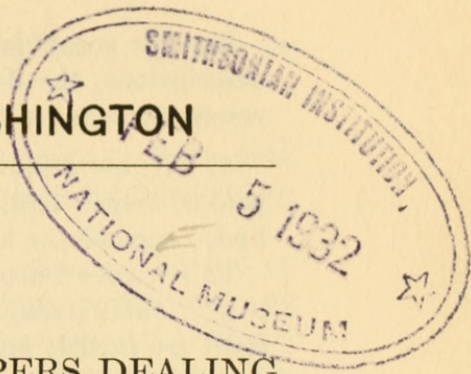


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



NOTES CONCERNING THE FIRST PAPERS DEALING
WITH THE APHID FAUNA OF AMERICA.

BY F. C. HOTTES.

In 1910 Wilson published a paper calling attention to thirty-six aphid species, described as new by C. S. Rafinesque in the early part of the 19th century, which had not until then been recognized (other than by name) in the literature pertaining to the family Aphididae in America. Two things may have attributed to the neglect of these early papers, the meagreness of some of the descriptions and the belief that certain of the names were used as trinomials. An examination of the original papers shows conclusively that all names were used as binomials and are in full accord with the International Rules of Zoological Nomenclature. An examination of the text shows that a majority of the species may be recognized from their descriptions, a fact which makes it necessary to replace certain specific names long since established in literature with such sesquipedalians as *Neothomasia populus-grandidentata* (Raf.), or to take steps to place names in conflict with those proposed by Rafinesque on the "List of Nomina Conservanda."

It is the purpose of this paper again to call attention to the species described by Rafinesque¹ and to cite a little known paper published by S. S. Haldeman in 1844,² and also to place such species and genera described by these men in synonymy where the descriptions are adequate for their recognition, a synonymy which does not always follow that suggested by Wilson for reasons which are explained in the text.

¹Rafinesque C. S., American Monthly Magazine and Critical Review, Vol. I, pp. 360-361, 1817; Vol. III, pp. 15-18, 1818.

²Haldeman S. S., Proceedings of the Boston Society of Natural History, Vol. I, pp. 168-169, 1844.

For the convenience of those who may not have access to the original descriptions, the descriptions of the species are quoted and precede the comments concerning them.

1. "*Aphis Diervilla-lutea*. Body nearly rounded, annulated, whitish rufous, length 1 line; antens very short bent, one third the length of the body, appendages long truncated two thirds the length of the body."

This species has not been recognized.

2. "*Aphis Aralia-hispida*. Body pale green or rufous, obovate $1\frac{1}{2}$ line; head truncated; antens longer than the body and straight; appendages $\frac{1}{2}$ line."

Because of the brevity of the description and of Rafinesque's failure to mention the host plant, this species will probably never be recognized.

3. "*Aphis Aquilegia-canadensis*. Body pale rufous; acute posteriorly, without appendages, 1 line; antens of same length."

The statement that the species is without cornicles excludes all species at the present time known to occur in the United States on the host given. It is very probable that the cornicles were small and therefore overlooked, or that Rafinesque was dealing with immature specimens in which case the cornicles are often minute. This hypothesis granted, *Aphis aquilegia-canadensis* is probably the species now known as *Myzus essigi* Gillette and Palmer, the only species now known on the host named whose color (although never rufous) at times approaches pink. *Myzus aquilegia-canadensis* (Raf.) has not been recognized in synonymy.

4. "*Aphis Hieracium-venosum*. Body ferruginous red, oboval about 1 line long; antens $\frac{2}{3}$ of that length, appendages very short."

This species was questionably placed by Wilson as a synonym of species No. 27, *Aphis annulipes* Raf. The phylogenetic position of the host species indicates that an aphid species belonging to the group Macrosiphea would be the most likely to inhabit it. One is tempted to place this species synonymous with *M. rudbeckiae* (Fitch) as Wilson has questionably done, but upon checking the species that inhabit the host given by Rafinesque, one finds that *M. rudbeckiae* (Fitch) is not listed, a fact that challenges one to look further for a more suitable species to associate with the species described by Rafinesque. *Macrosiphum hieracii* (Kaltenbach) is known to inhabit the host named by Rafinesque (host indicated by name given to species) and has been reported by Patch as a common aphid on Hieracium species ("Hemiptera of Connecticut"). This species may therefore be expected to occur in New York, although it has not been reported from that State to date. Theobald (1926) describes the apterous female of *Myzus hieracii* (Kalt.) as follows: "Shiny; head blackish brown; thorax and abdomen dark brown, except for green bands on thorax and apex of abdomen."

He further states that many apterae assume a dull reddish appearance.

Kaltenbach's species is a homonym of *Aphis hieracii* Schrank. Since the species described by Schrank and Kaltenbach are most likely the same, *Aphis hieracium-venosum* Raf. is a synonym of *Myzus hieracii* (Schrank), because Schrank's species has priority over the species described by Rafinesque.

5. "*Aphis Melampyrum-latifolium*. Body oboval, green with a pale

stripe along the back, 1 line long; eyes black, antens half a line; appendages very short."

This species has not been recognized.

6. "*Aphis Pteris-aquilnoides*. (*P. aquilina* Amer. Auct.) Body pale green, oboval, one line long; eyes brown, antens $\frac{1}{2}$ a line long; appendages very short."

This species was considered by Wilson to be synonymous with and to have priority over *Mastopoda pteridis* Oestlund. The writer does not consider Wilson's synonymy correct. The body of this species in the original description is stated to be pale green and oboval. This species was probably described from immature specimens to judge from statement in regard to the cornicles; thus one is justified in ignoring them in regard to length. The color of immature specimens of *M. pteridis* Oestlund is stated to be pale yellow, and Patch (1910) states that bright orange spots (which would hardly be overlooked) are found at the base of the cornicles. The writer considers *Macrosiphum ptericolens* Patch a synonym of *A. pteris-aquilnoides*.

7. "*Aphis Campanula-riparia*. (*C. rotundifolia* Amer. Auct.) Body oboval, brick red, two lines; feet and antens reddish brown, antens shorter than the body; appendages very short."

This species was unquestionably described from immature specimens. Wilson considered it synonymous with *Aphis hieracium-venosum* Raf.

8. "*Aphis Chenophyllum-canadense*. Body oboval, acute, pale green, with two paler dorsal stripes, length $1\frac{1}{2}$ line, head truncated, antens shorter than the body; appendages very short."

This species has not been placed in synonymy.

9. "*Aphis erigeron-philadelphicum*. Body green, oblong oboval, length two lines; antens bent, shorter than the body; appendages very short."

This species unquestionably described from immature specimens has not previously been recognized in synonymy. Because of its green color and the name of the host, which is indicated by the name given to the species, *Aphis erigeron-philadelphicum* is here considered to be the same as *Macrosiphum erigeronensis* (Thomas), over which it has priority.

10. "*Aphis verticolor*. Body oblong, oboval, two lines long; head truncated brown, thorax fulvous, abdomen ferruginous, feet brown, but white near the body, antens nearly as long as the body and brown; appendages very short. On several species of the order Glossanthia or Cichoracevus, and even on the *Hieracium venosum* along with the fourth species."

This species is probably synonymous with *Aphis hieracium-venosum* described by Rafinesque = *A. hieracii* Schrank. Wilson considered it thus.

11. "*Aphis furcipes*. Body oblong oboval, length one line, green, eyes black, antens longer than the body, feet brown, as well as the tops of the appendages, which are $\frac{1}{4}$ the length of the body.—On the *Primula veris* and *Bellis perennis* in gardens."

This species is here considered a synonym of *Myzus persicae* (Sulzer).

12. "*Aphis fusiclava*. Body oboval, depressed, dark fulvous, without appendages, length one line; antens shorter than the body, bent, tips clavated and brown.—On many garden plants."

This species is not an aphid because of the "clavated tips" of the antennae.

13. "*Aphis rosa-suaveolens*. Body oboval, oblong, green, brown or blackish, with two pale stripes on back; antens nearly as long as the body and brownish, appendages very short, legs black at the base and tip, white in the middle; wings, with a brown spot in the males. The young ones are green, the old ones are blackish."

Wilson lists the following species as synonyms of *Aphis-suaveolens* Raf.; *Aphis aquilegiae flava* Kettle (of no standing because described as a trinomial), *Hyalopterus aquilegiae* Koch, *Hyalopterus aquilegiae-flava* Hayhurst, and *Aphis trirroda* Walker. The synonymy proposed by Wilson is not accepted here. The remarks of Rafinesque in regard to color indicate that two other species were more likely involved than those mentioned by Wilson, namely *Macrosiphum gei* (Koch) and *Macrosiphum rosae* (L.), both species being known to have green and pink or brownish color forms. Specimens of *M. rosae* are often rather dark, perhaps blackish in the sense that Rafinesque used the term. *Aphis suaveolens* Raf. is considered here a synonym of *M. rosae* (L.).

14. "*Aphis diplepha*. Body oboval, pale green, with two rows of bristles on the sides of the back, eyes black, antens rufous as long as the body, legs rufous, appendages longer than the vent, which is acute. This species is found on many garden roses, the specific name means double ciliated."

This species was considered by Wilson to be the same as *M. rosae* (L.).

15. "*Aphis rhodryas*. Body oboval oblong, pale green, antens two-thirds of the length of the body, brown as well as the legs, appendages short.—On many wild roses which the specific name indicates."

The description of this species was evidently based upon immature specimens; it is probably a synonym of *M. rosae* (L.).

16. "*Aphis viburnum-opulus*. Body oboval, slate color, antens black, white at the base, very short, only one-fourth of the body's length, appendages black and very short, vent black, legs black, white at the base. The young ones are a greenish gray. This species feeds on the leaves instead of the stems; as usual with most of the species, it deforms the leaves and rolls them over its nest."

This species was considered by Wilson as a synonym of *Aphis viburni* Scopoli; it would appear more logical to consider it a synonym of *Aphis rumicis* L. In any event *Aphis viburnicola* Gillette should be removed from the synonymy of *Aphis viburni* Scopoli.

17. "*Aphis viburnum-acerifolium*. Body oboval, olivaceous brown, head black truncated, antens two-thirds of body's length brown, black at the top, as well as the legs, appendages shorter than the vent, which is acute. The young ones are olivaceous rufous; the males are entirely blackish or black, with a black oblong spot on the wings. This species is raised by the *formica melanogaster*, or the black belly ant with the red breast, head and feet, and it is upon it that I have observed many of the facts noticed in the introduction."

This species was considered by Wilson to be a synonym of *Aphis viburni* Scopoli; it is here considered a synonym of *Aphis rumicis* L. This species can not be the brown *Anuraphis viburniphila* described by Patch because the cauda is spoken of as being acute.

18. "*Aphis crategus-coccinea*. Body oboval, pale green, with two dark stripes on the back of a brownish green; antens green half of body's length, appendages very short, vent acute. Feeds on the leaves of *crategus-coccinea*."

This species was considered by Wilson to be the same as *Aphis crataegifoliae* Fitch. Apterous forms of *A. crataegifoliae* on *crataegus* have a pink or light crimson head and thorax, a characteristic which Rafinesque would most certainly not have overlooked. Furthermore the cauda is said to be acute, this statement indicates clearly that the species described was not an Anuraphis. *Rhopalosiphum prunifoliae* (Fitch) is here considered a synonym of *Rhopalosiphum crategus-coccinea* (Raf.).

19. "*Aphis cornus-stricta*. Body oboval, black, head squared truncated; antens two-thirds of body's length with a white base, legs white at the top, appendages very short, vent nearly acute. The males have wings double the body's length, with a large black spot underneath. Covering the branches (rarely the leaves) of *cornus stricta*."

This species, probably described from mature specimens to judge from statement in regard to cauda, was considered by Wilson to be synonymous with *Aphis cornifoliae* Fitch. *Aphis cornifoliae* Fitch is an Anuraphis and it confines its attack entirely to the leaves according to my observation, hence, Wilson's placement can not be accepted. *Aphis helianthi* Monell is considered here a synonym of *Aphis cornus-stricta* (Raf.), despite the fact that it is not black as the description states. In this connection, however, it should be noted that Monell in his original description of *helianthi* described the color as dark green with various irregular and variable darker shadings on the abdomen.

20. "*Aphis populus-grandidentata*. Body oboval obtuse, reddish black, head truncated, back annulated, antens one-third of the body's length, appendages obtuse, exceedingly short, vent obtuse. Male with many oblong blackish spots on the wings. This species is found on very high tree, and often on the upper leaves and branches. Length one line. It is remarkable by the many spots on the wings of the male, while most of the species have only one large spot on the lower side of each wing, and a few species have unspotted wings."

Wilson considered *Chaitophorus populifoliae* Fitch a synonym of this species. The species Wilson had in mind was undoubtedly *Chaitophorus populifoliae* Oestlund (Davis), since *Aphis populifoliae* Fitch is a Clavigerus. The description of the wings of the "male" of this species indicates clearly that the species described was *Neothomasia populicola* (Thomas), which is here placed as a synonym of *Neothomasia populus-grandidentata* (Raf.).

21. "*Aphis populus-trepida*. Body oboval, pale green, with two dark or brown stripes on the back, which is annulated, head truncated, antens whitish two-thirds of the body's length, feet whitish, appendages elongated, as long as the vent, which is acute. I have not seen the male of this species."

Wilson incorrectly considered *Chaitophorus populifoliae* Thomas a synonym of this species. The description of this species was undoubtedly based upon a composite species, part of which probably referred to *Chaitophorus populifoliae* Oestlund (Davis) and part to a typical aphid, as is indicated by the statement regarding the cornicles and cauda.

22. "*Aphis jacobea-balsamita*. Body oboval oblong, very slightly annulated, entirely of a shining bronze colour; antens as long as the body, not shining, with some brown rings; legs with black knees and articulations; appendages black, stiff, longer than the vent, which is acute appendiculated. A very fine species of a metallic brass colour, the young ones are more oblong, darker, more annulated; the old ones of a light or pale colour, nearly obtuse behind, and smooth or scarcely annulated."

This is unquestionably the first description of the species long since known as *Macrosiphum ambrosiae* (Thomas). Wilson considered it a synonym of the next species.

23. "*Aphis oreaster*. Body oblong, of a brownish or dark bronze colour; head truncated; antens brown, as long as the body, legs brown; appendages longer than the vent, which is appendiculated; males with unspotted wings. Found on several species of *aster* on the highlands, particularly the *aster simplex*; the specific name means *mountain-asters*."

Wilson recognized the name *oreaster* over *jacobea-balsamita*. The description of *Aphis jacobea-balsamita* is considered to be better than the description of *Aphis oreaster*; therefore the priority of the former is here recognized.

24. "*Aphis erigeron-strigosum*. Body oboval oblong, reddish; antens as long as the body, blackish as well as the legs; appendages longer than the vent which is mucronate. In the old ones the body becomes flattened, of a reddish brown, and the appendage of the vent becomes longer."

This species was considered by Wilson to be synonymous with *M. rudbeckiae* (Fitch).

25. "*Aphis gibbosa*. Body oboval, reddish fulvous, head truncated, thorax yellowish and gibbous, abdomen acute slightly annulated; antens longer than the body, brown, base gray; legs grey, knees and feet black; appendages brown, longer than the vent, which is appendiculated; males with unspotted wings. Found near Newburgh, on several species of *solidago*, particularly the *S. odora*, *S. altissima*, &c."

This is the first unquestioned description of the species since known as *Macrosiphum rudbeckiae* (Fitch). The name *Aphis gibbosa* is recognized here over that of *Aphis erigeron-strigosum*, which has page priority because of the better description and because of the host plant being the one more commonly associated with this form.

26. "*Aphis xanthelis*. Body oblong cuneate, of a dark brown bronze colour, head truncated, abdomen slightly annulated; antens as long as the body, blackish as well as the legs; vent acute, appendages elongated erect; males blackish, with a linear yellowish spot on the wings. Noticed on the *solidago nemoralis*; size very unequal, from half a line to two lines long; the specific name means yellow spotted."

This species is unquestionably the same as *Aphis jacobea-balsamita* as Wilson considered it.

27. "*Aphis annulipes*. Body oboval, reddish brown, head truncated; antens two-thirds of body's length; legs with pale rings; vent obtuse, appendages very short divergent. Observed in September near Oysterbay, Long Island, on *Hieracium gronovi* and *H. paniculatum*, length one line."

This species is here considered a synonym of *M. hieracii* (Schrank). The synonymy of *Aphis annulipes* established by Wilson is not recognized.

28. "*Aphis hieracium-paniculatum*. Body oblong, of a shining reddish brown, abdomen a little curved or depressed above, and annulated; antens as long as the body, whitish at the base as well as the legs; vent acute, appendages elongated horizontal; male with vertical appendages, mucronate vent, and wings with a greenish brown spot. Found on the *hieracium paniculatum* only, in October, near Flatbush, Long Island, a very singular species, the hind part of the body is raised; the males are much larger than the females."

As the former species *Aphis hieracium-paniculatum* is a synonym of *Aphis hieracii* Schrank.

29. "*Aphis verbena-hastata*. Body pale green annulated oboval; antens as long as the body, head truncated, appendages short. Length of the body one line, vent mutic."

Because of the brevity of the description, it is impossible to place this species.

30. "*Aphis polanisia-graveolens*. Body black oblong oboval slightly annulated; antens as long as the body, base and top gray; legs with the base and a ring in the middle gray; appendages longer than the vent, which is acute; males with a brownish spot on the wings. Found near Newburgh, in June, on the leaves and flowers of the *polanisia graveolens* or *cleome dodecandra* L. where it is singular that they should be raised, since the vicinity of this plant must be some impediment; length of the body one line."

This species is not recognized.

31. "*Aphis arabis-mollis*. Body oboval oblong glaucous green, a row of black dots on each side; antens brown nearly as long as the body, appendages short, vent acute. A small species, less than one line in length."

This species has not been placed (up to the present time).

32. "*Aphis polygala-senega*. Body oboval brown; antens longer than the body, with pale rings, as well as the legs; appendages short, vent nearly obtuse. Noticed in June; length about one line."

This species has not been placed (up to the present time).

33. "*Aphis brassica-napus*. Body elliptic, pale greenish, covered with a white dust, a blackish spot on each side; head narrow truncated; antens half body's length, blackish as well as the legs; vent acute, appendages short, dentiform. Found in gardens sometimes also on the *brassica*."

This species is unquestionably a synonym of *Aphis brassicae* L.

34. "*Aphis erigeron-canadense*. Body oboval green; antens brown, shorter than the body; appendages brown, elongated one third of the total length, oviduct elongated. The body is about one line long, the oviduct appears as a third appendage. Found on Long Island."

This species is here considered a synonym of *A. erigeron-philadelphicum* Raf.

35. "*Aphis ambrosia*. Body oboval, yellow, acute behind; head truncated; antens half the length of the body, a little brownish, feet tipped with brownish; appendages brown elongated upright; very small, body only

half a line long. Found on Long-Island on several species of the genus *ambrosia*: they are raised and bred by a new species of ants, which I have called *formica fasciata*."

This species is probably another synonym of *A. jacobea-balsamita* Raf.

36. "*Aphis acaroides*. Body oboval reddish, obtuse behind, antens very short, feet brown, appendages obtuse wart shaped. The smallest species observed, scarcely one-fourth of a line long, having much the appearance of an *acarus*; found also on Long-Island on the *dileptium virginicum*, (*lepidium virginicum* L.) raised likewise by the *formica fasciata*, which is itself rather a small ant."

This species cannot be recognized from the description.

CONSIDERATION OF GENERA PROPOSED BY RAFINESQUE

The genus *Loxerates* was erected to include *Aphis diervilla-lutia* and *Aphis erigeron-philadelphicum*. *Aphis diervilla-lutia* has been made the type of the genus by Börner. Since the type of the genus is unknown, the genus *Loxerates* must remain unknown until its type is located. Börner has suggested that the genus *Myzaphis* is a synonym of the genus *Loxerates* but the question of generic synonymy will have to await the discovery of the type species of *Loxerates*.

The genus *Dactynotus* was erected as a subgenus of *Aphis*, but at the present time it may be accorded full generic rank. Börner has set *Aphis hieracium-paniculatum* as the type of this genus. *Aphis hieracium-paniculatum* is in this paper considered a synonym of *Aphis hieracii* Schrank. As indicated previously (discussion under species No. 4) *Aphis hieracii* Kaltendbach is a synonym of this species. Theobald in 1913 recognized *Aphis hieracii* Kalt. as a *Macrosiphum*, in 1926 he recognized it as belonging to the genus *Myzus*; a placement which if correct sinks the genus *Myzus* as a synonym of the genus *Dactynotus*. Theobald's figure of the head of *M. hieracii* (Kalt.) seems to indicate that the species under consideration here belongs to what is now known as the subgenus *Neomyzus* of the genus now known as *Myzus*.

The genus *Adactynus* was erected as a sub-genus of the genus *Aphis*. If the synonymy suggested here for the species *Aphis pteris-aquilinoides* (the type of the genus) is accepted the genus *Macrosiphum* Pass. is unquestionably a synonym of *Adactynus* Raf.

CONSIDERATION OF SPECIES DESCRIBED BY S. S. HALDEMAN.

1. "*A. quercus-monticula*: brick red, varied with light yellowish; antennae and legs pale, annulate with black; abdomen flat above, sometimes pale green; appendages short, two-jointed; eyes round and projecting. Varies considerably."

The description of this species was unquestionably based on specimens belonging to two or more species. This species can not be recognized.

2. "*A. rubecula*: deep brick red, outer extremities of the thighs and legs black; appendages long and taper."

This species is here placed as a synonym of *Adactynus gibbosa* Raf. It

should be noted that this species is not a homonym of *Aphis rubicola* Oestlund, as the writer indicated in a previous paper.

3. "*A. castanea-vesca*: body flat above, appendages obsolete; young white, legs and antennae black, two marginal and two dorsal rows of large black spots; adult nearly black, with the spots obsolete."

This species is probably (especially if description was based upon oviparous females) synonymous with *Calaphis castanae* (Fitch), over which it has priority.

4. "*A. bicolor*: light yellowish green; head, antennae, appendages, mesothorax, legs (except the anterior femora and part of the leg) blackish."

This species is here placed as a synonym of *Aphis pomi* DeGeer.

5. "*A. marginipennis*: light brown, covered with white down; thorax dark, abdomen large and inflated, appendages short; rostrum and antennae corneous, with the extremity black; eyes prominent, reddish brown; wings large, external margin brown. Female (fig. 6) black, somewhat hirsute; legs brown, ciliated; head, antennae and thighs, pale corneous. A large species. Hab. *Pinus mitis*."

This species is probably a synonym of *Cinara pini* (L.).

6. "*A. pilosa*: grey, with a short dense pile, which is wanting upon the numerous circular black spots of the surface; base of the antennae and femora corneous; feet and tibiae black, except a small testaceous portion next the knee joint of the 2d and 3d pairs. Perhaps *Aphis salicis*, Lin. as it occurs upon an exotic species of *salix*."

This species is here placed as a synonym of *Clavigerus salicis* (L.)

7. "*A. discolor*: black, abdomen brownish yellow; anterior legs brown; appendages short."

This species is not recognized from the short description.



Hottes, F. C. 1931. "Notes concerning the first papers dealing with the aphid fauna of America." *Proceedings of the Biological Society of Washington* 44, 61–69.

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