. VII, p. 445-65, Pl. I & II.

*A. longicornis* & *lactea*, metamorphoses & parasites. (Also separately as Med. Proefst. West-Java. no. 38, pp. 1-21, Pls. I & II.)

## PART III.

Reprint of Descriptions published in little accessible works, and not since recognized.

The following are noted :

*A. asparagi* (Lewis).

*A. lacerdae* (Signoret).

*A. lauri* (Signoret).

*A. phalaenoides* (Blanchard).

*A. tinacoides* (Blanchard).

*A. xylostei* (Westhoff).

## ALEURODES ASPARAGI, Lewis.

This was first noticed in 1894 in the Rep. & Proc. Ealing Micr. & Nat. Hist. Soc. for 1893. pp. 1-2, in an account of the exhibition of a new species of *Aleurodes* on leaves of asparagus from Natal, by R. T. Lewis. There are brief general notes on Aleurodidae, but no description of the species, merely a remark that "following the precedents of naming the species after the plants on which they were found, this one was duly called *Aleurodes asparagi*." The description is in Journ. Quekett Micr. Club, 1895, (2) VI 88-93 (as recorded in the Catalogue of species) and the species fully described and figured there.

## ALEURODES LACERDAE Signoret.

1883 Bull. S. E. France (6) III, p. LXIII.

"J'ai l'honneur, par l'entremise de notre collègue M. L. Fairmaire, de faire passer sous les yeux de la Société des feuilles de l'*Anona sylvatica* couvertes d'une sécrétion d'aspect cotonneux, ressemblant à de l'amiante et qui m'ont été envoyées par M. Antonio de Lacerda. Cette sécrétion abondante est due à la réunion d'un grand nombre d'*Aleurodes* soit à l'état de larve, soit à l'état d'insecte parfait. J'indique les deux, car je pense que ces deux états contribuent à cet amas de sécrétion par l'examen même de la forme particulière des diverses lamelles; les unes présentent comme des rubans, les autres comme des filaments, d'autres enfin de simples fils. L'insecte parfait est du double plus grand que l'*Aleurodes chelidonii*, jaunâtre, avec des macules brunes sur la prothorax;

l'abdomen, entièrement jaune dans le mâle, offre deux plaques d'aspect particulier dans la femelle, celle-ci présentant un amas cotonneux d'aspect nacré et de forme bilobé de chaque côté de l'abdomen et sécrété par les deux plaques rouges de l'extrémité de l'abdomen. Devant donner une description complète de cette intéressante espèce, que je nommerai *A. lacerdae*, je me contente de présenter aujourd'hui ces feuilles vraiment extraordinaires, car si l'on connaît déjà des espèces du genre *Aleurodes* sécrétant des matières ne se sont présentées en aussi grande quantité."

**ALEURODES LAURI** Signoret.

1881 op. c., (6) I p. CLVIII.

"Nous donnons aussi la description d'une nouvelle espèce d'Hémiptère, l'*Aleurodes lauri*, récoltée par notre collègue M. Gennadius:

Cette espèce est très voisine, dans son état parfait, c'est à dire ailée, de la *proletella* Linné. Le corps est entièrement jaune; les élytres blanches, sans macules, plus longues que celles de la *proletella*.

Quant à la coque, elle ressemble beaucoup à celle de la *proletella*, mais la sécrétion rayonnée d'abord est beaucoup plus longue et comme grandissante; elle occupe plus d'espace et se sépare de distance en distance, ce qui donne à la coque un aspect étoilé.

C'est surtout dans les endroits ombragés que se rencontre cette espèce, assez commune à Athènes, sur la *Laurus nobilis*.

**ALEURODES PHALAENOIDES**, Blanchard.

In Gay's Historia fisica de Chile Zool. VII 319.

Atlas zoologico. Entomologia, Hemipteros, Pl. 3, fig. 16 (1852).

(P. 319.) A. tota testaceo-rufa, antennis pedibusque pallidioribus; elytris albis opacis fasciis duabus interruptis maculaque apicis pallide fuscis; alis totis albis. Long. corp., 1 lin.; extens. alar.,  $3\frac{1}{4}$  lin.

Cuerpo enteramente de un testáceo berme jo y mas ó menos salpicado de blanco. Elitros muy grandes, blancos, ópacos y adornados de dos fajas transversales interrumpidas

en el medio y hácia la punta por una mancha alargada de un color moreno muy claro. Patas pálidas, lo mismo las antenas.

Este insecto en algo comun en Santiago sobre las hojas del Parqui y principia á manifestarse en el mes de enero. Copiaremos aqui lo que hemos notado en nuestro diario sobre este animalito.

En la parte inferior de las hojas nuevas del Parqui, (*Cestrum parqui*), se observa una especie de mancha de un verde ligeramente azulenco sembrada de muchos huevecitos perfectamente separados unos de otros, de [p. 320] forma ovalar, de color de tierra, alcanzando apenas un dozavo de lineas de diámetro. Poco despues estos huevos cambian de color, vuelvense negruzcos con puntitos blancos, y observados entonces con un lente de aumento se ve que con hembras adornadas con seis puntos dispuestos en dos filas, tres en cada una. Dichos puntos pequenos y algonados gredenecen á la par del animal, primeramente extendiéndose del lado de la márgen que sobrepasan para formar una especie de membrana petañosa y recortada á modo de *Bissus* y en seguida hacia al centro, confundiéndose entonces uno con otro para dar lugar a una masa informe, blanquista, algodogada y sembrada de pequeñas gotitas de un licor azucarado, muy apeticido de las hormigas que las visitan con mucha frecuencia. Los machos, provistos de grandes alas, se mantienen quietos, ó si le mueven, cambian rara vez de hojas, pero meneando el arbusto, vuelan con precipitacion y á poca distancia, pro no poder sostener largo tiempo el vuelo. Paran principalmente debajo de las hojas y son bastante comunes en la estacion del verano.

Esplicacion de la lámina.

Lam. 3, fig. 16. Animal aumentado. 16a Tamaño natural. 16b Ala superior. 16c Ala inferior. 16d Antena. 16e Tarso.

#### ALEURODES TINAEOIDES Blanchard.

Op. c. 320.

A. testaceo-rufa; capite nigrescenti; elytris albis, medio-criter opacis, fascis lata media apiceque cinereis; antennis pedibusque pallidis. Long. corp.,  $\frac{2}{3}$  lin., extens. alar., 1 lin.  $\frac{3}{4}$ .

Cuerpo de un testaceo bermejo, como en la especie que

precede, per con la cabeza negruzca. Elitros blancos, menos ópacos, con una ancha faja hacia el medio y toda la extremidad de un pardusco claro. Alas enteramente blanquizas. Patas de un amarillento pálido asi como las antenas.

Se halla en los mismos lugares que la que antecede.

#### ALEURODES XYLOSTEI Westhoff.

Fünftehnter Jahresbericht des Westfälischen Provinzial-Vereins für Wissenschaft und Kunst für 1886 (published 1887), p. 61.

“Zu Anfang Oktober des Jahres 1885 fand ich im Hausgarten auf der Unterseite mehrerer Blätter von *Lonicera xylosteum*, vereinzelt O. 7 mm. lange Aleurodes-Puppen von weisser Farbe mit dunkelrothen Augens, von denen mir zwei, nach einigen Tagen die Imagines lieferten, die sich bald als von allen Arten deren Beschreibung mir vorliegt, verschieden erwiesen. Auch mit der von Koch (siehe “Die Pflanzenläuse”, Nürnberg, 1857, S. 327) beschriebenen, *Aleurodes lonicera*, welche nach dem Autor ziemlich häufig auf derselben Pflanze angetroffen wird, waren meine Tierchen durchaus nicht identifizierbar.

Die hervorstechenden Körpermerkmale sind folgende: Körperschlank, 0.8 mm. lang; die Hinterleib beim ♂ in einer kräftigen Zange endigend. Kopf mit zwei eingeschnürten, dunklen Augen; Fühler etwa von Zweidrittel der Körperlänge, Glied eins knopf, Glied zwei mehr becherförmig, das dritte Glied das längste, Glied vier gegen zweifünftel bis ein Drittel von drei, Glied fünf noch etwas länger, Glied sechs sieben noch kürzer, letztes Glied am Ende zugespitzt. Schnabel breit bis den Hinterhöften reichend, die dunkle Spitze etwas ausgerandet, Die Flügel breit, eiförmig, weissbepudert, den Körper um mehr als die Hälfte seiner Länge überragend. Die Mitte jedes Flügels von einer Ader durchzogen, welche kurz vor der Spitze einen dunklen Schattenfleck trägt. Beine schlank und Körper lang, Längenverhältnisse wie bei der vorgehenden Art (*proletella* L.=*chelidonii*, Latr.). Die Farbe ist ein schmutziges graugelb, die Thorakalbeuten sind dunkler, schmutzig braungrau, Fühler und Beine bleich.

Im Habitus steht diese Art der *proletella* L. nahe, allein sie ist etwas schlanker gebaut und jeder Flügel zeigt nur einen dunklen Schatt Ebflecken. Auch ist die Farbe des Körpers weniger lebhaft und die Zange des ♂ kräftiger und länger.

Die von Koch als *A. loniceræ* beschriebene Art unterscheidet sich von dieser nach Diagnose und Abbildung, 1. durch die Körperfarbe, 2. durch die Einschnürung des vierten Fühlergliedes, 3. durch die einfarbig weissen Flügel und 4. durch die Zange des ♂.

Leider suchte ich im Jahre 1886 an derselben Stelle, sowie auch an anderen Orten nach dieser Art vergebens, vermag daher über ihre biologischen Verhältnisse nichts anzugeben.

## PART IV.

## LIST OF GENERA AND SPECIES.

## Gen. 1. ALEURODICUS Douglas.

*Aleurodicus* Douglas 1892 Ent. Mo. Mag. (2) III p. 32.  
(*anonae* Morgan).

Maskell 1896 T. N. Z. I. XXVIII p. 444.

Quaintance 1900 Bull. U. S. Ent. Techn. 8 p. 43.

Cockerell 1902 P. Ac. Nat. Sci. Philad LIV p. 279.

*Aleurodicus* Howard 1901 Ins. Book p. 247.

Subgenus I *Dialeurodicus* Cockerell 1902 Pr. Ac. Sci.  
Phil. LIV p. 280; (*cockerelli* (= *cockerilli*)).

## 1. ALTISSIMA (Quaintance).

*Aleurodes* (? *Aleurodicus*) *altissima* Quaintance 1900 Bull.  
U. S. Tech. Ser. 8 pp. 15 & 20 Pl. I f. 8-12, Pl. VII  
f. 70.

*Aleurodicus altissimus* Cockerell, 1903, Bull. Florida Sta.  
67 p. 663. Bemis 1904 P. U. S. Mus. XXVII p. 484.

Hab: Mexico on "Palo de Gusano."

## 2. ANONAL (Morgan).

*Aleurodes anonae* Morgan 1892 Ent. Mo. Mag. (2) III p. 32.

*Aleurodicus do* Douglas l. c.; Maskell 1896 T. N. Z. I.  
XXVIII pp. 440 & 445.

*A. anonae* (sic!) Quaintance 1900 Bull. U. S. Techn. 8  
p. 44.

Hab: Brazil, British Guiana and Trinidad; on *Anona muricata*,  
*reticulata* and *squamosa*; *Ficus* sp. and *Richardia pacifica*  
(=? sp.)

## 3. ASARUMIS (Shimer).

*Aleyrodes asarumis* Shimer 1867 Tr. Am. E. S. I p. 281.

*Aleurodes do* Douglas 1888 Ent. Mo. Mag. XXIV p. 266.

*Aleurodicus do* Riley & Howard 1893 Ins. Life V p. 219.

Maskell 1896 T. N. Z. I. XXVIII p. 445.

Quaintance 1900 Bull. U. S. Techn. 8 p. 43.

Hab: Illinois on *Actaea alba* and *Asarum canadense*.



## 4. COCKERILLI (Quaintance).

*Aleurodicus cockerilli* Quaintance 1900 Bull. U. S. Techn. Ser. 8 p. 44.

*A. cockerellii* Quaintance op. c. p. 45 Pl. VI, figs. 59-62.

*A. (Dialeurodicus) Cockerelli* Cockerell 1902 P. Ac. Sci. Phil. p. 280.

Hab: Brazil on a myrtaceous plant and on *Psidium cattleianum*.

## 5. COCOIS (Ruricola).

*Aleyrodes cocois* Ruricola 1847 Gard. Chron. VI p. 284.  
Schomburgk 1848 Hist. Barbados p. 640.

*Gen. (?)* do Frauenfeld 1867 Verh. Ges. Wien XVII p. 795.

*Aleyrodes do* Signoret 1868 A. S. E. France (4) VIII p. 398.

*Aleurodicus do* Douglas & Morgan 1892 Ent. Mo. Mag. p. 32.

Riley & Howard 1893 Ins. Life V. p. 314, figs. 39-41.

Maskell 1896 T. N. Z. I. XXVIII pp. 440 & 445.

Quaintance 1900 Bull. U. S. Techn. 8 pp. 43-46.

*Aleurodicus (?) do* Blandford 1893 Bull. Misc. Inform. Kew pp. 44 & 58.

*Aleyrodes do* Ballou 1906 W. I. Bull. VII, 53.

Hab: Barbados; British Honduras; British Guiana; Trinidad; Venezuela; Brazil; on *Cocos nucifera*, *Psidium guava* and *Musa* sp.

## 6. A. DUGESII Cockerell.

*Aleurodicus dugesii* Cockerell 1896 Can. Ent. XXXVIII p. 302.

Quaintance 1900 Bull. U. S. Tech. 8 p. 46.

Cockerell 1902 Mem. Ant. Alzate p. 207, tf.

*A. dugesii* Cockerell 1899 Biol. Centr. Am. Hom. II pt. 2, p. I.

Quaintance 1900 Bull. U. S. Techn. 8 p. 44.

Herrera (?) Bol. Soc. Agr. Mexico XXIII 702.

*A. dugesii* Aleman 1898 La Naturaleza III No. 1-2.

Hab: Mexico on *Begonia* and *Hibiscus rosa-sinensis*.

7. **A. HOLMESII** (Maskell).  
*Aleurodes holmesii* Maskell 1896 T. N. Z. I. XXVIII p. 435, Pl. XXXI pt. 2.  
*Aleurodicus do* Cockerell 1903 Bull. Florida Agr. Sta. 67 p. 664.  
 Hab: Viti Isles on *Psidium* (? introduced from S. America).
8. **A. JAMAICENSIS** Cockerell.  
*Aleurodicus jamaicensis* Cockerell 1902 P. Ac. N. S. Philad. LIV p. 280 Pl. XV f. (2) A-D.  
 Hab: Jamaica.
9. **A. IRIDESCENS** Cockerell.  
*Aleurodicus iridescens* Cockerell 1898 Psyche VIII p. 225.  
 Cockerell 1899 Biol. Centr. Am. p. I;  
 Quaintance 1900 Bull. U. S. Techn. Ser. 8 pp. 43 & 46.  
 Hab: Mexico, Ocean Beach on "Jicaco".
10. **A. MINIMA** Quaintance.  
*Aleurodicus minima* Quaintance op. c. pp. 43 & 47 Pl. VI fs. 63-7.  
*A. minimus* Cockerell 1902 P. Ac. Sci. Philad. p. 280.  
 Hab: Puerto Rico on *Guajava* sp.  
 ("a large number killed by a fungus").
11. **A. MIRABILIS** (Cockerell).  
*Aleurodes mirabilis* Cockerell 1898 Psyche 8 p. 225.  
*Aleurodicus do* Cockerell 1899 Biol. C. Amer. p. I.  
 Do. (May) Psyche VIII 360.  
 Quaintance 1900 Bull. U S. Techn. 8 pp. 44 & 48.  
 Hab: Mexico on *Anona* and on a "Laurel".
12. **A. ORNATUS** Cockerell.  
*Aleurodicus ornatus* Cockerell 1893 Ent. Mo. Mag. XXIX p. 105, text fig.  
 Maskell 1896 T. N. Z. I. XXVIII, p. 440.  
 Quaintance 1900 Bull. U. S. Techn. 8 pp. 44-48.  
 Cockerell 1902 P. Ac. Sci. Philad. p. 280 Pl. XV, f. (1) A, B & C.  
 Hab: Jamaica on *Capsicum*.

## 13. A. PERSEAE (Quaintance).

- Aleurodes* (*Aleurodicus*?) *perseae* Quaintance 1900 Bull. U. S. Techn. 8 pp. 16 & 32. Pl. fs. 38-40;  
*Aleurodicus do* Cockerell 1904 Bull. Florida Agr. Sta. 67 p. 663.  
*Aleurodes do* Bemis 1903 P. U. S. Mus. XXVII p. 486.  
 Hab: Florida on *Persea carolinensis*.

## 14. A. PULVINATA (Maskell).

- Aleurodes pulvinata* Maskell 1896 T. N. Z. I. XXVIII p. 439; Pl. XXXIV pt. I.  
*Aleurodicus do* Cockerell Psyche VIII p. 226.  
*A. (Aleurodes) do* Quaintance 1900 Bull. U. S. Techn. 8 pp. 43 & 48.  
*A. pulvinatus* Cockerell 1902 P. Ac. Sci. Philad. p. 280.  
 Hab: Trinidad (on *Jatropha*?).

## Gen. 2. ALEYRODES Latreille.

(Greek "aleuron" = "meal" or "flour").

- Aleurodes* Latreille 1896 Précis caract. Ins. p. 93.  
 Cockerell 1902 Proc. Ac. N. S. Philad. LIV p. 280.  
 Do. 1903 Bull. Florida Agr. Sta. 67 p. 662.  
 Bemis 1904 P. U. S. Nat. Mus. XXVII p. 479.  
*Aleurode* Latreille 1825 Fanb. Entom. II p. 82.  
 Amyot & Serville 1843 Hist. Nat. Hémipt. p. 614.  
 Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien XVII p. 793.  
 Signoret 1868 Ann. Soc. Ent. France (4) VIII p. 369.  
 Douglas 1878 Ent. Mo. Mag. XIV p. 230.  
 Maskell 1896 Trans. N. Z. I. XXVIII p. 411.  
 Quaintanc 1900 Bull. U. S. Div. Ent. Techn. Ser. 8, p. 11.  
 Subg. I **Asterochiton** Maskell 1879 T. N. Z. I. XI p. 214.  
 Cockerell 1902 Proc. Ac. Nat. Sci. Philad. LIV p. 282.
2. **Dialeurodes** Cockerell op. cit. p. 283.
  3. **Trialeurodes** Cockerell op. cit.
  4. **Tetraleurodes** Cockerell op. cit.

TYPES: *Aleurodes: chelidonii* Latr. = *proletella* (Linné).

*Asterochiton*: *lecanioides* Maskell (not *aurea* as Cockerell cites).

*Dialeurodes*: *citri* (Riley & Howard) Cockerell.

*Trialeurodes*: *pergandei* (Quaintance) Cockerell.

*Tetraleurodes*: *perileuca* (Cockerell) Cockerell.

1. **ABNORMIS** (Quaintance).

*Aleurodes abnormis* Quaintance 1900 Bull. U. S. Techn. 8 pp. 13 & 17 Pl. I fs. 1-3.

*Aleyrodes do* Cockerell 1902 Pr. Ac. Phil. p. 282.

Bemis 1904 P. U. S. Nat. Mus. XXVII p. 481.

Hab: Florida on leaves of *Ilex quercifolia* (*opaca*), *Magnolia glauca*, *Persea carolinensis*, *Quercus aquatica*, *carolinensis*, *catesbaei* & *virginiana* (*virens*).

2. **ABUTILONEA** (Haldeman).

*Aleurodes abutilonea* Hald. 1850 J. Am. Sci. Arts (2) IX p. 108.

Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien XVII p. 795.

Signoret 1868 Ann. S. Ent. France (4) VIII p. 397.

Maskell 1890 T. N. Z. I. XXII p. 172.

Quaintance 1900 Bull. U. S. Techn. 8 pp. 15 & 18.

*Aleyrodes do* Cockerell 1902 Pr. Ac. Phil. p. 282.

*A. abutiloneus* Bemis 1904 P. U. S. N. Mus. XXVII pp. 481 & 532.

Hab: Florida and Pennsylvania on *Abutilon avicennae* (*Sida abutilon*).

3. **ACACIAE** (Quaintance).

*Aleurodes acaciae* Quaintance 1900 Bull. U. S. Techn. 8 pp. 12 & 19, Pl. I fs. 4-7 & VII f. 68.

*Aleyrodes acaciae* Cockerell 1902 Pr. Ac. Sci. Phil. 282.

Bemis 1904 P. U. S. N. Mus. XXVII pp. 479 & 530 Pl. 27 f. 6.

Hab: Mexico & California baja on *Acacia*, *Bensera microphylla* and *Rhamnus californica*.

4. **ACERUM** Kirkaldy n. n.

*Chermis aceris ovatus* Geoffroy 1762 Hist. Abrég. Ins. Paris I p. 509.

*C. aceris* Geoffr. in Fourcroy 1785 Ent. Paris p. 210 (nec L).

*Aleurodes aceris* Baerensprung 1849, D'Alton & Burmeister  
Zeit. f. Zool. I p. 176.

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Bouché 1851 Stett. Ent. Zeit. XII p. 108.

Frauenfeld 1867 Verh. Ges. Wien XVII p.  
795 \*

Signoret 1868 A. S. E. F. (4) VIII p. 394 Pl.  
10 f. I.; Kaltenbach Pflanzenfeinde p. 92.

Douglas 1888 Ent. Mo. Mag. XXIV p. 108.

*Lecanium aceris* Walker 1852 List. Hom. Brit. Mus. p.  
107 (in part).

*Aleyrodes aceris* Cockerell 1902 P. Ac. Nat. Sci. Phil.  
LIV p. 280.

Hab. England, France, Germany, Austria, Hungary, etc., on  
*Acer campestre* and *platanoides*.

Unnamed parasites bred out by Frauenfeld.

#### 5. ACTEAE Britton.

*Aleyrodes acteae* Britton 1905 Ent. News. XVI pp. 64-7  
Pl. IV.

Hab: Connecticut on *Actaea*.

#### 6. AEPIM (Goeldi).

*Aleurodes aepim* Goeldi 1886 Mt. Schweiz. Ent. Gen. VII  
p. 250, ffs.; Quaintance 1900 Bull, U. S. Techn. 8  
pp. 14 & 20, p. 250;

*A. aepim* Ihering 1897 Rev. Mus. Paul. II 393.

*Aleyrodes aepim* Cockerell 1902 P. Ac. Sci. Phil. LIV p.  
281; Bemis 1904 P. U. S. N. M. XXVII pp. 182 &  
494.

Hab: Brazil, Rio de Janeiro, on *Manihot palmata*.

#### 7. ALCOCKI (Peal).

*Aleurodes alcocki* Peal 1903 J. Asiat. Soc. Bengal 74,  
Pl. II fs. 1-9.

Hab: India, Calcutta & Behar, on *Ficus indica* & *religiosa*.

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\* Frauenfeld figures a pupa which he considers possibly not that of this species.

8. **AMNICOLA** Bemis.

*Aleyrodes amnicola* Bemis 1904 P. U. S. N. M. XXVII  
pp. 484 & 514 Pl. XXVII f. 4-4a.

Hab: California on *Salix laevigata*.

9. **ASPARAGI** (Lewis.)

*Aleyrodes asparagi* Lewis 1894 Rep. Ealing Soc. p. I  
(not described) & 1895 J. Quekett Micr. Club (2) VI  
pp. 28, Pl. II & III.

*Aleyrodes asparagi* Kirkaldy 1906 Bull. Comm. Agr.  
Hawaii Ent. 2 p.

Hab: Natal on *Asparagus officinalis*.

10. **ASPLENII** (Maskell).

*Aleyrodes asplenii* Maskell 1890 T. N. Z. I. XXII p. 173  
Pl. XIII f. 18-20; 1896 op. c. XXVIII p. 423.

Hab: New Zealand on *Asplenium lucidum* and other ferns.

11. **AVELLANAE** (Signoret).

*Aleyrodes avellanae* Signoret 1868 Ann. Soc. Ent. France  
(4) VIII p. 385; Douglas 1893 Ent. Mo. Mag. XXX  
p. 154.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 280.

Hab: France, on *Corylus avellana*.

12. **AURANTII** (Maskell).

*Aleyrodes eugeniae* var. *aurantii* Maskell 1896 T. N. Z. I.  
XXVII p. 431, Pl. 29 f. 2.; Peal 1903 J. Asiat. Soc.  
Bengal 91.

*Aleyrodes aurantii* Cockerell Bull. Florida Exp. Sta.  
p. 665.

*A. (Dialeurodes) do.* Cockerell 1902 P. Ac. Sci. Phil. 283.

Hab: India, N. W. Himalayas, on *Citrus aurantium*.

13. **AUREOCINCTA** (Cockerell).

*Aleyrodes aureocincta* Cockerell 1897 J. N. Y. Ent. V  
p. 42; Quaintance 1900 Bull. U. S. Techn. Ser. 8,  
pp. 15 & 21.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 282.  
*A. aureocinctus* Bemis 1904 P. U. S. N. M. XXVII pp.  
 484 & 496.

Hab: New Mexico on *Aquilegia*.  
 Severely parasitized by *Pterothrix flavimedia* Howard.

14. **AUREUS** (Maskell).

*Asterochiton aureus* Maskell 1879 T. N. Z. I. XI p. 216,  
 Pl. VII, f. 17d.

*Aleurodes melicyti* Maskell 1890 op. c. XXII p. 174  
 & 1896, XXVII p. 436.

*Aleyrodes aurea* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
 Hab: New Zealand on *Melicytus ramiflorus*.

15. **BAMBUSAE** (Peal).

*Aleurodes bambusae* Peal 1903 Journ. Asiat. Soc. Bengal  
 85 Pl. IV figs. 1-9.

Hab: India, Calcutta on *Bambusa*.

16. **BANKSIAE** (Maskell).

*Aleurodes banksiae* Maskell 1896 T. N. Z. I. XXVIII  
 p. 423 Pl. 25 pt. I.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 281.

Hab: Victoria, Australia, on *Banksia integrifolia* & *Callistemon linearis*.

17. **BARODENSIS** (Maskell).

*Aleurodes barodensis* Maskell 1896 T. N. Z. II. XXVIII  
 p. 424, Pl. 25 Pt. 2; Ind. Mus. Notes III No. 5 p. 53;  
 Peal 1903 J. Asiat. Soc. Bengal 92.

*Aleyrodes barodensis* Cockerell 1902 P. Ac. Sci. Phil. 281.  
 Hab: India, Baroda on *Saccharum officinarum*.

18. **BENGALENSIS** (Peal).\*

*Aleurodes bengalensis* Peal 1903 J. Asiat. Soc. Bengal 70  
 Pl. 2 figs. 10-16.

19. **BERBERICOLA** (Cockerell).

*Aleurodes berbericola* Cockerell 1896 New York Ent. Soc.  
 p. 207. Quaintance 1900 Bull. Techn. U. S. Div.  
 Ent. 8 pp. 16 and 21.

\* Habitat and foodplant not stated. The former presumably Bengal.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282, Pl. XV f. 8. Bemis 1904 P. U. S. N. M. XXVI pp. 485-6.

Hab: New Mexico, on *Berberis*.

20. **BERGII** (Signoret).

*Aleyrodes bergii* Signoret 1868 Ann. Soc. Ent. France (4) VIII p. 395; Maskell 1890 T. N. Z. I. XXII p. 172.

*A. bergi* Zehntner 1896 Arch. Java Suikerindustrie 14 p. 939, Pl. XX fs. 1-16. Koningsberger 1898 Med'slands plantentuin XXII p. 4.

*A. berghii* Krüger 1896 Das Zuckerrohr und seine Kultur p. 315.

*A. berghi* Kruger op. c. Pl. V f. 1-16.

*Aleyrodes bergii* Cockerell 1902 P. Ac. Sci. Phil. p. 281. Muir 1906 Bull. H. S. P. A. Ent. 2 p. 5.

Hab: Mauritius; Java; Fiji Isles, Levuka (Koebele) and Rewa (Muir.), on *Saccharum officinarum*.

Preyed on by *Coccinella repanda* (Col.) & *Prospalta tristis*; Zehntner (p.947, Pl. XX. figs. 17-21 (Hymen); (see also Kruger p. 315)—destroyed by a fungus (Muir).

21. **BRASSICAE** Walker.

*Aleyrodes brassicae* Walker 1852 List. Hom. Brit. Mus. p. 1092; Trail Dict. Gardening I p. 229.

*Aleyrodes do.* Koch (1857) Pflanzenläuse p. 326 Pl. 54, f. 39. Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien XVII p. 795, Pl. I, f. I Tozzetti 1867 Mem. Soc. Ital. p. 24; Signoret 1868 A. S. E. France (4) VIII p. 380; Douglas 1895 Ent. Mo. Mag. XXXI pp. 68 & 97; Sharp 1901 Cambr. Nat. Hist. VI p. 592.

Hab: England, France, Germany, Austria and Hungary on *Brassica oleracea*.

22. **CALOPHYLLI** Kotinsky.

*Aleyrodes calophyllae* Kotinsky 1907 Bull. 2, Div. Ent. Brd. Agr. & For. Hawaii. p. . . .

Hab: Fiji Isles on *Calophyllum inophyllum*.

23. **CAPREAE** (Signoret).

*Aleyrodes capreae* Signoret 1868 A. S. E. France (4) VIII p. 384.



*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 280.

Hab: France on *Salix caprea*.

24. **CARPINI (Koch).**

*Aleyrodes carpini* Koch (1857) Pflanzenläuse p. 327, 54 f. 395; Frauenfeld 1867 Verh. Zool. Bot. Ges. Wein XVII p. 795; Signoret 1868 A. S. E. France (4) VIII p. 382; Kaltenbach (1874?) Pflanzenfeinde p. 643. Douglas 1895 Ent. Mo. Mag. XXXI p. 117.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 281.

Hab: England, France, Germany, Austria on *Carpinus betulus*.

25. **CERATA (Maskell).**

*Aleyrodes cerata* Maskell 1896 T. N. Z. I. XXVIII, p. 425 Pl. 26, pt. I.

*Aleyrodes do* Cockerell P. Ac. Sci. Phil. p. 281.

Hab: New Zealand, on *Fagus menziesii*.

26. **CITRI (Riley & Howard).**

*Aleyrodes citri* (Ashmead) 1885 Florida Dispatch N. S. XI.? (Not valid publication). Riley & Howard 1893 Ins. Life V, p. 219, textfs. 23-4. Riley 1893 Rep. Sec. Agr. U. S. Div. Ent. for 1892, p. 203, Pl. 3; Webber 1895 Florida Disp. (repr. July 1895 in Hawaiian Planters' Mo. XIV p. 326) and 1897 Bull. U. S. Div. Veg. Phys. 13 p. 20 (also 189?) J. Mycol VII 363 & 1894 P. Florida State Hort. Soc. 74-8. Marlatt 1900 Yb. U. S. Dep. Agr. for 1899 p. 283; C. W. Woodworth 1901 Can. Ent. XXXIII p. 173; Gossard 1902 Bull. U. S. Div. Ent. 31 p. 68; Hempel 1904 Bol. Agr. São Paulo 5 p. 11.

*A. citrifolii* Foster, Riley & Howard 1892 Ins. Life IV p. 274. Riley & Howard 1894 Ins. Life VII p. 279 & 282; J. B. Smith 1896 Econ. Ent. p. 122 fig. 91.

*Aleyrodes citri* Lugger 1900 Rep. Minn. Agr. Exp. Sta. VI p. 207, textfs. 166 & 166a; Marlatt 1901 Yb. U. S. Dep. Agr. for 1900, p. 283, f. 31-2. Howard 1901 Ins. Book p. 247 f. 140-1. Gossard 1903 Bull. Florida Agr. Sta. p. 595. Pls. 1-5. Cockerell op. c.

p. 662 Pls. VI fs. 6-7; d'Utra 1900 Bol. Agr. São Paulo 2 p. 356; Bemis 1904 P. U. S. N. M. Sellards 1906 Rep. Florida Agr. Sta. for 1905, 26.

*A. (Dialeurodes) citri* Cockerell 1902, P. Ac. Sci. Phil. p. 283.

Hab: North Carolina, District of Columbia, Louisiana, California, Texas, Florida, Georgia, Mexico, Brazil, (Chili?) & greenhouses generally; on *Citrus* spp.; *Gardenia jasminoides* (florida); *Melia azedarach*, *Quercus aquatica*, *Viburnum nudum*;

(Preyed on by *Chrysopa* (Neur.), a mite and an ant; also by the fungi *Ascheronia aleyrodis* Webber, and *Sphaerostilbe coccophila* Tulasne).

27. COCKERELLI (Ihering)

*Aleurodes cockerelli* Ihering 1897 Rev. Mus. Paulista, II, p. 393, textfs. Quaintance 1900 Bull. U. S. Ent. Techn. Ser. 8 pp. 13 & 22; Hempel 1901 Ann. Mag. N. H. VIII p. 387.

*Aleyrodes* do. Cockerell 1902 P. Ac. Sci. Phil. p. 281; Bemis 1904 P. U. S. N. M. XXVII pp. 480 & 496.

Hab: Brazil on *Baccharis paucifloscula*.

28. COMATA (Maskell).

*Aleurodes comata* Maskell 1896 T. N. Z. I. XXVIII p. 426, Pl. 26 f. 2.

*Aleyrodes* do. Cockerell 1902 P. Ac. Sci. Phil. 281.

Hab: Fiji Isles on an unknown grass.

29. COMPLANATUM (Baerensprung).

*Lecanium complanatum* Baerensprung 1849 d'Alton & Burm. Zeit. fuer Zool. I, p. 169; ? Signoret 1865 A. S. E. France.

*Aleyrodes complanatum* Mrs. Fernald 1903 Bull. Massachusetts Agr. Sta. 88, p. 330.

Hab: Germany, on *Acer platanoides*.

30. CORNI (Haldeman).

*Aleurodes corni* Haldeman 1850 Amer. J. Sci. Arts. (2) IX p. 109; Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien XVII, p. 796; Signoret 1868 A. S. E. France (4) VIII p. 398; Quaintance 1900 Bull. U. S. Ent. Techn. 8 pp. 13 & 22.

*Aleyrodes corni* Cockerell 1902 P. Ac. Sci. Phil. p. 282 ;  
 Bemis 1904 P. U. S. N. M. XXVII pp. 480 & 496.  
 Hab : Pennsylvania on *Cornus amomum (sericea)*; *Amitus aleu-*  
*rodinis* Hald. and parasitized by *Eretmocerus corni* Hald.  
 (Haldeman wrongly supposed the latter might be a parasite on *amitus*.)

31. **CORONATA** (Quaintance).

*Aleyrodes coronata* Quaintance 1900 Bull. U. S. Ent.  
 Techn. 8 pp. 16 & 22, Pl. I fs. 13-5 & VII f. 69.  
*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282.  
*A. coronatus* Bemis 1904 P. U. S. N. M. p. 485 & 497,  
 XXVIII f. 9.  
 Hab : California, on *Arbutus menziesii* Photinia, (*Heteromeles*)  
*arbutifolia*, *Quercus agrifolia*, *chrysolepis* and *densifolia*.

32. **COTESII** (Maskell).

*Aleyrodes cotesii* Maskell 1896 T. N. Z. I. XXVIII p. 427,  
 Pl. XXVII pt. I. Peal 1903 J. Asiat. Soc. Bengal  
 93.  
*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
 Hab : Baluchistan, Quetta, on *Rosa* sp.

33. **CROCEATA** (Maskell).

*Aleyrodes croceata* Maskell 1896 T. N. Z. I. XXVIII p.  
 428, XXVII pt. 2.  
*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
 Hab : New South Wales, on *Styphelia elliptica*.

34. **DECIPIENS** (Maskell).

*Aleyrodes decipiens* Maskell 1896 T. N. Z. I. p. 428 Pl.  
 XXVIII pt. I.  
*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
 Hab : New South Wales, on *Monotoga (Styphelia) elliptica*.

35. **DIASEMUS** Bemis.

*Aleyrodes diasemus* Bemis 1904 P. U. S. N. M. XXVII  
 pp. 482 & 516.  
 Hab : California, on *Ribes glutinosum* and *Symphoricarpos race-*  
*mosus*.

36. **DORSEYI**, Kirkaldy. n. n.  
*Aleyrodes quaintancei* Bemis 1904 P. U. S. N. M. XXVII  
 p. 480 & 520; Pl. XXXVII figs. 70-3 (nec Peal).  
 Hab: California on *Rhamnus crocea*.
37. **DUBIA** (Heeger).  
*Aleyrodes dubia* Heeger 1859 Sb. Kais. Ak. Wien XXXIV  
 p. 226, Pl. 15 fs. 1-8. Frauenfeld 1867 Veh. Zool.  
 Bot. Ges. Wien XVII p. 796.(a) Kaltenbach Pflanz-  
 enfeinde p. 433.  
 Hab: Austria, Germany, on *Fraxinus excelsior*.
38. **ERIGERONTIS** (Maskell).  
*Aleyrodes erigerontis* Maskell 1896 T. N. Z. I. p. 429, Pl.  
 XXVIII pt. 2. Cockerell 1896 Ent. News VII p.  
 247; Quaintance 1900 Techn. Bull. 8 pp. 13 & 24;  
 Cockerell 1899 Biol. Centr. Amer. Rhynch. Hom. II  
 pt. 2, p. I.  
*Aleyrodes (Trialeurodes) do.* Cockerell 1902 P. Ac. Sci.  
 Phil. p. 282 & 283.  
*Aleyrodes do.* Bemis 1904 P. U. S. M. p. 481 & 498.  
 Hab: Mexico, on *Erigeron*.
39. **ERRANS** Bemis  
*Aleyrodes errans* Bemis op. c. pp. 481 & 500 Pl. XXX,  
 fs. 20-1.  
 Hab: California on *Arbutus menziesii* & *Umbellularis californica*.
40. **EUGENIAE** (Maskell).  
*Aleyrodes eugeniae* Maskell 1896 T. N. Z. I. XXVII p.  
 430, Pl. XXIX pt. I & Ind. Mus. Notes IV p. 52;  
 Peal 1903 J. Asiat. Soc. Bengal 90.  
*Aleyrodes (Dialeurodes) do.* Cockerell 1902 P. Ac. Sci.  
 Phil. pp. 281 & 283.  
 Hab: India, Poona, on *Eugenia jambolana*.

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(a) Frauenfeld says this is the same as *phillyreae* Haliday.

## 41. EUPHORBIAE Loew.

*Aleyrodes euphorbiae* F. Loew 1867 Verh. Zool. Bot. Ges.  
Wien XVII p. 746; Frauenfeld op. c. 796.

Hab: Austria, on *Euphorbia peplus* (? introduced).

## 42. EXTRANIENS Bemis.

*Aleyrodes extraniens* Bemis 1904 P. U. S. N. M. XXVII  
pp. 482 & 526, Pl. XXXVI fs. 65-7.

Hab: California (Common pest, introduced in conservatories) on  
*Acrostichum capense*, etc.

## 43. FAGI (Maskell).

*Aleyrodes fagi* Maskell 1890 T. N. Z. I. XXII p. 175 Pl.  
13 fs. 25-6 & 1896 op. c. XXVIII p. 432.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

New Zealand on *Fagus menziesii*.

## 44. FERNALDI Morrill.

*Aleyrodes fernaldi* Morrill 1903 Psyche X p. 83, textf;  
Britton 1906 Ent. News XVI p. 129.

Hab: Massachusetts and Connecticut, on *Spiraea*; parasitized  
by *Encarsia (luteola)*, How?).

## 45. FIJIENSIS Kotinsky.

*Aleyrodes fijiensis* Kotinsky 1907 Bull. 2, Div. Ent. Brd.  
Agr. Hawaii, p. . . . .

Hab: Fiji Isles on a leguminous plant.

## 46. FILICIUM (Goeldi).

*Aleyrodes filicium* Goeldi 1886 Mt. Schweiz. Ent. Ges.  
VII p. 247, textfs.

Douglas 1891 Ent. Mo. Mag. XXVII p. 44;

Quaintance 1900 Bull. Techn. 8 pp. 13 & 24.

*A. filicium* Ihering 1897 Rev., Mus. Paul. II, 392.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

*A. filicium* Bemis 1904 P. U. S. N. M. XXVII pp.  
482 & 499.

Hab: Brazil, Rio Janeiro (also introduced into England, Kew  
Gardens) on *Asplenium cuneatum*, *Oleandra articulata* and  
*Pteris quadriaurita* and *quadriolata*.

## 47. FITCHI (Quaintance).

*Aspidiotus gossypii* (part) Signoret 1868 A. S. E. France  
(4) VIII p. 855.

*Aleyrodes gossypii* (part) Ashmead 1895 Ins. Life VII  
p. 323.

*Aleyrodes do.* (part) Marlatt 1899 Ent. News X p. 146.

*A. fitchi* Quaintance 1900 Bull. U. S. Ent. Techn. 8 p.  
14 & 24, Pl. II, fs. 16 & 19 & VII f. 71.

*Aleyrodes (Trialeurodes) do.* Cockerell 1902 P. Ac. Sci.  
Phil. p. 283.

*A. do.* Bemis P. U. S. M. p. 483.

Hab: Missouri, Mississippi, Alabama & District of Columbia, on  
*Gossypium "officinale."*

Preyed on by "*Thrips tritasciatus*" Ashmead (1894 Ins. Life VII p. 27)

## 48. FLOCCOSA (Maskell).

*Aleyrodes floccosa* Maskell 1896 T. N. Z. I. XXVIII p.  
432, Pl. XXX pt. I.

Quaintance 1900 Bull. Techn. 8 pp. 14 & 26.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

*A. floccosus* Bemis 1904 P. U. S. M. XXVII pp.  
483 & 500.

(? *A. goyabae*) (sec. Cockerell 1902 Mem. Rev. Soc.  
Cient. Antonio Alzate p. 206.)

Hab: Mexico on *Citrus*; Jamaica on *Guaiacum officinale*.

N. B. Possibly an *Aleurodicus* (Cockerell.)

## 49. FLORIDENSIS (Quaintance)

*Aleyrodes floridensis* Quaintance 1900 Bull. U. S. Ent.  
Techn. Ser. 8 pp. 14 & 26, Pl. II fs. 20-2.

*Aleyrodes do.* Gossard 1903 Bull. Florida Agr. Sta. p. 656  
Pl. I, fs. 8-10. Bemis 1904 P. U. S. Mus. p. 483.

Hab: Florida, on *Persea gratissima* and *Psidium guajava*.

## 50. FODIENS (Maskell).

*Aleyrodes fodiens* Maskell 1896 T. N. Z. I. XXVIII, p. 433  
Pl. XXX, pt. 2.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 281.

Hab: New Zealand, on *Drimys axillaris*.

## 51. FORBESII (Ashmead).

*Aleyrodes aceris* Forbes 1884, 14th Rep. Illinois State Ent. p. 110; (nec Baerensprung).

Packard 1890 U. S. Ent. Comm. 5th Rep. p. 422.

*A. forbesii* Ashmead 1893 Bull. U. S. Mus. 45 p. 294  
Quaintance 1900 Bull. U. S. Ent. Techn. 8 pp. 15 & 27.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 282; Morrill 1903 Psyche X, 82; Bemis 1904 P. U. S. Mus. pp. 484 & 503; Britton 1906 Ent. News XVI p. 127.

Hab: New York, Columbia, Massachusetts, Connecticut, Illinois, on *Acer saccharinum* & *rubrum* (*dasycarpus*). Parasitized by *Amitus aleurodinus* Haldeman (Hym).

## 52. FRAGARIAE Walker.

*Aleyrodes fragariae* Walker 1852 List. Hom. p. 1092.  
Cockerell 1902 P. Ac. Sci. Phil. p. 280.

*Aleurodes fragariae* Signoret 1868 A. S. E. F. (4) VIII p. 383; Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien XVII p. 796, Pl. X f. 4. Douglas 1879 Ent. Mo. Mag. XVI p. 43.

Hab: England, France, on *Fragaria*.

## 53. FRAXINI (Signoret)

*Aleurodes fraxini* Signoret 1868 A. S. E. F. p. 386.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. LIV p. 280.

Hab: France, on *Fraxinus excelsior*.

## 54. FUMIPENNIS (Hempel)

*Aleurodes fumipennis* Hempel 1899 Psyche VIII p. 394;  
Quaintance 1900 Bull. U. S. Techn. 8 pp. 12 & 27.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281;  
Bemis 1904 P. U. S. Mus. pp. 479 & 503.

Hab: Brazil, on a grass in swampy ground; accompanied by an Ant., - *Camponotus* sp.

## 55. GELATINOSUS (Cockerell)

*Aleurodes gelatinosus* Cockerell 1898 Can. Ent. XXX p. 264;  
Quaintance 1900 Bull. U. S. Techn. 8 pp. 12 & 27.

Peal 1903 J. Asiat. Soc. Bengal 77.

*Aleyrodes gelatinosa* Cockerell 1902 P. Ac. Sci. Phil. p. 282; Pl. XV fs. 5 & 9.

*A. gelatinosus* Bemis 1904 P. U. S. Mus. pp. 480 & 503.

Hab: California, Mexico on *Quercus agrifolia* (& *arizonica* ?)

56. GIFFARDI Kotinsky.

*Aleyrodes giffardi* Kotinsky 1907 Bull. 2 Div. Ent. Brd. Agr. & For. p. . . . .

Hab: Hawaiian Isles on *Citrus*.

57. GLACIALIS Bemis.

*Aleyrodes glacialis* Bemis 1904 P. U. S. Mus. XXVII pp. 486 & 518, Pl. XXXI fs. 31-3.

Hab: California on *Ceanothus integerrimus* (*californicus*) *Clematis ligusticifolia*, *Opulaster capitatus*, *Rhamnus californica*, *Rubus ursinus* (*vitifolius*) *Quercus densiflora*, *Symphoricarpos racemosus*.

58. GOSSYPHII (Fitch).

*Aspidiotus gossypii* Fitch 1857 Tr. N. York Agr. Soc. XVII 332.

*Diaspis* do. Signoret 1870 A. S. E. France (4) X p. 109.  
(?) *Chionaspis* (? *Diaspis*) do. Cockerell 1895 Ent. News VI p. 157.

*Aleurodes* do. Ashmead 1895 Ins. Life VII p. 323 (part)  
Marlatt 1899 Ent. News X p. 146;

*Aleyrodes gossypii* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: China, Ningpo on *Gossypium herbaceum* (*religiosum*).

59. GOYABAE (Goeldi).

*Aleurodes goyabae* Goeldi 1886 Mt. Schweiz Ent. Ges. VII p. 248, textfs. Quaintance 1900 Bull. U. S. Techn. 8 pp. 14 & 27.

*A. goiabae* Ihering 1897 Rev. Mus. Paul. IV 393.

*Aleyrodes goyabae* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
Bemis 1904 P. U. S. Mus. XXVII pp. 484 & 505.

Hab: Brazil, Rio de Janeiro, on *Laurus persea* (= ? *Persea gratissima*) & *Psidium guaiaba*.

(N. B. = ? *floccosa*).



## 60. GRAMINICOLA (Quaintance).

- Aleurodes graminicola* Quaintance 1899 Can. Ent. XXXI p. 89 fs. 19-21; and 1900 Bull. U. S. T. Techn. 8 pp. 15 & 28.  
*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282.  
 Bemis 1004 P. U. S. Mus. XXVII pp. 484 & 505.  
 Hab: Florida on an undetermined grass.

## 61. HIBISCI Kotinsky.

- Aleyrodes hibisci* Kotinsky, 1907 Bull. 2, Brd. Agr. For. Hawaii, p. . . .  
 Hab: Hawaiian Isles on *Hibiscus rosasinensis* & *Paritium tiliaceum*.

## 62. HIRSUTA (Maskell).

- Aleurodes hirsuta* Maskell 1896 T. N. Z. I. XXVIII p. 431, Pl. XXXI Pt. I.  
*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 281.  
 Hab: New South Wales, on *Acacia longifolia*.

## 63. HORRIDUS (Hempel).

- Aleurodes horridus* Hempel 1899 Psyche VIII p. 394 ;  
 Quaintance 1900 Bull. U. S. Techn. 8 p. 14 ; Hempel  
 1904 Bol. Agr. S. Paulo 5 p. 15 ;  
*Aleyrodes horrida* Cockerell 1902 P. Ac. Sci. Phil. p. 282.  
*A. horridus* Bemis 1904 P. U. S. Mus. XXVII pp. 482 & 505.  
 Hab: Brazil, on *Psidium* (accompanied by an ant, *Cremastogaster* sp.) preyed on by  
 (1) *Eretmocerus paulistus* Hempel 1904 Bol. Agr. S. Paulo 5 p. 15 f. 2, (Chalcid).  
 (2) *Prospalta brasiliensis* Hempel op. c. p. 20 ff.  
 (3) *Signiphora townsendi* Ashmead P. U. S. N. XXII p. 412 ;  
 (4) *Cenero townsendi* Hempel, supra.  
 (5) Fungi (same as on *A. citri* ?).

## 64. JELINEKII (Frauenfeld).

- Aleurodes jelinekii* Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien XVII p. 799 ; Signoret 1868 A. S. E. F. (4) VIII p. 393 Pl. 9 f. 2.  
*Aleyrodes do.* Cockerell 1902, P. Ac. Sci. Phil. p. 281.  
 Hab: France, Austria, on *Viburnum tinus* and *Arbutus unedo*.

65. **IMMACULATA** (Heeger).

*Aleurodes immaculata* Heeger 1856 Sb. Ak. Wien. XVIII  
p. 33, Pl. I fs. 1-12.

Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien. XVII  
p. 796 ;

Signoret 1868 A. S. E. France (4) VIII p. 390 ;  
Kaltenbach Pflanzenfeinde 293.

Douglas 1884 Ent. Mo. Mag. XX p. 215 ;

D. Sharp 1901 Cambr. Nat. Hist. VI tf. 287.

*Aleyrodes immaculata* Cockerell 1902 P. Ac. Sci. Phil. p.  
281.

Hab: England, Italy, Austria, Hungary, Germany, on *Hedera helix*. Preyed on by *Scymnus arcuatus*.

(Rossi) (Col.) sec. Rondani 1874 Bull. S. Ent. Ital. VI p. 54.

66. **INCONSPICUA** (Quaintance).

*Aleurodes inconspicua* Quaintance 1900 Bull. U. S. Techn.  
8 pp. 16 & 28 Pl. II fs. 23-5.

*Aleyrodes do* Cockerell 1902 P. Ac. Sci. Phil. p. 282.

*A. inconspicua* Bemis 1904 P. U. S. Mus. XVII p.  
485 & 505, Pl. 32 fs. 34-37a.

Hab: California on *Arbutus menziesii*, *Clematis ligusticifolia*,  
*Hibiscus esculentus*, *Ipomoea batatas*; *Photinia* (*Heteromeles*)  
*arbutifolia*, *Physalis*, *Quercus agrifolia* & *densiflora*,  
*Rhamnus californica* & *crocea*, *Umbellularia californica*.

67. **INTERROGATIONIS** Bemis.

*Aleyrodes interrogationis* Bemis 1904 P. U. S. Mus.  
XXVII pp. 481 & 510. Pl. XXVIII fs. 10-2.

Hab: California, on *Ceanothus californicus*.

68. **IRIDESCENS** Bemis.

*Aleyrodes iridescens* Bemis 1904 P. U. S. Mus. XXVII  
485 & 487. Pl. XXVII fs. 1-2a.

Kellogg 1905 Amer. Ins. fig. 264.

Hab: California, on *Arctostaphylos manzanita*, *Photinia*  
(*Heteromeles*) *arbutifolia*, *Rhamnus californica* and *crocea*  
& *Umbellularia californica*.

69. **KELLOGGI** Bemis.

*Aleyrodes kelloggi* Bemis 1904 P. U. S. Mus. XXVII pp. 486 & 499, XXIX p. 13-16.

Hab: California on *Prunus ilicifolia* & *Quercus agrifolia*.

70. **KIRKALDYI** Kotinsky.

*Aleyrodes kirkaldyi* Kotinsky 1907 Bull. 2, Brd. Agr. & For. Hawaii p. . . . .

Hab: Hawaiian Isles, on *Beaumontia grandiflora*, *Morinda citrifolia* & Catalonian jessamine.

71. **LACERDAE** (Signoret).

*Aleurodes lacerdae* Signoret 1883 Bull. S. Ent. France (6) III p. LXXII.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
Kirkaldy 1907, this Cat. p.

Hab; Brazil, on *Rollinia (Anona) sylvatica*.

72. **LACTEA** (Zehntner).

*Aleurodes lactea* Zehntner 1899 Arch. Java Suikerindustrie VII p. 459 Pl. II, fs. 20-7. Krüger 1896 Zuckerrohr p. 317; Koningsberger 1898 Med'sland plant p. 4.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 281.

Hab: Java on *Saccharum officinarum*.

Parasitized by ? *Encarsia* sp. (Zehntner, supra. p. 462 Pl. II, fs. 18-19).

73. **LAURI** (Signoret).

*Aleurodes lauri* Signoret 1881 Bull. S. E. F. (6) P. 1 CLVIII.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
Kirkaldy 1907 this Cat. p.

Hab: Greece, on *Laurus nobilis*.

74. **LEAKII** (Peal).

*Aleurodes leakii* Peal 1903 J. Asiat. Soc. Bengal 87, Pl. V., figs. 4-5.

*Aleurodes leakii* Kotinsky, 1907 Bull. 2, Div. Ent. Brd. Agr. For. Haw. p. . . . .

Hab: India, Behar & Fiji Isles, on *Indigofera arrecta* & *tinctoria*.

## 75. LECANIOIDES (Maskell).

*Asterochiton lecanioides* (pt.) Maskell 1879 T. N. Z. I. XI  
p. 215, Pl. VII, f. 17a-c.

*Aleurodes papillifer* Maskell 1890 op. c. XXII p. 173  
& 1896, op. c. XXVIII p. 438.

*Aleyrodes lecanioides* Cockerell 1902 P. Ac. Sci. Phil. 281.  
Hab: New Zealand, on *Geniostoma ligustrifolium*, *Pittosporum eugenioides* & *Polypodium billardieri*.

## 76. LIMBATA (Maskell).

*Aleurodes limbata* Maskell 1896 T. N. Z. I. XXVIII  
p. 437, Pl. XXXII pt. I.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: New South Wales, on *Acacia longifolia* & *Leucopogon juniperinus*.

## 77. LONGICORNIS (Zehntner).

*Aleurodes longicornis* Zehntner 1897 Arch. Java Suikerind  
V 381; 1899, op. c. VII p. 445 Pl. I. Koningsberger  
1898 Med'slands plant XXII, p. 4.

*A. longicornes* Krüger 1896 Das Zuckerrohr p. 315.

*Aleyrodes longicornis* Cockerell 1902 P. Ac. Sci. Phil. p.  
281.

Hab: Java, on *Saccharum officinarum*.

(Parasitized by *Ablerus pulchriceps*, *Labolips* sp.? & *Aschersonia aleyrodii* (?))

## 78. LONICERAE Walker.

*Aleyrodes lonicerae* Walker 1852 List. Hom. p. 1092.

*Aleurodes do.* (? Koch 1857 Pflanzenläuse p. 327 Pl. 54 f.  
396). Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien  
XVII p. 796; Signoret 1868 A. S. E. F. (4) VIII  
p. 381; Karsch 1888 Ent. Nachr. XIV p. 31. Douglas  
1896 Ent. Mo. Mag. XXXII p. 31.

Hab: England, France, Germany, Austria, on *Campanula tracheloides*, *Impatiens nolitangere*, *Lonicera periclymenum*  
& *Salvia glutinosa*.

## 79. MADRONI Bemis.

*Aleyrodes madroni* Bemis 1904 P. U. S. M. XXVII  
pp. 479 & 507, Pl. XVIII fs. 7-8.

Hab: California, on *Arbutus menziesii*.

## 80. MARLATTI (Quaintance).

*Aleurodes marlatti* Quaintance 1903 Can. Ent. XXXV  
p. 61.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282.

Hab: Japan, on *Citrus aurantium*.

## 81. MASKELLI Bemis.

*Aleyrodes maskelli* Bemis 1904 P. U. S. M. XXVII pp.  
482 & 524, Pl. XXXVII f. 74.

Hab: California, on *Quercus densiflora*.

## 82. MELANOPS Cockerell.

*Aleurodes melanops* Cockerell (1902 P. Ac. N. Sci. 282. not  
descr.) 1903 Bull. Florida Agr. Sta. p. 665, Pl. VI  
f. 5; Bemis 1904 P. U. S. Mus. pp. 480 & 534.

*A. (Tetraleurodes) do.* Cockerell 1902 P. Ac. N. Sci. p.  
283; not descr.

(var. of *perileuca*?)

Hab: California, on *Quercus*.

## 83. MERLINI Bemis.

*Aleyrodes merlini* Bemis 1904 P. U. S. Mus. pp. 482 & 512  
Pl. XXIX fs. 17-19.

Kellogg 1905 Amer. Ins. f. 265-7.

Hab: California, on *Arbutus menziesii*.

## 84. MORI (Quaintance).

*Aleurodes mori* Quaintance 1899 Can. Ent. XXXI p. 1. fs.  
2-8 & 1900 Bull. U. S. Techn. 8. pp. 13 & 29.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282  
& 1902 Mem. Rev. Soc. Cient. Antonio Alzate. pp.  
205 & 208, tfs.

Bemis 1904 P. U. S. Mus. pp. 480 & 507, Pl.  
32 f. 39.

Britton 1906 Ent. News, XVII p. 128.

*Aleurodes mori* var. Cockerell 1900 Sci. Gossip p. 366.

*Aleyrodes mori* var. *arizonensis*, Cockerell 1902 P. Ac. Sci. Phil. 282 & Mem. Rev. Soc. Cient. Antonio Alzate p. 205, textfs. on p. 208; & Bull. Florida Agr. Sta. 67 p. 665;  
Bemis 1904 P. U. S. Mus. pp. 480 & 534, Pl. 32, fs. 38-38.a

*Aleurodes mori* var. *maculata* Morill 1903 Psyche X p. 81.  
Hab; California, Arizona, Florida, on *Callicarpa americana*, *Carpinus americana* (*caroliniana*) *Celtis occidentalis*, *Fraxinus americana*, *Ilex quercifolia* (*opaca*) *Liquidambar styraciflua*, *Persea carolinensis* (*borbonia*) and *Tilia americana*; var. *arizonensis* in Mexico, California and Arizona, on *Citrus aurantium*; var. *maculata* on *Cornus florida* & *sanguineus*, also on *Betula*, *Fraxinus* and *Morus*.

85. NEPHROLEPIDIS (Quaintance).

*Aleurodes nephrolepidis* Quaintance 1900 Bull. Techn. 8 pp. 16 & 29, Pl. III fs. 26-30.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282;  
Bemis 1904 P. U. S. Mus. XXVII pp. 485 & 535.

Hab: Pennsylvania, on *Nephrolepis* (in conservatories.)

86. NICOTIANAE (Maskell).

*Aleurodes nicotianae* Maskell 1896 T. N. Z. I. XXVIII p. 436 Pl. XXXII pt. 2, & Ent. News VII p. 247;  
Quaintance 1900 Bull. U. S. Techn. 8 pp. 13-31.

Cockerell 1900 Biol. Centr. Am. Hom. II pt. 2 p. I.

*Aleyrodes do.* Cockerell 1902. P. Ac. Sci. Phil. p. 282;  
Bemis 1904 P. U. S. Mus. pp. 481 & 508.

(=?) *Aleurodes tabaci* Gennadios (sec Cockerell 1902 Mem. Rev. Soc. Cient. Antonio Alzate p. 205).

Hab: Mexico, Guanajuato, on *Nicotiana tabacum*.

87. NIGER (Maskell).

*Aleurodes niger* Maskell 1896 T. N. Z. I. XXVIII p. 437, Pl. XXXIII p. I.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab; Victoria, Australia, on *Acacia pycnantha*.

## 88. NIGRANS Bemis.

*Aleyrodes nigrans* Bemis 1904 P. U. S. Mus. XXVII pp. 485-522, Pl. XXVII f. 3.

Hab; California, on *Arbutus menziesii*, *Arctostaphylos manzanita*, *Ceanothus integerrimus* (californicus) *Clematis ligusticifolia*, *Eriodictyon crassifolium* (californicum), *Photinia* (*Heteromeles*) *arbutifolia*, *Lonicera involucrata*, *Prunus icicifolia*, *Quercus densiflora*, *Rhamnus californica*, *Symphoricarpos racemosus*, *Umbellularia californica*.

## 89. NUBILANS (Buckton).

*Aleurodes nubilans* Buckton 1900 Ind. Mus. Notes V p. 36  
Pl. V, f. 7-9. Peal 1903 J. Asiat. Soc. Bengal 95.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: India, Backergunge, on *Areca catechu*.

## 90. PACKARDI Morrill.

*Aleurodes vaporarium* Packard 1871 Am. Nat. IV p. 685  
& 1883 Guide Study Ins. Ed. 8 p. 712 & 1889 op. c.  
Ed. 9 pp. 526 & 712, Pl. XIV;

Garman 1890 Ann. Rep. Kentucky Agr. Sta. p. 37 &  
1891 Agr. Sci. V. p. 264.

*Aleurodes vaporariorum* Riley Ins. Life II p. 17; Riley  
& Howard Ins. Life IV p. 345; Webster 1895 Rep.  
Ohio Agr. Sta. 2 (bis) p. 22; Britton Rep. Conn.  
Agr. Sta. p. 311.

*Aleyrodes vaporiorum* Britton 1902 Bull. Conn. Agr. Sta.  
140 pp. 3, 10, 14, 17; & 1902 Bull. Conn. Agr. Sta.  
pp. 238, 271, & 1903 Rep. for 1902, pp. 3, 148-63.  
Pls. VIII-XI & f. 6-10.

*Aleyrodes vaporarium* G. C. Davis 1894 Ins. Life VII p. 174.

*Aleurodes sp.* Forbes 1883 13th Rep. Ins. Illinois pp. 93 &  
I (of addendum); Webster 1894 Rep. Ohio Agr. Sta.  
p. 35; C. M. Weed & Conradi 1903 Bull. New Hamp-  
shire Sta. 100 p. 47.

*Aleyrodes sp.* Riley 1892 Ins. Life V p. 17; Slingerland  
1901 Bull. Cornell Exp. Sta. 190 p. 154.

*A. vaporariorum* Britton 1896 19th Rep. Conn. Sta. p. 203.

*A. packardi* Morrill 1903 Can. Ent. XXXV p. 25, Pl. 2;  
Psyche X p. 83 & Bull. Massachusetts Exp. Sta.

Techn. I p. 53 Pl. VI fs. 32-3; Britton 1906 Ent. News XVII p. 129.

Generally distributed throughout the Eastern States of North America, on *Fragaria*, *Fraxinus*, *Spiraea* & *Ulmus scabra* var. *pendula*.

91. **PARVUS** (Hempel).

*Aleurodes parvus* Hempel 1899 Psyche VIII p. 395;  
Quaintance 1900 Bull. U. S. Techn. 8 p. 14.

*Aleyrodes parva* Cockerell 1902 P. Ac. Sci. Phil. p. 282.

*A. parvus* Bemis 1904 P. U. S. Mus. 482 & 508.

Hab: Brazil, on *Maytenus*.

92. **PERGANDEI** (Quaintance).

*Aleurodes pergandei* Quaintance 1900 Bull. U. S. Techn. 8 pp. 14 & 31 Pl. III fs. 34-7 & VII f. 72; H. O. Woodworth 1901 Ent. News XII p. 51.

*Aleyrodes (Trialeurodes) do.* Cockerell 1902 P. Ac. Sci. Phil. p. 283.

*A. do.* Bemis 1904 P. U. S. Mus. p. 483.

Hab: Columbia, Illinois & Georgia, on *Bignonia radicans*, *Crataegus mollis* & *oxyacanthae*; *Chionanthus virginica*, *Hydrangea*, *Prunus nana* & *persica* (& cultivated plums), *Pyrus coronaria*, *Rubus villosus*, *Viburnum opulus*, *Xanthoxylum americanum* & *Tecoma*

93. **PERILEUCA** Cockerell.

*Aleurodes (Tetraaleurodes) perileuca* Cockerell (1902 P. Ac. Sci. Phil. p. 282 not described but cited as type of subgenus) and 1903 Bull. Florida Agr. Sta. 67 p. 664 Pl. VI, fs. 2-4.

*A. perileucus* Bemis 1904 P. U. S. Mus. XXVII pp. 480 & 516.

(=? *A. stanfordi* Bemis op. c. pp. 381 & 508).

Hab: California, Texas, on *Quercus* (upper side of leaves solitary).

94. **PHALAENOIDES** (Blanchard).

*Aleurodes phalaenoides* Blanchard 1852 in Gay's Chile VII, p. 319, Pl. 3 f. 16; Signoret 1868 A. S. E. France (4) VIII p. 399; Maskell 1890 T. N. Z. I. XXII p. 172,



*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
Bemis 1904 P. U. S. Mus. pp. 482 & 512. Kirkaldy  
1907, this Cat. p.

Hab: Chile on *Cestrum parqui*.

95. PHILLYREAE Haliday.

*Aleyrodes phillyreae* Haliday 1834 Ent. Mag. II p. 119.  
W. Thompson 1848 P. Ent. S. Lond. V. p. XLVIII.  
Walker 1852 List. Hom. Brit. Mus. p. 1093.

*Aleurodes phyllyceae* Bouché 1851 Stett. Ent. Zeit. XII  
p. 108.

*A. phyllyceae* Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien.  
XVII p. 796.

*A. phillyrea* Signoret 1868 A. S. E. F. (4) VIII p. 388  
Pl. X f. 5; Maskell 1896 T. N. Z. I. XXVIII pp. 434  
& 438.

*A. phyllireae* Tozzetti 1867 Mem. Soc. Ital. Sci. Nat. III  
No. 3. p. 24, Pls. I, f. 18-20-22 & II fs. 7 & 16 & V  
fs. 3-8.

*A. phillyreae* Frauenfeld 1867 Verh. Zool. Bot. Ges.  
Wien. XVII p. 796; Douglas 1879 Ent. Mo. Mag.  
XVI p. 44.

*Aleyrodes phillyrea* Cockerell 1902 P. Ac. Sci. Phil. p. 281.  
(= ? *A. dubia* (vide))

Hab: England, Ireland, France, Germany, Austria, Hungary,  
Italy, on *Crataegus*, *Fraxinus excelsior*, *Mespilus*, *Phillyrea*  
*latifolia* & *media*, *Pyrus*, *Rhamnus alaternus*.

Parasites: *Agromyza ornata* (Dipt); *Coccophagus* sp. (Hym.) Predator:  
*Scymnus* sp.

96. PIPERIS (Maskell).

*Aleurodes piperis* Maskell 1896 T. N. Z. I. XXVIII p.  
438, Pl. XXXIII pt. 2; Quaintance 1903 Can. Ent.  
XXXV p. 64. Peal 1903 J. Asiat. Soc. Bengal p. 94.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: Ceylon, on *Piper* (? *nigrum*).

97. PLUMOSA (Quaintance).

*Aleurodes plumosa* Quaintance 1900 Bull. U. S. Techn.  
8 pp. 14 & 33-5, Pl. 3 fs. 31-3.

*Aleyrodes plumosa* Cockerell 1902 P. Ac. Sci. Phil. p. 282.  
*A. plumosus* Bemis 1904 P. U. S. Mus. p. 483.  
 Hab: Florida, on *Ilex quercifolia (opaca)* *Magnolia grandiflora*,  
*Persea carolinensis* & *Viburnum nudum*.

98. **PRENANTHIS** (Schrank) (a)

*Coccus prenanthis* Schrank 1801 Fauna Boica II p. 147.  
*Aleurodes do.* Signoret 1868 op. cit., 399.  
*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. 281.  
 Hab: Germany, on *Sonchus oleraceus*.

99. **PROLET'ELLA** (Linne).

Cestone 1733 in Vallisnieri Opere I p. 372, Pl. 379 (vide Bibliography).  
 Reaumur 1736 Mem. II p. 302 Pl. 25, fs. 1-17.  
 "La Phalène culiciforme de l'éclair", Geoffroy 1762, Hist. abrég. Ins. Paris II p. 172.  
 Latreille 1795 Millin's Enc. Mag. II p. 304;  
*Phalaena (Tinea) proletella* Linneus 1758 Syst. Nat. Ed. X p. 537 & 1767 Ed. XII Tom. I pt. 2, 889;  
 Stewart Elem. N. H. Ins. II p. 199;  
 Sulzer 1776 Abg. Gesch. Ins. p. 163 Pl. 23, figs. 17-18.  
 Gmelin 1789 Syst. Nat. Ed. XIII vol I pt. 5, p. 2594.  
 Roemer 1789 Gen. Ins. I pl. 23 f. 18;  
 Goeze 1783 Ent. Beytr. Ins. III 4 p. 98.  
*Phaloena (sic) culiciformis* Geoffroy 1785 in Fourcroy, Ent. Paris p. 306.  
*Phalaena proletella (sic)* Fuessly, 1775 Schweiz. Ins. 42.  
 Leach 1815 Edin. Enc. IX p. 126;  
 Kirby & Spence III p. 80; Lep. Serv. 1825 Enc. Meth. X p. 249;  
 Lamarck 1840 H. N. Anim. sans Vertèbres Ed. 2, vol. III p. 120.  
 Latreille 1829 Règne Anim. Ed. IV, p. 188 Pl. 69 f. 16;  
 Westwood 1838-41 Intr. Mod. Class II p. 443 & 1856 Gard. Chron. p. 852;

(a) Mrs. Fernald (Bull. 88 Massach. Exp. Stat. p. 330 (1903) cites "*Coccus praenanthes* Boidv" (sic) as an *Aleyrodes*).

- Blanchard 1840 Hemiptères p. 211; Hartig 1841  
 Germar's Zeitschr. Ent. III, 371, Pl. I, f. 30-1.  
 Boyer 1841 A. S. E. France X 198.
- Aleurodes do.* Burmeister 1835 Handb. Ent. II p. 83 Pl. I  
 f. I & II;  
 Koch 1857 Pflanzenl. p. 324 Pl. 54 f. 393;  
 Van der Hoeven 1856 Handb. Zool. (Engl. tr.) II  
 p. 432;  
 Kuenckel, in Brehm's Merveilles de la Nature, Ins.  
 (II) p. 530 fs. 1675-6.
- "*Aleurodes*" Amyot 1846 A. S. E. F. (2) V p. 454.
- Aleyrodes proleptella* Ruricola, 1846 Gard. Chron. VII p.  
 836, tfs.
- Aleyrodes do.* Baerensprung 1849 Dalton & Burm. Zeit.  
 fuer Zool. I p. 176;  
 Frauenfeld 1867 Verh. Zool. Bot. Ges. Wien XVII  
 p. 796;  
 Signoret 1868 A. S. E. F. (4) VIII p. 378 Pl. X f. 3.  
 Walker 1852 List. Hom. p. 1092;  
 Heeger 1856 Sb. Ak. Wien XVIII p. 35;  
 Douglas 1878 Ent. Mo. Mag. XIV p. 230; 1888 op.  
 c. XXIV p. 265; 1894 op. c. XXX p. 40 & 1895 op. c.  
 XXXI p. 68; Ormerod 1886 Rep. Ins. IX p. 10.
- Hab: England, France, Germany, Austria, Switzerland, Hungary,  
 etc. on *Brassica oleracea*, *Chelidonium maius*, *Quercus*  
*robur*, etc.
- Preyed on by *Scymnus* sp. (Reaumur) & parasitized by *Alaptus minimus* Walker  
 & *Macroneura maculipes* Walker (Hym.) see Rondani 1874 Bull. S. Ent. Ital.  
 VI p. 54.

#### 100. PRUINOSUS Bemis.

- Aleyrodes pruinosus* Bemis 1904 P. U. S. Mus. XXVII pp.  
 484 & 491, Pls. XXXIII-IV.  
*A. pruinosus* Kellogg 1905 Amer. Ins. f. 262.  
 Hab: California, on *Photinia (Heteromeles) arbutifolia*.

#### 101. PYROLAE Gillette.

- Aleurodes pyrolae* Gillette 1895 Bull. Agr. Sta. Colorado  
 Techn. I p. 125, textfig.  
 Bemis P. U. S. Mus. pp. 485 & 514.

*Aleyrodes do.* Quaintance 1900 Bull. U. S. Techn. 8 pp. 16 & 35.

Hab: Colorado, on *Pyrola rotundifolia*.

102. QUERCUS (Signoret).

*Aleyrodes quercus* Signoret 1868 A. S. E. F. (4) VIII p. 384 Pl. X f. 5.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: England, France, on *Quercus pedunculata*.

103. QUERCUSAQUATICA (Quaintance).

*Aleyrodes quercusaquatica* Quaintance 1900 Bull. U. S. Techn. 8 pp. 12 & 35. Pl. IV, fs. 41-4.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282.

Bemis 1904 P. U. S. Mus. p. 480.

Hab: Florida, on *Quercus aquatica*.

103a. QUAINANCEI Bemis see A. DORSEYI.

104. QUAINANCEI Peal.

*Aleyrodes quainancei* Peal 1903 J. As. Soc. Bengal, 78, Pl. V. figs. 10-14.

Hab: India, Calcutta, on *Ficus religiosa*.

105. RELIGIOSA Peal.

*Aleyrodes religiosa* Peal 1903 J. Asiat. Soc. Bengal 67, Pl. V figs. 6-9.

Hab: India, Calcutta, on *Ficus religiosa*, etc.

106. RIBIUM (Douglas).

*Aleyrodes ribium* Douglas 1888 Ent. Mo. Mag. XXIV p. 264 textf & 1889 op. c. XXV p. 256.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281. (?=*A. vaccinii* sec. Douglas).

Hab: England, on *Ribes nigrum* & *rubrum*.

107. ROLFSII (Quaintance)

*Aleyrodes rolfsii* Quaintance Can. Ent. XXXI p. 90 textf. 22-4; & 1900 Bull. U. S. Techn. 8 pp. 15 & 36.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282.

Bemis 1904 P. U. S. Mus. pp. 484 & 515.

Hab: Florida, on cultivated Geraniums.

108. RUBI (Signoret)

*Aleyrodes rubi* Signoret 1868 A. S. E. France (4) VIII p. 382 Pl. 9 f. 4;

Douglas 1895 Ent. Mo. Mag. XXXI p. 33.

Cockerell 1902 P. Ac. Sci. Phil. 281.

Hab: France, on *Rubus fruticosus*.

109 RUBICOLA (Douglas).

*Aleyrodes rubicola* Douglas 1891 Ent. Mo. Mag. XXVII pp. 200 & textfs; & 1894 op. c. XXX p. 87.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: England, on *Rubus*.

110 RUBORUM (Cockerell)

*Aleyrodes ruborum* Cockerell 1897 J.N.Y. Ent.Soc. V p.96; Quaintance 1898 Rep. Florida Agr. Sta. p. 66; & 1900 Bull. U. S. Techn. Ser. 8 pp. 15 & 36.

*Aleyrodes (Trialeurodes) do.* Cockerell 1902 P. Ac. Sci. Phil. p. 283.

*A. do.* Bemis 1904 P. U. S. Mus. pp. 485 & 516.

Hab: Florida, on cultivated *Rubus cuneifolius*.

111. SACCHARI (Maskell).

*Aleyrodes sacchari* Maskell 1890 T. N. Z. I. XXII p. 171, Pl. XIII p. 1-10, & 1896, op. c. XXVIII p. 441.

Hab: Viti Isles, on *Saccharum officinarum*; also rarely on stems of grass.

112. SIMPLEX (Maskell).

*Asterochiton lecanioides* (part) Maskell 1879 op. c. XI p. 215.

*Aleyrodes simplex* Maskell 1890 op. c. XXII p. 175 Pl. XIII f. 27 & 1896 op. c. XXVIII p. 441.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: New Zealand, on *Coprosma lucida* & *Pittosporum eugeinioides*.

113. **SIMULA** Peal.

*Aleyrodes simula* Peal 1903 J. Asiat. Soc. Bengal 81 Pl.  
III figs. 1--14.

Hab: India, Calcutta, on *Bombax malabaricum*.

114. **SONCHI** Kotinsky.

*Aleyrodes sonchi* Kotinsky 1907, Bull. Ent. 2, Brd. Agr.  
For. Hawaii, p. , Pl. 1, fig. 4.

Hab: Hawaiian Islands, on *Sonchus oleraceus*.

115. **SPINIFERA** (Quaintance).

*Aleyrodes spinifera* Quaintance 1903 Can. Ent. XXXV p.  
63.

Hab: Java, on *Citrus* & *Rosa*.

116. **SPIRAEAE** (Douglas.)

*Aleyrodes spiraeae* Douglas 1894 Ent. Mo. Mag. XXX pp.  
73 figs. 1--2 & 154.

Hab: England, on *Spiraea ulmaria* (& *Sambucus nigra*.)

117. **SPIRAEOIDES** (Quaintance.)

*Aleyrodes spiraeoides* Quaintance 1900 Bull. U. S. Techn.  
8 pp. 17 & 36, Pl. IV fs. 45--9 & VIII f. 74.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282;

Bemis 1904 P. U. S. Mus. XXVII pp. 486 & 530 Pl.  
35 fs. 56--60.

Hab: California, omnivorous, but found especially on *Aesculus californica*, *Convolvulus occidentalis* & *sepium*. *Fuchsia*, *Iris*, *Lonicera involucrata*, *Malva rotundifolia*, *Nicotiana glauca*, *Opulaster capitatus*, *Plantago maior*, *Rosa laevigata*, *Solanum nigrum (douglasii)* *Sonchus oleraceus*, also cultivated *Dahlia* & *Troximum*.

118. **SPLENDENS** Bemis.

*Aleyrodes splendens* Bemis 1904 op. c. pp. 479 & 489, Pls.  
XXXVI f. 68 & XXXVII f. 69.

Hab: California, on *Rhamnus californica*.

## 119. STANFORDI Bemis.

*Aleyrodes stanfordi* Bemis op. c. pp. 481 & 508 Pl. XXX  
fs. 22--5.

Hab: California, on *Quercus agrifolia* and *densifolia*.

(N. B. Prof. Cockerell writes me that this is probably the same as *A. perileuca* Cockerell.)

## 120. STELLATA (Maskell.)

*Aleyrodes stellata* Maskell 1896 T. N. Z. I. XXVIII p.  
442, Pl. XXXIV pt. 2.

*Aleyrodes do.* Cockerell 1902 A. Ac. Sci. Phil. p. 282;

*H. stellatus* Bemis 1904 P. U. S. Mus. pp. 479 & 516.

Hab: Jamaica, on *Guaiacum officinale*.

## 121. STRUTHANTHI (Hempel)

*Aleyrodes struthanthi* Hempel 1901 Am. Mag. N. H. (7)  
VIII p. 387.

*Aleyrodes struthanthi* Cockerell 1902 P. Ac. Sci. Phil.  
p. 282.

*Aleyrodes struthani* (!) in Zool. Rec. for 1901 Ins. p. 291.

Hab: Brazil, on *Citrus*, *Michelia flava* & *Loranthus (Struthanthus) flexicaulis*.

## 122. STYPHELIAE (Maskell.)

*Aleyrodes stypheliae* Maskell 1896 T. N. Z. I. XXVIII p.  
442, Pl. XXXV pt. I.

*Aleyrodes do.* Cockerell 1902, P. Ac. Sci. Phil. p. 281.

Hab: New South Wales & Victoria, on *Leucopogon (Styphelia) richei*.

## 123. TABACI Gennadios.

*Aleyrodes tabaci* Gennadios 1889, Agricult. Ellenica p ?  
Tozzetti 1892 Anim. Ins. Tabacco p ?

(= ? *nicotianae* sec. Cockerell.)

( I have seen neither of these references).

## 124. TENTACULATUS Bemis.

*Aleyrodes tentaculatus* Bemis 1904 P. U. S. Mus. XXVII  
pp. 486 & 494, Pl. XXXI p. 26--30a.

Kellogg 1905 Amer. Ins. f. 263,

Hab: California, on *Clematis ligusticifolia*, *Lonicera involucrata*, *Opulaster capitatus*, *Quercus agrifolia* & *densifolia* & *Rhus toxicodendron (diversiloba)*.

125. **TINAEOIDES** (Blanchard)

*Aleurodes tinaeoides* Blanchard 1852 in Gay's Chile VII, p. 320.

Signoret 1868 A. S. E. F. (4) VIII p. 399;

*Aleurodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Kirkaldy 1907. This Cat., p. 12.

Hab: Chile, on *Cestrum parqui*.

126. **TRACHEIFER** (Quaintance).

*Aleurodes tracheifer* Quaintance 1900 Bull. U. S. Techn. 8 pp. 12 & 38, Pl. V fs. 50-2 & VIII f. 73.

*Aleurodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282;

Bemis 1904 P. U. S. Mus. XXVII p. 480.

Hab: Mexico, on "escabillo."

127. **T-SIGNATA** (Maskell).

*Aleurodes T-signata* Maskell 1896 Y. N. Z. I. XXVIII p. 443, Pl. XXXV pt. 2.

*Aleurodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: New South Wales, on *Acacia longifolia*.

128. **VACCINII** (Künow).

*Aleurodes vaccinii* Künow 1880 Ent. Nachr. VI p. 46.

Douglas 1880 Ent. Mo. Mag. XVII p. 89.

*Aleurodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 281.

Hab: Germany, on *Vaccinium uliginosum*.

(N. B. According to Douglas, probably the same as his *A. ribium* (q. v.)

129. **VAPORARIORUM** Westwood(a)

*Aleurodes vaporariorum* Westwood 1856 Gard Chron. 852, figs.;

G. C. Davis Spec. Bull. Michigan Agr. Sta. 2 p. 23, fig. II;

(a) Some unimportant citations have been omitted, on account of the uncertainty of their exact reference.



- Britton 1902 Bull. Connecticut Agr. Sta. 140 pp. 1-17,  
 Pls. I-IV & textfs. 1-5;  
 Morrill 1903 Psyche X 80, Can. Ent. XXXV, 25  
 & Techn. Bull. Massachusetts I p. 1-52, figs.  
 Bemis 1904 P. U. S. Mus. XXVII, 486;  
 Morrill 1905 Circ. U. S. Ent. 57 p. I, fig. I.  
*Aleurodes* do. Frauenfeld 1867 Verh. Zool. Bot. Ges.  
 Wien XVII 797 & 798;  
 Signoret 1868 A. S. E. France (4) VIII 387;  
 Packard 1871 Agr. Massachusetts for 1870 p?;  
 Comstock 1889 Dict. Gard. IV 52;  
 Ravenscroft 1890 Tomato Culture 77;  
 Riley & Howard 1890 Ins. Life II 339; 1892 op. c.  
 IV 345;  
 Weir 1891 Ins. Life III 394;  
 Bailey 1891 Bull. Cornell Agr. Sta. 28 p. 58;  
 Britton 1895 19 Rep. Connecticut U. S. Ent. 8 pp.  
 16 & 39;  
 "The White-fly of Greenhouses" Weed & Conradi  
 1903. Bull. N. H. Agr. Sta. 100 p. 47 fig;  
 Hab: England, France, Austria, New Jersey, Pennsylvania,  
 Connecticut, Massachusetts, Illinois, Indiana, Hawaiian  
 Islands (probably Brazil was original home) on *Abutilon*,  
*Acer*, *Ageratum mexicana*, *Antirrhinum*, *Aphelandra*,  
*Aquilegia*, *Benzoin oderiferum*, *Berberis vulgaris*, (= *thun-*  
*bergi*), *Bignonia*, *Callistemma hortensis*, *Campanula*,  
*Catalpa*, *Chrysanthemum*, *Coleus*, *Coreopsis lanceolata*,  
*Cucumis melo* & *sativus*, *Cucurbita maxima*, *Cuphea*,  
*Erigeron philadelphicus*, *Fuchsia*, *Geranium*, *Gonolobus*,  
*Grevillea robusta*, *Heliotropium* (? *peruvianum*), *Hibiscus*  
*moscheutos* & *rosasinensis*, *Hicoria*; *Ipomoea purpurea*,  
*Juglans cinerea*, *Lactuca sativa*, *Lantana camara*, *Lavendula*  
*dentata*, *Lilium superbum*, *Lonicera*, *Lycopersicum esculen-*  
*tum*, *Maurandia*, *Monarda*, *Myriophyllum proserpinacoides*,  
*Nicotiana tabacum*, *Oxalis*, *Pelargonium*, *Phlox*,  
*Platycodon*, *Phytolacca decandra*, *Prunus triflora*,  
*Rhodotypos kervoides*, *Ribes*, *Richardia africana*, *Rosa*,  
*Rudbeckia laciniata*, *Salvia splendens*, *Schinus molle*,  
*Smilax*, *Solanum tuberosum*, *Solidago canadensis*, *Tecoma*  
*radicans* & *velutina*, *Tropaeolum*, *Verbena*, *Vicia faba*,  
*Zinnia*.

## 130. VARIABILIS (Quaintance.)

*Aleurodes variabilis* Quaintance 1900 Bull. Ent. U. S. Techn. 8 pp. 16 & 39, Pl. V. fs. 53-5.

*Aleyrodes do.* Gossard 1903 Bull. Florida Agr. Sta. 67, pp. 600 & 656.

Bemis 1904 P. U. S. Mus. p. 486.

*A. (Trialeurodes) do.* Cockerell 1902 P. Ac. Sci. Phil. p. 283 Pl. XV f. 7.

Hab: Florida, on *Carica papaya*.

## 131. VINSONIOIDES (Cockerell).

*Aleurodes vinsonioides* Cockerell 1898 Psyche VIII p. 225;  
1899 Biol. Centr. Am. Hom. II pt. 2 p. I;  
Quaintance 1900 Bull. U. S. Techn. 8 p. 12.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282;

Bemis 1904 P. U. S. Mus. 480.

*A. vinsonoides* Bemis op. c. p. 520.

Hab: Mexico.

## 132. VITRINELLUS Cockerell.

*Aleyrodes (Trialeurodes) vitrinellus* Cockerell 1903 Ent. News XIV p. 241.

Hab: Mexico, on *Citrus*

## 133. VITTATA (Quaintance).

*Aleyrodes vittata* Quaintance 1900 Bull. U. S. Techn. 8 pp. 15 & 42, Pl. V, fs. 56-8.

*Aleyrodes (Trialeurodes) do.* Cockerell 1902 P. Ac. Sci. Phil. p. 283.

*A. vittatus* Bemis 1904 P. U. S. Mus. p. 483.

Hab: California, on "Chaparral."

## 134. WELLMANAE Bemis.

*Aleyrodes wellmanae* Bemis op. c. pp. 483 & 525 Pl. XXVII fs. 5 & 5a, XXXB. f. 61.

Hab: California, on *Rhamnus californica*.

## 135. XYLOSTEI (Westhoff.)

*Aleurodes xylostei* Westhoff 1887, 15th Jb. Zool. Westfal. Verein für 1886 p. 61.

*Aleyrodes do.* Cockerell 1892 P. Ac. Sci. Phil. p. 281.

Kirkaldy 1907, Bull. Ent. 2, Brd. Agr. For. Hawaii. p.

Hab: Germany, Westphalia, on *Lonicera xylosteum*.

(N. B. Possibly the same as *lonicera* Walker (q. v.) See Karsch 1888 Ent. Nachr. XIV p. 31).

136. **YOUNGI (Hempel).**

*Aleurodes youngi* Hempel 1901 Ann. Mag. N. H. (7)

VIII p. 385.

*Aleyrodes do.* Cockerell 1902 P. Ac. Sci. Phil. p. 282;

Bemis 1904 P. U. S. Mus. .XXVII pp. 485 & 534.

Hab: Brazil, S. Paulo, on *Brassica oleracea*.

DESCRIBED AS ALEYRODIDAE, BUT BELONGING  
TO CHERMIDAE.

**SPONDYLIASPIS** Signoret 1879 Bull. S. E. France (5)  
IX p. LXXXV.

=Spondylaspis Scudder 1882 Bull. U. S. Mus. 19 p. 299.

Species *bancrofti*, *cereus* & *spinosulus* Signoret p. LXXXVI.

Hab: Queensland, on *Eucalyptus*.

**POWELLIA VITREORADIATA** Maskell 1879 T. N.  
Z. XI, p. 223.

(Described originally as a Coccid) & *P. doryphora* Maskell 1880 op. c. XII p. 301 (placed with *P. vitreoradiata* as an Aleyrodid) are really Chermidae.

MANUSCRIPT SPECIES.

*A. bifasciata*, *dubia*, *gigantea* & *pinicola*; (the first is said to be *A. abutlonea*. and the last three to be Neuroptera of the genus *Coniopteryx*).

LIST OF SPECIES IN SYNONYM OR REFERRED TO  
OTHER GENERA.

- |                           |     |                      |
|---------------------------|-----|----------------------|
| 1. <i>Aceris</i> Geoffroy | see | <b>Acerum</b>        |
| 2. <i>Aceris</i> Forbes   |     | <b>Forbesii</b>      |
| 3. <i>Allissima</i>       |     | <i>Aleurodicus</i> . |

4. <i>Asarumis</i>	<i>Aleurodicus.</i>
5. <i>Cocois</i>	do.
6. <i>Citrifolii</i>	<b>Citri</b>
7. <i>Dugesii</i>	<i>Aleurodicus.</i>
8. <i>Gossypii</i> (pt.)	<b>Fitchi.</b>
9. <i>Holmesii</i>	<i>Aleurodicus.</i>
10. <i>Melicyti</i>	<b>Aureus.</b>
11. <i>Mirabilis</i>	<i>Aleurodicus.</i>
12. <i>Papillifer</i>	<b>Lecanioides.</b>
13. <i>Perseae</i>	<i>Aleurodicus.</i>
14. <i>Phillyceae</i> .	<b>Pyillyreae.</b>
15. <i>Pulvinata</i>	<i>Aleurodicus.</i>

## PART V.

## GEOGRAPHICAL DISTRIBUTION.

It is apparent, from the structure and from the geographical distribution of the Aleyrodidae, that they arose in the Neotropical region where they formed the genus *Aleurodicus*, which, except through human agency, has remained there ever since, sending off a shoot, *Aleyrodes*, which has established itself over the greater part of the world. One *Aleurodicus*, viz: *holmesii*, is found only in Fiji, but, as Cockerell observes, is there on a plant introduced from the Neotropical and is certainly not indigenous. The homes of *Aleyrodes barodensis*, *bergii*, *lactea*, *longicornis* and *sacchari* are unknown, but are most of them probably in the Malay Archipelago. *A. vaporariorum*, known only in greenhouses in the north temperate and out of doors in Hawaii, is probably from the Neotropical, while *A. citri*, destructive in North America, will probably be found native in China. *A. asparagi* from Natal is probably introduced from the palaeartic, and *A. tabaci* from North America into Greece. *A. filicium* has been introduced into European greenhouses on ferns from Brazil. Mr. Kotinsky has recorded *A. leakii* Peal from Fiji, where it is probably an introduced species.

## AUSTRALASIAN REGION.

*New South Wales:* *Aleyrodes croceata*, *decipiens*, *hirsuta*, *limbata*, *stypeliae*, T-signata.

*Victoria:* *Aleyrodes banksiae*, *niger*, *stypeliae*.

*Fiji Isles:* *Aleyrodes comata*, (*Aleyrodes bergii*, *leakii*, & *sacchari* and *Aleyrodicus holmesii* introduced); *calophylli*, *fijiensis*.

*New Zealand:* *Aleyrodes asplenii*, *aureus*, *cerata*, *fagi*, *fodiens*, *lecanioides*, *simplex*.

## AETHIOPIAN REGION.

*Mauritius:* (*Aleyrodes bergii*, ? introduced).

*Natal:* (*Aleyrodes asparagi*, ? introduced).

## ORIENTAL REGION.

*Java:* (*Aleyrodes bergii*, *lactea*, *longicornis*, *spinifera* ? introduced).

- Bengal:* *Aleyrodes* alcocki, bambusae, bengalensis, leakii, nubilans, quaintancei, religiosa, simula.  
*Bombay:* *Aleyrodes* barodensis, eugeniae.  
*Ceylon:* *Aleyrodes* piperis.

#### PALAEARCTIC REGION.

- North China:* (*Aleyrodes citri* ?).  
*China, Tche Kiang:* *Aleyrodes gossypii*.  
*Japan:* *Aleyrodes marlatti*.  
*North West Himlayas:* *Aleyrodes aurantii*.  
*Baluchistan:* *Aleyrodes cotesii*.  
*Greece:* *Aleyrodes lauri*, (tabaci, ? *introduced*).  
*Austria-Hungary:* *Aleyrodes acerum*, brassicae, carpini, dubia, euphorbiae, jelinekii, immaculata, lonicerae, phillyreae, proletella.  
*Germany:* *Aleyrodes acerum*, brassicae, carpini, conplanatum, dubia, prenanthis, proletella, vaccinii, xylostei.  
*Switzerland:* *Aleyrodes proletella*.  
*France:* *Aleyrodes acerum*, avellanae, brassicae, capreae, carpini, fragariae, fraxini, jelinekii, lonicerae, phillyreae, proletella, quercus, rubi.  
*England:* *Aleyrodes acerum*, brassicae, carpini,, fragariae, immaculata, lonicerae, phillyreae, proletella, quercus, ribium, rubicola, spiraeae, (filicium and vaporariorum *introduced*).  
*Ireland:* *Aleyrodes phillyreae*.

#### NEARCTIC REGION.

- "*Eastern States*": *Aleyrodes packardii*.  
*New York:* *Aleyrodes forbesii*.  
*District of Columbia:* *Aleyrodes citri*, fitchi, forbesii, pergandei.  
*Pennsylvania:* *Aleyrodes abutilonea*, corni, nephrolepidis.  
*Massachusetts:* *Aleyrodes fernaldi*, forbesii.  
*North Carolina:* *Aleyrodes citri*.  
*Georgia:* *Aleyrodes citri*, pergandei.  
*Florida:* *Aleyrodes abnormis*, abutilonea, citri, floridensis, graminicola, mori, plumosa, quercusaquaticae,

ruborum, rolfsii, variabilis & Aleurodicus perseae.

*Louisiana*: Aleyrodes citri.

*Alabama*: Aleyrodes fitchi.

*Missouri*: Aleyrodes fitchi.

*Mississippi*: Aleyrodes fitchi.

*Illinois*: Aleyrodes forbesii, pergandei; Aleurodicus asarumis.

*Colorado*: Aleyrodes pyrolae.

*Arizona*: Aleyrodes mori.

*New Mexico*: Aleyrodes aureocincta, berbericola.

*Texas*: Aleyrodes citri, fitchim perileuca.

*California*: Aleyrodes amnicola, citri, coronata, diase-mus, dorseyi, errans, extraneus(? *introduced*), gelatinosus, glacialis, inconspicuus, interrogationis, iridescens, kellog-gi, madroni, maskelli, melanops, merlini, mori, nigrans, perileuca, pruinosus, spiraeoides, splendens, stanfordi, tentaculatus, vittata, wellmanae.

*California baja*: Aleyrodes acaciae.

*Mexico*: Aleyrodes acaciae, citri, erigerontis, floccosa, gelatinosus, mori, nicotianae, tracheifer, vinsonioides, vitrinellus; Aleurodicus altissima, dugesii, iridescens & mirabilis.

#### NEOTROPICAL REGION.

*Puerto Rico*: Aleurodicus minima.

*Jamaica*: Aleyrodes floccosa & stellata; Aleurodicus jamaicensis & ornatus.

*Barbados*: Aleurodicus cocois.

*Chile*: Aleyrodes citri (?) phalaenoides, tinaeoides.

*Brazil*: Aleyrodes citri, cockerelli, filicium, fumipennis, goyabae, horridus, parvus, struthanthi youngi; Aleurodicus anonae, cockerelli & cocois.

*British Guiana*: Aleurodicus anonae, cocois.

*Trinidad*: Aleurodicus anonae, cocois pulvinata.

*British Honduras*: Aleurodicus cocois.

*Venezuela*: Aleurodicus cocois.

#### UNATTACHED REGION.

*Hawaii*: Aleyrodes giffardi, hibisci, kirkaldyi, sonchi, vaporariorum, (all introduced).

## PART VI.

## ENEMIES.

The Aleyrodidae are extensively parasitized by Hymenoptera and devoured by Neuroptera and Coleoptera, also by Thysanoptera, Hymenoptera (ants) and Mites, as set forth below. Their destruction by fungi is apparently also extensive. In Diptera, the Anthomyiid *Coenosia solita* is recorded as preying upon these insects, and also *Agromyza ornata*, the latter surely a mistake, as it is a stem-burrower in plants. These records are almost entirely compiled and I accept no responsibility for their accuracy.

## (a) DIPTERA.

## FAMILY AGROMYZIDAE.

## AGROMYZA ORNATA.

The species of this genus have been largely recorded as vegetarian, stem-burrowers and so forth, but *A. chermivora* Kalt., and *Meoneura obscurella* (Fall.) attack Coccidae according to Rondani.

## FAMILY ANTHOMYIIDAE.

COENOSIA SOLITA Walker 1850-6, Dipt. Saund. 368.  
Attacks *Aleyrodes*, according to Chittenden 1901 Bull.  
U. S. Ent. 27 p. 112.

## COLEOPTERA.

## FAMILY COCCINELLIDAE.

1. Larvae of Coccinellidae feed on young *Aleyrodes* (Reaumur).
2. *Scymnus arcuata* (Rossi).  
*Coccinella arcuata* Rossi 1794 Mant. Ins. II 88.  
Preys on *Aleyrodes immaculata*.
3. SCYMNUS sp?  
Preys on *A. phillyreae* and *proletella*.



## 4. COCCINELLA REPANDA Thunberg.

*C. Repanda* Th. 1781 Nov. spec. Ins., I 18, fig. 25.

Preys on *A. bergii* in Java and on *A. Hibisci* in Hawaii.

## HEMIPTERA.

*Harpactor iracundus* (nymph) sucks *Aleyrodes*,  
(Swinton).

## HYMENOPTERA.

## CHALCIDOIDEA. FAMILY TRICHOGRAMMATIDAE.

## 1. CHAETOSTRICHIA PRETIOSA (Riley).

*Trichogramma pretiosa* Lintner 1885 Second Rep.

New York Ent. 220. Riley 1879 Can. Ent. XI 161; on  
*Aleyrodes* (Lintner).

## FAMILY APHELINIDAE.

## 2. ERETMO CERUS CALIFORNICUS Howard.

*E. californicus* How. 1895 Techn. Bull. U. S. Ent. I, 16  
figs. 1 & 3.

From *Aleyrodes* sp., from California, on *Quercus agrifolia*.

## 3. E. CORNI Haldeman.

*E. Corni* Hald. 1850 Amer. J. Sci. Arts (2) IX 110, fig;  
Howard 1895 1. c. fig. 2.

Howard says from *Aleyrodes corni*: Haldeman supposes  
it to be from *Amitus aleurodinus*.

Kotinsky records (see below) from *Aleyrodes hibisci* in  
Hawaii.

## 4. E. PAULISTUS Hempel.

*E paulistus* Hemp. 1904 Bol. Agr. S. Paulo 5 p. 15 fig. 2.  
On *Aleyrodes horridus*.

## 5. PTEROPTRIX FLAVIMEDIA (Howard).

*Gyrolasia flavimedia* Howard 1881 Rep. U. S. Dep. Agr.  
(for 1880) 369 Pl. 24. f. 5; Lelong 1890 Rep. S. B. Hort.  
California (1889) 285, f. 136.

- Pteroptrix* do. Howard 1895 Techn. Bull. U. S. Ent. I. 18 fig. 4. From various species of *Aleyrodes* (not determined) from California, New Mexico (and Jamaica?).
6. THYSANUS ATER Haliday.  
*T. ater* Hal. 1840 in Walker Nat. Hist. IV 234.  
 This genus attacks Aleyrodidae, according to Howard (1891).
7. ENCARSIA ANGELICA Howard.  
*E. angelica* How. 1895 Techn. Bull. U. S. Ent. I. 30.  
 From *Aleyrodes* sp. on Willow, from California.
8. E. COQUILLETTI Howard.  
*E. coquilletti* How. 1895 op. c. 29, f. 9.  
 From *Aleyrodes* on *Sonchus* from California.
9. E. LUTEOLA Howard.  
*E. luteola* How. 1. c.  
 From *Aleyrodes* (? *fernaldi*) from District of Columbia.
10. E. sp. (?) Zehntner.  
 1899 Arch. Java Suiker VII 462 Pl. II fs. 18-19.  
 From *A. lactea* from Java.
- 10a. E. sp. (?) Kotinsky.  
 Bull. 2 Div. Ent. Brd. Agr. & For., 1907, p. (see Part VIII).
11. (?) COCCOPHAGUS sp.  
 On *Aleyrodes phillyreae*.
12. PROSPALTA (?) TRISTIS Zehntner.  
*P. tristis* Zehntner 1896 Arch. Java Suiker. XIV 947 Pl. 20 figs. 17-21;  
 Krüger 1896 Das. Zuckerrohr und seine Kultur 315.  
 From *Aleyrodes bergii* from Java.
13. P. (?) BRASILIENSIS Hempel.  
*P. brasiliensis* Hemp. 1904 Bol. Agr. São. Paulo V p. 20, fig.  
 On *Aleyrodes horridus*.

## 14. ABLERUS PULCHRICEPS Zehntner.

*A. pulchriceps* Zehntn. 1899 Arch. Java Suiker. VII 454,  
Pl. II figs. 15-17.

## FAMILY EUPELMIDAE.

## 15. EUPELMUS UROZONUS Dalman.

*E. urozonus* Dalm. 1820 Svensk. Vet. Handl., XLI 378=  
*Macroneura maculipes* (Walker) Rondani 1874 Bull. S. E.  
Ital. VI 54.  
On *Aeyrodes proletella* (Rondani).

## FAMILY MYMARIDAE.

## 16. ALAPTUS MINIMUS Walker.

*A. minimus* Walk. 1846 A. M. N. H. XVIII 51.  
On *Aleyrodes proletella*.

## FAMILY PLATYGASTRIDAE.

## 17. AMITUS ALEURODINUS Haldeman.

*A. aleurodinus* Hald. 1850 Am. J. Sci. Arts (2) IX.  
*A. aleurodinus* Ashmead 1893 Bull. P. U. S. Mus. p. 293  
Pl. 12 f. 8.  
*Elaptus aleurodis* Forbes 1884 14 Rep. Ins. Illinois 110  
Pl. 11 f. 6.  
On *Aleyrodes corni*.

## FAMILY DIAPRIDAE.

## 18. LABOLIPS sp. Zehntner.

1899 Arch. Java Suiker. VII 455, Pl. 2 fs. 13-14.  
On ?

## SUPERFAMILY FORMICOIDEA.

20. CREMASTOGASTER sp. "accompanies" *Aleyrodes horridus* Hempel.21. CAMPONOTUS sp. "accompanies" *A. fumipennis* Hempel.

22. Carnivorous ant destroys eggs and nymphs of *A. citri* (Gossard).

## NEUROPTERA.

23. CHRYSOPA sp. destroys *Aleyrodes citri*.

## THYSANOPTERA.

24. "Thrips" TRIFASCIATUS Ashmead.  
*Thrips trifasciatus* Ashmead 1894 Ins. Life VII 27.  
 Is said to prey on the North American *Aleyrodes fitchi*,  
 but is indeterminable from the descriptions.

## ACARINA.

1. Mites prey on eggs and nymphs of *Aleyrodes citri* (Gossard).

## FUNGI.

1. ASCHERSONIA ALEYRODIS Webber 1897 Bull. U. S. Veget. Path. XIII 20;  
 Saccardo Syll. Fung. Carpol. XIV 991.  
 Sellards 1906 Rep. Florida Agr. Sta. for 1905 p. 26.  
 Attacks *Aleyrodes citri*.
2. SPHAEROSTILBE COCCOPHILA Tulasne.  
 Carp. III 105; Saccardo Syll. Fung. Carp. II 513;  
 S. coccophila Sellards op. c. supra 26.  
 Occurs in U. S. of America, Cuba, Ceylon, and attacks  
*Aleyrodes citri* (& *horridus* & *longicornis*? See  
 Zehntner 1899 Arch. Java Suik. VII 457).

## PART VII.

## FOODPLANTS.

This list is arranged alphabetically for convenience; the proportion known of the species of Aleyrodids is so small that their floral distribution cannot yet be usefully considered. Owing to the meagerness of information in most cases, many of the food-plants remain uncertain specifically and even generically. † = genus or species that I cannot trace

<i>Food-plant.</i>	<i>Species of Alerodid.</i>
Abutilon	vaporariorum
A. avicennae	abutilonea
Acacia longifolia	hirsuta, limbata, T-signata
A. pycnantha	niger
Acer campestre	acerum
A. dasycarpus (see saccharinum)	
A. negundo	
A. platanoides	acerum, complanatum
A. rubrum	forbesii
A. saccharinum	do.
A. sp.	vaporariorum
ACROSTICHUM capense	extraneus
ACTAEA alba	asarumis
AESCULUS californica	spiraeoides
AGERATUM mexicana	vaporariorum
ANONA muricata	anonae
A. reticulata	do.
A. squamosa	do.
A. sylvatica (see ROLLINIA)	vaporariorum
ANTIRRHINIUM	
APHELANDRA	do.
AQUILEGIA	aureocincta, vaporariorum
ARBUTUS menziesii	coronata, errans, inconspicua, madroni, merlini, nigrans.
A. unedo	jelinekii
ARCTOSTAPHYLOS manz- anita	iridescens, nigrans

A. sp.	hutchingsii
ARECA catechu	nubilans
ASARUM canadense	asarumis
ASPARAGUS officinalis	asparagi
ASPLENIUM cuneatum	asplenii, filicium
A. lucidum	filicium
BACCHARIS paucifloscula	cockerelli
BANKSIA integrifolia	banksiae
BEGONIA sp.	dugesii
BENSERA microphylla	acaciae
BENZOIN oderiferum	vaporariorum
BERBERIS sp.	berbericola
B. vulgaris (=thunbergii)	vaporariorum
BIGNONIA sp.	do.
B. radicans (see TECOMA)	
BOMBAX malabaricum	simula
BRASSICA oleracea	brassicae, proletella, youngi.
CALLICARPA americana	mori
CALLISTEMMA hortensis	vaporariorum
CALLISTEMON linearis	banksiae
CAMPANULA sp.	vaporariorum
C. trachelioides	loniceriae
CAPSICUM sp.	ornatus
CARICA papaya	variabilis
CARPINUS americana (=caro-	
liniana)	mori
C. betulus	carpini
CATALPA sp.	mori, vaporariorum
CEANOTHUS integerrimus	
(=californicus)	glacialis, interrogationis, nigrans
CELTIS occidentalis	mori
CESTRUM parqui	phalaenoides, tinaeoides
CHELIDONIUM maius	proletella
CHIONANTHUS virginica	pergandei
CHRYSANTHEMUM sp.	vaporariorum
CITRUS aurantium	{ aurantii, citri, crawii, floccosa, marlatti, mori var. arizonensis, spinifera, struthanthi, (vitrinel- lus?)

CLEMATIS ligusticifolia	{ glacialis, inconspicua, nigrans tentaculatus
COCOS nucifera	cocois
COFFEA sp.	
COLEUS sp.	vaporariorum
CONVOLVULUS occidentalis	spiraeoides
C. sepium	do.
COPROSOMA lucida	simplea
COREOPSIS lanceolata	vaporariorum
CORNUS amomum (=sericea)	corni
C. florida	mori
C. sanguinea	do.
CORYLUS avellana	phillyreae
CRATAEGUS mollis	pergandei
C. oxyacanthae	do.
CUCUMIS melo	vaporariorum
C. sativus	do.
CUCURBITA maxima	do.
CUPHEA sp.	do.
DAHLIA sp.	spiraeoides
DRIMYS axillaris	fodiens
ERIGERON philadelphicus	vaporariorum
E. sp.	erigerontis
ERIODICTYON crassifolium (=californicum)	nigrans
EUGENIA jambolana	eugeniae
EUPHORBIA peplus	euphorbiae
FAGUS menziesii	cerata, fagi
FICUS indica	alcocki
F. religiosa	alcocki, quaintancei, religiosa
F. sp.	anonae
FRAGARIA sp.	fragariae, packardi
FRAXINUS excelsior	dubia, fraxini, packardi, phil- lyreae
F. americana	mori
FUCHSIA sp.	spiraeoides, vaporariorum
GARDENIA jasminoides (=florida)	citri
GENIOSTOMA ligustrifolium	lecanioides

GERANIUM (cultivated)	rolfsii, vaporariorum
GONOLOBUS sp.	vaporariorum
GOSSYPIUM herbaceum	
(=religiosum)	gossypii
G. officinale (=sp. ?)	fitchi
GREVILLEA robusta	vaporariorum
GUAIAACUM officinale	floccosa, stellata
HEDERA helix	vaporariorum
HELIOTROPIUM peruvianum (?)	do.
<i>Heteromeles</i> see PHOTINIA	
HIBISCUS esculentus	inconspicua
H. moscheutos	vaporariorum
H. rosasinensis	dugesii, hibisci, vaporariorum
HICORIA sp.	vaporariorum
HYDRANGEA sp.	pergandei
IATROPHA sp.	pulvinata
ILEX quercifolia (=opaca)	abnormis, mori, plumosa
IMPATIENS nolitangere	loniceræ
INDIGOFERA arrecta	leakii
I. tinctoria	do.
IPOMOEA batatas	inconspicua
I. purpurea	vaporariorum
IRIS (cultivated)	spiraeoides
IUGLANS cinerea	vaporariorum
LACTUCA sativa	do.
LANTANA camara	do.
LAVENDULA dentata	do.
LAURUS nobilis	lauri
L. persea see PERSEA	
LEUCOPOGON juniperinus	limbata
L. richei	stypheliae
LILIUM superbum	vaporariorum
LIQUIDAMBAR styraciflua	mori
LONICERA involucrata	nigrans, perileuca, spiraeoides, tentaculatus
L. periclymenum	loniceræ
L. xylosteum	xylostei
L. sp.	vaporariorum
LORANTHUS flexicaulis	struthanthi



LYCOPERSICUM esculentum	vaporariorum
MAGNOLIA glauca	abnormis, plumosa
M. grandiflora	plumosa
MALVA rotundifolia	spiraeoides
MANIHOT palmata	aepim
MAURANDIA sp.	vaporariorum
MAYTENUS sp.	parvus
MELIA azedarach	citri
MELICYTUS ramiflorus	aureus
MESPILUS sp.	phillyreae
MICHELIA flava	struthanthi
MONARDA sp.	vaporariorum
MONOTOCA elliptica	croceata, decipiens
MORUS sp.	mori
MUSA sp.	cocois
MYRIOPHYLLUM proserpin-	
acoides	vaporariorum
NEPHROLEPIS sp.	nephrolepidis
NICOTIANA glauca	spiraeoides
N. tabacum	nicotianae, tabaci, vaporariorum
OLEANDRA articulata	filicium
OPULASTER capitatus	glacialis, perileucus, spiraeoi- des, tentaculatus
OXALIS sp.	vaporariorum
PELARGONIUM sp.	do.
PERSEA carolinensis (=bor-	
bornia)	abnormis, mori, persea, plumosa
P. gratissima (=Laurus per-	floridensis, goyabae, lauri
sea ?)	
PHILLYREA latifolia	phillyreae
P. Media	do.
PHLOX sp.	vaporariorum
PHOTINIA arbutifolia	coronatus, inconspicuus, irides- cens, nigrans, pruinisus
PHYSALIS sp.	inconspicua
PHYTOLACCA decandra	vaporariorum
PIPER (nigrum ?)	piperis
PITTIOSPORUM eugeinoides	lecanioides, simplex
PLANTAGO maior	spiraeoides
PLATYCODON sp.	vaporariorum

POLYPODIUM	billardieri	lecanioides
PROSOPIS	juliflora	acaciae
PRUNUS	ilicifolia	kelloggi, nigrans
P. persica		pergandei
P. triflora		vaporariorum
P. virginiana (=nana)		pergandei
PSIDIUM	cattleianum	cockerelli
P. guajava		cocois, floridensis, goyabae, minima
P. sp.		horridus
PTERIS	quadriaurita	filicium
PYROLA	rotundifolia	pyrolae
PYRUS	coronaria	pergandei
P. sp.		phillyreae
QUERCUS	aquatica	abnormis, citri, quercusaqua- ticae
Q. agrifolia		{ coronata, gelatinosus, incon- spicua, kelloggi, nigrans, splendens, stanfordi, tenta- culatus
Q. arizonica		gelatinosus
Q. carolinensis		abnormis
Q. catesbaei		do.
Q. chrysolepis		coronata
Q. crocea		dorseyi, iridescens
Q. densifolia		{ coronata, gelatinosus, glacia- lis, inconspicua, maskelli, standfordi, tentaculatus
Q. densiflora		maskelli, nigrans
Q. pedunculata		quercus
Q. robur		proletella
Q. virginiana (=virens)		abnormis
Q. sp.		melanops, perileuca
RICHARDIA	africana	vaporariorum
R. pacifica		anonae
RHAMNUS	alaternus	phillyreae
R. californica		{ acaciae, glacialis, inconspic- ua, iridescens, nigrans, splendens, wellmanae

<i>R. crocea</i>	inconspicua, quaintancei
RHODOTYPOS <i>kerrioides</i>	vaporariorum
RHUS <i>toxicodendron</i> (=diversiloba)	perileuca
RIBES <i>glutinosum</i>	diasemus
<i>R. nigrum</i>	ribium
<i>R. rubrum</i>	do.
<i>R. sp.</i>	vaporariorum
ROLLINIA <i>sylvatica</i>	lacerdae
ROSA <i>laevigata</i>	spiraeoidea
<i>R. sp.</i>	cotesii, spinifera, vaporariorum
RUBUS <i>cuneifolius</i>	ruborum
<i>R. fruticosus</i>	rubi
<i>R. villosus</i>	pergandei
<i>R. ursinus</i> (=vitifolius)	glacialis
<i>R. sp.</i>	rubicola
RUDBECKIA <i>laciniata</i>	vaporariorum
SACCHARUM <i>officinarium</i>	{ barodensis, bergii, lactea, longicornis, sacchari
SALIX <i>caprea</i>	capreae
<i>S. laevigata</i>	amnicola
SALVIA <i>glutinosa</i>	lonicerae
<i>S. splendens</i>	vaporariorum
SAMBUCUS <i>nigra</i>	spiraea
SCHINUS <i>molle</i>	vaporariorum
<i>Sida abutilon</i> see ABUTILON	avicennae
SMILAX <i>sp.</i>	vaporariorum
SOLANUM <i>nigrum</i> (=douglassii)	spiraeoides
<i>S. tuberosum</i>	vaporariorum
SOLIDAGO <i>canadensis</i>	do.
SONCHUS <i>oleraceus</i>	prenanthi, sonchi, spiraeoides
SPIRAEA <i>ulmaria</i>	spiraeae
<i>S. sp.</i>	fernaldi, packardi
<i>Struthanthus</i> see LORANTHUS	
<i>Styphelia</i> see LEUCOPOGON & MONOTOCA	
SYMPHORICARPOS <i>racemosus</i>	diasemus, glacialis, nigrans

TECOMA radicans	pergandei, vaporariorum
T. velutina	vaporariorum
TILIA americana	mori
TROPAEOLUM sp.	vaporariorum
TROXIMON sp.	spiraeoides
ULMUS scabra var. pendula	packardi
UMBELLULARIA californica	{ errans, inconspicua, irides- cens, nigra
VACCINIUM sp.	plumosa
V. uliginosum	vaccinii
VERBENA sp.	VAPORARIORUM
VIBURNUM nudum	citri, plumosa
V. opulus	pergandei
V. tinus	jelinekii
VICIA faba	vaporariorum
ZANTHOXYLUM american- um	pergandei
ZINNIA sp.	vaporariorum

I do not know the scientific names of the following plants:

CHAPARRAL	{ In Spanish = evergreen Oak }	vittata
ESCABILLO "GRASS"	tracheifer fumipennis, graminicola, sac- chari	
JICACO "MYRTACEOUS plant"	(Aleyrodicus) cockerellii	
PALO DE GUSANO	{ Spanish 'Worm- wood' }	altissima