S. F. BAIRD.

With respects of the Author.

MANUSCRIPT NOTES
FROM MY
JOURNAL,
OR
ILLUSTRATIONS OF INSECTS,
NATIVE AND FOREIGN.

DIPTERA,

OR TWO-WINGED FLIES.

BY TOWNEND GLOVER, WASHINGTON, D. C.

*Entered according to Act of Congress in the year 1874, by Townsend Glover,
In the Office of the Librarian of Congress at Washington.*

WASHINGTON:

1874.

03. 1

Manuscript notes from my Journal,
 or
 Illustrations of insects,
 Native and Foreign.

▷◁
Diptera
 or
 Two-winged Flies.

By Townsend Glover,
 Washington, D.C.

CONTENTS.

124760

Introduction.	I.
Plates.	1. 13.
Arrangement of Families.	page. 1.
List of Families and Genera with Synonyms, Habits, Food, &c.	2.
" Parasitic, and Predaceous Diptera.	60.
" Vegetable and animal substances injured by Diptera	63.
" Insects of other Orders destroying Diptera or destroyed by them	79.
" Names of Authors, and of authorities quoted.	86.
" Abbreviations used.	90.
" Principal Genera, with derivation of names.	91.
" " Species " " "	94.
Remedies used or suggested, with List of Insects mentioned.	101.
Synoptical Tables of Sections, and Families of Diptera, by L ^e Baron.	113.
Addenda	119.

Washington D.C. 1874. written by Townsend Glover
 Transferred & printed from stone by J. F. Sedgley.

*Entered according to Act of Congress in the year 1874, by Townsend Glover,
In the Office of the Librarian of Congress at Washington*

I

Manuscript notes from my Journal. or. Illustrations of Insects, native, and foreign.

Diptera. Two winged Flies. Introduction.

A few years ago a journal, or note book, was commenced by the writer, in which figures were given of some of the best known, or most distinctly marked, insects of all the orders, amongst which of course, were the Diptera or two winged flies. Remarks were also noted down from time to time regarding their habits, food, date of capture, and the remedies suggested for their destruction, or to guard against their depredations. & all these notes were taken either from personal observations, or from the works of the most reliable authorities on the subject. The object of this journal, was not so much to present new facts, or insects as to collect together in as small a space as possible what was already known about them but which information was scattered throughout many works, and was therefore inaccessible to such students as had not the advantage of consulting public libraries or were unable to afford the books required. In this compilation it was intended at the same time to give references to some of our later works on Agricultural, and Economic Entomology, where the insects themselves, and more especially their habits and food were more fully described. In order to accomplish the object desired, such figures and facts as were needed, were taken either from nature, or from the latest authorities, and when it was found impossible to procure native specimens as illustrations, foreign insects of the same genus were substituted, in order to exhibit to young Entomologists, what they might expect to find in this country on certain plants or in certain localities. As this journal or field book was written some years ago and intended merely for the use of the students in the Maryland Agricultural College, many of the notes from Westwood, Geurin and others will most probably be condemned by some of our scientists as antiquated and not sufficiently scientific, on the present progressive age. This perhaps is true as to the names, but not as to the food or habits of insects, as these seldom, if ever, change, but remain at the present time the same as heretofore, unless some new cultivated food plant is introduced which they prefer, or from peculiar circumstances, such as a lack, or superabundance of food, destruction of their favorite haunts &c. &c.

It has been deemed advisable in the present manuscript edition to omit much of the original text, and to select only such parts as may be of interest to the students of practical, or Agricultural Entomology. By giving him the latest names, & some of the principal synonyms of the various insects mentioned, a short sketch of their habits, their favorite food plants, Habitat, Parasites.

II

with references to various authorities &c. &c. It is however to be distinctly understood that the present work does not pretend to be scientifically minute in either details, or drawings. as it is not intended for Scientists, to whom the anatomy of an insect is of much more consequence than its habits, even if it does annually destroy millions of acres of our most valuable crops, & who too often ignore their instincts altogether as unworthy the study of a true scientific investigator. This Journal however was intended only for the use of young Entomological students in the Agricultural college. to whom it matters little whether the insect had one joint more or less in its antennae or feet. if from a general sketch he could trace a family likeness to some newly captured fly by which he would be enabled to classify it as either a friend, or a foe to the Agriculturist and find out by referring to the text where, when, & how, to look for it, and by a further study of its habits, and instincts, devise some means by which, if injurious, it could be the most readily destroyed, or driven away - or if beneficial it might be preserved and multiplied. Most of the figures on the first six plates are from nature the specimens having been kindly furnished by Baron Osten Sacken from his private collection and are principally American. Plate VII. consists of Larvae mostly from the same source whilst the rest of the plates with the exception of Supplement A. are generally from European authors. Meigen, Curtis, &c. or from the works of American Entomologists. Harris, Fitch, Say, Riley, Halob &c. due credit however being given to the author from whom the figures were taken either in the list accompanying each plate or in the text itself, where the Food & Habits &c. are briefly described. In many cases however the figures have been somewhat altered in position, & size. so as to present a more uniform appearance with the others on the same plate. All the figures on Supplement Plate A. have been reduced in size. from Meigen's work and were originally intended to illustrate the principal genera in a translation of Leunis "Synopsis der drei Naturreiche". In the preparation of the present work the author has been under particular obligations to Baron Osten Sacken for advice, and specimens from his private collection and to Dr. H. LeBaron for several valuable notes in the body of the work & more especially for the comprehensive Synoptical Tables of the Sections and Families of the Diptera on page 113. The derivations of names of several of the genera & species on pp. 91. 94. &c. have been given in a general & not in a strictly literal sense & as many of them could not be found in Agassiz or any reliable authority they had to be taken from Latin and Greek dictionaries &c. and have been given merely to enable the young student unacquainted with any other language than English to learn something of the meaning of the scientific names he daily uses, and also that by means of these free translations, he may be better enabled to retain such names in his memory instead of repeating them by rote ^{even} a parrot, & the more especially as many of these Latin or Greek names refer to some peculiarity in the form, habits, or food of the insect he will naturally

III

associate the insect itself with its scientific name. It should some of these - free translations prove erroneous. They can readily be corrected, if the work may be deemed worthy of a more extended publication. It is also to be regretted - that the punctuation has not been better attended to. but this was almost entirely overlooked in the manuscript copy, before it was transferred to stone, & not being able to correct proof as in ordinary type printing the whole text had either to be entirely rewritten, or be published in its present imperfect state. - As neither the work itself, or the small number of copies to be printed, (only, 45) for gratuitous distribution to Agricultural Colleges, and Entomological Societies, would warrant a large expenditure, it has been thought that it would be cheaper, and answer the same purpose, to issue the work in its present manuscript form as written by the author himself, on prepared paper, then transferred to stone, & printed on a lithographic press. & one of the principal reasons for publishing these notes at all, is the fact, that should the single manuscript copy - now in existence, be lost or destroyed it would be impossible to replace it - without going over the same ground again, and the labor of years would be entirely lost, whereas, if merely a dozen copies are judiciously distributed, to the leading Agricultural, or Scientific Societies, to be preserved in their libraries, it will be very easy to refer to them if necessary. Another reason for not expending more money on the work, or issuing a larger edition, is the Ephemeral Character of the classification, and nomenclature of Insects in the present progressive age, as most probably, in eight or ten years the whole order will be reversed & most of the names will be changed. Should however the Entomologists or Agriculturalists who see this work, think it of sufficient importance, the original note book can be revised by some competent Specialist, & then published in whatever manner the public think the best, and most advantageous, whilst all the other orders which are already written up in like note books, & illustrated in a similar manner, can be added from time to time as they are finished.

Plate II. Diptera.

Fig 1. <i>Curex</i> (Linn.) <i>ciliatus</i> . Fab. ♀. nat size. O.S. p 1. * Low p. 5. <u>Fam. 1. Cu.</u>	
" 2. " " " " ♂ " " " " " " " "	
" 3. <i>Anopheles</i> . (Meig.) <i>hyemalis</i> . Fitch. ♂. ♀. mag ^d " " " "	
" 4. <i>Chironomus</i> . (Fab.) O.S. p. 3. " " " <u>Fam. 2. Chi.</u>	
" 5. <i>Ceratomygon</i> . (Meig.) ♂. O.S. p. 14. " " " "	
" 6. " " ♀. " " " " " " " "	
" 7. " " Lar. & Pupa. " " " " " " " "	
" 8. <i>Cicidomyia</i> . (Latr.) <i>destructor</i> . Say. ♂. ♀. " O.S. p. 5. " p. 6. <u>Fam. 3. Cic.</u>	
" 9. " " " " Lar. & Pupa. " " " " " " " "	
" 10. <i>Diplosis</i> . (Lew.) <i>tritici</i> . Kirby. ♂. ♀. " O.S. p. 6. " " " "	
" 11. " " " " Lar. & Pupa. " " " " " " " "	
" 12. <i>Psychoda</i> . (Latr.) " " " O.S. p. 6. " p. 9. <u>Fam. 5. Psy.</u>	
" 13. <i>Erioptera</i> . (Meig.) <i>caliptera</i> . Say 2. 44. " O.S. p. 6. " p. 9. <u>Fam. 6. Eri.</u>	
" 14. <i>Limnobia</i> . (Meig.) <i>humidicola</i> . O.S. nat. size. " Low p. 10. " "	
" 14. a. <i>Geranomyia</i> . (Hal.) <i>head. v. mag^a</i> " " " "	
" 14. b. <i>Limnobia</i> <i>hynchus</i> . (Westw) " O.S. 6. " " "	
" 14. c. <i>Limnobia</i> (Meig.) <i>fimbriata</i> . Meig pl. 5. pg 4 mag ^a (Ca) " " "	
" 15. <i>Tipula</i> . (Linn.) <i>flavicans</i> . Fab. nat size. " O.S. p. 7. " " "	
" 16. <i>Bittacomorpha</i> . (Westw) <i>clavipes</i> . Fab. " O.S. p. 8. " " "	
" 17. <i>Leja</i> . (Meig.) <i>vinthemi</i> . (Meig.) mag ^d " " Low p. 13. <u>Fam. 7. Mzo.</u>	
" 18. <i>Myceophila</i> . (Meig) " " O.S. 10. " " "	
" 19. <i>Scirpa</i> . (Fab.) <i>thomasi</i> Linn (Lew.) " " " "	

Abbreviations. L. or Lar. Larva. P. or Pup. Pupa. I. or Ins. Imago, or Perfect insect. Md. Maryland. Eu. Europe. mag^a magnified. v^c

* O.S. Catalogue of the described Diptera of North America. prepared for the Smithsonian Institution, by R. Osten Sacken. Washington. D.C. 1858.

Low. Monographs of diptera of North America by H. Low. part 1. v^c prepared for the Smithsonian Institution, 1862. v^c

Say. Thomas. Entomology of North America. Edited by John Le Conte. N. Y. in two vol. New York. Rolliere Brothers. 1859.

II

Plate II. Diptera.

Fig. 1. <i>Sciara</i> . (Fab.)	mag ^d O.S. 11. Læw. p. 13. Fam. 7. <u>Mycet.</u>
" 2. <i>Simulium</i> . (Latr.)	" " 12. " 14. Fam. 8. <u>Sim.</u>
" 3. <i>Scatopse</i> . (Geoff.) <i>notata</i> . Say.	" " 0. " " 9. <u>Bib.</u>
" 4. <i>Plecia</i> . (Wied.) <i>longipes</i> . Læw. nat. sive.	" 0. " p. 15. " " "
" 5. <i>Dilophus</i> (Meig.) <i>serotinus</i> Læw. ♀.	" " 0. " p. 14. " " "
" 6. " " " ♂.	" " 0. " " " " "
" 7. <i>Bibio</i> (Geoff.) <i>albipennis</i> Say. 2. 69.	" " 15. " p. 15. " " "
" 8. " <i>femoratus</i> Wied.	" " 15. " " " " "
" 9. <i>Rhyphus</i> . (Meig.) <i>punctatus</i> Fab.	mag ^d " 0. " p. 15. Fam. 10. <u>Hy.</u>
" 10. <i>Metapronia</i> . (Meig.) <i>dorsalis</i> Say 1. 257. nat. sive.	" 14. " p. 17. Fam. 12. <u>Strat.</u>
" 11. <i>Odontomyia</i> . (Meig.) <i>crassirostris</i> Læw.	" " 0. " " " "
" 12. <i>Sargus</i> . (Fab.) <i>decorus</i> Say 1. 257.	" " 17. " " " "
" 13. <i>Xylophagus</i> . (Meig.) <i>rufipes</i> Læw.	" " 0. " p. 15. Fam. 11. <u>Xylo.</u>
" 14. <i>Cænomyia</i> . (Latr.) <i>pallida</i> Say. 1. 42.	" " 18. " p. 16. " "
" 15. <i>Fadanius</i> . (Linn.) <i>atratus</i> Fab.	" " 19. " p. 19. Fam. 14. <u>Fala.</u>
" 16. " <i>abdominalis</i> Fab.	" " " " " " "
" 17. " <i>trimaculatus</i> Pal.	" " 24. " " " "
" 18. <i>Chrysops</i> . (Meig.) <i>vittatus</i> Wied.	" " 25. " " " "
" 19. <i>Medas</i> . (Fab.) <i>tibialis</i> Wied.	" " 27. " p. 22. Fam. 18. <u>Miz.</u>
" 20. " <i>clavatus</i> Drury.	" " 27. " " " "
" 21. <i>Dasyprogon</i> . (Meig.) <i>discolor</i> Læw.	" " 0. " p. 24. Fam. 19. <u>Asil.</u>
" 22. <i>Asilus</i> . (Linn.)	" " 35. " " " "
" 23. <i>Dasyprogon</i> (Meig.) <i>trifasciatus</i> Say 2. 64.	" " 30. " " " "
" 24. <i>Laphria</i> (Fab.) <i>thoracica</i> Fab.	" " 31. " " " "

Plate III. Diptera.

Fig 1.	<i>Laphria</i> (Fab) <i>dorsata</i> . Say. ♂. nat size. Os. p. 30. Law. p. 24. Fam. 19. <u>Asilid.</u>				
" 2.	" " " " ♀ " " " " " " "				
" 3.	<i>Eraz.</i> (Macq.) <i>costuans</i> . Linn. ♂ " " p. 33. " " "				
" 4.	" " " " ♀ " " " " " " "				
" 5.	<i>Eraz.</i> ? " " " " " " "				
" 6.	<i>Asilus</i> (Linn.) <i>sericeus</i> . Say 2. 63. " " p. 35. " " "				
" 7.	<i>Procta canthus</i> (Macq.) <i>millertii</i> . Macq. " " p. 34. " " "				
" 8.	<i>Leptogaster</i> (Meig) " " p. 36. " " "				
" 9.	<i>Chrysopila</i> (Macq.) <i>thoracica</i> . Fab " " p. 37. " " "				
" 10.	<i>Scenopinus</i> (Latr) <i>fenestratus</i> . Linn. mag ^d " 0. " p. 28. Fam. 25. <u>Scenop.</u>				
" 11.	<i>Anthrax</i> (Scop.) nat. size " p. 38. " p. 24. Fam. 21. <u>Bomb.</u>				
" 12.	" <i>irrorata</i> . Macq. Say 2. 67. " " " p. 40. " " "				
" 13.	" <i>sinuosa</i> . Wied. " " " p. 42. " " "				
" 14.	" <i>fulvohirta</i> . Wied. " " " p. 40. " " "				
" 15.	" <i>simpsoni</i> . Tab. Say 2. 60. " " " p. 41. " " "				
" 16.	<i>Bombylius</i> (Linn) <i>fulvus</i> . Wied. " " " p. 42. " " "				
" 17.	" (denuded specimen) " " " p. 42. " " "				
" 18.	" <i>mexicanus</i> . Wied. " " " p. 43. " " "				
" 19.	<i>Geron</i> (Meig.) mag ^d " p. 43. " " "				
" 20.	<i>Systropus</i> (Wied) <i>macer</i> . Law. nat. size. " 0. " p. 25. "				
" 21.	<i>Hyllos</i> (Fab) <i>thoracicus</i> . Say. 2. 68. mag ^d " p. 44. " p. 29. Fam. 28. <u>Hylot.</u>				
" 22.	<i>Empis</i> (Meig.) <i>spectabilis</i> . Law. nat. size. " 0. " p. 30. Fam. 22. <u>Emp.</u>				
" 23.	<i>Rhamphomyia</i> (Hgg) <i>longicauda</i> . Law. ♂ " " " 0. " " "				
" 24.	" " " ♀ " " " 0. " " "				
" 25.	<i>Baccha</i> (Fab) mag ^d ♂ " " " p. 48. " p. 26. Fam. 22. <u>Syrph.</u>				
" 26.	<i>Milesia</i> (Latr.) <i>ornata</i> . Tab. nat. size " p. 50. " " "				
" 27.	<i>Syrpitta</i> (St Farg) <i>pipiens</i> Macq. Say 1. 27. " " " p. 48. " " "				
" 28.	<i>Rhingia</i> (Fab) <i>nassica</i> . Say 2. 81. " " " p. 50. " " "				
" 29.	<i>Cyrtus</i> (Linn.) <i>geminatus</i> . Say. 1. 22. " " " p. 51. " " "				
" 30.	" <i>obliquus</i> . " " " " p. 52. " " "				
" 31.	" <i>politus</i> . Say. 1. 24. " " " p. 52. " " "

Plate IV. Diptera.

Fig. 1.	<i>Syrphus</i> (Fab.) <i>ribesii</i> . Fab.	nat. size. OS. p. 52. Low p. 26. Fam. <u>Syrphidae</u> .
" 2.	<i>Helophilus</i> (Meig.) <i>similis</i> . Macq.	" " " p. 54. " " "
" 3.	<i>Eristalis</i> (Fabr.) <i>acneus</i> . Linn.	" " " 0. " " "
" 4.	" <i>transversus</i> . Wied.	" " " p. 56. " " "
" 5.	<i>Psilopus</i> (Meig.) <i>sinus</i> Say 2. 75.	" " " p. 58. " p. 32. Fam. 31. <u>Dolichopid.</u>
" 6.	" "	" " " " " " " "
" 7.	<i>Dolichopus</i> (Meig.)	" " " p. 59. " " " "
" 8.	<i>Conops</i> (Linn.) <i>sagittarius</i> Say 2. 73.	" " " p. 60. " p. 27. Fam. 23. <u>Myopid.</u>
" 9.	" "	" " " " " " " "
" 10.	<i>Stomoxys</i> (Geoff.) <i>calceatus</i> . Linn.	" " " p. 61. " p. 35. Fam. 36. <u>Muscidae</u>
" 11.	<i>Gastrophilus</i> (Meig.) <i>equi</i> Linn.	" " " p. 62. " p. 33. Fam. 32. <u>Cestr.</u>
" 12.	<i>Trypodorma</i> (Wied.) <i>cuniculi</i> . Clark	" " " p. 62. " " " "
" 13.	<i>Symnosoma</i> (Fallen) <i>rotundata</i> Halk (var)	" " p. 63. " p. 34. Fam. 34. <u>Tachinidae</u>
" 14.	<i>Trichopoda</i> (Fabr.) <i>pennipes</i> Fab. Say 2. 364	" " p. 63. " " " "
" 15.	<i>Ocyptera</i> (Fabr.)	" " " p. 63. " " " "
" 16.	<i>Toxina</i> (Mug.) <i>virida</i> . Harris	" " " p. 67. " " " "
" 17.	<i>Sarcophaga</i> (Meig.)	" " " p. 68. " " " "
" 18.	" "	" " " " " " " "
" 19.	" "	" " " " " " " "
" 20.	<i>Lucilia</i> (Rob. Wes.) <i>caesar</i> . Linn.	" " " p. 71. " p. 35. Fam. 36. <u>Muscidae</u>
" 21.	<i>Calliphora</i> (Macq.) <i>vomitaria</i> . Linn.	" " " p. 73. " " " "
" 22.	<i>Sarcophaga</i> (Meig.) <i>carnaria</i> . Linn.	" " " p. 68. " " " "
" 23.	<i>Musca</i> (Linn.) <i>domestica</i> . Linn.	" " " p. 71. " " " "
" 24.	<i>Scatophaga</i> (Fabr.) <i>furcata</i> . Fab.	" " " p. 76. " p. 35. Fam. 38. <u>Cordyl.</u>
" 25.	<i>Anthomyia</i> (Meig.)	" " " p. 73. " p. 35. Fam. 37. <u>Anthom.</u>
" 26.	<i>Pirene</i> (Rob. Wes.) <i>viridulans</i> Rob. Wes. mag.	" " p. 79. " p. 40. Fam. 43. <u>Ortalid.</u>
" 27.	<i>Tephrosia</i> (Fallen)	" " p. 78. " p. 43. Fam. 50. <u>Tephrosid.</u>
" 28.	<i>Lauconia</i> (Fabr.) <i>lupulina</i> . Fab.	" " p. 78. " p. 41. Fam. 48. <u>Saprom.</u>
" 29.	<i>Loxocera</i> (Fabr.) <i>cylindrica</i> Say 2. 24	nat. size. " p. 80. " p. 38. Fam. 41. <u>Pilid.</u>
" 30.	<i>Sphyracophila</i> (Say) <i>brevicornis</i> . Say.	mag. " p. 81. " p. 44. Fam. 51. <u>Pig.</u>
" 31.	<i>Calliphorida</i> (Lew.) <i>annulipes</i> . Macq.	" " p. 81. " p. 40. Fam. 44. <u>Trypet.</u>
" 32.	<i>Tetanocera</i> (Dumer.) <i>saratogensis</i> . Fitch 1 st Rep.	" p. 82. " p. 37. Fam. 40. <u>Sciom.</u>
" 33.	<i>Ochthera</i> (Fabr.) <i>mantis</i> Linn.	" " 0. " p. 45. Fam. 53. <u>Ephyd.</u>
" 34.	<i>Parydra</i> (Stenb.) <i>bituberculata</i> . Linn.	" " 0. " " " "
" 35.	<i>Drosophila</i> (Fallen)	" " p. 84. " p. 45. Fam. 55. <u>Droso.</u>
" 36.	<i>Agromyza</i> (Fallen)	" " p. 85. " p. 46. Fam. 57. <u>Agrom.</u>
" 37.	<i>Bordorus</i> (Meig.)	" " p. 85. " p. 47. Fam. 60. <u>Borlor.</u>
" 38.	<i>Trypeta</i> (Meig.) <i>solidaginis</i> Fitch 1 st Rep. nat. size.	" p. 80. " p. 40. Fam. 44. <u>Tryp.</u>
" 39.	<i>Tetanocera</i> (Gurney) <i>plumosa</i> . Low.	nat. size. " p. 83. " p. 47. Fam. 40. <u>Sciom.</u>
" 40.	<i>Pyrgota</i> (Wied.) <i>undata</i> . Wied.	" " " p. 82. " p. 40. Fam. 43. <u>Ortal.</u>
" 41.	<i>Osmithomyia</i> (Seach.) on Owl. <i>Nubo virginianus</i> .	" " p. 86. " p. 48. Fam. 62. <u>Hippo.</u>
" 42.	<i>Chlorops</i> (Meig.)	mag. " p. 85. " p. 46. Fam. 56. <u>Oscin.</u>

IV

Plate V. Diptera.

Fig. 1. <i>Phthiria</i> . (Meig.) <i>subhurea</i> . Law.	magn ^d	O.S.O. Law. p. 25. <u>Fam. 21. Bomb.</u>
" 2. <i>Axyra</i> . (Meig.) <i>oculata</i> . Oliv.	"	" 16 " p. 17. <u>Fam. 72. Strat.</u>
" 3. <i>Supromyza</i> . (Fall.) <i>compellida</i> . Law.	"	" 41 " p. 41. <u>Fam. 41. Syrph.</u>
" 4. <i>Oncodes</i> (Fabr.) <i>dispar</i> . Macq.	"	" 26. " p. 24. <u>Fam. 16. Syrph.</u>
" 5. <i>Camptoneura</i> . (Macq.) <i>picta</i> . Fab.	nat size.	" 79. " p. 40 <u>Fam. 44. Syrph.</u>
" 6. <i>Trypeta</i> . (Meig.) <i>commata</i> . Wied.	"	" 79. " " "
" 7. <i>Ortalis</i> . (Fall.) <i>colona</i> . Law.	"	" 77. " p. 30. <u>Fam. 43. Orla.</u>
" 8. <i>Trypeta</i> (Meig.) <i>polita</i> . Law.	"	" 0. " p. 40. <u>Fam. 44. Syrph.</u>
" 9. <i>Sepektor</i> . (Fabr.) <i>pusillus</i> . Law.	"	" 0. " p. 37. <u>Fam. 40. Scdm.</u>
" 10. <i>Culebata</i> . (Meig.) <i>antennaria</i> . Say 2. 83.	"	" 80. " p. 38. <u>Fam. 42. Micro.</u>
" 11. <i>Tetancera</i> . (Dumet.) <i>arcuata</i> . Law.	"	" 0. " p. 37. <u>Fam. 40. Scdm.</u>
" 12. <i>Tipula</i> . (Linn.) <i>tricolor</i> . Fab.	"	" 8. " p. 10 <u>Fam. 6. Tipul.</u>
" 13. <i>Limnophila</i> . (Macq.) <i>macrocera</i> . 2. 46. Say.	"	" 6. " " " "
" 14. <i>Pedicia</i> . (Fabr.) <i>albicincta</i> . Walk.	"	" 3. " " " "
" 15. <i>Tipula</i> . (Linn.) <i>fuliginosa</i> . Say.	"	" 0. " " " "
" 16. " " <i>ferruginea</i> . Fab.	"	" 7. " " " "
" 17. <i>Tachina</i> . (Meig.) <i>bifasciata</i> . Fab.	"	" 64. " p. 35. <u>Fam. 34. Tachi.</u>
" 18. " " <i>Sp?</i>	"	" " " " "
" 19. <i>Anthrax</i> . (Scop.) <i>associata</i> . Macq.	"	" 10. " p. 25 <u>Fam. 21. Bomb.</u>
" 20. <i>Laphria</i> . (Meig.) <i>sumosa</i> . Say. 2. 35.	"	" 31. " p. 23. <u>Fam. 19. Asilid.</u>
" 21. " " <i>flavicollis</i> . Say.	"	" " " " "
" 22. <i>Leptis</i> . (Fabr.) <i>ornata</i> . Say. 1. 26.	"	" 37. " p. 20. <u>Fam. 15. Leptid.</u>
" 23. <i>Brachypalpus</i> . (Macq.) <i>frontosus</i> . Law.	"	" 0. " p. 26. <u>Fam. 22. Syrph.</u>
" 24. <i>Altmosia</i> . (Macq.)	"	" 31. " p. 23. <u>Fam. 19. Asilid.</u>
" 25. <i>Tabanus</i> . (Linn.) <i>lineola</i> . (Fabr.)	"	" 21. " p. 19. <u>Fam. 14. Taban.</u>
" 26. " " <i>lasiophthalmus</i> . Macq.	"	" 28. " " " "
" 27. <i>Chrysops</i> . (Meig.)	"	" 24. " " " "
" 28. <i>Syrphus</i> . (Fabr.) <i>cylindricus</i> . Say. 1. 22.	"	" 57. " p. 26. <u>Fam. 23. Syrph.</u>
" 29. <i>Odontomyia</i> . (Meig.) <i>cincta</i> . Cuv.	"	" 13. " p. 17. <u>Fam. 16. Strat.</u>
" 30. <i>Discocerthusa</i> . (Macq.) <i>abdominalis</i> . Say 2. 64.	"	" 28. " p. 24. <u>Fam. 19. Asil.</u>
" 31. <i>Lortia</i> . (Fabr.) <i>boscii</i> . Macq.	"	" 36. " p. 20. <u>Fam. 15. Leptid.</u>
" 32. <i>Eyloda</i> . (Meig.) <i>haematodes</i> . Fab.	"	" 49. " p. 26. <u>Fam. 22. Syrph.</u>
" 33. <i>Pachygaster</i> . (Meig.) <i>fulvipes</i> . Law.	magn ^d	" 0. " p. 18. <u>Fam. 72. Strat.</u>
" 34. <i>Prophila</i> . (Fall.) <i>cassii</i> . Linn.	"	" 82. " p. 44. <u>Fam. 52. Proph.</u>
" 35. <i>Toxophora</i> . (Meig.)	nat. size.	" 44. " p. 25. <u>Fam. 21. Bomb.</u>
" 36. <i>Xylophagus</i> . (Meig.)	"	" 18. " p. 16. <u>Fam. 16. Dyle.</u>

Plate VII. Diptera.

- Fig. 1. *Corithra* (Latr.) *pallida*. Fab. mag² Meig pl 1. Eu. Low p 5. Fam. 1. Eulisi.
 " 2. *Tanyptus* (Meig.) *varius*. Fab. " " pl. 2. " (OS. 4) " p. 5. Fam. 2. Chiono.
 " 3. *Trochocera* (Meig.) *hyemalis*. Meig. " " " " " p. 10. Fam. 6. Tipulid.
 " 4. *Macrocera* (Meig.) " " OS. coll. U.S. " p. 13. Fam. 7. Mycet.
 " 5. *Blapharocera* (Macq.) " " " " " p. 8. Fam. 4. Blaph.
 " 6. *Hilera* (Meig.) *cilipes*. Meig. " " Meig pl. 22. Eu. " p. 30. Fam. 29. Emh.
 " 7. *Hemerodromia* (Hgg) *monolegma*. Hgg. " " pl. 23. " " p. 31. Fam. 30. Tachy.
 " 8. *Clinocera* (Meig.) *maculata*. Low. " " OS. coll. U.S. " p. " " " "
 " 9. *Medetorus* (Fischer) *regius*. Fab. " " Meig. pl. 35. Eu. " p. 32. Fam. 31. Dolich.
 " 10. *Porphyrops* (Meig.) *diaphanus*. Fab. " " " " " " " " "
 " 11. *Chrysotus* (Meig.) *niglectus*. Wied. " " " " " " " " "
 " 12. *Boris* (Latr.) *viridis*. Say. l. 251. " " OS. coll. U.S. OS. 14. " p. 17. Fam. 12. Strat.
 " 13. *Nemotelus* (Geoff.) *punctatus*. Fab. ♂. " Meig pl. 25. Eu. " " " " "
 " 14. *Lipomyza* (Fall.) *decumpunctata*. Fall. " " pl. 46. " " p. 41. Fam. 46. Sap.
 " 15. *Pila* (Meig.) *bicolor* " " " pl. 51. " " p. 48. Fam. 41. Psilid.
 " 16. *Micropera* (Meig.) *corrugiolata*. Linn. " " " pl. 53. " " p. 38. Fam. 42. Meig.
 " 17. *Pipunculus* (Latr.) " " OS. coll. U.S. " p. 28. Fam. 24. Pipun.
 " 18. *Myra* (Latr.) *gemina*. Wied. " " Meig. pl. 37. Eu. " p. 27. Fam. 23. Myop.
 " 19. *Phora* (Latr.) *incrassata*. Meig. " " " pl. 63. " " p. 47. Fam. 61. Phor.
 " 20. " " " " " " " " " " " "
 " 21. *Etenophora* (Meig.) *elegans*. Meig. 2. nat. size. " pl. 5. " " p. 10. Fam. 6. Tipulid.
 " 22. *Ptychoptera* (Meig.) *rufocincta*. " " OS. coll. U.S. " p. 11. " " "
 " 23. *Chionea* (Valm.) *valga*. Harr. p. 601. " " Harr. " (OS. 9) " p. 11. " " "
 * " 24. *Thoreva* (Latr.) (?) Meig 2. p. 86. " " Meig. pl. 15. Eu. " p. 24. Fam. 20. Thore.
 " 25. *Laphria* (Fab.) *thoracica*. Fab. (dark var) " " OS. coll. U.S. " p. 19. Fam. 23. Asilid.
 " 26. *Haematopota* (Meig.) " " " " " " " p. 14. Fam. 19. Saban.
 " 27. *Chrysops* (Meig.) " " " " " " " " " "
 " 28. *Palloptera* (Fall.) *superba*. Low. " " " " " " " p. 45. Fam. 41. Lonchog.
 " 29. *Liancolus* (Hal.) *genualis*. Low. " " " " " " " p. 32. Fam. 31. Dolichog.
 " 30. *Dolichopus* (Meig.) *longipennis*. Low. 2. 57. " " " p. " " " "
 " 31. *Merodon* (Latr.) *equestris*. Fab. " " Meig. pl. 31. Eu. " p. 26. Fam. 22. Syrph.
 " 32. *Somula* (Macq.) *decora*. Macq. " " OS. coll. U.S. (OS. 47) " " " "
 " 33. *Microdon* (Hlg.) *anthinus*. Meig. " " Meig. pl. 1. 26. Eu. " " " "
 " 34. *Sericomyia* (Meig.) *umbipennis*. Macq. " " OS. coll. Nova Scotia (OS. 53) " " " "
 " 35. *Volucella* (Geoff.) *zonana*. Schr. " " Meig. pl. 22. Eu. " " " "
 " 36. *Chrysotoxum* (Meig.) *arcuatum*. Linn ♂ " " " 27 " " " "
 " 37. *Cyrtodermu*. (Clark) *bovis*. Fab. (affinis) " Steel fly of Texas. " p. 22. Fam. 32. Estriid.

* Fig. 24. *Thoreva*. was taken from a figure by Meigen in Vol. 2, Plate. 15. p. 86. but is said to be incorrect. by Os.

VI

J. Storer

Plate VII. Diptera.

Fig. 1. <i>L. P. Culex</i> . (Linn.)	Westwood. 24. 508. Eu. mag ⁿ . Linn. p. 5. Fam. 1. <u>Cul.</u>
" 2. " <i>Chironomus</i> . (Fab)	" " " " " " p. 5. Fam. 2. <u>Chi</u>
" 3. " " <i>plumosus</i> . Linn.	" " " " " " " " " "
" 4. " " <i>stercorarius</i> . Dej.	" " " " " " " " " "
" 5. <i>L. Ceratopogon</i> . (Meig)	" 2. p. 578. " " " " " "
" 6. <i>L. P. Cecidomyia</i> (Meig)	" " " " " " p. 6. Fam. 3. <u>Cecu</u>
" 7. <i>L. Rhyphus</i> . (Meig)	" " " " " nat. size. " p. 15. Fam. 9. <u>Rhy</u>
" 8. " <i>Mycetophila</i> . (Meig) <i>fusca</i> . De Geer.	" " " " " mag ⁿ . " p. 13. Fam. 7. <u>Mye</u>
" 9. <i>L. P. Mycetobia</i> . Meig.	" 2. p. 524. " " " " " "
" 10. " <i>Siphia</i> . (Linn) <i>oleracea</i> . Linn.	" " " " " nat. size. " p. 10. Fam. 6. <u>Sip</u>
" 11. " <i>Ptychoptera</i> (Meig) <i>paludosa</i> . Meig.	" " " " " mag ⁿ . " " " " "
" 12. " <i>Bibio</i> . Geoff.	" " " " " " p. 15. Fam. 9. <u>Bib</u>
" 13. " <i>Stratiomya</i> . (Geoff.) <i>chameleon</i> . Linn.	" 2. p. 531. " " " p. 17. Fam. 10. <u>Strat</u>
" 14. <i>L. Xylophagus</i> (Meig) <i>uter</i> . Fab.	" " " " " " p. 15. Fam. 11. <u>Xyl</u>
" 15. " <i>Tabanus</i> . (Linn) <i>torvus</i> . Linn.	" 2. p. 538. " nat. size. " p. 19. Fam. 14. <u>Ta</u>
" 16. <i>P. Bombylius</i> (Linn) <i>major</i> Linn.	" " " " " " p. 25. Fam. 21. <u>Bom</u>
" 17. <i>L. Anthrax</i> . (Scop.) <i>ornata</i> .	" " " " " " " " " "
" 18. " <i>Rhamphomyia</i> (Meig) <i>gringras</i> . Fall.	" 2. p. 536. " mag ⁿ . " p. 30. Fam. 29. <u>Emp</u>
" 19. <i>L. P. Thereva</i> (Latr) <i>pluvialis</i> Linn.	" " " " " nat. size. " p. 24. Fam. 20. <u>Ther</u>
" 20. " <i>Asilus</i> . (Linn)	" " " " " " p. 24. Fam. 19. <u>Asil</u>
" 21. <i>L. Leptis</i> . (Fab) <i>vermileo</i> . Linn.	" 2. p. 551. " mag ⁿ . " p. 20. Fam. 15. <u>Lep</u>
" 22. <i>L. P. Leptis</i> (Fab) sp?	" " " " " " " " " "
" 23. " <i>Dolichopus</i> . (Meig) <i>ungulatus</i> Linn.	" " " " " " p. 32. Fam. 31. <u>Dol</u>
" 24. " <i>Syrphus</i> . (Fab) <i>pyrastri</i> . Linn.	" " " " " nat. size. " p. 26. Fam. 22. <u>Syrp</u>
" 25. <i>L. Volucella</i> (Geoff.)	" 2. p. 558. " " " p. 26 " "
" 26. <i>P. Dylota</i> (Meig) <i>florum</i> . Fab.	" " " " " " " " " "
" 27. <i>L. Morodion</i> . (Latr) <i>clavipes</i> . Fab.	" " " " " " " " " "
" 28. " <i>Helophilus</i> (Meig) <i>tenax</i> .	" " " " " " " " " "
" 29. <i>P</i> " "	" " " " " " " " " "
" 30. <i>L. Ocyptera</i> . (Latr) <i>bicolor</i> .	" " " " " " p. 35. Fam. 34. <u>Oach</u>
" 31. <i>L. P. Tachina</i> . (Meig.)	" " " " " " " " " "
" 32. <i>L. Lucilia</i> . (Kol Desov)	" 2. p. 569. " " " p. 35. Fam. 36. <u>Mus</u>
" 33. <i>L. P. Anthomyia</i> . (Meig) <i>ceharum</i> . Hgg.	" " " " " mag ⁿ . " " " "
" 34. <i>L. Gasterophilus</i> . (Leach) <i>equi</i> . Fab. (<i>Gastus</i> Meig)	" " " " " nat. size. " p. 32. Fam. 32. <u>Gst</u>
" 35. <i>L. P. Hypoderma</i> . (Clark) <i>ovis</i> Linn.	" " " " " " " " " "
" 36. <i>L. Cephalomyia</i> . (Latr) <i>ovis</i> . Linn.	" " " " " " " " " "
" 36a. " " " posterior view.	" " " " " " " " " "
" 36b. " " " Anterior view, with hooks on head	" " " " " " " " " "
" 37. <i>L. Phora</i> . (Latr) <i>dauci</i> . Meig.	Westwood 2. p. 569. Eu. mag ⁿ . " p. 47. Fam. 61. <u>Phor</u>
" 38. " <i>Platypira</i> . (Meig) <i>boletina</i> . Fall.	" 2 p. 551. " " " p. 23. Fam. 26. <u>Plat</u>
" 39. <i>L. P. Targus</i> . (Fab.)	" 2 p. 531. " " " p. 17. Fam. 12. <u>Strat</u>
" 40. <i>I. Hippoboscæ</i> . (Linn) <i>equina</i> . Linn.	Meigen pl 63. " " " p. 48. Fam. 62. <u>Hyp</u>
" 41. " <i>Ornithobia</i> (Meig) <i>pollida</i> . Meig.	" " 63. " " " " " "
" 42. " <i>Ornithomyia</i> (Leach) <i>viridis</i> . Leach	" " 64. " " " " " "
" 43. " <i>Stenopteryx</i> (Meig) <i>hirundinis</i> Linn.	" " 64. " " " " " "
" 44. " <i>Anapera</i> (Meig) <i>palida</i> . Leach.	" " 64. " " " " " "
" 45. " <i>Melophagus</i> (Lat) <i>ovinus</i> Linn.	" " 64. " " " " " "
" 46. " <i>Mycetobia</i> (Linn) (<i>Strebli</i> Meig) <i>vestibuliformis</i> . Linn.	" " 64. " " " " " "
* " 47. <i>Pulex</i> . (Linn) <i>irritans</i> . Linn. Westwood 2. 489. Eu & U.S. see Packard, 4. 389. Linn. p. 611.	" " " " " " " " " "
" 48. <i>Sarcophylla</i> . (Westw) <i>penetrans</i> . " " " " " " " " " "	" " " " " " " " " "
* No 47 & 48. are not classed in the Diptera in Osten Sacken or Linn. Cat. or Monog.	

VII

VIII

Plate XX. Diptera.

- ✠ *Exorista cecropiae*

IX

Plate X. Diptera.

- Fig 1. *Chlorops* (Meig.) *toeniorus*. Meig. * from Curtis. Eu. mag. Loew p. 40 Fam 56 Oscin.
- " 2. " " *vulgaris*. Fitch 1st & 2^d Rep. 291. OS p. 85. U.S. " " " " " "
- " 3. *L. S. Osinis* (Rob. D.) *granarius* Curtis. Eu. " " " " " "
- " 4. *L. S. S. tibialis*. Fitch 1st & 2^d Rep. p. 300. OS p. 85. U.S. " " " " " "
- " 5. *L. S. S. vastator*. Curtis. Eu. " " " " " "
- " 6. *L. P. S. Drosophila* (Fall.) " " " " " p. 45 Fam 55 Dros.
- " 7. *L. S. Anthomyia* (Meig.) *tuberosa*. " " " " " p. 36 " 37 Anth.
- " 8. *L. P. S. Sciara* (Fab.) *fucata*. Meig. " " " " " p. 73 " 7 Myec.
- " 9. *L. S. Anthomyia* (Meig.) *radicum*. Linn. " " " " " p. 36 " 37 Anth.
- " 10. *L. P. S. Psila* (Meig.) *rosae*. Fab. " " " " " p. 45 " 41 Psil.
- " 11. *S. Hylemyia* (Macq.) *deceptiva*. Fitch 1st & 2^d Rep. 301. U.S. " " p. 36 " 37 Anth.
- { *Anthomyia* *O. cat.*
- " 12. *I. Phytomyza* (Fallen.) *nigricornis*. Macq. Curtis. Ea. " " p. 47 " 58 Phyt.
- " 13. *I. Melanospora* (Meig.) (*Tachina*) *diabroticae*. Shiner Am Nat 5. 219 U.S. mag. " p. 34 " 34 Tach.
- " 14. *S. Simulium* (Lat.) *sericeum* ♂ Curtis. Eu. mag. Loew p. 14. " 8 Simu
- " 15. " " " ♀ " " " " " " " "
- " 16. *Leucopis* (Meig.) *griseola*. Fall. Meig 6 p. 138 pl. 60 " " Loew O. but placed by }
{ Meigen between *Ephydra* & *Chiron* }
- " 17. *Agromyza* (Fall.) *denticornis*. Fall. Meig. 6 p. 175 pl. 61. Eu. mag. Loew p. 46. Fam 47 Agro.
- " 18. *Helomyza* (Fall.) *ustulata*. Meig 6 p. 54 pl. 57. " " " p. 37 " 39 Hel.
- " 19. *Dacus* (Meig.) *oleae* (Fab.) Meig 6 p. 61. pl. 56. " " " p. 40 " 44 Trype.
- " 20. *Meromyza* (Meig.) *pratensis*. Meig 6 p. 163 pl. 61. " " " p. 36 " 56 Oscin
- " 21. *Syrphus* (Fab.) (*Scaeva*) *ribesii*. Fab. OS. 51. Curtis Eu & U.S. nat. sire. " p. 26 " 22 Syrph.
- " 22. *Hydrophora* (Clark.) (*Oestrus*) *tarandi*. Linn. OS. 62. Meig 4. 169 pl. 38 " p. 32 " 32 Oestr.
- " 23. *Masicera* (Macq.) (*Tachina* Meig.) Meig 7 p. 261. pl. 77. Eu. nat. sire. " p. 34 " 34 Tach.
- " 24. *Ornithomyia* (Leach) *aricularia*. Linn. from Curtis. " mag. p. 48 " 62 Hyp.
- " 25. *L. P. S. Syrphus* (Fab.) ? Larva feeds on eggs & of *Pemphigus vitifoliae*. U.S. " p. 26 " 22 Syrph.
- " 26. Gall made by *Pemphigus vitifoliae*. on *Grave vine* leaves see no 25. above. (Homop.)
- " 27. *L. P. S. Eirula* (Linn.) *oleracea* Linn. from Curtis. Eu. nat. sire. Loew p. 19. Fam 14 Tab.
- " 28. *I. Cephalomyia* (Fall.) (*Oestrus*) *ovis* Linn. OS. 62. Meig 4. 164 pl. 38 " " " p. 32 " 32 Oestr.
- " 29. *I. Sasterophilus* (Leach) *hemorrhoidalis*. Fab. OS. 62. Curtis. Eu. U.S. mag. Loew p. " " " "
- " 30. *L. P. S. Leucopis* (Meig.) found in *Ind* eating eggs & of } U.S. " see fig 16. above.
{ *Pemphigus vitifoliae* }
- " 31. *L. P. S. Trichocera* (Meig.) *hyemalis* De Geer. frn Curtis. Eu. nat. sire Loew p. 9. Fam 6 Trich.
- " 32. A disease called *Antony* in turnips. supposed to be caused by *Trichocera hyemalis*.
- " 33. *L. Tabanus* (Linn.) *bovinus*. Linn. Curtis. Eu. nat. sire. Loew p. 19. Fam 14 Tab.
- " 34. *P. Proctacanthus* (Macq.) *philadelphicus* Macq. OS 35 ? . U.S. " " p. 22 " 19 Uset.
- { Back Am Nat. 4. p. 686 fig 155 }
- " 35. *L. Tabanus* (Linn.) *atratus*. Fab. OS. 35. Am Nat. 4. 686 fig. 156. " " " p. 19 " 14 Taba.
- " 36. *L. P. Simulium* (Latre) *columbasiensis*. Fab frn Curtis. Eu. mag. " p. 14 " 8 Simul.

* Curtis. frn Curtis F.L.S. "Farm Insects" and in "Cyclopaedia of Agriculture." edited by John C. Morton. Blackie & Sons. Glasgow, Edinburgh, & London.

Plate XII. Diptera.

Fig 1. <i>Scaphiula</i> (Meig.) <i>striata</i> . Meig.	Meig 1. p. 192. pl. 9. mag ³ . Eu. Læw. p. 13. Fam 7. Myc.
" 2. <i>Rhomphomyia</i> (Meig.) <i>nigripes</i> . Fab.	" 3. p. 48. pl. 23. " " " p. 30. " 29. Emp.
" 3. " " <i>longipes</i> . Meig.	" 3. p. 55. pl. 23. " " " " " "
" 4. <i>Boletophila</i> (Meig.) <i>cinerea</i> . Hgg.	" 1. p. 174. pl. 8. " " " p. 13. " 7. Myc.
" 5. <i>Piara</i> (Fab.) <i>Thomas</i> . Linn.	" 1. p. 217. pl. 4. " " " " " "
" 6. <i>Empis</i> (Linn.) <i>chiroptera</i> . Falen.	" 3. p. 27. pl. 22. " " " p. 30. " 29. Emp.
" 7. " " <i>opaca</i> . Fab.	" 3. p. 17. pl. 22. " " " " " "
" 8. <i>Tachydromia</i> (Meig.) <i>fasciata</i> . Meig.	" 3. p. 86. pl. 23. " " " p. 31. " 30. Tachy.
" 9. <i>Hylomyia</i> (Macq)	" 7. p. 317. pl. 74. " " " p. 36. " 37. Anth.
" 10. <i>Psila</i> (Meig.) <i>rosae</i> . Fab.	" 5. p. 358. pl. 51. " " " p. 38. " 41. Vi. 2.
" 11. <i>Glossina</i> (Wied.) <i>morsitans</i> . Pack 407. Woods. Nat. Hist. p. 574. nat ³ . Africa. " 735. " 36. Mus.	
" 12. <i>Trypeta</i> (Meig.) <i>suaris</i> Læw. 175.	Am 9 th . Le Baron. " ^{size 3} U.S. Læw. p. 20. Fam 24. Try.
" 13. L.S.I. <i>Mycetobia</i> (Meig.) <i>persica</i> . Riley. Am Ent 1. 223.	mag ³ " " p. 13. " 7. Myc.
" 14. <i>I. Thoreva</i> Latr.	Meig 2. p. 86. pl. 15. nat. inc. Eu. " p. 6. " 3. Acid.
" 15. Gall of <i>Cecidomyia</i> (Latr.) <i>strobiloides</i> . O.S. on Willow Læw. 203 & U.S. " " " "	
" 16. " " " <i>impatiens</i> O.S. Læw. 204. Am Ent. 2. 63.	" " " " " "
" 17. " " " (<i>vitis</i>) <i>promum</i> O.S. (on Grape.) Pack. 377.	" " " " " "
" 18. " " " <i>onanassa</i> . Riley. Am. Ent. 2. 244.	" " " " " "
" 19. " " " (<i>solcis</i>) <i>siliqua</i> . Walsh. Am Ent. 2. 214.	" " " " " "
" 20. " " " <i>orbitalis</i> . Walsh (a guest gall gnats) Am Ent 2. 28.	" " " " " "
" 21. " " " (<i>vitis</i>) <i>lituus</i> . Riley. Am Ent 2. 28 (on Grape.	" " " " " "
" 22. " " " " " (<i>affinis</i>) (a var. found in Maryland) " " " " " "	
" 23. " " " <i>holodmicha</i> . O.S. (on Hickory) Læw. 1. 193.	" " " " " "
" 24. " " " <i>caryaeaeolae</i> O.S. " " " " " "	Læw. 1. 192. " " " " " "
" 25. " " " <i>tubicola</i> O.S. " " " " " "	Læw 1. 192. " " " " " "
" 26. " " " ?	(Oak leaf on red) " " " " " "
" 27. " " " <i>proculum</i> Fitch 2 nd Rep (Oak) Læw 1. 201.	" " " " " "
" 28. " " " <i>grossulariae</i> . Fitch 1 st Rep 179. (Gooseberry. Læw 1. 187.	" " " " " "
" 29. " " " <i>scellaris</i> . O.S. (on Maple) Læw. 1. 199.	" " " " " "
" 30. " " " (<i>solcis</i>) <i>brassicoides</i> . Walsh. (on Willow) Am Ent 1. 104.	" " " " " "
" 31. " " " <i>chrysopsidis</i> . O.S. (on Golden Willow) Læw 1. 203.	" " " " " "
" 32. " " " (<i>vitis</i>) <i>coryloides</i> . Walsh. (on Grape) Pack 377.	" " " " " "
" 33. Gall of { <i>Trypeta</i> (Meig)	<i>solidaginis</i> . Fitch. O.S. 80. (Golden rod) " " " " " "
{ <i>Acinia</i> (Macq)	Fitch. 1 st Rep 67 & 1854. p. 77. " " " " " "
{ <i>Trypeta. asteris.</i> of Harris an error.	

XI

J. H. V. 1841

Plate XIII. Diptera.

Fig.	Genus	Species	Author	Year	Page	Fig.	Genus	Species	Author	Year	Page
1.	<i>Homatopota</i>	<i>(Meig) pluvialis</i>	Meig	2.	79.	pl. 14.	nat. size	Eu.	Law	19	Fig. 14.
2.	<i>Lonchopora</i>	<i>(Meig) torilis</i>	Meig.	4.	p. 110.	pl. 36.	"	"	"	p. 29.	27. Long.
3.	<i>Lophophagus</i>	<i>(Meig) ater</i>	Fab.	2.	p. 8.	pl. 12.	mag ^d	"	"	p. 15.	11. Dyle.
4.	<i>Lasiopora</i>	<i>(Meig) ?</i>	"	1.	p. 71.	pl. 3.	"	"	"	p. 7.	3. Cecid.
5.	<i>Simulium</i>	<i>(Latr) columbaschensis</i>	Fab.	1.	p. 220.	pl. 0.	"	"	"	p. 14.	8. Simul.
6.	<i>Sepsis</i>	<i>(Fall) cornuta</i>	Meig.	5.	p. 289.	pl. 67.	"	"	"	p. 43.	50. Schrid.
7.	<i>Oncodes</i>	<i>(Latr) (Henops Meig) gibbosus</i>	Meig.	3.	p. 99.	pl. 24.	"	"	"	p. 21.	10. Cyrt.
8.	<i>Macropera</i>	<i>(Meig) albicans</i>	Meig.	1.	p. 69.	pl. 3.	"	"	"	p. 5.	2. Chiro.
9.	<i>Aspistes</i>	<i>(Meig) berolinensis</i>	Hgg.	1.	p. 268.	pl. 11.	"	"	"	p. 14.	9. Bitio.
10.	<i>Ocyptora</i>	<i>(Latr) brassicaria</i>	Fab.	4.	p. 211.	pl. 39.	nat. size	"	"	p. 34.	34. Tach.
11.	<i>Dinera</i>	<i>(Rob. Des)</i>	"	7.	p. 269.	pl. 73.	mag ^d	"	"	p. 33.	33. Denid.
12.	<i>Heteroneura</i>	<i>(Meig) nubila</i>	Meig.	6.	p. 126.	pl. 60.	"	"	"	p. 42.	48. Heter.
13.	<i>Gordylura</i>	<i>(Fallen) putera</i>	Meig.	5.	p. 123.	pl. 45.	"	"	"	p. 36.	38. Gordy.
14.	<i>Coelopa</i>	<i>(Meig) frigida</i>	Meig.	6.	p. 8.	pl. 56.	"	"	"	p. 42.	47. Phys.
15.	<i>Diastata</i>	<i>(Meig) anus</i>	Meig.	6.	p. 95.	pl. 59.	"	"	"	p. 45.	56. Geom.
16.	<i>Hironeura</i>	<i>(Meig) obscura</i>	Meig.	2.	p. 100.	pl. 16.	nat. size	"	"	p. 21.	17. Hirone.
17.	<i>Salanx</i>	<i>(Linn) lonicus</i>	Meig.	Curts. in	Mortons	Conc. p. Agr.	"	"	"	p. 20.	14. Salan.
18.	<i>Chlorops</i>	<i>(Meig) brevifemoris</i>	Meig	2.	p. 159.	pl. 61.	mag ^d	"	"	p. 46.	56. Osmund.
19.	<i>Borborus</i>	<i>(Meig) pedestris</i>	Meig.	2.	p. 209.	pl. 62.	"	"	"	p. 47.	60. Borb.
20.	<i>Cerix</i>	<i>(Fab) subessulis</i>	Illig.	3.	p. 159.	pl. 56.	nat. size	"	"	p. 26.	22. Symp.
21.	Wing of	<i>Trypeta (Meig) conlucua</i>	Meig.	5.	p. 312.	pl. 48.	mag ^d	"	"	p. 40.	44. Trypet.
22.	"	"	"	5.	p. 327.	pl. 49.	"	"	"	"	"
23.	"	"	"	5.	p. 317.	pl. 48.	"	"	"	"	"
24.	"	"	"	5.	p. 75.	pl. 48.	"	"	"	"	"
25.	"	"	"	5.	p. 73.	pl. 43.	"	"	"	p. 35.	36. Musc.
26.	<i>Chionea</i>	<i>(Linn) araneoides</i>	Dalm.	7.	p. 37.	pl. 67.	nat. size	"	"	p. 9.	7. Symp.
27.	<i>Cecidomyia</i>	<i>(Latr) chrysopsidis</i>	OS Law	1.	203.		mag ^d	U.S.	"	p. 6.	3. Cecid.
28.	Antennae of	<i>Syristromia</i>	Meig	4.	p. 71.	pl. 34.	"	Eu.	"	p. 32.	31. Polich.
29.	Gall of	<i>Cecidomyia (Latr) carbonifera</i>	O.S. Law	1.	194.		nat. size	U.S.	"	p. 6.	3. Cecid.
30.	"	"	"	1.	202.		"	"	"	"	"
31.	<i>Diopsis</i>	<i>(Say) meigenii</i>	Westwood	2.	575.	fig 132.	"	"	"	p. 44.	51. Diops.
32.	Gall of	<i>Cecidomyia (Latr) solidaginis</i>	O.S. Law	1.	194.		"	"	"	p. 6.	3. Cecid.
33 a.	"	"	"				"	"	"	"	"
33 b.	"	"	"				"	"	"	"	"

XII

J. P. M.

Supplement A.

	Meigen.	O.Sacken.	Leu.		Meigen.	O.Sacken.	Leu.
	plate 1.	page 1.	page 5.		plate 12.	page 18.	page 16.
1. <i>Culex</i> . Linn.	"	"	"	44. <i>Xylophagus</i> Meig.	" 26.	" 14.	" 18.
2. <i>Anopheles</i> . Meig.	"	"	"	45. <i>Stratiomys</i> . Geoff.	" 25.	" 16.	" "
3. <i>Corethra</i> . Latr.	"	"	"	46. <i>Oxyera</i> . Meig.	" 24.	" "	" "
4. <i>Tanyptus</i> Meig.	" 2.	" 4.	" "	47. <i>Nemotelus</i> . Fab.	" "	" 0.	" "
5. <i>Geratopogon</i> . Meig.	"	"	"	48. <i>Parazygaster</i> . Meig.	" 62.	" 85.	" 47.
6. <i>Chironomus</i> . Fab.	"	"	"	49. <i>Borborus</i> "	" 38.	" 63.	" 34.
7. <i>Cecidomyia</i> . Latr.	"	"	"	50. <i>Gyranosoma</i> Fall.	"	"	"
8. <i>Psychoda</i> . Latr.	" 3.	" 5.	" 9.	51. <i>Oxyptera</i> . Latr.	" 41.	" 64.	" "
9. <i>Erioptera</i> . Meig.	" 5.	" 4.	" "	52. <i>Tachina</i> Meig.	" 48.	" 63.	" "
10. <i>Etenophora</i> "	"	"	"	53. <i>Sarcophaga</i> Meig.	" 43.	" 70.	" 35.
11. <i>Limnobia</i> . "	"	"	"	54. <i>Musca</i> . Linn.	" 44.	" 72.	" 36.
12. <i>Triphocera</i> . "	" 7.	" 9.	" "	55. <i>Anchomyia</i> Meig.	" 47.	" 78.	" 43.
13. <i>Tipula</i> . Linn.	" 6.	" 6.	" "	56. <i>Sepsis</i> Lulien.	" 45.	" 68.	" 36.
14. <i>Psychoptera</i> . Meig.	"	"	"	57. <i>Scatophaga</i> . Latr.	" 54.	" 82.	" 44.
15. <i>Macrocera</i> . "	" 7.	"	"	58. <i>Prophila</i> . Fall.	" 46.	" 0.	" 41.
16. <i>Mycetophila</i> . "	" 9.	" 10.	" 13.	59. <i>Sapromyza</i> . Fall.	"	"	"
17. <i>Sciara</i> . Fab.	" 4.	" 11.	" "	60. <i>Ortalis</i> . Fall.	" 48.	" 78.	" 40.
18. <i>Simulium</i> Latr.	" 10.	"	"	61. <i>Syrphus</i> . Meig.	" 59.	" 84.	" 45.
19. <i>Dilophus</i> . Meig.	" 11.	" 12.	" "	62. <i>Drosophila</i> Fall.	" 51.	" 0.	" 38.
20. <i>Bilio</i> . Geoff.	" 11.	" 13.	" "	63. <i>Psila</i> . Meig.	" 61.	" 85.	" 46.
21. <i>Rhyphus</i> . Latr.	"	"	"	64. <i>Agromyza</i> . Fall.	"	"	"
22. <i>Asilus</i> Linn.	" 21.	" 35.	" 24.	65. <i>Chlorops</i> . Meig.	" 53.	" 81.	" 38.
23. <i>Dioctria</i> Meig.	" 19.	" 28.	" "	66. <i>Micropera</i> . "	" 26.	" 46.	" 26.
24. <i>Dasypogon</i> . "	" 20.	"	"	67. <i>Cera</i> . Fab.	" 26.	" 47.	" "
25. <i>Laphria</i> . Fab.	"	"	"	68. <i>Miciodon</i> . Illig.	" 27.	"	"
26. <i>Leptogaster</i> Meig.	" 21.	" 36.	" "	69. <i>Chrysotaxum</i> . Meig.	" 28.	" 49.	" 26.
27. <i>Leptis</i> Linn.	" 15.	"	"	70. <i>Aylota</i> Meig.	" 29.	" 50.	" "
28. <i>Tabanus</i> . Linn.	" 13.	" 19.	" 19.	71. <i>Rhynia</i> . Fab.	" 32.	" 54.	" "
29. <i>Hæmatopota</i> . Meig.	" 14.	" 25.	" "	72. <i>Helophorus</i> . Meig.	" 31.	" 53.	" "
30. <i>Chrysops</i> . Meig.	"	"	"	73. <i>Meredon</i> . Latr.	" 32.	" 54.	" "
31. <i>Empus</i> . Linn.	" 22.	" 45.	" 30.	74. <i>Eristalis</i> "	" 30.	" 50.	" "
32. <i>Rhamphomyia</i> Hgg.	" 23.	"	"	75. <i>Syrphus</i> . Fab.	" 32.	" 56.	" "
33. <i>Hilera</i> . Meig.	" 22.	"	"	76. <i>Volucella</i> . Geoff.	" 36.	" 60.	" 27.
34. <i>Hæmerodromia</i> Hal.	" 23.	" 46.	" 31.	77. <i>Cerops</i> . Linn.	" 37.	" 61.	" "
35. <i>Tachyromia</i> . Fab.	"	"	"	78. <i>Myota</i> . Fab.	" 38.	"	"
36. <i>Bombylius</i> . Linn.	" 18.	" 42.	" 25.	79. <i>Stomoxys</i> . Geoff.	" 38.	" 62.	" 33.
37. <i>Anthrax</i> . Scop.	" 17.	" 38.	" "	80. <i>Ostrus</i> . Linn.	"	"	"
38. <i>Dolichopus</i> . Latr.	" 35.	" 59.	" 32.	81. <i>Gastrus</i> . Meig.	" 24.	" 26.	" 24.
39. <i>Medeterus</i> Fisch.	"	"	"	82. <i>Acrocera</i> . "	" 15.	" 38.	" 24.
40. <i>Porphyrops</i> . Meig.	"	"	"	83. <i>Thereva</i> Latr.	" 36.	" 0.	" 29.
41. <i>Chrysotus</i> . "	"	"	"	84. <i>Longchoptera</i> Latr.	" 33.	" 57.	" 28.
42. <i>Boris</i> . Latr.	" 12.	" 14.	" 17.	85. <i>Pipunculus</i> . "	"	"	"
43. <i>Canomyia</i> . Latr.	"	"	"	86. <i>Platypera</i> . Meig.	"	"	"

This anatomical plate of the genera of Diptera was intended to illustrate the tables or notes in Leunis's review of the principal families of the diptera in Leunis "Synopsis der drei Natur reiche" p. 598 to 629. The mark of an arrow points to the principal or distinguishing differences of structure between nearly allied genera, as in Fig 1. *Culex*. and Fig 2 *Anopheles*. the palpi of *Culex* ♂ are longer than the proboscis, whilst in *Anopheles*. the palpi are of the same length. All the figures are reduced in size from J. St. Meigens systematic description of known European two winged insects. Halle. 1851. & published in seven parts or volumes. —*—

Arrangement of Families from "Monographs of Diptera of North America" by H. Loew. Part 1, prepared for the Smithsonian Institution, 1862. Edited with additions by R. Osten Sacken.

Division 1. Nemocera.

Fam 1.	Culicidae	Loew	page 5.
" 2.	Chironomidae	"	" 5.
" 3.	Cecidomyiidae	"	" 6.
" 4.	Blepharoceridae	"	" 8.
" 5.	Psychodidae	"	" 9.
" 6.	Tipulidae	"	" 9.
* " 7.	Mycetophilidae	"	" 13.
" 8.	Simuliidae	"	" 14.
" 9.	Bibionidae	"	" 14.
" 10.	Rhyphidae	"	" 15.

Division 2. Brachycera.

Fam 11.	Hydrophagidae	Loew	page 15.
" 12.	Stratiomyidae	"	" 17.
" 13.	Acanthomeridae	"	" 19.
" 14.	Tabanidae	"	" 19.
" 15.	Leptidae	"	" 20.
" 16.	Cyrtidae	"	" 21.
" 17.	Hemimoneuridae	"	" 21.
" 18.	Midasidae	"	" 22.
" 19.	Osilidae	"	" 22.
" 20.	Threvidae	"	" 24.
" 21.	Bombylidae	"	" 25.
" 23.	Myzidae	"	" 27.
" 24.	Pirunculidae	"	" 28.
" 25.	Scenopinidae	"	" 28.
" 26.	Platyperidae	"	" 28.
" 27.	Lonchotteriidae	"	" 29.
" 28.	Hydrotidae	"	" 29.
" 29.	Empidae	"	" 30.
" 30.	Tachydromidae	"	" 31.
" 31.	Dolichorodidae	"	" 32.
" 32.	Exidae	"	" 32.
" 33.	Lixidae	"	" 33.

Division 2. Brachycera. continued.

Fam 34.	Tachinidae	Loew	page 35.
" 35.	Sarcophagidae	"	" 35.
" 36.	Muscidae	"	" 35.
" 37.	Anthomyiidae	"	" 36.
" 38.	Cordyluridae	"	" 36.
" 39.	Xilomyzidae	"	" 37.
" 40.	Sciomyzidae	"	" 37.
" 41.	Psilidae	"	" 38.
" 42.	Microkeridae	"	" 38.
" 43.	Ortolidae	"	" 39.
" 44.	Trypidae	"	" 40.
" 45.	Lonchaeidae	"	" 41.
" 46.	Sapromyzidae	"	" 41.
" 47.	Phycodromidae	"	" 42.
" 48.	Heteroneuridae	"	" 43.
" 49.	Ophomyzidae	"	" 45.
" 50.	Sepsidae	"	" 43.
" 51.	Diopsidae	"	" 44.
" 52.	Prothilidae	"	" 44.
" 53.	Epiphydriidae	"	" 45.
" 54.	Geomyzidae	"	" 45.
" 55.	Drosophilidae	"	" 45.
" 56.	Oscinidae	"	" 46.
" 57.	Agromyzidae	"	" 46.
" 58.	Phytomyzidae	"	" 46.
" 59.	Asteidae	"	" 47.
" 60.	Porboridae	"	" 47.
" 61.	Phoridae	"	" 47.

Division 3. Coriacea.

Fam 62.	Styroboscidae	Loew	page 48.
" 63.	Nycteribiidae	"	" 48.

* The Flea. (*Pulex*.) although not placed amongst the Diptera in Osten Sacken's catalogue or in Loew's Monographs, is classed by Dr. Packard (p. 389) in the diptera between Mycetobia and Simulium, and by Lewis (p. 610) between Rhyphus and Asilus. — Westwood (2. 489.) makes a separate order for it (Aphaniptera. Kirby.) it is therefore merely placed provisionally at the end of this list until its proper situation is determined.

*Alphabetical list of the Families and Genera of Diptera
mentioned in this work —, with Synonyms. Scabiat. Food. &c.*

* note. The number of the plate on which the Larva Pupa or Insect is figured will be distinguished by Roman numerals, whilst the number of the figure will be in Italics.

Acanthomeridae. Fam 73. *Law.* 1. p. 14. none in the U.S.

Acinia (K. Less.) see *Trypeta*.

Acerocera Meig. 3. 98. pl. 1. 24. Anat. A 32. Ins. found on plants and among flowers.

Acerocerida. Fam 5. *OS. cat.* p. 26 but placed by *Law* in *Form 16. Cerytidae*.

Agromyza. Fall. (?) Insect from Ind. Aug. J. IV. 37.

" " " " *Anticornis*. Fall. (Eu) Meig. 6. 170. pl. 61. JX. 17.

" " " " *nana*. Meig. 6. 170. (Eu) *Leunis* 674. Lar. mines in leaf of *Iris pseudacorus*.

" " " " *negripennis*. *Leunis* 624. (Eu) " " " " *Lucern.*

" " " " *pusilla*. Meig. 6. 185. (Eu) *Leunis* 624 " " " " *Euphorbia*.

" " " " *tritici* *Fitch* 2^d Rep. 303. 8. 1855. p. 523. (US) *OS. 85. J. IX. 3.* Larvae in:

" " " " } injure grains of Wheat by sucking out juices when immature. & are destroyed
by a parasitic hymenopterous fly. *Diapria agromyzae*.

Agromyzidae. Fam 57. *Law.* 1. p. 56.

Anaerone (Meig.) *poideae* Meig. 6. 235. pl. 64. J. VII. 44. Insect parasitic on Swallows.

Anopheles. Meig. 1. 9. *Meig.* Syn 125. J. Anatomy. A 2. & Meig. pl. 1. Lar. said to be aquatic

" " *hyemalis*. *Fitch*. (US) J. I. 12. from ciliaryland. March. Winter gnat.

" " *quadrinervata*. Say. in *Longs. Exp. App.* p. 356. *Pack.* 370. *OS. 2. Wed.* 1. 509.

{ Ins. abundant in spring before the mosquito & said to bite severely.

Antomyia. Meig. Anat. A 55. Meig. 53. p. 44. Larvae live in Manure, roots, rotten vegetable matter, or in the pulpy parts of plants where they occasionally do much injury. The perfect flies frequent flowers.

" " sp. ? (Ma) Ins. IV. 25. Insect taken in June. in Ind on flowers

" " sp. ? (Hy) Ins. IX. 1. *Am Nat.* 5. 745. Ins taken in Mammoth cave. Hy

" " sp. ? (US) *L. VIII. 12.* *Pack.* 131. Larva parasitic in nest of Humble & wild bees

" " *betulae*. *Curtis* 396. (Eu) Larva mines in leaf of *Mangel wurzel*.

" " *brassicae*. *Bouché* (Eu & US). *Am Ent.* 2. 79. *Fitch* 186a. 496. *Kollar* 189.

{ *Leunis* 622. *Pack.* 411. *Howe* 2. 570. Larva injures roots & stems of Cabbage, Rutabaga, and Turnips. & are themselves destroyed by a root beetle. *Oleochara anthomyiae* in the U.S. & in Europe. probably by a parasite (Hym) *Alysia manducator*.

" " *canicularis*. Meig. 5. 143 (Eu) *Karr.* 616. *MS* 73. 433. *Pack* 411. *Fitch* 2. 571. Larva destroys roots of Cabbage & Turnips. & is said also to have been discharged from the human stomach.

" " *cezarum* Hoff. (US & Eu) *Am Ent* 2. 110. *Fitch* 1866. 487. 710th *Rep.* 36. *Karr* 616. *Leunis* 622. *OS. cat.* *Pack* 411. *Proc Ent* 2. 65. *Meig* 2. 570. J. VII. 33. J. VIII. 18. —
(Ind. fly. Lar. injures roots of Onions (for Black Onion, fly see *Ortalis fusca*.)

- Anthomyia* (Meig.) *conformis*. Fall. (Eu) Leun. 621. Meig 5. 180 Lar min in graves of Beets.
- " " *deceptiva*. Fitch. see *Hylemyia*.
- " " *gnava*. Meig. (Eu) Meig 5. 164. Curtis in Mortons. Cyclop. Ag. Larvae injure Turnips.
- " " *incana* Hgg. (Eu) Meig 5. 84. Pack 150. Larva said to be parasitic in nest of Wasp.
- " " *lactuorum*. Bouché (Eu) Kollar. Leunis 621. Westw 25. 70. Lar. destroy seeds of Lettuce.
- " " *meteorica*. see *Hydrotaea*.
- " " *platyura*. Meig 5. 171. (Eu) Leun. 622. Larvae injure roots of Shallot.
- " " { *radicum* Linn (Eu) Morton Cyc. Ag. Harr 617. Leun 621 Meig 5. 168. L.S. X. 9.
"European root. Turnip fly" Larva injures roots of Radishes and Turnips.
- " " { *raphani*. Harr. 617. (US) Am Ent 2. 274. Pack 411 Os. 75 "Radish fly" Larva
injures the roots of Radishes. Ins. appears in June. in Mass 49
- " " { (*Homolomyia*) *scaleris*. Fab. (Eu) Harr 616. Meig 5. 161. Westw 2. 571 Larvae
live in excrements. - I said also to have been discharged from the human
stomach.
- " " *similis*. (Fitch) see *Hylemyia*.
- " " *tuberosa*. Curtis. (Eu) Mortons Cyc Ag. Lar breed in damp diseased potatoes }
L.S. X. 7 Curtis - }
- " " *zeae*. Riley Rep. 1869. 154. "Corn seed maggot." Am Ent 1. 224. Pack 411.
L. VIII. 26. Ins IX. 32. fm Riley Larvae destroy kernels of sprouting corn (US)

Anthomyiidae. Fam 37. Lew.

Anthracinae in Fam 21 *Bombyliidae* Lew 2. 141. Anat. A 37. Meig. pl 17.

Larvae supposed to be parasitic in nests of *Hymenoptera*, or to live in wood.

- Anthrax*. Scop. Meig 2. 108. Sp? I III. 11. Insect bred from the pupa of a moth June (Md)
- " " *cypria*. sa *fulvohirta*.
- " " *fasciata* Macg. (Md US.) Os. 40. Hied 1. 321. I V. 19. Ins. taken on flowers, July.
- " " *fulvohirta* Hied 1. 308. (US) Os 40. Meig 2. 158. (as *A. cypria* Voronevsky as Eu)
- " " { *viridula* Say 161 vol 2. Os. 40. } (Md. US. West Ind. &?) I III. 12. Ins Md July.
" { *adipus*. Fab. Hied 1. 262. Os 41. }
- " " { *morio*. Fab. (Eu) Leunis 615. Pack 347. Westw 2. 544. Lar. parasitic in nest of a bee.
(*Anthophora*.)
- " " *ornata*. (Eu) Westw 2. 546. I V. 11. 17 Lar parasitic in nest of bee (*Megachile*)
- " " *simpsoni*. Fab. (Md US. S. Am.) US. 41. Say 2. 60. Hied 2. 259. I III. 15. Md. Aug.
- " " { *sinuosa*. Hied. (Md US.) Am nat. 1. 157. Os. 42. Pack 132 & Hied 1. 301.
I III. 13. The larva is parasitic in the nest of the carpenter bee *Xylecopa*.

Aphaniptera. Kirby. Westw. 2. 488. an order in woodcock comprising the Fleas (Pulex &c)

Asilidae. Fam 19. Lew. 1. 22.

Asilus. Linn. Anat. A. 22. Meig pl 21. Larvae live in earth on roots & others
said to live in old wood. Insects predators, storing other insects —
when on the wing or stationary with their anterior legs & then sucking
out their juices Macquart records some of them as stinging cattle. Westw 2. 549.

- Asurus* Lin. ? I. 11. 22 Ins. predatory. It was taken in the act of killing a
 { small fly.. Md. June.
 " ? (Eu) L.P. VII. 20. Westw. 2. 546 Lar. probably feeds on roots..
 " ? Narration of wing. IX. 35. fm Riley 2^a Rep. 12/2 (US)
 " . . . vestuans. Harr. 17. pl. 1. fig 4. (US)
 " . . . crabriiformis. (Eu) R.V.S. 477..
 " . . . { *Dasygogon* diademata. Fab. (Eu) Mortons. Cyc. Ag. 2. 117. Ins. kills bees
 { & carries them as food for its larvae. (*D. punctatus* Fab is the female.
 " . . . { *missouriensis*. Riley. 2^a Rep. 1869. 121. I. IX. 25 fm Riley Ins kills
 { honey bees, & sucks out their juices. also destroys other insects. (US)
 " . . . { *sericeus*. Say. (Md. US.) Am Ent. 1. 225. Harr. 605. Os. 35. Pack 396.
 { Riley 2^a Rep. 123 Say 2. 63. Wied 429. vol 2. I. III. 6. Larvae devour and
 { destroy roots of Rhubarb. (and pie plant) the fly destroys other insects
Aspilota Linn. 7^a 176. see also *Cecidomyia grossularia*.
 " { *monacha*. Os. (US) Tr. Am. Ent. Soc. 2. 299. & 3. 347. L. form a gall or accumulation
 { of bracts, on stunted stem of Golden rod. (*Solidago*) in Sep.
Aspilota . . . Meig (Saw. Hogg. (Meig) Linn. 1. 14. Meig 1. 248 & Westw. 2. 539. in Fam 9 Bibionidae
 " . . . *berolinensis* (Eu) Meig 1. 208. pl. 11. I. X. 9. Habits unknown.
Asteidae . . . Fam 59. Linn. 1. 47. no species as yet found in the U.S. (Linn)
Atomocia. Macq. (Md. US) Linn. 1. 23. Os. 31. Ins. V. 24 Md. July. Ins. prob. predatory
Baccha. Fab. (Fla. US) Linn. 1. 26. Meig 3. 197. Os. 48. Rept. Dep. Ag. 1866. p. 46. Westw. Syn. 136.
 { Wied 2 92. L.P. I. III. 25 Larva destroys Aphides on the Orange. Aug & Sep.
Batrachomyia (Hesselt?) (Australia) Pack. 406. Günthers Zoological record. 1866.
 { Larva parasitic in frogs.. between skin and flesh. generally killing the frog
Beivasia. Rob Desv. see *Tachina bifasciata*.
Beris. Latr. (Eu) Meig 2. 3. pl. 12. Anat. II. 42 Larvae live probably in wood mould.
 " . . . (Metaponia. Macq) *dorsalis*. (Md. US) Say 1. 257. Os. 14. Wied 1. 540. I. II. 10. May.
 " . . . *viridis*. Say 1. 257. (Md. US.) Os. 14. Wied 1. 88. I. VI. 12. Md. Aug.
Berna fly. Pack. 412. see *Trypeta*.
Bibionidae . . . Fam 9. Linn. 1. 28. Anat. II. 20. Meig pl. 11. Pack 391. Westw. 2. 527. Larvae
 { live in dung. garden earth &c. Bibio occurs amongst the oldest fossils
 { showing it to be one of the oldest forms of Diptera.
Bibio. Geoff. (Eu) L.P. VII. 12 Westw. 2. 524. Lar. said to injure roots of herbaceous plants.
 " " { *albipennis* Say. (Md. US.) Am Ent. 1. 227. Meig 6. 317. Pack 392. Os. 13. Wied 1. 80.
 { Proc Ent. 2. 45. & 83. Say 2. 69. Lar feed generally on damp leaves. I. II. 7 Md.
 { a specimen was found feeding in an Oak gall. The flies frequent fruit trees
 { blossoms. but are not considered as injurious. & form a favorite food for Robins
 " " *femorata*. Wied (Md. US) Os. 13. Wied 1. 79. I. II. 8 Md. Apr & May
 " " *hortulanus* Linn (Eu) Meig 1. 241. R.V.S. 108. Ins. accused but probably
 { falsely of injuring blossoms in the spring.
Billacomorphus (Westw) (Ptychoptera. Meig) *claripes* Fab. (Nova Scotia. R. N.B.) Harr 600.
 { Linn 1. 10. U.S. 8. Pack 384. Wied 1. 59. I. I. 6. N.B. June. Larva probably
 { lives in marshes. "Star crane fly." Joss. Can Nat. p 196.

Blepharocera. Macq. (Det) Liew. 1.8 Ins. VI. 5. Ins remarkable for transparency.
 { V. peculiar venation of wings.

Blepharoceridae. Sam 4. Liew. 1. p. 8.

Boleophila. Meig. of Liew. 1. 13. Meig. 1. 174. Hogg of Westw. 1. 27 & Syn 2 523. in Sam 7. —
 { *Mycetophila*. Liew.

" . . . cinerea. (Eu) Meig. 1. 174, pl. 8. Larvae live in societies, & feed on fungi &c.

Bombyliidae. { Sam 24. Liew. 1. 25. Pack 393. Westw. 2 542. Ins resemble humble bees. Fly
 { swiftly with a humming sound. & hover over flowers.

Bombylius. Linn. (Eu) Anac. A 30. Meig. 2 140 pl. 18. Larr 604. Pack 164. 377. V. West 1. 381. 2^d 2^d.

{ Larvae supposed to be parasitic on bees. (Anacron. Pack 377) but said also
 { to live in the earth, and feed on roots. The insect is destroyed by a
 { parasitic (Hym.) insect. *Bombus tarsata*, as food for its young. Pack,

" . . . aequalis. Harr. 604, fig 263. (Mass. U.S.)

" . . . sp. ? (Md U.S.) I. III. 17. Md. Aug. Specimen described.

" . . . fulvus. Wied. (Md U.S.) I. III. 16. Md. Aug. West 1. 347. OS. 42.

" . . . major. Linn. I. VII. 16. Westw. 2. 538. (Eu. Nth Am. Nova scotia, &c.) OS. 43.

" . . . mexicanus. Wied. I. III. 18. Md. Aug. (Mex. U.S.) Wied. 1. 338. OS. 43.

Borboridae. Sam 60. Liew 1. 49.

Borborus. Meig. (Eu) Anat. A. 49. Meig. pl. 62. Liew. 1. 47. OS. 86. Westw. Syn. 144. & 2 574.

{ West. 2. 578. Larvae live in manure. Insects haunt damp places.

" . . . pedestris. Meig. (Eu) Meig. 6. 209. pl. 62. I. XII. 19. Insect apterous.

" . . . ? Insect. IV. 38. (Md. U.S.)

Brachypolpus. (Macq. Liew. 1. 13 & 26.) frontalis. Liew. I. V. 13. Md. July. (U.S.) in Sam 22 Syrph.

Braula. (Nitz.) caeca. Nitz. (Eu) K. & S. 88. Fact 127. & 418. Westw. 2. 585. Bee Louse.

{ Insect. blind, wingless & parasitic on body of bees. Holier found as
 { many as 11. on a single queen. I. VIII. 4 Pack

Calliphora { Macq. (*Musca*) vomitoria. Linn. (U.S. Eu) Harr. 614. Linn. 620. Liew. 1. 85.
 OS. 73 Pack. 64. & 408. Westw. Syn. 141. & 2 p. 569. Blue meat fly. I. IV. 21.

Insect deposits eggs commonly known as "Fly blouses" on fresh meat, carrion.

&c. maggots hatch in 2 or 3 hours, and attain maturity in a few days.

Insect blue black. with dark blue hairy body, "not like *Lucilia caesar*,

another meat blow fly, which is of a golden green or blue metallic color

The larvae are said to have been vomited from the human stomach. (Pack, 369)

are frequently found in sores, and ulcers.

Calliphistria. Liew. (*Platystoma* Macq. Liew. 1. 89 70.) annulipes. Macq. OS. 87. The Larvae of
 { some species are said to live in seeds of plants. Ins. IV. 32. Md. Aug. (in fam 44.

{ *Trypetidae*. Liew.)

Calobata. Meig. 1. 379. Liew. 1. 39. in fam 42 Liew. Microtoridae.

" { (*allumoma*, Macq.) antennipes Say 2. 83. (Md. U.S.) West 2. 546. OS. 80. —

{ Ins. V. 10. Insect frequents felled trees, in marshy situations.

Camptonura. (Macq.) (*Trypeta* in Ostal's) picta. Fab. (Md. U.S.) Liew. 1. 50. U.S. 71. Meig. 5. 276.

{ Ins. V. 5. Md. Aug. & Sep. common on Ragweed which previously contains *Trypeta*.

- Carnes* (Nitz.) *hemipterus*. Nitz. Pack. 418. (Eu) Westw. 2561. Linné 627 (after Stenoxys)
 { Ins the size of a flea. with rudimentary wings parasitic on Starlings
 This insect was formerly placed by Nitzsch in *Conopidae*. but is just
 by Packard after Melanipagus. in Jan 62. *Trans. Ent. Soc. Am.*
- Cassidomyia* (Macq) (Eu.) (*Sarkina*) Pack. 408. Westw. 2513. *distans* a tortoise
 beetle. (Casside)
- Cecidomyiidae*. From S. Linné. 1. p. 6. Meig. 1. 78. Os. 4. Pl. 53. Westw. 2. 508. *Galligena*.
 { Insects inhabit various plants & deposit their eggs in sprigs, leaves,
 flowers &c. the larvae when hatched produce swelling curled galls,
 or distortions of the parts inhabited by them. These insects are de-
 stroyed by Hymenopterous parasites. Chalcids. (Pack 202.) Diapria.
Macroglanis. *Pteromalus*. *Proctotrupes*. *Platygaster*. (Am nat 5. 53)
Semiotellus. &c.
- " : " " { Galls made by *Cecidomyiidae* are inhabited by the Larva of
Scatopse. (Dip) *Drosophila*. (Dip) & *Pristiphora*. as inquilinous or
 "Guest gall flies."
- Cecidomyia*. (Lutr.) ? (Eu) *Anatomy*. A7. Meig. pl 2.
 " . . . " . . . ? (Eu) *L.P.* VII. 6. Westw. 2. 518.
 " . . . " . . . " (US) *neurulation of wing* IX. 29. Pack 397.
 " . . . " . . . " (Eu) on willow destroyed by *Platygaster*. (Hym)
 " . . . " { This Larva is figured to exhibit the peculiar mode of reproduction
 { from egg of Larva. from Pack. p. 579. L. IX. 24.
 " . . . " ? { Larvae live in minute long galls. like prolongations of the ribs or veins
 { on leaves of Oak in Maryland. (US)
 " . . . " { (?) (Eu) Larva resides on underside of leaves of *Celandine* & are said to
 { destroy the mites found in such situations. Westw. 2. 519.
 " . . . " { *agrostis*. OS. (US) *Fitch Tr N.Y.S. Agsoc* Vol 6. p. 38. 2nd Ed. Linné 1. 207.
 { Larvae form imbricated galls resembling fertile aments of hops on culm of
 { Dogs grass (US)
 " . . . " { *acrophila*. Pack 373 Larva lives socially with *C. pavidus*. in deformed
 { buds of Ash. (US)
 " . . . " { *albivitta* Walsh. Am Ent. 1. 105. This insect is a guest gall fly. in
 { the pine cone Hellow gall. where it extracts the sap from the leaves.
 { but does no injury to the rightful inhabitant.
 " . . . " { *ananassa* Riley. Am Ent 2. 244. (US) Gall. XI. 18. Am Ent.
 { Larva forms a gall like a pineapple on twigs of Cypress containing
 { several cells.
 " . . . " { *anthophila*. OS. (US) Tr Am Ent. soc. 2. 308. Larvae form elongated
 { conical pale green galls. blunt at the end. on *Solidago*. These galls
 { consist of deformed flowerets. Ins. appears Sep.
 " . . . " { *antennariae*. Bouche'. (Eu) Linné 606. Pack 199. Larva forms a gall.
 { which is a monstrous accumulation of leaf like structure. & is destroyed
 { by a parasite (Hym) *Diapria cecidomyiarum*. Bouche'.

- Cecidomyia* (Linn.) Meador, Westw. 2. 219 (Eu. Larva encloses itself in a case on leaf of
 { *Mothwort*.
- " . . . { *brachyntera*. Schwarzg. (Eu.) Leun. . 606. Larvae live in sheath of leaves of
 { *Pine*, the base of which they destroy.
- " . . . { *brachynteroides*. OS. (U.S.) Loew. 189. Larvae form galls or swellings
 { at the base of leaves of *Sorbus pinn.*
- " . . . *brassicoides*, see *C. solis brassicoides*.
- " . . . { *calyptera*. Fitch. (U.S.) Am quarterly review. Ag & Sci. Vol 2. Fitch 1867. 1860. 832
 { Loew 1. 187. OS. 4. Larva supposed to injure wheat.
- " . . . { *carbonifera*. OS. (Md. U.S.) Loew. 1. 196. Gall XI. 29. Larva forms pale
 { circular spots surrounded by a purplish black ring. on leaf of *Solidago*.
- " . . . *caryae*. see *Diplosis*.
- " . . . { *caryocola*. OS. (U.S.) Loew. 1. 192. Gall XI. 24. Larva forms an elongate onion
 { shape pale green gall, having the tip prolonged to a point, on leaf of *Hickory*.
- " . . . { *cerasi*. Loew. (Eu.) Leun. 606. Larva found in crimped up leading shoots of
 { *Cherry*.
- " . . . { *cerasus serotina*. OS. Tr Am. Ent. Soc. 3. 346 (U.S.) Larva found in terminal
 { young shoots of *Wild Cherry*. malformations sometimes size of a *Cherry* & red.
- " . . . { *cerealis*. Kollar. (Europe) Kollar 124. N.S. 95 Leun. 606. Mort Cyc Ag. The
 { Larva is vermilion red in color & said to injure *Barley* (Leun.) Spelt &
 { wheat they live in families between the stem & sheath leaf of the plant.
- " . . . *cerealis* of Fitch. see *C. graminis*.
- " . . . { *chrysosictis*. OS. (U.S.) Loew. 1. 190. & 203. Gall XI. 31. Ind. XII. (Loew) The
 { larva forms a round woolen knot like gall, the size of a small walnut, on
 { *Golden Aster*.
- " . . . *coryloides*. see *C. vitis coryloides*.
- " . . . { *culmicola*. (Morris) (U.S.) Harr. 582. Loew 1. 189. Miss Morris in Tr Acad Nat.
 { Science. Phil. 14. 194. 1849. OS. 5. Larvae feed above the top joint & injure stalks
 { of *Wheat*.
- " . . . { *cynipsea*. OS. (U.S.) Larva forms a gall, or irregular hard swelling, on
 { underside of leaves of *Hickory*, in July, containing several cells.
- " . . . { *destructor*. Say. (Eu. U.S.) Am Ent. 1. 40. 171. & 5. Fitch. 1861. 819 & Kollar 118.
 { H.S. 193. Loew. 189. Curtis in Mortons Cyclop. Ag. OS. 5. Trac. Ent 1. 117. Riley
 { rep^t 1869. Say Jour. Acad. Sc Phil & Ent 1. 4. 1841. 21 *Hessian fly*. LPS I. 8
 { Insect said to have made its first appearance on Long Island in 1776 in some
 { straw brought from Europe by the Hessian soldiers under General Reister.
 { Curtis however in his "Farm insects" p 275. says "it is doubtful if the Hessian
 { fly has ever been detected in Europe", but directly afterwards states that "this fly,
 { or an allied species, attacked the wheat crops in Hungary in 1833." Loew
 { says "they do occur in Germany but are rare or scarce" The imvae live
 { between the leaf, and main stalk, near a joint, sucking the sap. &
 { over

thus weaken the plant. The pupa, which is of a bright chestnut color, & resembles a flax seed, is formed in the Larvaskin. & developed in the same place. The fly appears, in June and May, & deposit their eggs in the crevices of the blades. Some of the Insects probably come out in autumn. The larvae do much injury to Wheat, Barley, Rye, &c. & are destroyed by Hymenopterous parasites. *Chalcis*. (Pack 203) *Macroglues*. *Platygaster* (Pack 374) *Pteromalus*. *Semirotulus* (*Ceraphron*) *destructor* destroys the pupae. (see Fitch 1861. 819. Pack. 207. 374 &c. &c.)

- Cecidomyia* *Latr. erubescens*. OS. (U.S.) Liew. 1. 200. Larvae cause a gall or distortion of the leaf of Vain in Spring. the margin being folded, & tinged with red.
- " { *fagi*. Htg. (Eu) Linné. 606. Larva forms pear or cone shaped, smooth galls on leaves of Beech.
- " { *farinosa* OS. (U.S.) Liew. 1. 204. Larva forms a gall or woody swelling at the base of the leaflets or on midrib of leaf of Blackberry.
- " { *fuscolis*. Mag. (Eu) Weig. 1. 77. Pack. 372. Insect reared by Bouche from decaying roots of Hyacinths. & Tulips.
- " { *glutinosa*. OS. (U.S.) Liew 1. 193. Pack. 372. Larva lives exposed to the air on underside of Hickory leaves, to which it is attached by a viscid substance. it forms a round yellow spot on the upper side.
- " { *graminis*. (Fitch) (*olei cerealis*). (U.S.) Fitch. 1st Ed. 1847. 1854 p. 880. 1856 p. 473. 1860 p. 332. Linn. 1. 189. Os. 5. *Prac. Ent.* 1. 23. Larva supposed to injure Wheat.
- Cecidomyia* (*Asphondylia*. Em.) *grossulariae*. Fitch (Md. U.S.) Fitch 1st Rep. 176. 1854 p. 880. 1856 p. 45. &c. &c. Liew 1. 189. Pack. 376. *Prac. Ent.* 1. 23. * *Ins* XI. 28. Md. July. * Larvae yellow. Injure fruit of Gooseberry. causing them to turn red prematurely & become putrid. pupa formed in the fruit.
- " { *hirtipes* OS. (U.S.) Liew. 190. Larva forms a rounded gall at the tips of stunted stalks of Solidago, nearly an inch in diameter, smooth & brownish outside, & solid inside. containing several compartments. in Aug. Fly Sep.
- " { *holotricha*. OS. (Md. U.S.) *Am Ent.* 2. 63. Liew. 1. 193. Gall. XI. 23 Md. June. Sep.
- " { Larvae form subglobular pubescent onion shaped galls. about 001 in diam growing either in numbers, or in a row on midrib or underside of Hickory leaves
- " { *impatiens* OS. (U.S.) *Am Ent.* 2. 63. Liew. 1. 204. Gall XI. 17. *Am Ent.* Larva forms a green globular gall. on leaf of *Impatiens fulva*, or Spotted touch me not.
- " { *inimica* Fitch 1860 830. (U.S.) Insect appears. Aug.
- " { (*Lasiptera*) *juniperana*. Degeer. (Eu) Linné 606. Larva forms a gall or three pointed malformation on leaf of Juniper.
- " { *linidendri*. OS. (U.S.) Liew 1. 202. Larvae mine inside leaf of Tulip tree & form a gall or brown spot. with a brown or yellowish aureole.
- " { *lotus*. see *C. vitis lotus*.
- " { *loti*. de Geer. Linné 606. Larva causes onion shaped malformations on *Lotus corniculatus*. (Eu)

- Cecidomyia* (Latz.) *nigra*. Meig. (Eu) Lenné 606. Meig. 1.75 RDS III. Larvae destroy blossoms & young fruit of pear: pupa formed in the earth.
- " *niveipila*. OS. (US) Lenz 1.199. Larvae form galls or deformation of the leaves of Oaks, early in spring, which consist of a large fold, with a white pubescence inside.
- " *ocellaris*. OS. (US, Md.) Lenz 1.199. Gall XI. 29 Md. May Larva forms bright crimson and yellow spots & circles on leaf of Red Maple in early summer. the larvae live on the outside of the leaf, in the centre of the circles.
- " *orbitalis*. Walsh. (US) Am. Ent. 2.53. Gall XI. 20. Am. Ent. Larva is a - guest (or inquisitious) in the Willow bud gall, made by *Euura gamma* (Hym)
- " *parvula*. (Eu) Pack 372. Larva lives socially together with *C. acrophila*. in deformed buds of the Ash.
- " *peller*. OS. (US) Lenz 1.199. Larva forms round oblong subpellucid galls, on ribs of Ash leaves, the principal convexity being on the upper side. each gall containing only one larva.
- " *persicoides*. OS. (US) Lenz 1.193. Larva forms a gall: 0.1. to 0.2 in diam - eter without a nipple. & resembling a miniature yellow or red peach covered with down. on Hickory leaves.
- " *puligera* Loew. (Eu) Lenné 606. Larva forms an obtuse soft hairy brown gall on the Beech.
- " *pinii inopis*. OS. (US) Loew 1.296. Pack 376. Larva fastens itself to a pine leaf, where it remains motionless until the resinous exuda - tion hardens, & forms a resinous cocoon, on leaves of scrub pine
- " *pisi*. Loew. (Eu) Lenné 606. Larva lives in hulls of peas. -) It is able to make a considerable spring or jump.
- " *proculum*. Fitch. (Md. US) Fitch. 24. Rep. Lenz 1.201. Gall. XI. 27 Md. Larvae form the so-called Oak shingles, or galls, resembling small fungi, or saucer like scales, on a short pedicel, on leaves of Oak.
- " *prunum* see *C. vitis prunum*.
- " *pubescentula*. OS (Md. US) Lenz 1.202. Larva causes a malformation or fold in the leaf of Hornbeam, which is tinged with red on the outside generally situated between two of the side ribs & runs oblique ly to the centre rib. a similarly formed gall was found on Hickory leaves in Md on Hickory (Md Aug 1872.) Gall XII. 30 Md. Sep.
- " *pseudacacia*. Fitch. (Md. US) Fitch 1858. 833. Lenz 1.198. Gall XII. 33a. Larva causes the tender young leaves of the Locust, to become folded together like a small pod. 2 or 3 milk white larvae being found inside. (Black Locust midge of Fitch)
- " *pyri*. Bouche', (Eu) Lenné 606. Larvae live in dead & rolled up leaves of the leading shoot of the Pear.
- " *racemicola*. OS. (US) Lenz 1.196. Larvae form bud shaped green galls among racemes of Solidago, & distinguished from buds only by their stout rounded form.

- Cecidomyia* { *tutor. rigulosa* O.S. (salicis. of Harris. 566) (U.S.) Linn 1.189. Pack 376.
 Larva forms an oval woody gall. terminated by brittle conical beak.
 at the end of slender twigs of basket willow.
- { (*Diplosis*) *robiniae* Hald. (Ma. U.S.) Fitch 1858. 533. Harr 567. Linn 1.189.
 Pack. 149. Gall XII. 336. Ma. aug. Larvae roll over & thicken the
 edges of the leaf of the Locust. so as to form an oblong cavity, cylindrical
in the middle. & tapering at each end. & which contains one
 or two yellow larvae. in each cell or roll.
- ... " { *rosaria* Linn. (Eu) Linn. 606. Larvae form a gall or rosette of leaves
 on the willow.
- ... " { *salicina* Schk. (Eu) Linn. 606. Meig 1.79. Larvae live in the dried
 ends of willow twigs.
- ... " *salicis*, of Harris. & Fitch. see *C. rigida*.
- ... " { *salicis* Schk. (Eu) Linn. 606. Larvae form elongated wood stalk galls
 on willow.
- ... " { (*salicis*) *brassicoides* Walsh. (Ma. U.S.) Am Ent 1.105. Pack 377. Frac.
 Ent. 2100. Gall XI. 30. Cabbage sprout willow gall. Larvae form
 a gall like cabbage sprouts. or a cluster of leaves growing together
 on *Salix longifolia*, both gall and gall gnats resemble *C. strobiloides*
 but the gall itself is of a greener color. & the leaves are more open and
 less deformed. Walsh says that the flies resemble each other so closely
 that "one figure of the insect will answer equally for both species"
- ... " { (*salicis*) *hordeoides* Walsh. (U.S.) Am Ent 1.119. Tr. Ent. soc Phil. 3.599.
 Larva forms a gall like an ear of Barley on willow. (*Salix humilis*)
- ... " { (*salicis*) *siliqua* Walsh. (U.S.) Gall XI. 19. Am. Ent. 1.250 & 2.114. Tr.
 Ent. soc. Phil 3.591. Larva forms a pod like gall on twigs of willow.
- ... " (*salicis*) *tritici*, see *Diplosis*.
- ... " *s. triticoides*. see *C. triticoides*.
- ... " { (*sambuci. umbellicola* O.S. (U.S.) Tr. Am. Ent. Soc. 3.52. & 347. Larvae.
 form galls, or enlarged buds of the Elder.
- ... " { (*sanguinolenta* O.S. (U.S.) Linn 1.192. Larva forms a conical gall
 narrowed at the base of a blood red or purplish color many on one
 leaf. on Hickory in July.
- ... " *septem-nerviata*. see *Diplosis*
- ... " { *serotina* O.S. (U.S.) Linn 1.198. Larvae form. galls or enlarged
 terminal buds, which are rounded, & pointed at the tip, 3 to 5 lines in
 diameter. & having 3 to 5 larvae in one compartment. on Alder.
- ... " { (*Diplosis*) *socialis* (U.S.) Pack 372. Larva inhabits socially the gall
 made by *Lasiptera rubi* on the brambles.
- ... " { (*solidaginis* Linn. (Ma. U.S.) Linn 1.190, 194. & Am Ent 2.29. Ins. XII. 32.
 Ma. Aug. Larvae forms a gall globular head, or berry bunch of leaves on
 top of twigs of *Solidago* in July. it contains only one gall. Ins. escape
 in the autumn.

Cecidomyia (Fabr.) *strobiloides* OS. (Md. U.S.) Am Ent 1. 105. Loew 1. 203. Pack 377.

In. IX. 18. Gall XI. 15. Md. Sep. Pine cone Willow gall. Larva forms a gall in the form of a pineapple or pine cone on the tip of twigs of Willow. the gall consists of scales overlapping each other in a conical form. Larva hibernates in the gall. The fly appears in April & May. a Katydid. (Orthop.) sometimes deposits its eggs in the gall. It is likewise inhabited by another gall gnaw. *C. albivitta*

" " *symmetrica*. OS. (U.S.) Loew 1. 200. Larva forms a hard red gall on leaf of Oak. of the same size and shape on both sides of the leaf. these galls often coalesce in an irregular form. & contain only one larva to each gall. .005 to .010 in diameter.

" " *tritici*. see *Diplosis*.

" " *triticoideus* (solitarius) Walsh. (U.S.) Am Ent 1. 149. Pr. Ent. Soc. Phil. 3. 548. Larvae form galls like ears of wheat. on tip of twigs of willow.

" " *tubicola*. OS. (Md. U.S.) Loew 1. 192. Am Ent 2. 307. Gall XI. 25 Md. Aug. Larva forms a small tube like gall. about .015 in length. which is set in a socket. Found on leaves of Hickory.

" " *tulipifera*. OS. (U.S.) Loew 1. 202. Larva forms galls, or swellings on the midrib of leaf of Tulip. Poplar.

" " *vaccinii*. OS. (U.S.) Loew 1. 196. Larva forms cocklecomb like galls - on leaves of Whortleberries, the gall somewhat resembles an oyster. fastened on its hinges. & is .015 in height by .02 in breadth.

" " *viticola*. OS. (U.S.) Loew 1. 202. Larva forms elongated conical red galls. on the upper side of Grape leaves.

" " *(vitis) coryloides*. Walsh. (Md. U.S.) Am Ent. 106. vol. 1. Pack. 377. Riley 5th Rept. 1873 p. 116. Gall XI. 32. Grape vine filbert gall. Larva is orange yellow. & forms filbert shaped galls on the cane of the wild frost grape. & others. These galls consist of a mass of one celled excrescences springing from a common centre. where a bud would normally be. galls one celled. & large specimens resemble a bunch of grapes.

" " *(vitis) lituus*. Riley. (Md. U.S.) Am Ent. 2. 28. Gall XI. 21. Md. Grape vine trumpet gall. Larvae form trumpet shaped galls. on leaves of grape vines. each gall being about $\frac{1}{3}$ of an inch in length. of a conical elongate form. & of a reddish brown color, the leaves are sometimes covered with them.

" " *(vitis) lituus*. *affinis* Gall. XI. 22. a gall similar to the above. but larger & broader was found on the grape vine in Md. Aug 1872

" " *(vitis) pomum*. (U.S. Md.) Walsh. Am Ent 1. 106. Pack 377. Riley 5th Rept 1873 p. 116. Gall XI. 17. Larvae form Apple shaped galls. on stems of Grape vines. these galls are of a green color. the size of a small hickory nut & are divided into numerous cells.

- Eccidomyia* (Latr). ? . . (U.S.) Proc Ent 2. 35. Cranberry gall gnats
 { Larva inhabits a fold in the terminal leaves of the cranberry, and
 kills the extreme tip of the vine. It is itself destroyed by a parasite
 (Gym). Chalcid.
- " ? (U.S.) Pack. 217. a species inhabiting the willow has a guest
 saw fly. (Hym.) *Pristiphora sycophanta*.
- Cephalomyia* (Latr) (Astrus) (Eu) Lew. 1. 33. OS. 62. Westw Syn 154. (*Cephalomyia*)
 various species live in the European Buffalo. in Goat 8. Verril. 96.
 " *maculata* Meid (Africa) Verril. 1st Rept. 96. The Larva lives in the
 frontal sinus of camels, the same as *C. ovis* in sheep.
- " (Astrus) *ovis*. Linn. (Eu. U.S.) Am Ent 1. 53. Curis in *Martens cyclop*
 Ag. Harris 624. Kollar 64. K & S. 85. Leun 627. Meig 165, vol 4.
 Pack 105. Verril 1st Rept. 92 Westw 2. 579. Lar. VII. 26. Ins X. 28.
 Sheep bot. or Head maggot. Egg, or young larva deposited in the nostril
 of sheep. the maggots crawl up the nose into the frontal sinus, or
 hollow of the forehead, where they feed on the mucous matter. Some
 authors state that the fly is viviparous, & deposits its young already
 hatched, whilst others say that its normal habit is to deposit eggs, but
 when by any means the mother is prevented from depositing her eggs,
 they are hatched in the body, & then only are deposited as young.
 larvae, when ready to change the larvae descend through the nos-
 trils fall to the earth, bury themselves in the ground, & change
 to pupae in the hardened larva skin, & in about 6 weeks, or two
 months, the perfect fly makes its appearance. These grubs are very
 injurious to sheep, causing vertigo, or staggers, & frequently occasion
 death. In the Am Nat. VII. p. 437. a case is mentioned, in which the
 larva of this insect, or of a closely allied species, was taken from the
 shoulder of a boy, in Texas. It was there called by the correspondent
 "*Astrus hominis*". (might it not have been *Hypodermia bovis* or
Dermatobia noxialis?)
- Cephenemyia* Latr. (Eu. U.S.) Lew 1. 33. Verril 1st Rept 96. K & S. 86. Westw 2. 575. see
 { also *Astrus trampii*. Larvae live in the throat, or at the root of tongue
 of Deer.
- Ceratitis* McLeay Lew 1. 49. 50. Westw 2. 573. (*Dacus*. Meig) see also *Petalopogon*.
- Ceratomyza* Meig (Eu) Lew 1. 5. Meig 1. 70. OS. 4. Pack 371. Westw Syn. 125.
 { *Leunis*. 605. Anat. A. 5. Meig pl 2. Larvae live under bark of
 decaying trees, in fungi, or manure. and one species has been bred
 from the black knot. (*Sphaeria morbosa*) on plum trees. it has
 nothing to do with producing the disease, but merely feeds upon its
 substance.
- " ? (Eu) L.P. VII. 5. Westwood 2. 518.

- Ceratopogon*. (Meig) ? (Med. U.S.) L.P. I. 5. 6. 7. Md. Jan. L.P. found under bark of a tree, in Md. The larvae appear to have the power of protruding two foot like processes from the first segment of the body. The pupa was formed with the larva skin adhering to it as in the figure. (in Fam. 2. Læw. Chironomidae.)
- .. " .. { *flavifrons*. Guerin. (Eu) K&S. 124. Larva found in liquid excreting from Elm.
- .. " .. { *lateralis*. (Eu) Westw. 2. 518. Larva found in manure. it possesses two pediform processes to the prothorax and extremity.
- .. " .. { *pulicarius* Linn. (Lapland. Eu) Leunis. 605. Pack 371. Westw. 2. 518. Insect stings severely and sucks blood like a mosquito.
- .. " .. see also *Heteromyia*.
- Cerix*. (Fab.) { Læw. 1. 26. Os. 46. Meig. 3. 159. Meid. 2. 31. Leunis 624. Stalk horned flies. Anat. A 67. Meig pl 26. in Fam. 22 Læw. Syrphidae
- .. " .. { *subessilis*. Illig. Ins. XII. 20 (Eu) Meig. 3. 159. Habits unknown
- Charophila* .. { *floralis* (affinis *Tachina*.) Pack. 408. Larva feeds on the food of the young grubs, or on the larvae themselves of *Andrena*. (Hym)
- Chionea* (Malman) Læw. 1. 9. & 11. Westw. Syn. (in note) p. 126. (in Fam. 6. Tipulidae)
- .. " .. { *aranesides*. Dalm. (Eu) K&S. 523. Meig. 7. 37. Pack 383. Westw. 2. 535. L. VIII. 70. Pack. I. XII. 26 Meig. pl 67. Eggs deposited in the ground. Larvae under the earth apparently on vegetable matter. Insect frequently found on snow in winter.
- .. " .. { *valga*. Harris. (*Aspera*. Walker) (Mass. U.S.) Can. nat. Gasse 51. Os. 9. Har 601. Pack 385. Ins. VI. 23. Harr. Insect found on snow in winter. the female has a sword shaped ovipositor.
- Chironomidae*. Fam. 3. of Læw. 1. p. 5.
- Chironomus*. Fab. (Eu) Læw. 1. 5. Os. 4. Meig. 1. 13. Westw. Syn. 125 & 2. 515. —
- .. { Anat. A 6. Meig pl 2. Flies with extraordinary long fore legs. which when the insect ^{rests} are stretched out far in front, & keep up a jerking motion. Larvae mostly aquatic. L.P. VII. 2. Westw. 2. 508.
- .. " .. { *glaucus*. see *C. stigmaterus*.
- .. " .. { *oceanicus*. Pack. (U.S. Mass.) Can. nat. 2. 278. Pack 370. L. VIII. 5 (Pack) Larva live in salt (sea, water, two broods annually. in Apr. & in Sep.
- .. " .. { *plumosus*. Linn. (Eu) Leunis 605. Meig. 1. 15. Westw. 2. 514. & 517. L.P. VII. 3. Westw. 2. fig 508 Larvae known in Europe as blood worms from their color. aquatic in habits, being found in stagnant water.
- .. " .. { *stercorarius* Dej. (Eu) Leunis 605. Meig. 1. 36. Westw. 2. 517. K&S. 434. & 437. L.P. VII. 4. Westw. 2. 508. Larvae have a fleshy leg on the under side of the first segment. Live in subputrescent stalks of *Angelica*. They reside also in dung.
- .. " .. { *stigmaterus*. Say

- Chironomus*. (Fab.) *stigmaterus*. Say. (*glaucus*). West. 1. 5. (U.S.) Say 2. 42. 054.
 { Prae. Ent. 2. 10. Larvae ("Blood worms") worm like in form & blood
 red in color. Insects sometimes appear in dense clouds.
- " (P) Ins. I. 4. common in Md.
- Chlorops*. Meig. (Eu. U.S.) Linn 1. 46. Meig 6. 138 West 2. 595. Westw Syn 147.
 { Anat. A. 65. Meig pl 61. Larvae sometimes very injurious to grain, by
 either eating through the base of the central stem thus destroying the
 ear, or by working up the straw, thus rendering the ear abortive.
 { in Fam 46 Oscinidae
- " antennalis. Fitch 2^d Rep. p 300. (U.S.) Insect found in Wheat fields
- " (P) Ins. IV. 43. Md. June.
- " brevicornis. Meig. 6. 159. (Eu) Ins XII. 18. Meig pl 61. Ins. almost apterous }
 Ins. XII. 18 Meig
- " coxentis. Fitch (U.S.) O.S. 85. Fitch 2^d Rept. 301. & 1855. 533. This
 insect frequents Wheat fields in June and is suspected of injuring wheat
 when in the Larva state.
- " crassifemoris. Fitch (U.S.) references & habits same as above.
- " (Oscinis) frit. Linn (Eu) Harr. 621. H.U.S. 94. Linn. 624. Pack 416. Westw.
 2. 574. Larvae live in the husk of grains of Barley, causing the grain
 to shrivel and become comparatively worthless. Linnaeus calculated
 the annual loss in Sweden at £10000. sterling.
- " granarius. see Oscinis.
- " glabra. Westw. (Oscinis) (Eu.) Westw 2. 574. Gardeners Mag XIII. 289.
 { Meig. 6. 149. Larvae live in the lower part of stems of Rye. &c
- " (Oscinis) herpini. Guerin. (Eu) Curtis in Mortons Cyclop. Ag. Pack 416.
 { Larva destroys flowers of Barley &c. & thus renders the ears sterile
- " lineata. Fab (Eu) Harr 621. Linn 624. Meig. 6. 149. Morton. Cyc.
 ag^e Pack. 415. Eggs deposited in lower part of ear. at the bottom
 of the sheath. Larva destroys central leaves & plant it also feeds in
 the heart of the stalk of Rye. Wheat &c.
- " (Oscinis) fumilionis Bjerkander Jr Stockh. 1877. Linn. Jr. vol 2. (Eu)
 Harr 621. Westw 2. 574. H.U.S. 91. 95. Larvae live in the lower part
 of stems of Barley. Rye. & Wheat. causing the plants to become -
 stunted in growth.
- " (Oscinis) taeniopus. Meig. (Eu.) Meig 6. 144. Mortons. Cyclop. Ag.
 "Ribbon footed Chlorops." Eggs deposited between the leaves in autumn.
 Larvae live in the base of the stem. & destroy the shoot. This insect is
 also said to produce the disease called the "gout" from the swelling of
 the joints. & is destroyed by a parasite (Hym) *Celinius niger*.
 This last insect is said itself to be destroyed by another parasite (Hym)
Pteromalus micans which Curtis states also destroys the Larvae of
Chlorops taeniopus. (Curtis 249.) or "Ribbon Footed Chlorops."

- Chlorops*. (Meig.) (*Oscinis*) *vulgans*. Fitch. (U.S.) Fitch. 2^d Rep. 300. OS 85.
 { Ins. X. 2. Fitch. Larva suspected of injuring wheat in June.
- " { ? (South America.) Westw. 2. 574. a species of this insect is thought by
 the negroes to be the cause of Elephantiasis, a disease which causes
 a very great enlargement, or swelling of the leg in mankind.
- Chrysopila*. Macq. Linn. 1. 20. See *Leptis ornata*. . . . (in Fam 15. Leptidae)
- Chrysops*. (Meig.) (U.S. Ev.) Linn. 1. 20. Meig. 2. 50. OS 24. Wed 1. 195. Westw Syn. 131.
 { Anat. A. 30. Meig. pl 14. Golden eyed forest fly of Linn. 614. The
 insects annoy horses &c. very much, by inflicting painful stings, and
 by sucking their blood. (in Fam 19. Linn. Tabanidae)
- " { ? (Md. U.S.) Ins. VI. 27. Taken in Maryland. Aug.
 caecutiens. Linn. (Eu.) Kollar 39. Linn. 614. Meig. 2. 52. Ins. annoys horses
 vittatus. Wied. (Md. U.S.) Harr 603. OS. 25 Pack. Riley 1869. 129.
 { Prac Ent. 2. 10. Ins. 11. 18. Mā. June to Sep. "Ear fly" of the western states
 from its habit of attacking horses generally on, or about the ears. (Prac.
 Ent.) Insects annoy and injure cattle, horses, and mankind, by biting
 and sucking blood. They abound mostly in woody regions.
- " { ferrugatus. (Harr.) (U.S. Mass) Harris 603. See Tabanus. habits same as
 vittatus.
- " { niger. Macq. (U.S.) Harr 603. OS. 25. Pack 393. habits same as vittatus
 & a common species in the United States.
- Chrysotoxum* (Meig. (Eu.) Linn. 1. 26. Meig. 3. 167. Wied 2. 87. Westw Syn 135. Anat. A. 29.
 { Meig. pl 27. Linn. 625. Larvae live in detritus of wood. (in Fam Syrph)
- " arcuatum Meig. (Eu.) Meig. 3. 168 Ins. VI. 36. Meig. pl 27.
- Chrysotus* Meig. (Eu.) Linn. 1. 32. & 2. 171. Meig. 4. 41 OS. 58. Wied 2. 212. Westw. Syn 134.
 { Anat. A. 41. Meig. pl. 35. habits not known. (in Fam 31. Dolichopodidae)
- " { neglectus. Wied. (Eu.) Meig. 4. 41 West. Zool. Mag. 1. 74. 22. Ins. VI. 11 Meig
 pl 35. not uncommon in hedges in summer. (Meig.)
- Einocera*. (Meig.) Linn. 1. 31. (Eu.) Meig. 2. 86. Westw. 2. 502. . . . (in Fam 30. Tachydromidae)
- " { maculata. OS. (U.S. Md.) Ins. VI. 7. p. Md.
- Oxlopa*. (Meig.) Linn. 1. 42. Westw. Syn 147. Meig. 6. 8. (in Fam 47 Linn. Phycodromidae)
- " { frigida. Meig. (Eu.) Meig. 6. 8. Ins. XII. 14. Meig. pl 56. Insect from the
 cold northern parts of Europe.
- Ctenomyia*. (Fabr.) (Eu.) Linn. 1. 16. Meig. 2. 12. Westw Syn. 130 & vol 2. 535 Anat. A. 48.
 { Meig. pl 12. Goat fly in German (Linn. 616) from its smell (in Fam 11. Linn.)
 (Xylophagidae.)
- " { pallida. Say. (Md. U.S. West. Ind. I.) Can Nat. Gosse 199. Harr 607.
 OS 18. Say. 1. 42 & 2. 51. Wied 1. 68. Ins. 11. 14. Md. June. Larvae probably
 live in rotten wood, or under the earth.
- Ctenosia*. (Meig.) (*Anthomyia*) (Eu.) Linn. 1. 36. Meig. 5. 211. OS. 75. Westw 2. 571. Wied 2. 437.
 { vacearum. Bauch. Westw. 2. 571. Larva lives in sawdust, (in Fam 37. Anthomy.)
- Comptosia*. see *Tachina inflexa*.

Cynopidae in Fam 23 Læw. Myopidae.

Cynops. (Linn) (Eu) Læw. 1. 27. Westw. Syn. 138. Meig 4. 119. Wied 2. 236.

- Anat A 77. Meig pl 36. Læw 626. Larvae are generally parasitic in humble bees. & feed in the bodies of *Bombus*, *Pompilus*, *Spheg*.
Odynerus. D.C. (Pack 401.) one species is said to live on the drones of Honey bees. & to lay its eggs upon their bodies, the larvae when hatched, enter the bodies. Feed upon the interior. (Mortons Cyc Ag 522.)
 " ? (Md. U.S.) Ins. IV. 9, Maryland, July.
 " *flavipes*. Linn (Eu) Læw 626 Meig 4. 122. Pack. 401. Larva parasitic in the body of a bee. (*Osmia*) (Gym.)
 " *rufipes*. Fab (Eu) Meig 4. 126. Westw 2. 560. Larvae undergo their transformations in the bodies of humble bees (*Bombus*) where they subsist on the fat in the abdomen, the perfect fly escapes at the margins of the segments
 " *sagittarius*. (Md. U.S.) Say 2. 73. Harr 611. O.S. 60. Ins. IV. 8. Md. July. Larva parasitic in bees. Insect taken in Md. in June on flowers.

Cordyluridae. Fam 28 Læw. 1. 25.

Cordylura. Fall. Læw 1. 23. Westw syn. 143. Wied 2. 225.

- " *pubera*. Linn. (Eu) Ins. XII. 13. Meig. 5. 230 pl. 45 Insect frequents damp places

Coriacea. Division 2. Læw 1. 4. & 48. so called from the leathery consistence of their bodies. (corium being the latin for leather)

Corethra. Latr (Eu) Læw 1. 5. Meig 1. 12. O.S. 2. Pack 65. & 370. Westw Syn. 125.
 { Larvae said to be aquatic. (in Fam 1. Læw. Culicidae)

- " *punctipennis*. Say. (U.S.) Say Jour Acad. Phil. III. 16. Wied 1. 14.

- " *pallida*. Fab. (Eu) Meig 1. 12. pl 1. Ins. VI. 1. Meig.

- " *culciformis*. Dej (Eu) H.S. 438 Larva remains in a horizontal position in the middle of the water & moves by jumps or jerks.

Craterina. hirsutinis. H. & S. 58. see Stenopteryx.

Ctenophora Meig (of Læw) (Eu) Læw 1. 10 Meig 1. 124. O.S. (Fab) p 6. Pack 381.

{ Westw Syn. 138. Wied 1. 37. Anat A. 10. Meig pl 5. Læw 607. Larvae live in wood mould. (in Fam 4 Læw Ichneumonidae)

- " *elegans*. Meig 1. 30. (Eu) I VI. 21. Meig pl 5.

Culex. Linn. (Eu) Læw 1. 5. Læw 604. H.S. 62. Meig 1. 1. Wied 1. 1. Westw Syn 2.

{ 125. & 2. 508. Anat. A 7. Meig pl 1. L.P. VII. 1. Westw 2. p 508.

{ Mosquitoes, Eggs deposited in a boat like mass on the surface of stagnant water, Larvae aquatic & breathe through their tail which they bring to the surface of the water. The pupae also are active, but breathe through two horns or tubes on the anterior part of their body. The ♀ insects sting severely, & suck blood whilst the ♂ content themselves with the juices or nectar of flowers. The larvae however are said to be somewhat beneficial by clearing stagnant water of, confervae, &c.

- Culex* (Linn) *celatus*. Fab. (Md. US.) May. 1.36. 15. Wied 1.3. Westw. 2.512
 { OS 1 Wash. 1.2. Ins. I 2. Md. Sep.
- ... " ... *tipiens*. Linn. (Eu) Leunis 1.604. KVS 59. 438. May 1.6. Pack 369.
- Culicidae*. Fam 1. Læw 1.5 Pack 368. 75
- Euterodra*, (Clark) (*Trypoderma*) *buccata*. (US.) Fab. Am Ent 1.116. Pack 406
 { I VIII. 31. Pack. 3. larvae emerged from the body of a striped squirrel, from the regions of the kidneys, (S.S. Fathron. pa) & prob-
 ably is very closely allied to the following, (if not identical)
 ... " ... *emasculator*. (Sitch 1856. 478. Am. Ent. 1. 86. & 117. Pack 406. OS 62.
I VIII. 31 Pack as *C. buccata* (?) "Emasculating Squirrel bot."
 Larvae found in the scrotum of squirrels. They produce a tumor
 1 1/2 inches in length, & consume the testes of the animal. (This may
 prove to be the same as *C. buccata* above mentioned. see also *Trypo-*
derma cuniculi) (in Fam 32. Læw. *Notridae*).
 ... " ... *cuniculi*. Pack. 306. see *Trypoderma*.
 ... " ... *horripilum*. Clark (US) Ins. found in the US. Pack. 406
Cynomyia Meig. (Eu) Læw. (Meig) 1.35. Westw. syn. (RD) 140. & 2. 569. The larvae
 { of this fly have been found on the dead carcasses of dogs only.
 (in fam 36 Læw. *Muscidae*)
- Cyrtidae*. Fam 16. Læw 1. p 21 This family contains *Uncodes*. XII. 7 & 8
- Cystus*. Latr. (Eu) Læw. 1. 21 Meig 3. 92. OS. 26. Wied 1. 13.
- Dacus*. Meig. (Eu) Læw 1. 49 Meig 6. 21. Wied 2. 513. in Fam 44. Læw *Trypetidae*.
 " (*Trypeta*) *oleae*. Fab. (Eu) Tigrisier 88. Leunis 623. Meig 6. 21. Westw. 2. 573.
 { I X. 19. Meig p 56. Olive fly. Churion of Provence. France. Larva
 feeds on fruit of Olive, pupa formed in the same burrow & fly emerges
 in about 28 days after the egg has been laid
- Dasygogonidae*. in Fam 21. *Asilidae*. Læw 1. 22.
- Dasygogon*. Meig. (Eu) Læw 1. 22. Meig 2. 194. OS. 28. Pack 361. 395. Wied 1. 643.
 { Westw. syn. 133. Anat A 24. Meig pl. 20. Habits of Larvae unknown.
 { Insects predatory, feeding on other insects (in fam 21. *Asilidae* Læw)
 " (*Duscocephala*) *abdominalis*, Say. (Md US) Say 2. 24 Wied 1. 412. OS. 28
 { Ins V. 30. Md. July. Insect *predator*.
 " *diadema*. see *Acilus*.
 " (*discolor* Læw. (Md US) Ins. II. 21. Insect taken in Md July in the
 { act of catching flies.
 " *punctatus*. Fab. female & *Usilus* (*diadema*) *diadema*.
 " (*trijascatus* → Say (Md US) Say 2. 64. OS. 28 Wied 1. 405.
 { Ins II 23. Md. Sept
- "
- Mermatocia*. → *noxialis*. Goudot. (Am) Pack 406. Verril. 1870. 95 & 342.
I VIII. 11. Pack. Human bot fly. Moyocuil. of Mex. & new Granada (Pack)
 Larvae attack mankind, monkeys, & dogs, in South America.
 over.

and form turns under the skin like *Hypodermæ* (see also
Verril in Conn. Rep 1870. 95 & 362 for a somewhat similar insect.)

Dixidae. Fam 33 Loew 1. p 33. see *Dinera*.

Denia Latr. (Eu) Meig. 5. 35. OS 64. Pack 407. Wied 2. 372. Westw Syn. 139.

{ Ins said by Dufour to be viviparous.

Disstata Meig. (Eu) Loew 1. 45. Meig 6. 95. OS 84 Westw Syn 152. Insect frequents
damp grounds. in Fam 54 Loew. *Geumyridæ*

" " {anus Eu Meig 6. 95 pl 59. Ins XII. 15. Ins frequents damp grassy
places

Delphus. (Meig) (Eu) Loew 1. 14. Meig 1. 238 OS 12. Wied 1. 75. Westw Syn. 129.

{ Anat. A 10. Meig pl. 11. Leunis 609. in Fam 9. Loew *Bibionidae*.

" " { *febrilis* M. (*vulgans* Linn) (Eu) Leunis 609. Ins found in spring
especially on umbelliferous plants. The Larva is said to infest the
tubers of potatoes under ground.

" " { *viridulus* Loew (Md US.) Ins II. 5 & 6. Apr. May. in Md very
common on flowers of fruit trees

Dinera. Macq. of Westw Syn. 140. (Eu) R.D. of Loew 1. 35. Meig 7. 269. pl 73. OS 70
{ & p 30. Ins XII. 11. Meig in Fam 33 *Dixidae* Loew.

Dicetria Meig (Eu) Loew 1. 23. Meig 2. 181. OS 28. Wied 1. 365. Westw Syn 133.

{ Anat. A 28. Meig pl 19. " Hawk flies. Habits predatory. in Fam *Asilidae*

" " *celandica* Linn. K.D.S. 158 Ins preys upon Hymenoptera. K.D.S.

Dromyxa. see *Lasioptera*.

Diopsis. Linn. see *Sphyrocephala brevicornis* Say.

" " { *Meigeni* Westw 3 575 Ins XII. 31. Westw. Ins remarkable for having
its eyes on long stalks projecting on each side of its head.

Diopsidae. Fam 17. Loew 1. p 44.

Diplosis. Loew. (*Cecidomyia*) Loew 7. 176. Nervation of wing IX. 30 fm Packard

{ Habits the same as *Cecidomyia* some species forming galls, others
live in grain, whilst one species is said to destroy plant lice
(Pack 372) it differs from *Cecidomyia* in the second longitudinal
vein of the wing reaching the margin at or beyond the tip whilst
in *Cecidomyia* the same vein reaches the margin a little before
its tip (Loew)

" " { *resinicola*. OS. (US) Tr Am Ent Soc vol 3. p 343 The larvae are
found in semiliquid pine resin. in small limbs of young scrub pine
in May, pupae also formed in the resin. Ins appeared June 11th

" " { *caryae*. OS. (US) Loew 1. 189. 191. Larva forms a subglobular smooth
seed-like yellowish green gall on leaves of hickory the gall having
a nipple at one end - being .005 to .01. in diameter. it is destroyed
by a Chalcid parasite *Callimone dura* (Hymn) O.S. Tr Am Ent Soc 3. 58

- Diplosis* Lew. (*Cecidomyia*) *juni*. de Geer (Eu) Lew. 1. 196. Leunis 605. Ratzeburg
 } 3. pl. 10 fig 14. Larva forms a resinous cocoon on leaf of Pine.
 " *robiniae*. see *Cecidomyia*.
 " (*Cecidomyia*) *septemmaculata*. Walsh (US) Proc Ent 1. 50. Larva
 is, inquilinous, or a guest gall gnat. in Willow gall, & was also bred
 from the "black knot" (*Sphaeria morbosae*) a fungoid growth on the
 Plum tree.
 " *socialis*. see *Cecidomyia*. Pack. 372.
 " (*Cecidomyia*) *tritici* Kirby (Md. U.S. Eu) Fitch N.Y. St. Rep 3. 60. 1860. 745.
 Harr. 453. 566 & H & S. 93. O.S. 5. Pack 199. 375. Proc Ent 1. 101. 118. &
 2. 27. 50. Smith Rept Conn. Bd Ag 1871. 205 & L.P.S I 10. 11.
 Red. Milk. or Fly Weevil. or Wheat midge. Larva of a red color
 this insect made its first appearance in 1830, in Canada, from
 the emptying of a straw bed by a scotch emigrant. & spread in
 a circle of about 30 miles in a year at first. Eggs from 2. to 12
 deposited in the opening flowers of wheat, &c. in June & July. These
 hatch in 10. to 12 days. into minute reddish, or orange colored
 larvae, which live in the chaffy scales of Barley, grass. Oats.
 Rye. and Wheat. feeding on the pollen & milky juices of the grain.
 causing them to shrivel up. & become comparatively worthless.
 The pupae are formed a little below the surface of the earth. in a
 delicate filmy cocoon glued to the surrounding grains of earth. —
 (Harris however states the pupa is formed without a cocoon) the
 following season, the pupa works its way to the surface of the earth.
 & the fly appears in May or June. Some flies however are said to
 appear as perfect insects in July, or August of the same season.
 In 1854. The amount lost by the ravages of the wheat midge in
 New York was estimated by the N.Y. St. Ag. Soc. to exceed fifteen
 million dollars. & in 1857. the same insect destroyed one third
 of the crop in Canada. amounting to eight millions of bushels."
 (Saunders' Rept. fruit growers Assn. Ontario 1871. p 46.) The wheat
 midge in Europe is said to be destroyed by the following parasitic
 or predaceous Hymenopterous insects. Larva. of *Macroglus*
penetrans. (Curtis 283) *Platygaster* (*Inostemma*) *inserens* (Curtis 251 &
 Pack 201) *Platygaster* *tipulae*, and *Teleas* (Pack. 201. & 376.)
Exallinone dura. (O.S. & Am. Ent. Soc. 3. 58.) A two winged fly
Empis is predatory & destroys them. The earwig (*Forficula* Orth.)
 destroys either the wheat midge or a Thrips (*Oothrop*) which
 frequents the ears of wheat in Europe, (Westw. 1. 403) & the Thrips
 (*Oothrop*) itself is said by Walsh. (Proc. Ent 2. 50.) to feed on
 the eggs or larvae of the wheat midge in the United States.
 over.

is the only Hymenopterous parasite in this country, (U.S.) suspected of destroying the wheat midge, is *Platygaster error*, of Fitch, which Packard at p. 376. mentions as "its chief parasite," although before, at p. 201. he says that "whether it is a parasite or not Dr Fitch has not yet determined," and in the Rept of the Comm. Bd. of Agriculture 1871, p. 225, Mr Gould states that Prof Smith "said very correctly that four or five years ago, there were no parasites in this country." Mr Saunders in the rept of the Fruit growers Assⁿ. Ontario for 1871, expressly says "there is no parasite found in Canada." Lady birds *Coccinellidae*, (Coleopt.) feed upon the larvae of the wheat midge. & the common Yellow bird, (*Carduelis tristis*), in this country "is very useful by destroying the larvae" Fitch 1860. 821.

Discocephala. Macq. Læw. 1. 23. see *Dasyprogon*, in Fam 19. Asilidae.

Dolichopodidae. Fam 31. Læw 1. 32 Pack. 402 Linnis 615.

Dolichopus, Meig (Eu) Læw 1. 32. Meig 4. 74. Wied 2. 230. Westw syn. 135. & 2. 552.

Anat. A 38. Meig. pl. 35. Larvae live in the earth or in Wood mould.
 Ins. generally of bright metallic colors, & said to be predatory in habits

" ? (Md. U.S.) Ins. IV. 7. taken in Md. Aug. 7.

" *longipennis*. Os. (U.S. Md.) Læw 2. 57. Ins VI. 30. Md. Aug 7.

" *ungulatus* Linn (Eu) Linnis 615. Meig 4. 80. Westw 2. 558.

L. VII. 23. Westw. Larvae reside in the earth. pupa & Ins. in June.

Grosophila. Fallén (Eu) Læw. 1. 46. Meig 6. 81. Os 84. Pack 377. 444. Westw syn.

152. & 574. Linnis 613. Anat A 62. Meig. pl. 59. Larvae live in rotten fruit, in wine cellars on Cider, Beer, wine, vinegar, or any acid fermented liquors. Some others of the larvae however mine in the leaves of plants.

" ? (Md. U.S.) Ins IV. 36. taken in Md. June.

" ? (U.S.) Pack 415. L. III. 19. Pack. "Apple fly"

Larvae bore into and injure apples, generally commencing through a hole commenced by the curculio or Apple cutting moth sometimes however they commence themselves at the calyx.

" *aceti* Hollar (Eu) Linnis 624. Larva found May & June in unripe & rotten fruits. Apples, Apricots, &c. which have previously ^{been} injured by other insects. The Larva state lasts about 3 weeks & the fly comes out in 10 to 12 days after the pupa has been formed.

" *flava*. (Fallén) (Eu) Curtis. Merton's Cyclop. Ag. Meig 6. 88. "Yellow Turnip leaf miner." Larvae mine in leaves, forming blisters on the upper side. They are destroyed by two hymenopterous parasites *Ceraphron niger*. & *Microgaster cinctipes* (Curtis 85)

- Drosophila*. (Fallen.) *collaris*. (Eu. Nova Scotia) OS. 84. Westw. 2.574. Leunis 624
K & S 133. Larvae white & have a mouth armed with 2. horny jaws
they inhabit fermented liquors and vinegar in cellars. They have
also been bred by Curtis from rotten potatoes.
- " *funebis*. Meig. (Eu N Am (Macg) Leunis 623. Meig 682. OS 84 Westw
2.574. "Vinegar fly" of Leunis Larva & Ins. found near Beer. Wino.
vinegars and other fermented liquors The larva is said also to
feed on Boloti
- " *funebis* (affinis)? (U.S.) Am Nat. 6.84. Pack 414 OS. 84. —
P. VIII. 14 Pack. The puparium figured was found floating in old
wine or cider.
- Drosophilidae*. Fam 55. Læw. 1.45.
- Elephantomyia*. (OS) *Westwoodii*. OS. (US) Læw 1.10. Pack 383. Ins. found in the
northern states & Canada. (in Fam 6 Læw. *Tipulidae*)
- Empidæ* Fam 29. Læw 1. p. 30 Pack. 402. 381.
- Empis*. Meig (Eu) K & S 158. Læw 1.30. Meig 3.15. Pack 402 Westw syn 131 & 2.546.
Leunis 614. Anat. A 31. Meig pl 22. Predatory in habits the female
fly, destroys other small insects & is very ravenous. "it is seldom
that a pair is taken coupled without the female being found to be
occupied in sucking another insect nearly as large as herself" (Westw
2.546) The males feed upon the nectar of flowers. Amongst other
insects which they destroy is the Wheat midge (*Diplosis tritici* (Dip.)
in Europe Mortons Cyclop ag. 2.118.
- " { *chionoptera* Fallen. (Eu) Meig 3.27. IX 1. 6. Meig pl 22 Ins probably
predatory.
- " *apaca*. Fab. Meig 3.17. Ins. XI. 7. Meig pl 22. Ins. prob. predatory (Eu)
- " *spectabilis* Læw. (Ma US) Ins III. 22. Ma June " " "
- Ephydra*. Fall. (Eu. US) Læw (Fall) 1.45. 159. 169. Meig 6.113. Wied 2.593 Westw
syn. (Meig.) 153 & 2.574. Larvae found in salt works or Urine others
in sea weed in Narragansett Bay. (Pack)
- " *halophilus*. Pack (US) Am nat 2.278. Pack 414 LI VIII. 17. Pack.
Lar & pupa live in the salt works in Gallatin Co. Ill. others in Mono
lake. Calif. & Capt. Fremont in his explorations in the Rocky
Mtns. Calif. & Oregon. (p. 303.) mentions "a bank 10 to 20 feet in breadth
& from 7 to 12 inches in depth composed entirely of the skins of
larvae or worms about the size of a grain of oats which had been
washed up by the waters of a salt water lake & these worms when
dried, form an article of food for the Indians inhabiting that
region of country." (these were probably the larvae of some
species of *Ephydra*.)
- " *salinaria* (Eu) Westw 2.574. Larvae live in the salt works in Silesia
- Ephydrinæ* Fam 53 Læw 1.44 & 129.

Eproboscidae. Div-2. of Low. Diptera. 1 p 4. see Coniacea & Supipara.

Erax, Macq. U.S. Low (Macq) 23. OS (Scop) 33. Neuration of wing IX. 36 Riley 2^d Rep.
 { in fam. 19. Asilidae. Low. (Md. U.S.)

" { aestuans. Linn. (Md. U.S.) OS. 33. Wied 1. 467. Ins III. 3. 4 Md. July.
 { Ins. predatory & kills other insects.

" { bastardi Macq. (U.S.) Riley 2^d Rep. Misso. 1869. 124. Ins IX. 27. Riley.
 { Ins. hails, predatory.

Erioptera. { Meig. (Eu) Low 1. 10 Westw syn. 129 Meig 1. 85 Anat A 9. Meig pl 5.
 { Larvae probably aquatic. veins of wing hairy. in Sam 6. Laro. Tipulidae.

" atra. Fab. (Eu) Westw 2. 525. Meig 1. 89. wings of ♂ short.

" calyptra. (Md. U.S.) Say 2. 44. OS. 5. Wied 1. 23. Ins. I. 13. Md. June.

" venusta. OS. (U.S.) Pack. 383. Ins. common in the Atlantic states.

Eristalis. Latr (Eu) K & S 486. Low (Latr) 1. 26. Meig 3. 38. Pack. 386. Wied 2. 151.

{ Westw Syn. 137. & 2. 261. Low 625. Anat A 71. Meig pl 32. Larvae aquatic.
 & inhabit putrescent water, cess pools, &c. they breathe through a long
 tail like appendage. & thus therefore obtained the name of "Red tailed flies"
 (see also Helophilus &c) The fly frequents flowers. & is destroyed by a
 predatory Hymenopterous insect. in Europe (Pembex. rostrata) which
 collects them as food for its larvae. in Sam 22. Laro Syrphidae.

" { ? (Ill U.S.) Pack 399. P VIII. 25. Pack. Larvae & pupae inhabit the
 salt vats in Illinois

" { aeneus. Linn (Sincerus Harr.) Harr 609. (U.S. Eu) Meig. 3. 384. & 7. 143. OS. 56.
 { Ins. IV. 3. Md. Aug. The larva figured was found in a dirty sewer amidst
 mud & filth!

" sincerus. see aeneus. above. (8 foot note in Harris p 609. by O.S.)

" { lenax. (Eu) K & S. 147. & 487. (see Helophilus. Westw) eats pollen of flowers.
 { Am nat. V. 240. & VII. 339.

" { transversus. Wied. (U.S. Nova scotia. Md.) Wied 2. 188. OS. 56.
 { Ins. IV. 4. found in Md. July, frequenting flowers:

Euleia. Walk. Low. 1. 50 see Tephritis onopordinus. (in Sam 44 Syrphidae)

Exorista. Meig (U.S.) Meig 7. 255. Le Baron 2^d Rep 124. Westw Syn 189. (see also
 Tachina) Ins differs from Mascira. by its hairy eyes. &c (Meig 4. 235)
 { Larvae live in the bodies of caterpillars which they destroy by eating
 out the fatty parts. (in fam 34 Tachinidae)

" { flumicauda Riley. (Tachina f.) (Md U.S.) Riley 2^d Misso Rep. 51.
 { Ins. IX. 28. Riley. Larvae destroy caterpillars in same manner as
 Tachina.

" { (Tachina) leucania. (Md. U.S.) Riley 2^d Misso Rep 51. & 3^d Rep 116.
 { Ins. IX. 23 (Riley) Saunders Can. Rep. 1870. 99. Larvae parasitic in
 the caterpillars of Lepidoptera. (Leucania. Proctonia. Embryas &c)

Exorista (Meig) (*Senometopia*) *militaris*. (*Tachina cercopuæ*. Syn) Walsh.
 { (Md. U.S.) Am Ent. 1 206. & 2. 10. Pack 408. Walsh Am Ent 2. 101. Ins IX. 26
 Am Ent. Larva parasitic in the body of caterpillars of *Platysamia*
 { (*Attacus*) *cercopuæ*. *Agrotis*. (cut worm) & for habits & see *Tachina*.
 ... " { (*Tachina*) *phycitæ*. Le Baron. (U.S.) Le Baron 2^d Rept Illin. 123. The
 larva of this fly is mentioned by Dr Le Baron as destroying caterpillars
 of *Phycita nebulosa*. (Lepid.)

Gallicoles. Latr. see *Gecidomyiæ*.

Gasterophilus. (Leach.) (*Gastus*. Meig) (*Ostus*. Linn). U.S. En Westw Syn. 156 & 2. 576.

Meig 4. 174. Anat. A 81. Meig pl 38. Stomach Bot fly. Eggs deposited
 by the female on hairs of the knees, or shoulders &c. of horses and other
 animals. according to the species of Bot fly which deposits the eggs
 most naturalists state that these eggs being licked off by the animals
 tongue, are hatched by the heat & moisture & swallowed with the food
 but Dr Le Baron says "the eggs or "nits" as they are often called adhere so
 tenaciously to the hairs, that they cannot be licked off, but the result
 is accomplished by the instantaneous hatching of the eggs, the moment
 the moist tongue or lips of the horse touch them." when in the stomach
 they fasten themselves to the inner membrane, by means of two hooks.
 here they feed until fully grown, they are then ejected with the excrements.
 and falling to the ground, the outer skin of the larva contracts & forms
 an oval hard brown case, or cocoon. inside which the pupa is developed.
 and in a short time the perfect bot fly escapes, from one end of the case,
 to fly away, & perpetuate its race. (in Fam. 32. Linn. (Estridae.)

" ? (*Africa*) Verril. Rept Conn. 1869. 96 The larva of a species of fly
 allied to *Gasterophilus*, live in the stomach of the *Rhinoceros*.

" (*Gastus*) *equi*. Fab. (Eu U.S.) Harr 623. Kollar. K & S. 145. 193. Linn 628.
 Meig 4. 175. Os. 62. Pack 404. Verril Rept Conn. 1869. 96. Westw 2. 596.
 L.P. VII. 34. (Westw), I IV. 11 (Md. July) I VIII. 22 (Pack), Common Horse
 Bot Fly. eggs deposited on legs and shoulders of horses. the larvae
 are known as "Bots" and when very numerous, are said to cause what
 is generally known as the Cholic, or Stomach ache. & it is said by some
 persons that these "Bots" are sometimes the cause of death to horses. &
 but Professor Verril says. "they have been accused of perforating the
 walls of the stomach. & this possibly may be the case in very rare
 instances, but the perforations in the stomach, so often found in post-
 mortem examinations are generally caused by the digestive action
 of the gastric juice after the death of the animal.

" (*Gastus*) *flavipes*. Oliv. (Eu) Verril Conn Rept. 1869. 101. Larva found
 in the stomach of the Ass. Muir &c.

- Gasterophilus*. (Leach.) (*Gastrophilus*), *haemorrhoidalis*. Fab. (Eu. U.S.) Harr 623 Leunis 628.
 { Meig 4.177. Curtis in Mortons. Cyclop. Ag. Os 62. Verril Rep. Conn. 1869. 100.
 Ins IX. 29. (Curtis.) eggs deposited in June, on nose & lips of horses. —
 { Larvae live in the stomach & rectum. pupa state lasts about 2 months.
- " " (*Gastrophilus*) *inermis* (Eu) Verril. Rep. Conn. 1869. 101. Larvae live in stomach
 { of Horses.
- " " (*Gastrophilus*) *nasalis* Linn (Eu. N.Y. Fitch) Fitch Survey. 799. Leunis 628. Meig 4.174
 { Os. 62. Verril Rep. Conn. 1869. 98. Nose bot fly. Larvae found in the
 { throat of Horses, Asses, Mules & Goats.
- " " (*Gastrophilus*) *pecorum*. Fab. (Eu. Jamaica) Meig 4.176. Os 62. Verril Rep. Conn.
 { 1869. 100. Larvae found in stomach of Horses.
- " " (*Gastrophilus*) *veterinus*. Green. New Eng. Farmer. 4.345. Harr 623. Os 62.
 { "Brown Farmers Bot Fly" egg said to be deposited under the throat
 { of Horses. (Dr Le Baron in his mss. notes on this subject truly remarks,
 { "that a horse cannot reach eggs deposited under his throat." I suggests
 { that the Larvae must either crawl to the mouth of the horse or
 { that they must be licked off by other horses in the same pasture".
- Gastrophilus*. Meig Westw Syn. 154. Anat. A 81. Meig pl 38. see *Gasterophilus*.
- Geomyzidae*. Fam 5k Læw. 1. p 45. example see *Diastata*.
- Geranomyia*. Hal. (U.S.) Læw 1. 10. Westw Syn 129. Head & I 14a (in Fam *Tipulidae*)
- Geron*. Meig { (Md. U.S.) Læw (Meig) 1.25. Wied 357. Os (Hgg) 43. (in Fam 21 *Bombylidae*)
 { Ins. III. 19. Md. Aug.
- Glossina*. (Wied) *moritans* (Tsetse fly of Africa.) Um Ent. & Bot. 2. 281. Livingstone's
 { Travels in Africa. Figuier 74. Woods nat Hist. 574. Pack 407..
 { Ins XI. 11 Specimen from Mr Ogden of New Orleans. Ins allied to
 { *Stomoxys* & destroys horses, dogs & cattle. but causes no injury to
 { mankind wild animals (Antelopes Buffaloes. Zebras &c) or to mules
 { asses. or goats. (Hood.) (in Fam 37. *Muscidae*)
- Gonpes*. Latr. of Westw Syn 133. Læw. 1. 28. see also *Leptogaster*. (in Fam 19. *Asilidae*)
- Gymnosoma*. (Fallen) Læw 1. 35. (Eu) Os. 63. Meig 4. 203. Westw Syn. 440. Leunis. 619.
 { Anat A 50. Meig pl 38. Ins. found on Umbelliferous plants (in Fam 34
 { *Tachinidae*.)
- " " *rotundata* Linn. (Md. U.S. Eu) Leunis 609. Meig 4. 204. Os. 63.
 { Ins. IV. 13. Md. Aug.
- Hadrus*. Pers. (Læw 1. 20) *lepidotus* (South Am) Bates Naturalist on the Amazon
 p 181. a dipterous insect allied to *Harmatopoda*. which attacks
 Indians on the Amazon. (Bates) in fam 14 *Tabanidae* &c.
- Haemadora*. Curtis. see *Ornithomyia*.

- Harmatopoda* Meig. (Eu U.S.) Low 1. 20. Meig 258. O.S. 25. Wedd 1.215. Westw Syn 131.
 { *Leunis* 614. Anat. A 29. Meig pl 14. Insects frequent meadows and pastures. They sting or pierce horses and cattle, and suck their blood, especially in sultry weather, and are very troublesome just before rain. These flies make no noise when flying and alight so quietly, that their presence is not suspected until the wound is inflicted, the females alone sting & suck the blood. (in Fam 14 Tabanidae)
 " *pluvialis*. Lin. (Eu) K.D.S. 57. Hollar 39. *Leunis* 614. Meig 2. 59.
 { *Ins* X 11. 1. Meig pl 14. Ins. sucks the blood of Man & of horses & cattle
 " ? *Ins*. VI. 26. Md.
- Halteriptera*. (Clairville) see *Diptera* Westw 2. 495.
- Helomyzidae*. Fam 39 Low 1. p 37. Larvae feed on Fungi.
- Helomyza*. Fall. (Eu) Meig 6. 48. O.S. 83. Westw syn. 145.
 " { *tuberivora*. (Eu) Fiquier 86. Westw 2. 572. the larvae feed on Truffles. Pupae formed under ground.
 " { *ustulata*. Meig. (Eu) Meig 6. 54. *Ins* X. 18. Meig pl 57. Ins. frequents damp grassy places.
- Helophilus*. (Meig) (U.S. Eu) Low 1. 26. Meig 3. 368. O.S. 54. Pack 399. Westw Syn. 137.
 { *Leunis* 625. Anat. A 72. Meig pl 32. Larvae aquatic, & generally found in stagnant or muddy water. The hind part of the body is furnished with a long slender tube, through which they breathe. The air, hence they are frequently called "Rat tailed larvae" (see also *Eristalis*) The insects frequent flowers. (in Fam 22 Syrphidae)
 " ? (Md. U.S.) *Ins* IV. 2. Ins taken in Md on flowers. July.
 " *latifrons*. Low. (U.S.) *Ins*. IX. 21. Am Ent 2. 142.
 " { *pendulus*. (Eu) K.D.S. 75. Larva has been found in the stomach of a woman.
 " (Eristalis) *Tenax*. (Eu) Westw 2. 551. L VII. 28. Westw.
- Hemerodromia*. (Hel) (Eu) Anat. A 34. Meig pl 23. Low 1. 21. Meig 3. 61. O.S. 46.
 { *Leunis* 614. Wedd 2. 11. Westw syn. 132 & 2. 547. Ins. probably rapacious & predatory, judging from form of anterior legs.
 " *monostigma*. Hgg. (Eu) *Ins*. VI. 7. Meig 3. 62 pl. 23.
- Henops*. (Hlig) Westw syn 131. Low 1. 21. (in fam 14. Low. Cynipidae.
 " *dispar* (Baltimore) O.S. 26. see *Oncodes*.
 " { (*Oncodes* Latr) *gibbosus*. Meig. (Eu) Meig 3. 99. Westw 2. 545.
 { *Ins* XII. 7. Meig pl. 24. Larva probably lives in marshes. This insect is selected by a wood boring Crabro. (Hym) as food for its young.
- Herina*. (Macg) (Low 1. 59) *rufitarsus*. see *Trypeta quadrifasciata* & *Reicellia*
 " *viridulans* (in Fam 43. Low. Ortalidae.

Heteromyia Say. (*Ceratopogon*) *fasciata* Say. Ins. IX. 2. Say 1.50. pl 35 Læw. 1.6.
Ins. habits unknown & not uncommon. (in fam 2 Chironomidae. Læw.)

Heteroneura Fall. Læw 1.42. Westw Syn. 142.

... " ... { *nubila* Meig. (Eu) Ins. XII. 12. Meig 6. 126 pl. 60. Ins rare & found in
{ grassy places.

Heteroneuridae. Fam 48. Læw. 1.42.

Heilana. Meig. (Eu) Læw. 1.30. Meig 3.1. Westw Syn. 132. Leunis 614. Anal A. 33.

{ Meig pl 22. Ins predatory. Feeds on other insects (in fam 39. Empididae)

... " ... *cilipes* Meig 3.3. (Eu) Ins. VI. 6. Meig pl 22.

Hippobosca. Linn Læw 1.4.48. Leunis (Louse fly) 629. Pack. 417. OS. 76. Wed 2.602.

{ Westw. Syn. 154. & 2.581. Insect parasitic on horses. &c.

" { *lubonis* Pack. 417. US. Ins. IX. 27. (Pack) Ins parasitic on the
{ great Horned Owl. (see also *Ornithomyia* pl IV. 42. also on Owls)

" { *equinae*, Linn. (Eu US.) Barr 624. Leunis 629. K&S. 90. Meig 6. 227.
{ *Morton's Cyclop. Ag.* Pack 417. OS. 86. Verail Rep. Com. 1864. 88.
{ Ins. VII. 40. Meig pl 63. Ins parasitic on horses. & occasionally
{ on Cattle. (for Sheep. see *Melophagus*.)

Hippoboscidae, fam 62 Læw 1.48.

Hirmoncra. Meig (Eu) Meig 2.100. OS. 38. Wed 1.245.

... " ... *baseura*. Wed (Eu) Meig. 2.100. Ins. XII. 16. Meig pl 16.

Hirmoncuridae, (or *Nemestrinidae*) Fam 17. Læw 1. p 21.

Homalomyia Bauché Læw 1.36. Westw Syn 143. (in fam 37 Anthomyiidae)

" (*Anthomyia*) *scolaris*. (Eu) Am Ent 2.138. Læw. IX. 38. Am Ent.

Hyalomyia. Macq. Læw (Macq) 1.35. Westw (K&S) syn. 140. Pack. 408. Ins. Feeds on

{ *Brachyderus*. (Col. curculio) & is allied to *Lachina*. (in fam Lachinidae)

Hyllos. Fall. (*Syneches* Walk.) Læw 1.30. Meig 2.262. Pack 402. Wed 2.647.

{ Westw syn 143. & 2.548. Ins. predatory Feeds on other insects

" { *Thoracicus*. Say (Ma US.) Say 2.68. OS. 44 Wed 1.538. Ins III. 21.
{ *Ma. Aug.*

Hylotidae. Fam 22. Læw. 1. p 29. Flies of small size. of dark uniform colors. with small spherical heads. & of active habits. some preying on other insects. whilst others feed. & are found on flowers.

Hyzotaea. Desv. Westw Syn. 142. Meig 7.324. These insects generally frequent damp places. (in Fam 37. Læw Anthomyiidae.)

" (*Anthomyia*) *meteorica*. Linn. (Eu) Leunis 622. Morton's Cyclop. Ag. Ins. annoy horses by sucking perspiration. flying round their heads, & alighting on their eyes, nose, or mouth.

Hydrophorus. Fall. Westw Syn. 134. & 2.553. (*Modotmus*) Ins. runs with agility on the surface of the water. subsists on other insects (in Fam 31. Læw. *Dolichopodidae*)

Hybomysia (Macq) (U.S. Eu) Meig 7. 317. Westw Syn 142. Ins. XI. 9. Meig pl 74 (Fam 37.)

- " " (*Anthomyia*) *deceptiva* Fitch (U.S.) Fitch. 2^d Rep. 301. & 1855. 535. O.S. 74.
 Ins. X. 11. Fitch pl 1. fig 3. Insect suspected of being injurious to wheat
 when in the larva state.
similis (U.S.) Fitch. 2^d Rep. 301. & 1855. 538. Habits same as above. & differs
 from it merely in its smaller size paler ash gray shade &c

Hypoderma (Clark) (*Oestrus* (Linn) Low (Clark) 1. 88. Meig 4. 165. Pack 405.

- Westw Syn (Latr) 154. Eggs deposited on the backs &c of Cattle. The
 larvae when hatched pierce the skin & cause large open tumors
 under it, in which they live in the purulent matter produced by
 their irritation. When ready to change into pupae the larvae squeeze
 themselves out of the holes, drop to the earth, & the pupa is formed
 in the hardened skin of the larva. and the perfect fly emerges
 from a hole in one end. in four to six weeks time. (in Fam 32. *Oestridae*)
 " (*Oestrus*) *bovis* Fab (U.S. & Eu) Ann Ent. 1. 86. Fitch Survey. Washington Co. N.Y.
 799. Harr. 624. Kollar 61. Leun 627. Meig 4. 167 O.S. 62. Pack. 405.
 Mortons Cyclop. Ag. Verrill Rep. Conn. 1869. 91. Westw 2. 577.
 L.S. VIII. 21. (poor fig) The larvae causing the tumors under the skin
 of cattle (see above) are generally called "warbles." or "Worms"
 (Wormholes?) in Europe.
 " *bovis* (affinis) Texas Ins VI. 37. Texas. This insect is generally known
 in Texas as the "heel fly" from its habit of alighting on the heels of
 cattle "and torments them so much that they instinctively seek refuge in
 pools of water, where they remain all the time to avoid the flies. &
 scarcely eating anything they eventually nearly perish from weakness
 (correspondent) Dr Le Baron to whom the specimens were submitted
 pronounced them to be *Oestrus bovis*. or very closely allied to it. in
 a letter he says. "I have compared them with the descriptions & figures
 of standard authors and can find no difference except that the
 abdomen is a little narrower & more conical. but this may only be a
 sexual difference as both the specimens are females." (Le Baron.)
 " (*Oestrus*) *lineata*. Brauer. (Ky. U.S.) Verrill Report. Conn. 1869. 93.
 Lar cause tumors under the skin of Cattle & Sheep
 " (*Oestrus*) *tarandi* Linn (Eu U.S.?) Leunis 628. H.S. 87. Meig 4. 164.
 Pack 405. Ins X 22. Meig pl 38. Larvae live in tumors under the
 skin of Reindeer
 ? (U.S.) Verrill Rep. Conn. 1869. 96. Larvae form tumors under
 the skin of Elk. Deer. Goats. & Moose.

Laphria Fab. (U.S. & Eu) Low. 1. 23. O.S. 30 Pack 54. Westw Syn 133. Wied 1. 499. &

2. 645 Anat A 25. Meig pl 20. Insects fly swiftly with a humming
 sound. they pursue & catch smaller insects when on the wing.
 Leunis 613. (in fam 74 Low. *Asilidae*.)

- Laphnia* (Sub) *dorsata* Say. (Md. U.S.) Say 1.13. Wied 1.506. OS. 30. Ins III. 1.2.
 { Md. July. IX. 16. Say. Ins. pursue & sieve smaller insects when
 on the wing or on plants
- ... " ... *flavibarbis* Harr 604. (U.S.) OS 30 probably only a var of *L. tergissa*
- ... " ... { *flavicollis*. Say. (Md U.S.) Say 1.255. OS. 30. Wied 1.519. Ins V 21. Md. July
 { Ins. habits predatory. Not uncommon in Md.
- ... " ... { *fulvicauda*. Say. (Fyrrehaera. Wied 1.15) (U.S. L. Am.) Say 1.12. OS. 30 Wied
 { 1.15. Ins. IX. 13. Say. Pl 6.
- ... " ... *samosa*. Say. (Md U.S.) OS. 31. Say 2.355. Ins. V. 20. Md. July.
- ... " ... *sericea* Say. (Md U.S.) OS. 31. Say 1.12. Wied 1.508. Ins. IX. 15. Say. Pl 6. -
- ... " ... { *tergissa*. Say (Md U.S.) Harr 604. OS 31. Say 1.67. Wied 1.502 (See also *Laphnia*
 { *flavibarbis*.)
- ... " ... { *Thoracica* Fab. (Md. U.S. Nova Scotia West Ind.) Harr. 604. OS. 31. Pack 396.
 { Wied 1.511 Ins II. 24 Md. & VI. 25 Md July & Aug. habits predatory

Laphrinae. in Fam 19. *Ustilidae*. Læw 1. 23.

- Lasiptera*. Meig. (U.S. Eu) Harr. 370. Læw 1. 1.7. 174. OS. 4. Pack 378. Westw Syn 126.
 { & 2.519. Meig 1.70. Wied 1.21. Neuration of wing IX. 31. Pack. The larvae
 of several species cause galls, or swellings on plants like those made by
Cecidomyia. (in Fam 3. Læw. *Cecidomyiidae*.)
- ... " ... { (*Cecidomyia*) *juniperana* Ltg. (juniperi Westw) Læwis 606. Meig 1.73
 { Westw 2.519. The larva causes those pruned or toothed malformations on
 shoots of Juniper (Eu)
- ... " ... { *rubi* Pack. 372. (U.S.) The larva forms a gall on the bramble, which is
 also socially inhabited by another gall gnaw. *Diplosis socialis*.
- ... " ... { *solidaginis*. OS. (U.S.) Fr ent 1.1. The insect was bred by Walsh.
 from galls or oval enlargements of the stem of Speedwell. (veronica)
 & Golden rod. (*Solidago*) The galls consist of numerous small cells in a
 spongy substance.
- ... " ... ? (Eu) Ins XII. 4 Meig 1.71. Pl 3.
- ... " ... { *vitis*. OS. (U.S.) Am Ent 1. 247. Læw. 1.202. Riley, 5th Rep. 1873. 117. (Gall
 "vitis tomentos". Riley) Larvae reside in large compound galls on stems
 & leaf stalks of grape vines, each swelling or gall, being the size of a
 pea, & of a pale green color often with a rusty cheek. The insect is des-
 trayed by Hymenopterous parasites. *Callimone ebria*. OS. & Am. Ent. Soc.
 3 38 & a *Proctotrupes*. an Orthopterous insect. Thrips is said also
 to destroy it. (Am Ent 1.247 & Riley 5th Rep. 117.)

- Laurania*. Latr (Eu U.S.) Læw 1.41. Wied 2 471. Westw Syn 150. in Fam 46 *Sapromyidae*
- ... " ... *lupulina*. Fab. (Md U.S. Eu Nova Scotia) Meig 5.301. Ins IV. 28 Md. Aug.
- Leia* (Meig) (*Leia*) (U.S.) Læw. 1.13. OS. 10. Westw Syn. 127. Wied 1.65. (in am J. Myceto)
- ... " ... { *anthemi*. Meig. (U.S.) Meig 6.296. Ins. I. 17. OS. coll. Larvae probably live
 { in fungi like *Sciophila*, &c.

Leptidae. Sam 15. Læw. 1.30.

Leptis. Fab. (U.S. Eu) Læw (Fab) 1.20. Meig 265 Westw Syn (Meig) 134 & 2.551. Westw 1.221.

{ Anat A 27. Meig pl. 15. Insects frequent the trunks of trees especially on the sunny side. & when alighting their first movement is to place themselves with their heads downwards (Westw) They are said to prey on other insects & the larvae live in the earth or vegetable mould.

... " ? (Eu) LP VII, 22. Westw 2.551. fig.

... " albicornis Say. (U.S.) OS. 36. Say 1.27. Westw 1.223. Ins IX. 6. Say pl 13.

... " fascii. Macq. (Md U.S.) OS. 36. Ins. V. 31. Md July.

... " (Chrysopila) fasciata Say. OS. 37. Say 1.28. Westw 1.226. Ins IX. 4 Say pl 13 (U.S.)

... " ornata Say (Md U.S.) Say 1.26. & OS. 37. Westw 1.221. Ins V. 22.

... " thoracica Fab. (Md U.S.) OS. 37 Westw 1.222. Ins III. 9. Md July Aug.

... " vermileo Linn. (Cermilio Degeerii Macq.) Eu. K&S 264 & 438 Meig 2.73.

{ Pack 395. Westw 2.552 L. VII. 21. (Westw) Larvae are said by Degeer to be three years in attaining the perfect state they form small conical holes in the sand like the antlion (Myrmelion. Neuropt.) for the purpose of entrapping small insects. which accidentally fall into these pits, when the larva immediately entwines itself round them & sucks out their juices.

... " vertebrata Say (U.S.) OS. 37. Say 1.27. Meig 1.224 Ins IX. 7. Say. pl 13.

Leptogaster. (Meig) (Gonipes Latr of Læw 1.23. & Westw Syn 123) (Eu. U.S.) Meig 2.260. Læw 613.

{ Læw. 1.23. OS. 36. Westw Syn 133. Anat A 26. Meig pl 21. (in Sam 19. Asilidae)

... " ? Md. U.S. Ins III. 8. Md July & Aug.

Loria (R Desv) melina R. Desv. (Eu). K&S 147. Larvae feed on dung of the Badger

" mustelina R. Desv. (Eu) K&S 147. Larvae feed on dung of Weasel

Leucopis. Meig (Iowa U.S.) Am Ent 1.248. Meig 6.133. L.P.S. X. 30. Iowa Aug.

Larva destroys eggs &c. of the grape vine leaf gall louse (Pemphigus vitifoliae. Homop) it was taken in Iowa in 1855. G. & bred from galls of the wild grape (Leucopis is not mentioned in Læw. but is placed by Meigen (6p133) between Ephydra & Chlorops)

... " griseola Fallen. (Eu) Meig 6.133. Ins X. 16. Meig pl 60. Larva probably destroys other insects.

Liancalus (Hal Læw 1.32) genualis Læw (Md U.S.) Læw 2.199 Ins VI. 29. Md July
Ins probably predaceous like Dolichopus. (in Sam 31. Læw Dolichopodidae)

Limnobia (Meig) (Pedicia Latr) (Eu.) Læw 1.10. Meig 1.92. Pack 381. Westw Syn 129 & 2.536. Meig 1.24 & Anat A 11. Meig pl 5. Larvae mostly aquatic Westw however states that some European larvae live in fungi. (Agaricus) Ins. frequents marshy places, & flies in the evening, with a dancing motion in the air.
in Sam 6 Læw Tipulidae.

" (Pedicia) albonilla Walk. (U.S. Nova Scotia) OS. 5. Ins V. 14. OS coll.

- Limnolia*. (Meig.) *annulus*. (Eu.) Pack. 382. Meig 1.15. Larvae resemble earth worms in size and color, and line their burrows with a kind of silken web. it is closely allied to *L. constrictus*. of Say.
- ... " ... *fimbriata*. Meig. (Eu) Meig. 1.104. thing I. 14c. Meig.
- ... " ... *humidicola* Os. (US). Ins I. 14. OS coll.
- { (*Limnophila* Macg) *macrocera*. Say. (US, Nova Scotia) Macg. 1.108. 2. OS. 6
Say 2.46. Walk 1.40. Wied 1.34. Ins V. 13. OS coll.
- Limnoliorhynchus*, Westw. (US) Loew. 1.10 OS. 6. Head ♂: I. 14b. OS coll. Ins frequents marshes.
(in fam 6, *Tipulidae*, Loew.)
- ... " ... see also *Toxorthina* Loew
- Limosina* ... { *geniculata*. (Eu) Insect bred from rotten potatoes by Curtis (p 472.)
(in fam. 60 Loew. *Borboridae*).
- Liptena* ... { *cervi*. (Eu) Pack 117. Insect when wingless is parasitic on Deer. but -
(when wings are developed it is found on Grouse. (in fam 62 *Hippoboscidae*)
- ... " ... *phyllostomatis*. (Brazil) Westw 2.535. Ins. parasitic on Bats.
- Lonchoea*, (Fall.) (Eu) Loew 1.41. Westw Syn 150. Wied 2.475. (in Fam 25 *Lonchoeidae*)
- " ? Pack. 413. one species is found under bark of Poplar. (US.)
- " ? " " " " is said to form a kind of gall on Dogs grass.
- " *nigra* " " " " is found under bark of Oak.
- " ? (US) Am Nat. Pack. 412. L.S. VIII. 16. Pack The larvae blister like swellings on twigs of Willow in which they reside, several swellings being found on one twig in the space of six inches. The pupa was formed in a puparium in the burrow. The perfect insect appeared about the 25th of June.
- Lonchoeidae*. Fam 25. Loew. 1.41. & 56.
- Lonchoptera* Meig (Eu) Loew. 1.29. Meig 4.105. Westw Syn 135. Anat A84 Meig pl 36.
- ... " ... { *tristis*. Meig. (Eu) Meig 4.110. Ins XII. 2. Meig pl 36. Ins. frequents damp & marshy places.
- Lonchopteridae*. Fam 27. Loew 1.29.
- Toxocera* (Lat. OS) (Eu) Loew. 1.38. Meig 5.368. Westw Syn 146. Leunis 624. (in Fam 41. *Pilidae*)
- " { *cylindrica*. (Md US) OS. 20 Say 2.24. Wied 2.548. Ins. IV. 30. Md. July.
{ Insect frequents hedges, flowers &c.
- Lucilia* R. Desv. (US. Eu) Loew 1.35. Westw Syn 141. (in Fam 35 Loew *Muscidae*)
- " { (*Musca*.) Caesar. Linn (US. Eu) Horr 614 Leunis 620 Pack 408 OS 71 -
"Green Bottle-fly" Ins. golden green or blue with a metallic lustre.
It differs from *Colliphora vomitoria* which is larger in size and of a blue, or blue black color. The insect deposits its eggs. Known as "fly blows." upon meat and other dead animal substances. They also sometimes breed in ulcers, or sore places on Mankind, cattle, &c. but however are somewhat beneficial by removing Carrion, and other putrid substances, which otherwise might cause sickness. The pupa is over.

formed under ground. in the old larva skin. which is shrunk into an oval form. and is of a hard consistence & brownish color. The insect is plentiful on excrements, carrion &c. & may readily be distinguished by its golden green color & metallic lustre. it is destroyed by a Hymenopterous insect. *Bembex fasciata*. which carries off the flies as food for its larvae. (Am Ent. 1 126) Ins IV. 20. Lar VII. 22

Lucilia (R. Desv) *hominivorax* ? Fiquier 72. (Cayenne) Eggs laid in the nostrils and mouth of mankind. when sleeping. the larvae feed on the flesh of the gums. & in the frontal sinus. frequently causing the death of the victim.

" *dispar* (Eu) Os. M. Ent. 2. 8. Larvae parasitic in nest of Swallows
Dufour Ann Soc Ent France 1845. p 205.

Lydella. (Macq.) (*Tachina*) *doryphorae*. Riley (U.S.) Am Ent. 1. 46. Le Baron Rept. Illin 1871. 63. Pack 408. Shimer Am Nat. III. 99. Ins. VIII. 15 (Am Ent.)
Egg deposited externally on the body of the larva of *Doryphora decimlineata* or Colorado potato bug. The grub or larva burrows in the body of its victim, & eventually destroys it, but not until the larva has gone into the ground to change into the pupa. (in fam 34 *Tachinidae*)

Macrocera. Meig (U.S. Eu) Loew 1. 13. Meig 1. 175. Westw Syn 127. Anat. 1. 16 Meig pl 7
Ins. VI. 4. Os. coll. habits not known. (in fam 7 Loew. *Mycetophilidae*.)

Macropera Meig (Eu. U.S.) Loew. 1. 6. Meig 1. 69. Meid 1. 20. (in fam 2. *Chironomidae*)
" *albicans* Meig (Eu) Meig 1. 69. Ins XII. 8. Meig pl 3.

Masicera (Macq) (Eu. U.S.) Loew 1. 35. Meig 7. 241. Westw Syn 139. Ins X. 53. Meig pl 71
(Ins. with 3rd joint of antennae very long without having the front very prominent. (in fam 34 *Tachinidae*)

" (*Tachina*) *archipivora* (U.S.) Riley 3rd Rep. 116. & 150. Larva destroys caterpillars of *Lepidoptera*. *Paphia glycerium*. *Danaus archippus*. and *Prodenia autumnalis*. by feeding inside their bodies.

Medeterus. (Fischer) (Eu. U.S.) Leunis 615. Loew (Fischer) 1. 32 & 2. 218. Meig 4. 59.
Pack. 403. Meid 2. 224. Westw syn (Meig) 135. Anat. A 39. Meig pl 35
Ins found in dry situations on stumps of trees on fences &c. One was observed by Mr Doubleday in Europe engaged in capturing a *Prodenia*. (Orthop) on the surface of the water Westw 2 553.
(in fam 31 Loew *Dolichopodidae*)

" *longipes* (Eu) Westw 2. 553. Ins captures & feeds on *Pedura*. (Orthop)

" *regius* Meig (Eu) Ins VI. 9. Meig 4. 60. pl 35.

Melanophora (Macq. Eu) see Meigen 7. 213. (in fam 34 Loew *Tachinidae*)

" *diabroticae* Shimer (U.S.) (*Melanophora* error) Shimer Am Nat V. 219.
Larva destroys the insect of *Diabrotica vittata* (Colop) or the striped cucumber beetle. it lives in the abdomen of the pregnant female & changes into the pupa on the surface of the ground. (Shimer)

- Melophagus* (Fabr) Loew 1.48. OS. 86. Westw. Syn. 154. (in fam 62. Loew. Hippoboscidae)
- " { *ovinus*. Linn. (Eu, U.S.) Harr. 625. Leunis 629. HVS. 85. Meig 6.236. Pack 418.
 Westw 2.585. Ins VII. 45. Meig pl 64. VIII. 3. Pack. "Sheep Tick."
 a wingless and viviparous insect very annoying to sheep.
- Merodon*. Fabr. (U.S. & Eu.) Loew (Fabr) 1.26. Meig 3.349. Wied 2.148 Westw Syn (Fabr) 137.
 { *Anat* A. 73. Meig pl 31. The larvae of some species are aquatic. whilst
 others feed on bulbs, roots, &c in the earth. (in fam 22 Syrphidae. Loew.)
- " { *bardus*. Say (U.S.) Say 2.356. OS. 54. Pack 399. Ins VIII. 30 Pack.
 Larva aquatic.
- " { *clavipes*. Fabr. (Eu) Meig 3.331. Westw 2.559. Larva VII. 27. Westwood.
 Larva eat the interior of roots of Narcissus. (see also *M. narcissi* below.)
- " *equestris*. Fabr. Ins VI. 31. Meig pl 31. (Eu) Meig 3.352.
- " { *narcissi*. Fabr. (U.S. Eu.) HVS. 108. Leunis 625 Meig 3.354. Pack 399.
 Westw. 2.559. The larvae live in the earth near decayed bulbs of Nar-
 cissus & sometimes in the heart of the bulb itself. This insect has
 been raised by Mr. Sanborn of Boston. (see also *M. clavipes*. above
 which is probably only a synonym.)
- Meromyza*. (Meig) U.S. 84. Loew 1.46. Westw syn 147. (in fam 56 Oscinidae. Loew.)
- " { *americana* Fitch (U.S.) Am Ent 2.248. Fitch 2^d rept? 294. & 1855. 551.
 Riley 1st Rept. Mo. 159. OS. 84. Ins IX. 33. (Riley report) Larva lives
 in the stem of wheat & injures it by gnawing the stalk from within.
 & by devouring the substance immediately above the upper joint. (Fitch)
- " *rotatorum*. Meig (Eu) Ins X. 20 Meig 6.165. pl. 61.
- Metaponia*. Macq. Loew 1.17 see *Boris dorsalis*.
- Microdon* (Meig) Loew (Meig) 1.26. Meig 3.162. Westw Syn (Illig) 135. *Anat* A. 68. Meig
 pl. 20. Larva found in vegetable mould & wood earth (in fam 22 Syrphidae)
- " { *anthinus* Meig (Eu) Meig 3.165. Ins VI. 33. Meig pl 36. Larva lives
 in wood mould. the fly frequents flowers.
- " *apiformis*. Degeer. (Eu) Ins. found in Ants nests. (Leunis 625)
- " { *globosus*. Fabr. (U.S.) OS. 47. Pack 398. Wied 2.86. Ins VIII. 20 (Pack)
 Ins. found by Mr Sanborn under sticks in company with shells.
- " { *mutabilis*. Linn. (Eu) Leunis 625. Meig 3.164. Larva found in old
 trunks of trees (see vegetable mould.)
- Microproza* { Meig (Eu) Loew 1.39. Meig 5.382. OS. 81 Wied 2.547. Westw Syn. 149.
 { *Anat* A. 60. (Meig pl 53.)
- " *corrigiolata* Linn (Eu) Leunis 624 Meig 5.384. Ins. VI. 16 Meig pl 53,
- Microperidae* Fam 42 Loew. 1.39.
- Midas* Fabr. Loew 1.22. Westw 2.549. Syn. 134.
- " { *clavatus*. (Drury) (*filatus* Harr & Wied) (U.S. South Am) Harr 606.
 Meig 5.382. OS 27. Pack 395. Wied 1.240. Ins. II. 20 Mid Aug. Larvae
 live in wood mould, & in rotten wood. pupa formed in rotten stumps—
 (Ins appears in July & Aug. in Mass. ¹¹/₁₁) (in Fam 19. Midasidae. Loew.)

- Midas*. Fab. *filatus*. see *M. clavatus*.
 . . . " . . . *fulvipes*. Walsh. (U.S.) Pack 396. The larvae are said to be
 { insectivorous.
 . . . " . . . *tibialis*. Wied (Ma. U.S.) Wied 2. 627. OS. 27. LS II. 19. Dec. July.
 { The larva was found in wood mould.
 . . . " . . . *tricolor*. (Cuba.) Westw 2. 550 The larva is said to destroy a
 { *Prionus*. (Coleopt.) on the Island of Cuba, on authority of Mac Leay.
Midasidae. Fam 18. of Læw. 1. 22.
Milesia. Latr. (Eu) Læw. (Latr) 1. 26. Westw Syn (Fal) 136 & 2. 559 (in Fam 22. Syrph)
 . . . " . . . *baraus*. see *Morodon*.
 . . . " . . . *eccentrica*. Harr (U.S.) Harr 609. OS. 49. Pack 398, Ins VIII. 33. Har.
 { Larva probably live in wood mould. Ins. frequents flowers.
 . . . " . . . *ornata* (Fab) (*virginiensis*. Drury.) Ins. III. 26. OS. 50. Wied 2. 106. (U.S.)
 . . . " . . . *respiiformis*. Linn (Eu) Harr in note p. 610.
Mitogramma (Meig.) (Eu) Læw. 1. 25. Meig 4. 226. OS. 63. Wied 2. 278. Westw Syn 130.
 { (in fam 34 Læw. Tachinidae)
 . . . " . . . *(Tachina) punctata*. Meig (Eu) Meig 4. 228. Pack. 147. Westw 2. 568. The
 { larvae are parasitic in a wild tree (Colletas. Hym) and other *Andrenidae*
 { "have been raised from their cocoons." Pack.
Molobrus. Latr. Westw Syn. 126. & 2. 533. see *Saiaia*. (in Fam 7. Læw. Mycetophilidae)
Musca. Linn. (Eu U.S.) Læw 1. 35. OS. 70. Westw Syn. 141. & see also *Galliphora*.
 { *Lucilia*. &c (in fam 36. Muscidae) Anat. A. 54.
 . . . " . . . *axurea*. Fall. (Eu) Meig 5. 63. Præc Ext. 1. 102 & 2. 8. Larvae found in
 { Birds nests.
 . . . " . . . *cadaverina*. Linn (Eu U.S.) Læw 620. Meig 5. 59. OS. 71. The larvae infest
 { wounds, & sores of mankind & animals.
 . . . " . . . *cornina*. Fab. (Eu & Nova scotia) Meig 5. 69. Læw. 620. OS. 71. Larva
 { infests rotten cheese.
 . . . " . . . *domestica*. Linn (*harpysia*. Harr) (Eu. U.S.) Læw 620. Harr 616. Meig
 5. 67. Pack. 409. Westw 2. 570. L.P. VII 2. Pack. Ins. IV. 30. Ma. Domestic
 or "Common House fly." Ins. very troublesome by getting into liquids,
 rituals, &c, in dwelling houses, & by disfiguring walls, pictures, books, &c
 with their filth. The common house fly is unable to bite by means
 of jaws, but sucks only. & when eating sugar &c. moistens the substance
 first, to dissolve it. in order to be able to take it up in a liquid form.
 by means of its trunk, which at the end of the ligula or tongue, is furnish-
 ed with a broad fleshy expansion, or knob, divided into 2 muscular
 leaves, or flaps, these act as a sucker, & enable the fly to lap up.
 liquids. The inside of this broad fleshy expansion is however rough
 like a rasp, and is employed in tearing, and scraping, delicate
 substances, and it is by means of this curious structure, that
 over.

the house fly occasions much mischief to the covers of books, & other things by scraping off the albuminous polish, & leaving traces of its depredations in the spotted and soiled appearance which it occasions on them. (Pack) by this means the fly is also enabled to eat grains of pollen. (Barpers Mag. 1873 May.) Flies have been accused by some of communicating infectious diseases to mankind.

(Am nat VI. 694 & VII. 176.) It has been stated that "it only requires 28 days for this insect to perform all its metamorphosis from the egg to the fully developed fly. the larvae live in dung & filth."

Trimmer states that "it passes the winter in the larva & pupa states".

(Am nat III. 550) whilst other authorities affirm that it is the perfect fly itself which lives through the winter. (Pack 409) hidden away in corners, crevices of walls, &c. The larvae of *Musca domestica* have been found in the bodies of dead spiders in Europe. The fly itself is infested with red mites (*Ostoma. arachnidus*, Am Ent. I. 249) which are found attached to their bodies, under the wings, & likewise said by some to be infested with another mite *Uropoda* (?) - a species of *Bembex* (Hym) is said to catch flies, & to deposit them in its burrow to serve as food for its young. a species of *Chalcis* (Hym) (Pack 202) also destroys flies in Europe, whilst wasps (*vespa maculata*, &c. (US) Hym) not only eat flies, but also carry them off to their nests, supposed to be as food for their young. Flies are also destroyed by fungoid growths. *Sporendonema muscae* (Science Gossip 1865. p. 12) *Isaria*. &c. (US)

Musca (Lin.) *harpia*. see *M. domestica*.

... " ... { *erythrocephala*. Meig (Eu Greenland) O.S. 71. Pr. Ent. 1. 102 & 2. 8.
 { Meig 5. 62. Wed 2. 395. Ins. parasitic found in Birds nests.

... " ... { *stabulans*. Fab. (Eu. & Nova Scotia) Linn 620. Meig 5. 76. OS. 78.
 { wing XII. 25 Meig pl 13. The larvae feed in the bodies of caterpillars the same as *Tachina*. They also breed in dung & "in diseased potatoes".
 (Morton cyclop. Agr. 2. 440.)

... " ... { ? The larvae of *Musca* were found in Europe. in the bodies of dead wasps & spiders.

... " ... see *Marenga* fly. Pack 409.

Muscidae. Lam. 26. Loew 1. 35.

Musquito. see *Culex*.

Mycetobia. Meig (Eu US) Loew 1. 13. Meig 1. 179. OS. 9. Westw Sep 127. & 2. 524.

{ L.P. VII. 9. (Westw.) The larvae are mostly found in wood that is decayed, in fungi, &c. (in Lam 7. Loew. *Mycetophilidae*.)

... " ... { *pallipes*. Meig. (Eu) Meig. 1. 180. Pack 387. Westw 2. 523. Larvae live in detritus of Elm wood.

- Mycetobia* (Meig) *sordida*. Pack. 387. L.P.S. VIII. 11. (U.S.) Larvae live in the putrescent sap. under bark of Elm. in June, Fly appears June 27. Mass^{ts}.
- "..... { *Mycetophila* (Riley) *persicae*. Riley. *Mid. U.S. Am Ent* 1. 223 (Riley) Orig^l Rept. 1872. L.P.S. XI. 13. *Mid May: Sep.* The larva lives in the gum, & refuse castings made by the Peach tree borer, *Aggeria* — (*Tachilium*) *exitiosa* (Lepid.) at the foot of peach trees. it does no injury to the tree, but has frequently been mistaken for very young larvae, of the true peach tree worm.
- Mycetophila* (Meig) (Eu. U.S.) Loew 1. 13. *Leunis* 608. Meig 1. 202. U.S. 10. Westw. Syn 127. *Wed* 1. 66. *Anat* A. 16. *Elleg* pl. 9. Larvae found in *Boletus* fungi &c. Ins. small, and active. Have no proboscis "(Pack 375) found in damp situations. Some larvae cover themselves with silken webs, and others spin cocoons, in which they undergo their transformations. Some species of fungus eating flies, are destroyed by a parasitic *Schneumon* fly. *Teleas*. (Hym.) (Pack 199) The larva of a *Mycetophila*, was found by Base, in Carolina, which was gregarious living in a common web, upon the underside of a *Boletus*, each larva spinning a close cocoon, in which it assumed the pupa state.
- "..... { *agarici*. (Eu.) Westw. 2. 522. Larva vermiform. & encloses itself in a silken web.
- "..... { *fusca*. Degeer. (Eu.) Meig 2. 208. *Leunis* 608. Westw 2. 522. L VII. 8. Westw 2. 518 fig Larva found in *Boletus luteus*.
- "..... { *scatophora*. Perris. (Eu.) Pack. 385. Larva carries on its back a sheath or case, made of its own excrement. Pupa formed in the same case.
- "..... ? (Md. U.S.) Ins. 1. 18. *Mid July* taken on dung.
- "..... *persicae*. see *Mycetobia*.
- Mycetophilidae*. Fam 7. Loew. 1. 13. Pack 385.
- Myobia* (Macq.) (Eu.) Meig 7. 237. Said by St^r Legerau. to destroy *Curculionidae*. Westw 2. 569. (in fam 34 *Tachinidae*.)
- Myopa*. Latr. (Eu. U.S.) Loew (Latr) 1. 27. Westw Syn. (Fab) 138. Meig 4. 140. *Wed* 2. 242. *Anat* A. 78. Meig pl 37. *Leunis* 627. Larvae said to be parasitic in bees. (in Fam 23. Loew. *Myopidae*)
- "..... { *atra*. Fab. (Eu.) Meig 4. 146. Pack 401. Westw. 2. 561. This insect was observed flying about sandbanks in which were the burrows of various bees. (Westw)
- "..... { *gemina*. *Wed.* (Eu.) Meig 4. 153. Ins. VI. 18. Meig pl 37. Ins frequents flowers..
- "..... { (*Oxycephala* OS 83) *nigripennis*. Gray. (U.S.) *Harr.* 610. Ins in May, & June. found on fences round gardens where it sits with half spread wings. it moves slowly, & flies heavily (note. In OS. catalogue this fly is placed directly after *Tetanocera* which belongs to fam 40 *Sciomyzidae* & is no where near fam 23 Loew. *Myopidae*.)

Myopidae. Fam 23. Læw. 1.27.

Nematocera. Leun 8. see Nemocera.

Nemestrinidae. Fam 17. Læw 1.21. see also Hirmonneuridae.

Nemestrina. Wied. Læw. 1.22. Meig 6. 24.

- " { "longirostris. Wied. (Eu) Westw 2. 545. Wied 1. 24. This insect possesses a very long rostrum or proboscis which it uses to extract the nectar from the deep & long flowers of the Gladiolus.

Nemocera. Subdivision 1. Proboscidea Læw 1. 285. Flies having antennae of more than 6 joints

Nemotelus Geoff. (Eu) Læw (Geoff.) 1.18. Meig 3. 313. Os. 16. Westw. Syn Tab. 130. Wied 2. 45. Anat. A 47 Meig. pl. 24. Larva & insect probably frequent marshes. (in Fam 12. Stratiomyidae Læw 1. 17.)

" punctatus Fab (Eu) Meig 3. 116. Ins V 1. 13. Meig. pl 35.

Notacantha Stirps 2 of Westw 2. 505. "Thorn" or "Weapon flies." Leun. 616. (Ex Stratiomys

Nycteribia. Latr Westw Syn 134 & 2. 586. "Bat ticks."

- " { (Strebila) vespertilionis Meig (?) Eu. K&S 317. & 450. Meig 6. 238 Ins VII. 46. Meig. pl. 64. These insects resemble small spiders with 6 legs and are found in the fur of bats.

" { westwoodii. Guerin. (West Indies) Pack 418. Ins VIII. 9. Pack. Ins. in fur of bats.

Nycteribidae Fam 63. Læw 1 p 48. Harr 625 Pack 418, Læw states "that one Strebila only and a species belonging to a new genus are as yet found in the United States." Læw.

Oothora (Eu) Latr. Læw 1. 45. 149. 159. Meig 6. 77. Os. 84. Westw Syn 153. Wied 2. 446 in fam 53. Ephyrinidae. Læw.

- " { mantis Degeer (Mid St. Ind. U.S. Eu) Læw 1. 161. Meig 6. 78. Ins IV. 34. (Mid. June) "I am unable to distinguish this species so common in the middle states from the European *O. mantis*." (Læw. 1. 161) This insect has its anterior femora much swollen & somewhat resembling those of a Mantis (Orth) hence its name. Habits unknown.

Oxyptera Latr. (Eu) Læw. 1. 35. Meig 4. 209. Pack 408. Os 60. Westw Syn 140 & 2. 567.

- { (Oxyptera Leun 619) Anat. A 51. Meig. pl 38 Larvae differ much in habits some being parasitic in other insects whilst others feed on roots of plants in fam 34 Tachinidae. Læw.

" { bicolor. Oliv. (Eu) K&S. 155 Westw 2. 567. Lar VII. 30. Lar is parasitic in a plant bug. *Ucanthosoma* (Pentatoma) grisea. (Heterop.)

" { brassicaria Fab (Eu) Leun 619. Meig 4. 211 Ins XII. 10. Meig. pl 39. Larva injures the roots of Cabbages & Kohl rabi.

" { cassidae (Eu) Larva is said to be parasitic in a tortoise beetle (*Cassida vinidis*)

(?) (Mid. U.S.) Ins IV. 15. Ins taken in Md. Aug^e.

Odontomyia Meig (Eu) Low (Meig) 118. Westw Syn 130. (in fam 12. *Stratiomyidae*, Low)
 " *cincta*, see *Stratiomys*.

" *crassirostris*. Low. (U.S.) Ins 11.11. from collection of O.S.

Astridae. Fam 32. Low 1.32 Pack 403.

Astromyia Pack 405. "thought to inhabit the hare."

Astrus. Linn (Westw &c) *bovis* "Ox bot fly" see *Hypoderma*.

" *lucatus*. "Squirrel bot" see *Cuterebra*.

" *equi*. "Horse stomach bot" see *Gastrophilus* & *Gasterophilus*.

" *hominis*. Imelin. (South America) Am Ent. 1.86. Bates. "Naturalist on the Amazon"

" *hominis*. M & S. 72. Pack. 406. Say 232 "Human Bot fly" the larvae form tumors under the skin of mankind. see also *Dermatobia*.
Cephalomyia U.S.

" (*Cephalomyia*) *ovis* "Sheep head maggot. see *Cephalomyia*.

" *stimulator*. Clark. (*Cephenomyia* Westw 2.576) (*Astrus trompe* Fab)
(Auricularis. M. only a var Meig 4.171.) (Eu) Linn 629. Meig 4.170.
 Larvae found in the frontal sinus. or hollow of the forehead of
 Fallow deer, & Reindeer.

" *tarandi* (Eu) see *Hypoderma*. Larvae live in tumors under the skin of Reindeer.

Ogcodes. Latr. Westw Syn 131. see *Oncodes*

Oncodes. Latr. Low 1.121. Pack 395. (See also *Henops*) in fam 14 *Cyrtidae* Low.

" (*Henops*) *dispar*. Macq (Md. U.S.) O.S. (*Henops*) 36. Ins V.16. Md June.

" (") *gibbosus* Linn Ins XI.7. Meig pl 24.

Opomyza. Fallén no sp as yet known in the U.S. (in fam 49. *Opomyzidae*. Low 1.43.

Ornithobia. Meig. (*Haematodes* Curtis) Westw Syn 154 Meig 6.229. "Bird louse fly"
 { in fam 62 Low. *Hippoboscidae*.

" (*Ornithomyia*) *pallida*. Meig 6.229 (Eu) Ins VII.4. Meig pl 63.
 { Insect parasitic on birds eating the feathers &c. (See also *Ornithomyia*
pallida Say. O.S. 86.

Ornithomyia (Leach) Low (Leach) 1.48. Harr 624 Pack. 417. Westw Syn (Olf. Latr) 154
 "Bird louse fly" in fam 62. Low *Hippoboscidae*.

" ? (Md. U.S.) Insect taken from a large horned Owl in Md. Sept 5
 (see also *Hippobosca* Pack 144. on Owl likewise) Ins. IV.42.

" *auricularia* Linn (Eu) Curtis in Mortons *Cyclop* Ag 2.519. Linn. 629.
 Meig 6.232. (Linn 629. Swallow louse fly.). This insect is
 { parasitic on Birds Poultry. (& mankind. Kirby & Spence.)
 Ins. X.24 from Curtis.

" *pallida* Say (U.S.) Say J Acad Phil 3.103. Wied 2 610. a parasitic bird
 { louse fly on Blue bird (*Sylvia sialis*) This insect is probably different
 from *Ornithobia pallida*. (Meig pl 64) or *Anapera pallida* (Meig pl 64)

Ornithomyia (Leach) *viridis*. Latr. & Leach. (Eu.) Meig. 6. 232. Ins. VII. 42. Meig pl. 64.

Ortolidae. Fam 43. Linn. 1. 39. Harr 497. Many of the larvae of this family produce galls on the leaves, stems & buds of plants, whilst others feed in fruits, roots, &c. Some of the little white maggots without jaws, found in overripe cherries, raspberries & whortleberries are the larvae of different species of *Ortolis*, or *Trypeta*. The insects are found on flowers, in sunshine, their wings are often variegated, striped, or spotted, & they keep them in almost perpetual motion.

Ortolis. (Fallen). (Eu) Meig. 5. 272. OS. 77. Westw. Syn 149. Wied 2. 458. Anat A 60
 { Meig pl 46.

..... "..... *cerasi*. Linn. (Eu. Mass. U.S.) Linn. 623. OS. 77. Westw. 2. 573. see *Trypeta*.

..... "..... { *coloni*. Linn. (U.S. Md.) Ins. V. 7. Md. Mag. see also *Vibrans* (Eu)
 { which resembles it.

..... "..... { *flexa*. Wied. (*Trypeta arcuata* Walker) (U.S.) OS. (*Trypeta*) 79 Pack 412
 { *Prac. Ent* 1. 4 & 2. 64. Riley 2^d Rep. 1869. Shiner in Prairie Farmer. Sep 2.
 { 1866. Wied (*Trypeta*) 2. 463. Am Ent 2. 266. L.S. VIII. 28. Pack. —
 { "Black or Western Onion fly". The larva in June feeds in the bulb
 { &c. of Onions, & thus destroys the plants. The pupa is formed in the
 { earth, & remains as pupa about 2 weeks. (see also for eastern Onion
 { fly. *Anthomyia ceporum*.)

..... "..... { *fulminans*. Meig. (Eu) Linn. 623. Meig 5. 275 Larva lives in stalks
 { of Asparagus. (Bouché')

..... "..... *melliginis* (or *Herina rufitarsus*.) see *Rivellia viridulans*.

..... "..... *picta*. Meig 276 vol 5. see *Camptoneura picta*.

..... "..... *vibrans*. Linn (Eu) Meig 5. 284. resembles. *O. coloni* (U.S.)

Oscinis (Rob. Des) Meig 0. Linn 1. 46. Wied 2. 579. see *Chlorops*. (*Oscinis* is said
 { by Fitch (2^d Rep p 300.) to differ from *Chlorops* "by being generally of
 { a black color instead of yellow, &c. &c." (see p 46.) but according to
 { Osten Sacken, all should be placed under *Chlorops*.

..... "..... *coarctatus*. *Acrassifemoris*. O. Frit. *O. lineata*. *O. fumilionis*. see *Chlorops*

..... "..... { *granarius*. Curtis (Eu) Morton's Cyclop Ag. 2. 519. Pack. 415.

..... "..... { Ins. X. 3. (Curtis.) Larvae live in stems of early wheat & supposed
 { to injure early ears.

"..... *fumilionis*. see *Chlorops*.

"..... { *tibialis*. Fitch (U.S.) Fitch 2^d Rep. 300. 1855. 532. pl 1. fig 5. OS 85.

"..... { Ins. X. 4. (Fitch) Larva supposed to injure wheat in June.

"..... { *vastator*. Curtis (Eu) Morton Cyclop Ag. 2. 520. Pack 415. Ins. X. 5. (Curtis,
 { The larva lives near the base of a stem & eats out the pith of
 { Wheat, Barley, &c. thus destroying the future ear. & is itself destroyed
 { by Hymenopterous parasites. *Sigalphus caudatus*. *Pteromalus micans*.
 { & *Coelonus niger*.

Oscinidae Fam 56. Linn. 1. p 46.

- Oxycerata*. Macq. *su Myzofa nigripennis*. (in Fam. 23 Læw. Myzopidae.)
- Oxycera*. Meig. (Eu) Læw. 1. 18. Leunis 616. Meig 3. 12. Westw syn 130 Anat. A 46.
 { Meig pl 25. Larva found in Wood mould, rotten wood &c (in
 fam 12. Læw. Stratiomyidae.)
- " *maculata*. Oliv. (Md. U.S.) Ins V. 2 Maryland June.
- Oxyptera*. see *Ocyptera*.
- Oxypterum*. Leach see *Anapora*.
- Pachygaster*. Meig (Eu) Læw. 1. 18. Leunis 116. Meig 3. 102. Westw Syn. 130. & 2. 533.
 { Anat. A 48. (Meig pl 24.) Larvae found in rotten wood. pupae
 retain their larva skin in almost the original form. (in fam 12.
 Læw. Stratiomyidae.)
- " *pulcher*. Læw. (Md. U.S.) L.P.S. V. 33. found in Md. June under bark
- Palloptera*. Fall. (Eu U.S.) Læw. 1. 41. Westw. Syn 150. (in fam 45 Lonchoideae Læw.)
- " *superba* (Md U.S.) Ins VI. 28 Md Aug?
- Pangonia*. Latr. (U.S. Eu) Læw 1. 19. Meig 2. 16. O.S. 18. Wied 2. 620. Westw 2. 541
 { This insect was supposed to suck the juices of flowers but Meigen
 states that the females are suspected of sucking the blood of cattle
 in a similar manner to *Tabanus* (in Fam 14 Læw. Tabanidae)
- " *incisuralis* Say. (U.S.) Say 1. 75. O.S. 19. *Thrid (incisa)* 1. 90. Ins IX. 12 Say.
- Panopea* { *carnea*. Pack. 164. said to be parasitic in a *Bembex* (Hym)
 (not in Læw. O.S. or Meigen)
- Paryora*. Stenb Læw 1. 45. 159. 164. (in fam 53. Læw. Ephydrinidae.)
- " { *tuberculata*. Ins V. 35 from collection of O.S.
- Pedicia*. Latr. Læw 1. 10. Westw syn 129. see also *Limnotia*
- Petalophora*. Macq (*Ceratitis* Mac Læg) *capitata*. (see Westw 2. 573. for *C. citripes*)
 { This insect is said to be found on Lemon trees & is probably the
 same as *C. citripes*. (in fam 44. Læw. Tephritidae.)
- Phora*. Latr. (Eu U.S.) Læw 1. 4. 47. Meig 6. 210. Westw Syn 154. & 2. 574. Some of
 { the larvae feed on decomposing substances. in roots &c. whilst others
 are parasitic in or on other insects. Bees Wasps &c. (in fam 61. Phorida)
- " ? (Ky U.S.) Am Nat 5. 745. Ins. IX. 20. (Am Nat) This insect was found
 in the Mammoth cave of Kentucky.
- " *atricapella* (Eu) Westw. 2. 575 The larvae of this fly probably destroy
 { Ladybirds (*Coccinellidae* (Coleopt.) as their larvae were found hanging
 to the pupae of *coccinella* & soon afterwards underwent their trans-
 formations. Westw.
- " *lauci*. Bauché. (Eu) Meig 2. 223. Westw 2. 575. Lar VII. 37 (Westw.)
 { The larvae injure roots of Carrots & Radishes.
- " *florea*. (Eu) Am Nat. 5. 120. Meig 6. 221. The larvae are parasitic in
 { the nest of an European wasp.

- Phorw. Latr. morassata*. Meig. (Eu) *Am Ent.* 2. - 242. Meig 6. 212. *Pack* 416. "Bee-fly." *Ins.* V. 19. 20. (Meig pl 63.) Larva suspected of injuring bees, by destroying the young in their cells, and of causing a disease called "Foul brood." (Eu)
- " *rufipes*. Fab. (Eu & Hudsons Bay Meig 2. 216. OS 86. This insect is destroyed by a parasite, *Aphidius flavipes* (Hym.)
- " *sphinxoides*. (Eu) Westw 2. 575. Larvae parasitic in bodies of Hawk moths. (Sphinxidae)
- Phoridae*. Fam 61. Loew. 1. 4. 47.
- Phthiria*. Meig. (Eu) Loew. (Meig) 1. 25. Meig 2. 165. OS 43. Westw Syn (Latr) 131. *Wied* 1. 355. *Ins.* frequent flowers. (in Fam 21. Loew. *Pomdyliidae*)
- " *sulphurea*. Loew. (US Mx.) *Ins* V. 1. Mā. June.
- Phycodromidae*. Fam 47 Loew. 1. 42. (Ex. see *Caelopa*)
- Phytomyxa*. Fallen. (Eu US) Loew. 1. 47. Meig 6. 108. Westw Syn. 152.
- " *apii* see *Piophilata*.
- " *flava*. Meig. (Eu) Meig 6. 196. Westw 2. 573. Larva subcutaneous, & joints in leaf of Hartstongue - a fern. (*Scolopendrium vulgare*.)
- " *flaviceps*. Westw. (Eu) Westw 2. 573. Larva mines in leaf of woodbine
- " *lateralis*. Fall. (Eu) Meig 6. 190. Westw. 2. 173. Larva forms a gall in the centre of receptacle of Corn feverfew. (*Centauraea*)
- " *nigricornis* Macq. (Eu) Curtis in *Mortons Cyclop. Ag.* Meig 7. 404. *Ins.* X. 12. (Curtis) Larvae mine in the underside of leaf of Turnips & Peas, &c. they form long galleries beneath the lower cuticle. & the pupa is formed at the end of this gallery.
- " *obscurella*. Fall. (Eu) Meig 6. 191. Westw 2. 573. Larva mines in leaf of Holly & Honeysuckle. the pupa is formed in the cuticle.
- Phytomyxidae*. Fam 53 Loew. 1. 47.
- Piophilata*. Fallen (Eu US) Loew. 1. 44. Meig 5. 394. Westw Syn 147. *Anat* A 58 (Meig p. 54)
- " *apii*. Westw. (Eu) Loew. 622. Larva lives in the flesh, or substance of Celery.
- " *casei* Linn (Eu US) *Harr.* 621. *Am Ent* 2. 79. Loew 622. Meig 5. 395. *Morton Cyclop. Ag.* 2. 611. OS. 82. *Pack* 413. Westw 2. 573. (*Syrphagaster casei*. *N.S.* 176. 437) *L.P.S.* V 34. (Mā Jan to Dec.) "Cheese fly." the larvae are commonly known as "Skippers" or "Cheese maggots" from their habit of skipping or jumping when placed on a level surface & inhabiting cheese. The skipping motion they are enabled to make by taking the tail in the mouth & then suddenly releasing it. They live in cheese, Bacon & other fatty substances. The pupa is formed in the shortened and hardened oval dried skin of the larva. German is said to have bred this insect from salt alone.
- Piophilidae*. Fam 53 Loew. 1. 44.

- Pipiza*. Fallén. (Eu. U.S.) Læw. (Fallén) 1.26. Meig 3. 262. OS. 50. Westw Syn. (Meig) 136.
 { *thrid* 2.110. (in fam 22 Syrphidae. Læw.)
- "*radicum*. Walsh. (U.S.) Walsh Am Ent. 1.83. L.P. IX. 41. Walsh.
 { Root louse Syrphus fly (Walsh) The larvae feed under ground upon
 Pear tree root lice Pemphigus (Eriosoma) pyri. (Homop.) The
 pupa is formed in the autumn & the fly appears the following
 spring. *Pipiza* differs from *Syrphus* "in the absence of the
 prominence in the middle of the face, in the comparatively greater
 development of the posterior legs. & in the want of the little spurious
 longitudinal vein in the middle of the wing." (LeBaron Am Ent. 1.110)
- "*nspr* .? LeBaron Am Ent. 1.110. Larvae destroy the plant
 { lice in the Sumach gall. (Pemphigus rhois Homop.)
- Pipunculus*. Latr. (Eu) Læw. 1.27. Meig. 4.19. Pack. 401. Westw Syn 135.
 { *thrid* 2.650. Anat A. 85. (Meig.) Ins. found in hedges on grass &c.
 { Ins. VI. 17. from OS. coll.
- Pipunculidae*. Lam 24 Læw. 1.28.
- Platypera*. Meig. (U.S. Eu.) Læw. 1.28. Meig 4.4. Pack 402. OS. 57. Westw Syn 135.
 { Anat A. 86. Meig pl 33.
- "*bolitina*. (Eu) Meig 4.5. Westw 2.554. L VII. 38. (Westw.) larvae live
 { in rotten fungi. Boleti mushrooms &c
- Platyperidae*. Lam 26. Læw. 1.28.
- Platysyllus*.
 { *castoris*. (Eu) Am Nat. IV. 443. This insect is parasitic on the
 European beaver. it unites the flattened body of the louse, with the
 peculiarities of the flea. & is allied to the Diptera (Am Nat)
 { Westwood of Oxford proposed to place this insect in an additional
 order Achreioptera. Mons Ritsema hesitated to found even a new
 family for it. whilst De Le Conte gives good reasons for placing it
 with the Coleoptera" (Riley 5th Rep. 1873. p. 16.)
- Platystoma*. Latr. Læw. 1.59. 78. Meig 5.390. OS (Latr) 81. Westw Syn (Meig) 148.
 { *thrid* 2.568. (in fam 44 Læw Tryptetidae.)
- "*annulipes*. Macq. see *Collophistria*.
- "*latipennis*. Macq. see *Toryeta sparsa*.
- Plecia*. Meig. (U.S) Læw (*thrid*) 1.15. OS. (Hoff. 92) 12. Pack 80. *thrid* 1.73. &c.
 { (in fam 9. Bibionidae.)
- "*longipes*. Læw. (Mæ. U.S.) Ins. II. 4. (Mæ. april.)
- Porphyrops*. (Meig.) (Eu. U.S) Læw 1.32. & 2.142. 340. OS. 58. Meig 4.45. Westw Syn. 134.
 { Anat A. 40. (Meig pl 35.) (in Lam 31. Læw. Polioptilidae.)
- "*diaphanus*. Latr. (Eu) Meig. 4.46. Ins VI. 10. (Meig pl 35.)
- Proboseidea*. Division 1. Diptera Læw. 1.4.
- Proctacanthus*. Macq. Læw 1. 23 (in Lam 19. Læw. Asilidae.

- Proctucanthus* Macq. *milvetti*. Macq. (Md. U.S.) U.S. 34. Pick up! Mass. U.S.
(1869. 254 Ins III. 7. Md. July. Ins predatory feeds on juices of other
insects
- *philadelphicus* Macq. (Md. U.S.) (Am nat. 4. 656. U.S. 35. Pack Ag Rep
Mass^{ts} 1870. 254 Ins X. 34 Am nat. Larvae live in burrows in the
loose and shifting beach sand by the sea shore. it probably feeds on
grass roots. The fly preys on other insects & occasionally kills honey bees.
- Promachus* Læw. (U.S.) Læw 123. (in fam 19. Læw Asilidae)
- *bastardi* Læw. (U.S.) Am Ent 1. 244 Pack 390. Riley 1st Rep. 1868. 186.
& 2nd Rep. 1869. 122. *Sativorus* LeBaron 1874. 63. (*Euclyptus apicatus* Sitch)
Ins. IX 22 (Riley) Bee Killer Ins. predatory & kills other insects it also
captures Honey bees when flying & sucks their juices. It has been known to
kill 140 bees in one day Riley. it is also said to destroy the western
or Colorado potato bug (*Doryphora decimlineata*.)
- Psila*. Meig (Eu U.S.) Læw 1. 38. Meig 5. 355. Westw Syn 146. Wied 2 527. Anat. A. 63.
Meig pl 51. Some of the larvae feed on the roots of plants. Ins frequent flowers
- *licolor* Meig (Eu) Meig 5. 358 Ins VI. 15. Meig pl 51.
- *rosae*. Fab. (Eu) Curtis in Mortons Cyclop Ag. Leunis 624. Meig 5. 358.
Westw 2. 578. Ins X. 10 (Curtis) & XI. 10 (Meig pl 51.) Larvae bore into and
injure roots of Carrots & are said to produce the disease called "rust"
The pupae are formed in the earth.
- *nigricornis* Meig Eu is probably only a variety of *P. rosae* (Curtis in
Mortons Cyclop. Ag^{re})
- Psilidae*. Fam 41 Læw 1. 38.
- Psilopus*. Meig (Eu U.S.) Læw 1. 32 & 2. 229. Meig 4. 36. Westw Syn. 134 (in fam 31. Dolichop.)
..... *Siphio* Say (Md. U.S. Cuba Brazil) U.S. 58. Say 275 Wied 2. 248. Ins V. 6 (Md
June.) Ins. frequents bushes. & is named siphio from the siphon like brown
marks on its wings.
- Psychoda* Latr. (Eu U.S. Md.) Læw (Latr) 1. 9 Meigen 1. 81. U.S. (Meig) 5 Pack 380
Westw Syn 126 & 2. 520. Anat. A. 8. (Meig pl 3.) Ins IV. 5. 6 (Md May) The
larvae reside in dung. Ins very plentiful in damp outhouses & is found
frequently on windows. These insects are very small & are remarkable for
their broad & hairy wings which when at rest are kept in an inclined
roof like position. They are called by the Germans butterfly or moth gnats
from their broad wings & general appearance.
- *nervosa*. Schrank (Eu) Meig 1. 81. Curtis 459. Ins bred from rotten
potatoes Curtis.
- *phalaenoides* Lin. (Eu) Leunis 606. Meig 1. 82. Westw 2. 520.
Larva resides in dung;
- Psychodidae*. Fam 5 Læw. 1. 9.

- Ptychoptera* Meig (Eu) Loew (Meig) 1.10 Meig 1.161. OS (Tab) 9. Pack. Lar 382 &
 Ins 384. Westw Syn 128. (see also *Pittacomorpha*) Anat A. 14 Meig p. 6;
 Some of the larvae are aquatic. & have two horn like processes to allow
 them to breathe in the water. The insects inhabit marshy places & have a
 singular spatulate organ ciliated on the margin inserted at the base
 of the halteres. OS. (in fam C. Tipulidae Loew.)
 " sp ? . U.S. Pack 383. Pupa VIII. 6. Pack.
 " { rufocincta OS. Pack 384 Ins VI. 22. OS. coll. Ins black with reddish
 bands on its feet.
 " { paludosa. Meig (Eu) Meig 1.163. Pack 384. Westw 2 526. The larva has
 a long respiratory tube at the end of its body, which it raises to the
 surface of the water. the pupa also has one of the horny processes on
 the thorax enormously prolonged for the purposes of breathing. OS.
Ptychopteryx. Westw 2. 526. see *Ptychoptera*.
Pulex. Linn "The Flea." is not mentioned either in OS. cat. or in Loew's Monograph
 { It was placed by Westwood (2. p 489.) in a separate order Aphanoptera
 (Kerby) by Packard (p 389.) it is put in Diptera between Mycetobia
 & Simulium. & by Linn (p 610) also in Diptera between Rhyphus and
 asilus. The larvae live in decayed & decomposing matter. The insects
 annoy mankind &c by sucking blood. The fleas which attack man
 dogs, cats &c. are all of different species as seen below. The common
 flea is said to be destroyed by a species of Book scorpion (*Chelifer*
cancroides) (Geyon in Ann Nat. 2. 104)
 " { irritans Linn (Eu. U.S.) Ann Ent 1. 86. Linn 610. Westw 2. 489. Verri
 Rept Count. Bd. Ag. 1869. 86. L.P.S. VII. 47. Flea on mankind (Westw)
 Ins sucks blood.
 " { canis Curtis (Eu. U.S.) Verri Rept. Count. Bd. Ag. 1869. 86. Dog flea.
 " { columba. Gervais. " " " " " " " " Pigeon flea
 " { felis. Bouche' " " " " " " " " Cat flea
 { See Science Gossip. 1865 p 278.
 " { gallinae Schrank (Eu. U.S.) Verri Rept. Count. Bd. Ag. 1869. 86. Poultry-flea
 Other species infest Bats Martins, hedgehogs, mice (Pack 389) Moles. Rabbits.
Rats. Swallows. &c &c
Pulex. Linn penetrans "Chugoe" "Tigger &c." see *Sarcopsylla* & *Rhynchoprion*.
Pupipara. Louse flies see *Eproboscidea*
Pepygota. Wied Loew 1. 40. OS (Wied) 52. (in Fam 43. Linn Orsolidae)
 " { undata, Wied (*Sphacomylia valida* Harr) (Md. U.S.) Harr 610.
 { Wied 2. 581. Ins. IV. 21. (Md July Sep.) This insect frequents wet and
 damp bushes. & is not uncommon in Md.
Pyroga. (Illig) furcata see *Scatophaga*.

Phagio (Slig) *Prac. Ent.* 1. 269. see *Simulium columbaschensis* (in
 { *Fam.* 8 *Simulidae*)

Rhamphomyia Hoff. 88. (Eu. U.S.) *Lew.* (Meig.) 1. 30. OS. 45. Meig. (Hoff 88) 3. 42.
 { Westw Syn (Hgg) 131 *Wied* 2. 7 *Leunis* 614. *Anat.* A 32. Meig pl 32.
 Larvae live in vegetable, or wood mould. Ins predatory, & feed on
 other small insects, some are found in amber. (Pack. 383) These
 insects are very rapacious and are frequently taken coupled, with the
 female sucking the juices out of another small insect, which it
 has captured. (in *fam* 29. *Empididae*, *Lew*)
 longipes. Meig. (Eu) Meig. 3. 55. *Ins.* XI. 3. (Meig pl 23) *Ins* predatory.
 longicauda. *Lew.* (U.S.) *Ins* III. 23, 24 (OS coll.) The male of this fly
 { presents a very peculiar appearance its legs being fringed with long
 scaly hairs, or appendages.
 nigripes. *Fab.* (Eu) Meig 3. 48. *Ins.* XI. 2. Meig pl. 23.
 marginata. *Fab.* (Eu) *Leunis* 614. Meig 343. *Ins* found on Birch trees
 spinipes. *Fall.* (Eu) Meig 3. 49. Westw 2. 547. *Lar* VII. 18. Larva lives
 { in vegetable mould. (Westw)

Rhynchosyrphus (Oken) *penetrans*. see *Sarcosyrphus*. *Jigger*. or *Chigoe*.

Rhingia 1 *Fab.* (Eu. U.S.) *Lew* (*Fab.*) 1. 26. Meig 3. 257. OS. (Scop) 50. Westw Syn (Scop) 136.
 { *Anat* A 71. (Meig pl 29.) some of the larvae live in cow dung, Insect
 eats pollen of flowers. *Am. Nat.* V. 291. (in *fam* 22 *Lew.* *Syrphidae*.)
 nasica. *Say.* (U.S. *Ma.* Nova Scotia.) OS. 50. *Say* 2. 81. *Wied* 2. 115.
 { *Ins* III. 28. *Ma.* on flowers. *Aug.* but not common.

Rhyphidae, *Fam* 10. *Lew* 1. 15.

Rhyphus. Meig. (Eu. U.S.) *Lew* (Meig) 1. 15. Meig 1. 249. OS. 13. Westw Syn (*Lar.*) 137.
 { *Wied* 1. 82. Westw 2. 523. *Anat* A 21. (Meig pl 11.) The larva of one
 species is found in cow dung. (Westw)
 " *punctatus*. *Fab.* (Eu.) Meig 1. 257. *Ins.* II. 9. from OS. coll.

Rivellia. (Rob Des.) *viridians*. *Rob. Desv.*. (*Trypeta quadristriatus*. *Waltk* *Lew* 1. 60)
 { (*Trypeta* or *Trypeta melliginis*. *Fitch* 1st *Rep.* 64 & 1854. 769. OS 73.)
 (*Oralis melliginis*. OS. *Lew* 1. 59) (*Merina rufitarsus*.) *Macq.* (*Ma* U.S.)
Ins IV. 26. *Ma.* July. *Ins* feeds on nectar of flowers or honey dew
 from plant lice. (Aphides) habits same as *Trypeta*. (in *fam* 43. *Ortolidae*)

Sapromyza. *Fab.* (Eu. U.S.) *Leunis* 623. *Lew* 1. 41. Westw Syn 152. & 2. 572. *Wied* 2. 450.
 { *Anat* A 59. Meig pl 46. The larvae live in animal matter in a
 state of decomposition. (see *Carion*.) (in *fam* 46 *Sapromyzidae*)
 " *compedita*. *Lew.* (*Ma* U.S.) *Ins* V. 3. *Ma.* July.
 " *decumpunctata*. *Fall.* (Eu) Meig 5. 270. *Ins* VI. 14. Meig pl 46.
 " *obsoleta*. *Fall.* (Eu) The insect is said to lay its eggs in, or on
 { young shoots of the potato. It was once supposed. (erroneously) to be
 the cause of the Potato rot.

Sapromyzidae. Fam 46. Læw. 1. 41.

Sarcophaga. Meig. (Eu. U.S.) Læw 1. 35. Meig 5. 14. Westw Syn. 140. Anot A. 53. May

At 43. "Uniparous Fleshfly" Larvae live in decaying & putrid flesh, carrion, &c. They are sometimes found in ulcers, & sores of mankind, & animals, some species are parasitic in caterpillars, insects, &c. The larvae are destroyed by a parasitic hymenopterous insect *Sigites* (Pack 213.) (in fam 35 Sarcophagidae. Læw.)

" . . . ? . . . Ins IV. 17. raised from body of a caterpillar Md. June.

" . . . ? . . . Ins IV. 18. " " " " " July

" . . . ? . . . Ins IV. 19. " " " " " "

" . . . carnaria. Linn. (Eu U.S.) Am Nat. VII. 196. K&S. 147. Leun. 620. Meig 5. 18.

Os. 68. Morton Cyclop. 2. 120. Pack 409. Verril. Conn. 13d Ag. 1869. 102.

Westw 2. 568. Ins. IV. 22 Md. July to Sep. This insect is uniparous, the

eggs being hatched in the body of the mother. The ovaries are large.

& arranged in a spiral manner. they are said by some naturalists to

to contain sometimes 20,000 eggs. but according to Degeer "the female

lays 50. to 80 maggots. and in six months. can have a progeny of

508 millions." (Leun.). The larva is sometimes found in wounds, &

sores of mankind, & cattle. they feed likewise on carrion. & are capable

of living in the human stomach. The fly has been known to lay eggs

(larvae) on earth worms, which hatched, & produced perfect insects.

(Curtis) In the Am Nat. vol VII. p 196. a case is mentioned where the

living young were deposited on the 15th of June. The pupae were formed

on the 22. June. & the perfect flies came forth on the 4th July. being 34 -

or 35 days from the egg or young larva to the perfect fly.

" . . . georgina. Wied (Md. U.S. Newfoundland. Hudsons bay). Harr 618. Os 69.

Wied 2. 357. Ins appears from end of June to mid Aug^r. or later. The

female is about 1/2 an inch in length. the male is smaller. Face

silvery white, with oblong square spot between the eyes, which are copper

colored. thorax light gray. with 7 black stripes on it. Abdomen nearly

conical. with black & white square spots. & of a satiny lustre. (Harr)

" . . . nudipennis. (U.S.) Pack 170. 208. This insect was reared from the mud

nest of *Polopocus flavipes*. (Hym) or "dirt dauber" which had been stored

with spiders, to serve as food for the grubs of the wasp. the eggs had

probably been laid in the spiders before the nest was closed. & the

young of the *Sarcophaga* hatched a few days before the *Polopocus*.

Sarcophagidae. Fam 35 Læw 1. 35

Sarcopsylla. (Westw) penetrans. Linn. (Rhynchopneumon. Oken. & Am Nat. 2 104.)

(Pulex. Linn & Westw.) (U.S. Southⁿ States. West Ind. So Am.) Am Nat 2. 104

& 3. 386. Leun. (Westw) 611. K&S 25 & 53. Pack 390. Westw 2. 493. & 489

Ins VII. 118. Westw. "Sand flea" "Tigger" (U.S.) "Chigoe" (U.S.) Tunga. of Brazil.

& "migua" of the Peruvians.

(Over)

Parcopaglin penetrans. continued.

This insect buries itself in the flesh of some animals. & mankind. when in man, generally in the feet or toes. & frequently under the toe nails. Here it deposits its eggs, which produce a multitude of young larvae. These burrowing into the flesh cause large & painful sores, or ulcers, which sometimes are so dangerous as to necessitate the amputation of the limb affected. Gosse says that when these insects are removed from the flesh, they resemble small distended tins with this dissimilarity, that with the tick the feet are pushed apart. in the progress of distension. whilst in the "Tigger" they remain close together. This insect however must not be confounded with the harvest or "red bug" of the southern states, which is an acorus or mite (or "Leptis") & burrows under the skin of the body & limbs producing an intolerable itching, & small water blisters. This insect belongs to the Urachnidae or spiders. & is also known in the south as the "seed tick". & erroneously as the Tigger in Md. La. & Fla. &c. The true Chigoe is said to be destroyed by *Periplaneta* (*Blatta*) *americana*, a cockroach. (Lyon *Am nat* 2. 104.)

Pargus. Fab. (Eu. U.S.) Law (Fab) 1. 18. Harr 608. Pack 392. Westw Syn 130 (Fabr) & 2. 538.

Wied 2. 27. Ins VII. 39. Westw. Leunis 616. Larvae found in cow-dung. garden mould, &c. (in fam 12 *Stratiomyidae* Law)

... " ... deconus. Say. (Md. U.S.) Say 1. 257. OS. 17. Wied 2. 38. Ins II. 12. taken on flowers in Md. June. to Aug.

Scaeva. Fab. Westw Syn 137. Law 1. 26. see *Syrphus*.

Scatomyxidae. Dung flies of Harr 619.

Scatopse. Geoff. (Eu. U.S.) Law 1. 14. OS 12. Pack 377. Westw Syn 129. Wied 1. 71.

{ The larvae live probably in dung. one species according to Packard (p 377) is a quest gall gnat. or inquiline in the gall of a *Cecidomyia*. (in fam 9 Law *Bibionidae*)

" notatus. Say. (U.S.) Ins II. 3. OS coll.

" { *punctata*. Meig (Eu.) Meig 1. 235. Curtis 472. Ins. bred by Curtis from rotten potatoes.

Scatophagus (Fabr) (Eu. U.S.) Leunis 622. OS. (Fabr) 76. Meig 5. 252. Westw Syn 1144 & 2. 572.

{ Wied 2. 447. Anal A. 57. Meig pl. 45. Some of the insects eat pollen of flowers. (Am nat 5. 291.) (in fam 38 Law. *Cordyluridae*)

" *furcata*. Fab. (Md U.S. Eu.) Harr 618. Leunis 632. OS. 76. Meig 5. 252.

{ Say (*Pyrope*) 2. 85 Ins IV. 24. (Md May to Nov.) "Torked Dung fly"
The eggs of some species are furnished with 2 broad divergent appendages. apparently for the purpose of preventing them from sinking in the dung in which they are deposited. & on which the larvae feed. This insect was once falsely accused of being the cause of the potato rot in Europe.

Scatophaga (Latr) *stercoraria*. Linn. (Eu. Greenland.) Linn. 622 Meig 5248.

{ OS. 77. Ins resembles *Sifurcata*. It has similar habits frequenting manure, &c. but also according to H&S. it kills small flies.

Trenopiniidae, Fam. 25 Law. 1. 28. (*Seconoprius* Latr. Law 1. 28. Meig 4. 111. OS 88. West syn.)
 " " *fenestralis*. Linn. (Eu. US Md.) Meig 4. 113. Westw 2. 553. Ins 111. 10. ^{135.} Md. May.

{ Ins very common in the windows. in Spring (Note if the insect figured is not the true *S. fenestralis* of Linn. it is very closely allied to it.)

" " *pallipes* Say (US). OS. 38. Pack 401 Say. f. Acad. Phil 3. 100. Wied 2. 338.

{ Lar ins. VIII. 28. Pack. Larvae feed on rotten wood, but they have also been found (probably accidentally) under carpets, by Mr Sanborn of Mass. (Pack.)

Pciara (Fab) (Eu. US) Law (Fab) 1. 14. Meig 1. 216. OS. 11 Pack 374 Westw syn (Meig) 126.
 Wied. 1. 67. Anat. A 17. (Meig pl 4.) Larvae found under bark of felled trees in rotten wood. Jungi. &c. (see also *Molobrus*) (in Fam 7. *Mycetophilidae*.)

" " ? (Md. US.) Ins 11. 1. Md. very common in spring, & autumn.

" " ? (Eu) Westw 2. 523. Three species of this genus are said to have been reared from wheat by Olivier. (Westw)

" " *fucata*. Meig. (Eu) Curtis in Mortons Cyclop. Ag. Meig. 1. 219. Ins. X. 8. Curtis. Larvae feed on putrid & decaying potatoes, turnips & other vegetable substances in Europe.

" " (*Molobrus*) *inconstans*. (US) Fitch 2^d Rept. N.Y. 255. 41855. p 437. OS. 11.
 { Ins probably hatched from a flower pot in a dwelling room.

" " (*Molobrus*) *fuliginosus*. (US) Fitch 2^d Rept. 258^d. OS. 11 The eggs are deposited in a continuous string. The insect appears June. to Aug.

" " (*Molobrus*) *mali*. Fitch, (US) Fitch 2^d Rept. 252. 1855. 425. 71856. 367. Pack 386. Prac. Ent 2. 55. "Apple midge or worm" The larvae are found in apples that have been previously injured by other insects such as the codling moth (*Carpocapsa pomonella*.) &c. but sometimes also the worm commences the injury itself by gnawing its way into the fruit from the calyx.

" " *pyri* (Eu) Linn. 608. KDS. 111. The larvae injure the blossoms & fruit of the pear, & cause them to fall off.

" " *quinquelineata*. (Eu. US?) Curtis in Mortons Cyclop ag^o Prac Ent 1. 71(?) The larvae breed in diseased potatoes. & are supposed to cause the disease called the "scal" & probably that mentioned in the Prac Entomologist (1. 71) is closely allied to *S. quinquelineata*. if not the same.

" " *thomae*. Gen. Eu Linn. 608. Figsior 57 Meig 1 217. (*Mycetophila*) KDS. 293. Ins XI. 5. pl 4 Meig "Snake or Army worm." The larvae are said to feed on fungi & are remarkable for assembling together in immense numbers, hanging together by means of a viscid moisture. they form a long mass resembling a snake, or rope, sometimes several feet in length, & two or three inches in thickness, or breadth. They are destroyed by ants (*Hyman*).

Sciara. Fab. *Thomas* (*affinis*) (Md. U.S.) Monthly Rept. Dept. Ag^{ry} Oct 1872 p 438.

Habits &c same as *S. Thomas*. Ins V. 19. Md & Va.

Sciomyza. Fall (Eu U.S.) Læw. (Fall.) 1. 103. O.S. 82. Westw Syn (Meig.) 145. Meig 6. 9.

Sciomyzidae. Fam. 40. Læw 1. 37. & 103. (Examples. *Sepidon*. *Tetancera*. &c.)

Sciophilæ. Meig (Eu. U.S.) Læw (Meig) 1. 13. Meig 1. 191. O.S. 10 Pack 365 Westw Syn
(1877) 127. The larvae live in fungi mushrooms &c sometimes covering the
surface with a web. The insects are generally found in woods. (in Fam.
7. Læw. *Mycetophilidae*.)

" *stricta*. Meig. (Eu) Meig 1. 192. Ins XI. 1. Meig pl. 9.

Genometopia. Macq. Westw. Syn. 138. see *Exorista militaris*. (in Fam 34 Tachinidae)

" *atropivora*. KDS. 155. a Tachina which destroys *Acherontia atropos*. or
the Death's head sphynx. in Europe.

Sepidon. Latr (Eu. U.S.) Læw. 1. 37. 104. 124. O.S. 82. Westw Syn 146 Wed 2. 577. The insects
frequent putrifying substances. (in Fam 40. Læw. *Sciomyzidae*)

" *Jusillus* Læw (Md. U.S.) Læw 1. 127. Ins V. 9. Md July.

Sepsidae. Fam 50 Læw 1. 43.

Sepsis. Fallén. (Eu. U.S.) Læw 622. Læw 1. 43. O.S. 78. Meig 5. 285. Westw Syn 147 & 2. 571.
Wed 2. 467. Anat A. 56. Meig 47. pl. Larvae feed on excrements.

" ? (Md U.S.) Ins IV. 27. Md July. Sep.

" *cornuta*. Meig (Eu) Meig 5. 289. Ins XII. 6. Meig pl 47.

Sericoomyia. Meig (Eu. U.S.) Læw (Meig) 1. 26. Westw syn (Latr) 137. (in Fam 22. *Syrphidae*.)

" *limbipennis* (Macq Meig 3. 382. O.S. 53. Ins VI. 34 O.S. coll.

Simuliidae Fam 8 Læw 1. 14.

Simulium (Latr) (Eu. U.S.) Læw 1. 14. KDS. 57. Meig 1. 290. Westw Syn 129 & 2. 529.

(*Simulium*. Meig 1. 290. & Wed 1. 71.) (U.S. Can) Sand flies. Midges Black
fly of Maine. Buffalo gnat of the western states. Anat A. 18. Meig Pl. 10.
Ins II. 2. Md. Aug. The larvae are generally aquatic, one species is said
to spin webs in running streams. which destroy the eggs & young
fish of Trout &c in the U.S. (see Seth Green in Ann Ent & Bot. 2 p 174 & 230)
The larvae of *Simulium* are found in small streams of running water.
fastened by their tails to stones, leaves, or stalks of water plants. they
swim with a jerking motion. & move by doubling their body. and using
alternately their anterior proleg. & their anal protuberance. They moult
their skins more than once, & when about to assume the pupa state
they spin obconical grayish semitransparent pouches. fastened to stones.
or plants. & in this pouch the pupa is inserted, its anterior edge protruding
above the upper rim. The pupa state is said to last 13 or 14 days, when
the thorax splits. & the fly escapes. wrapped in an air ball, with
the limbs folded as in the pupa. as soon as it reaches the surface
of the water, the limbs unfold. & the fly walks towards the next
stalk. where it remains until its wings have become sufficiently
"hardened". O.S.

- Simulium*. (Latr.) (*Phagio*.) *columbascensis*. Fab. (Eu.) Linné 609. *HbS.* 62. 381
 { *Mug.* (*S. maculata*) 1.229. Martens *Cyclop. Ag.* 2. 862. Kollar 69.
Pack 391. Westw 2. 528. L.P. X. 36 (Morton) *Ins.* XII. 5. (Linné) Immense
 swarms of these flies, gnats, or midges, injure, & even kill, cattle, horses,
 swine, &c. & sometimes attack mankind. They are very much dreaded
 in southern Hungary, where they are so abundant that some authors
 assert, they actually suffocate the animals, by getting in their throats.
 & windpipes.
- ... " *molustum*. Harr. (US.) Harr. 601. *Pack* 390 *Ins.* VIII. 8. L. VIII. 29.
 { *Pack* "Northern Black fly" or "Midge". This insect is exceedingly annoying
 to mankind, by biting & sucking blood. They appear about May, &
 continue for six weeks. "every bite draws blood, & is followed by inflam-
 mation, & swelling, which lasts several weeks. (Harr.) wings black, &
 transparent.
- ... " *nocivum*. Harr. (US) Harr 602. "Sand fly", or "Midge". Insect exceedingly
 small, & creeps under the clothes in the evening, its bite causes intolerable
 itching, but draws no blood, & causes no swelling, wings whitish, &
 mottled with black.
- ... " { *reptans*. Linn. (Eu. Greenland.) Meig 1. 227. *HbS.* 68 OS 12.
 { Linné 609. *Ins.* very abundant, & annoying in the woods in spring.
- ... " *sericicum*. Linn. (Eu) Meig 1. 230. Martens *Cyclop. Ag.* Westw 2. 529.
 { *Ins.* X. 14. 15 (Morton) Larvae are said to live in stems of Water parsnip.
 & to frequent water cress.
- Siphonella*. Macq. (US) Linn 1. 46. OS. 84. Westw syn. 1047.
- ... { *obesa*. Fitch. (US) Fitch 2^d Rep. 299. & 1855. 531. OS. 84. The insect
 { was found on growing wheat, & is suspected of injuring it, when in
 its larva state.
- Somula* Macq. *decora*. Macq. (US) Linn 1. 26. OS. 47. *Ins.* V. 32. (L. coll. (in Fam 22 Syrph.)
- Sphæcomyia* Latr. Linn 1. 26. see *Pyrigota*. (*Ins.* fam 43 *Ortolidæ* Linn)
- Sphyracephala*. (Say.) (*Dropsis*.) *brevicornis*. Say. (Mid US) Harr 621. Linn 1. 44.
 { Fitch 1st Rep. 74. 69. 1854 773. *Pack* 413. OS. 81. *Proc Ent* 2. 103.
 Say 1. 116. *Ins.* IV. 31. (OS coll.) "Hammer headed fly", or "Stone Eye".
 This insect was found between the leaves of Stunk Cabbage (*Symphlocarpha*
patida) & was taken by Walsh in numbers in the crevices of rocks, in
 Illinois, and Missouri. it is also said to be common in some places
 in woods, near springs, in the early part of the season. "a fossil
 specimen of *Sphyracephala* has been found in Prussian Amber. (*Pack* 344)
 (in fam 57. Linn. *Dropsidæ*.)
- ... " *subfasciata*. (US) Fitch 1st Rep. 74. 70. *Proc Ent* 2. 103. var or syn of
S. brevicornis. (above.)

Stenopteryx. (Meig. 6. 233) *lunundinis*. Leach. (*Stenopteryx*. Leach. Westw. Syn. 154. 2. 573
 { (*Craterina* K & S 58) (Eu) Leunis 629. Ins VII. 43. Meig pl 64. Swallow
 house fly. Ins parasitic on Swallows. (H. Mantoid. K & S.) (in fam 62 Hymenoptera
 = *Basidae*. Law)

Stomoxys (Geoff) (Eu. US) Law (Geoff) 1. 35. Westw. Syn (Tab) 140. Meid 2. 248 Leunis 627.

{ Anat A 79 (Meig pl 33) (in fam 36. Law. Muscidae)
 " *colictrons* Lin (Md. US. Eu) Harr 613. Leunis 627 Meig 4. 160. Pack 207.
 OS. 61. Westw 2. 569. "Stable fly" of Harris. Ins. IV. 111. (Aug. Sep. Md.)
 The larvae reside in horse dung, manure, &c. They were said by Heeger
 "to mine in leaves of Burdock, Coltsfoot & nightshade." (Killer 39) but
 this fact is very doubtful. The fly itself is exceedingly annoying to
 mankind. Horses, &c. by its painful stinging or biting propensities. It
 may readily be distinguished from the common house fly, which it
 much resembles, by its always alighting on walls, with its head upwards
 whereas the common house fly (*Musca domestica*) alights with its head
 downwards. This insect is especially abundant in dwelling houses just
 before rain, it is destroyed by a hymenopterous parasite, Mellinus,
 which invades its nest with flies. (K & S 152.)

.... " *irritans*. Lin (Eu) Meig 4. 162. Mulsens Cyclop. Arg. ^{no}. habits same as
 { *S. colictrons*. (but size smaller.)

.... " *stimulans*. Tab. (Eu) Meig 4. 161. " " " "

Stratiomyidae. Fam 12. Law 1. 4. 17.

Stratiomys. Geoff (Eu. US) Harr 608. Leun. 616. Pack 392. Westw. Syn. 130. 2. 532.

{ Meid 2. 60. Anat A 49 (Meig pl 26) "Weapon or Soldier flies" The larvae
 are aquatic, and breathe through their long tail like appendages, which
 they apply to the surface of the water. (hence common name of "Rat tail
 larvae") In the pupa state the insect floats at liberty on the water,
 the enclosed pupa occupying only the anterior portion of the larval skin.
 The insect frequents flowers.

.... " (*Odontomyia*) *cincla*. Oliv. (US) Ins V. 27. from coll of OS.

.... " (*Chamelon*. Lin. (Eu) Leunis 616. Meig 3. 134. K & S. 436. Westw 2. 532.
 { L.P. VII. 13. (Westw.) Larva aquatic feeds on small water animalcules.

Styringomyia. Law. (Lanxibar, Africa) Pack 383. Ins. found in gum copal brought
 { from Lanxibar. The wing is figured in Packard.

Strebla. Meid. (Eu. US) Law 1. 48. OS. 87. Meid 2. 612. see *Nyctaribia*. (in fam 63. Law.)

Subula. Meig. (Eu) Law (Meig) 1. 15. Westw. Syn. 134. (in fam 11. Law. Diptophagidae)

" *varia*. (Eu) Westw 2. 534. Ins found on Oak.

Sunches (Walker) see *Hybos*. OS 37.

Sylbiuoma. Meig. (Eu) Law 1. 32. 2. 115. Meig 4. 71. Westw. Syn. 135. Antennae XII. 28

{ (Meig pl 34) Ins. remarkable for the form of its antennae (in fam 31. Dolichop.)

Syrilla. St. Fargeau Law 1. 55. (in fam 32. Law. Syrphidae)

Syrphia (St Leger) (*Dilota*) *pipiens* Macg (Md US) O.S. 48. Westw 2.559.

{ Ins III. 27. Md July. Lar. found by Degeer in Cow dung
 { Ins. Md. at midsummer hovering over flowers.

Syrphidae Fam 22 Loew 1. 26. Harr 608 KDS 151. Meig 3. 274. Westw Syn. 137.

{ v 2. 556 Pack 164. v 397. Anat A. 35. (Meig pl 30) The larvae of many species of the *Syrphidae* destroy plant lice (Aphides) and other insects, some lay their eggs in the nests of bees. other larvae live in rotten wood, whilst a few are aquatic & breathe through long rat tail like appendages. (Ernst's &c.) The insects frequent flowers hovering over them & alighting to suck the nectar or honey like substance & eat pollen (Am. Nat v. 291.) The maggots or larvae are blind behind and pointed before. Their mouth is armed with a triple pointed dart with which they pierce the plant lice they feed upon. Elevating their victims from the leaf they suck out the juices. these larvae are blind & find their food by feeling about. The pupa is formed in the dried up skin of the larva which contracts into the form of half a drop of water & is globose at one end and attenuated behind. & flat below where it is fastened to the leaf by a sort of viscid substance. The perfect fly. Emerges from the pupa case by bursting it open at the large end.

Syrphus Fab. (Eu US) Loew 1. 26. Harr 608 KDS 151. Meig 3. 274. Westw. Syn 137. v

2. 556. Pack 164 v 397.

... " ... { *orbustorum* (Eu) Ins said to eat grains of pollen of some composite plant
 { Am Nat VII. 238

... " ... { *cylindricus*. Say (Md US) Say 1. 22. O.S. 51. Wied 2. 138 Ins Md July V 28.
 { v. var. IX. 11. Say.

... " ... { *geminatus*. Say. (Md US) Say 1. 22. O.S. 51. Wied 2. 145. Ins III. 29. Md July

... " ... { *obliquus* Say (Md US) Say 1. 23 O.S. 51. Wied 1. 138. Ins III. 30. Md. July

... " ... { *obscurus*. Say (Md US) Say 1. 23. O.S. 52. Wied 2. 131. Ins IX. 10 Say

... " ... { *philadelphicus* Macg. (Md US.) Am Ent 2. 142. Ins IX. 17. Am Ent.

... " ... { *proletus* Say (Md US) Am Ent 2. 43. Say 1. 24 Wied 2. 132. Ins III. 31. Md Aug

... " ... { *pyrastris* Linn (Eu) KDS 225. Linn's 626. Meig 3. 303. Westw 2. 556. L.P. VII. 24. Westw

... " ... { (*Scorpa*) *ridgii* Fab. (Eu Md. US Nova Scotia. Hudsons bay) Linn's 626.

{ Morton Cyclop. Ag. O.S. 52. according to Degeer this species eats no other aphids but that of the Rose. KDS 219. (?) Ins IV. 1 Md June to Sept. & X. 21 (Morton)

... " ... { *scutellatus*. Fall. Eu. Meig 3. 264. Westw 2. 559 The larvae of this species are said by Van Rossum to feed on rotten fungi (Westw)

" { ? (Iowa US) L.P.S. X. 25. v gall X. 26 The larva was taken at Burlington Iowa in 1854 or 55. destroying the eggs and perfect insects of the Leaf gall louse of the vine (*Pemphigus vitifolias* Linn) (H. map) on wild grape vines in the woods.

- Syrphus* Fab ? (U.S.) Fitch 158 four larvae supposed to be *Syrphus* were found
 { by Fitch in the gall of the Hickory gall louse (*Pomphigus*
caryaecaulis) Homop.
 { destroyed by *Conaphron syrphiviri* (Hym) Ratn. & by a *Bembex* (Hym)
 { which carries off the flies to its burrows as food for its young. Pack 164.
- Systropus* Wied (U.S.) Lew 1.25. O.S. 44. Wied 1.860 & 2.641. (in fam 21. *Lew Bombylidae*.)
 " macer, Lew. (U.S.) Ins III. 20. O.S. coll.
- Tabanidae* Fam 14 Lew 1.4. 19. H & S 57 Anat. A 28 Meig. pl. 13. Horse or Gad flies
 { The larvae of some species are said to live in the earth on roots or insects.
 { others are stated to be semiaquatic. The female insects pierce the skin
 { and suck the blood of mankind & animals. They abound in woods,
 { fields, & pastures. & fly with a buzzing sound. The eyes of the male
 { cover nearly the whole of the head. & are frequently beautifully colored
 { when the insect is alive. The males feed on honey & pollen of flowers,
 { & do not sting or suck blood like the females.
- " { *abdominalis* Fab (Md. U.S.) O.S. 19. Wied 1.116. Ins II. 16 Md. July.
 { the female pierces the skin & sucks the blood of mankind. Cattle. Horses. &c.
- " { *atratus* Fab. (Md. U.S. Mex.) Am Nat. 4. 686 Harr 603. O.S. 19.
 { Pack. 394. Pack Rep. Mass. Ag Soc. 1869. 256. Riley 2^d Rep 1869. 128.
 { Wied 1.114 "Black breere fly" L.P. IX 40. Riley Tupa X. 35. Am. Nat.
 { Ins II. 15. Md Aug & Sep. The larva is said by some to be semiaquatic
 { & to feed on fresh water mollusks (*Planorbis*) Riley Walsh states that
 { it is aquatic whilst others say that the larva lives in the earth
 { This insect is one of the largest & most common species in Md.
 { & is very annoying to horses &c especially in woody districts.
- " { *bovinus*. Lin. (Eu) Leun 613. Meig 2. 33. Mortons Cyclopaedia of Ag.
 { Larva said to live in the earth.
- " { *cinotus*. Fab (Md. U.S. Mex.) Ins VIII. 82. Harr 603. (Meig 2 32
 { erroneously as European O.S. 20 Wied 1.119.
- " { *costalis*. Wied (U.S.) O.S. 20. Prac Ent. 1. 18. Wied 1.173. The common
 { horse fly of Illinois. The larva probably live in the earth & feed upon
 { subterranean root eating larvae the male feeds on pollen & honey
 { of flowers. (Prac Ent.)
- " { *ferrugatus* Fab. (U.S.) Harr 603. O.S. 21. Wied 1.186. Insect-men-
 { tioned by Harris as *Chrysops*
- " { *lasiophthalmus* Macq. (Md. U.S.) O.S. 21. Ins V. 26. Md. Aug & Sep.
- " { *lineola* Fab. (Md. U.S. Fla) Harr 602. Pack 394. O.S. 21. Prac Ent. 118
 { Riley 2^d Rep 1869. 128. Ins V. 25. Md. Aug. Oct The larva is
 { said by Walsh to feed on snails & insects Pack 394. The male
 { feeds on Honey & pollen of flowers
- " { *moroccanus* (Africa) Westw 2. 239. see Linn.

Tabanus. *Lin. tarandinus*. K & S 87. injures horns of the Reindeer, when tender.

" { *trimaculatus* Dal. (Md. Car. Sam.) U.S. 24. Wied 1. 137. (No 132 Wied is a different species) Ins 11. 17. Md. Aug.

Tachinidae Sum 34. Law. Pack. 325 Harr 471. Eggs from one to three or more are deposited by the female fly upon one of the first three segments of the body of caterpillars, where it is impossible for the larva to turn its head around to bite them off. The eggs are glued to the skin of the caterpillar by a viscid substance & are so firm & well fastened that it is impossible to tear them off, without injuring the skin itself. The larva when hatched pierces through the skin & penetrates into the interior of the body of its victim, where it feeds upon the fatty matter, until fully grown, eventually killing it. When ready to assume the pupa form the larvae emerge through holes gnawed in the skin of the caterpillar go into the earth, & change into pupae in the hardened shrunken oval skin of the larva, from whence in warm weather in a few days they emerge as perfect two winged flies. These insects are said to be themselves destroyed by a parasitic hymenopterous insect (probably *Proctotrupes*) Prac. Ent. 1. 65

Tachina. Meig (Eu US) Loeu 1. 35 Westw syn 139. & 2 551. Wied 2 280 L. Baron 2^a Rep Illin 124. Prac Ent. 1. 44 Harr. 471 Pack 325 U.S. 64 L.P. VII. 31. Westw Anat A 52 Meig pl. 41.

? sp. Europe destroys *Acherontia atropos*, or the "Deaths head Sphinx". (Lepid) as many as 80 specimens having been raised by Serville from a single specimen, Westw 2. 567. (See also *Senomatopia atropivora*.)

" ? (US) Larva destroys *Acronycta populi* (Lep) Riley 1869. 120.

" ? " " " *Anisoteryx vernata* " " " "

" { (*Chantophila*) *floralis* (Eu) Larva destroys a wild bee. (*Androma*) (*Hym*) Pack 408.

" ? (Eu) Larva destroys eggs of Spiders (*Arachnidae*) Westw 2. 568.

" { ? (Probably a *phora*) (US) is supposed by Walsh to destroy bees (*Apis*) Am. Ent. 1. 242.

" { (*Cassidomyia*) (Eu) Larva destroys tortoise beetles (*Cassida viridis*) (*Coleop*) Westw. 2 567.

" (*Miltogramma*) *punctata* (Eu) Larva is parasitic in a Bee (*Colletes*) Pack. 147.

" (*Toxalomyia*) ? (Eu) " " " " Beetle *Brachydoros* = 408

" ? (US) is parasitic in *Deilephila lineata* (Lepid) Riley 3^a Rep. 142

" *anonyma*. (US) " " *Anisota rubicunda* " " 5th Rep 1873. 138.

" " " " *Hemiteuca maia* " " " " "

" (*Masicera*) *archippivora* (US) parasitic in *Danaus archippus* (Lep) Riley 3^a Rep

" " " " " *Prodenia autumnalis* " " " "

" " " " " *Paphia glycerium* " " 5th " 145.

54.

- Tachina*. Meig (Melanophora) *diabroticae* (US.) Larva is parasitic in *Diabrotica vittata* (Striped Cucumber Beetle) Am. Nat. 5. 219. Ins. bright rufous with a broad dark dorsal stripe.
- " { (*Lydella*) *doryphorae* (US) Larva parasitic in the Colorado potato beetle
(Col) *Doryphora decimlineata* Am Ent 1. 46. & Pack 408.
- " { (*Exorista*) *leucaniae* (US) Ins. IX. 23. Lar. parasitic in *Leucania unipuncta* (Lep.)
8^c see *Exorista*.
- " ? (US) Larva parasitic in *Limnitis deiphura* (Lep) Riley 3^d Rep. 188.
- " ? " " " " *Mantis carolina* (Orth) with C. R. Dodge.
- " { ? " " " " a noctua (Lep) Westw 2. 568. which in its turn.
was filled with the larvae. of smaller "Myodaires" (R. Desv. in Westw)
- " { *orgyiae* (US) Larv. parasitic in *Orgyia leucostigma* (Lep) Am Ent. 1. 120.
Le Baron 1st Rept. p. 16.
- " { ? (US) Larva parasitic in *Pionis rapae* (Lep) Pack 76. 249. 2^d Rp.
Am Nat 7. 242.
- " ? (US) Larva parasitic in *Platysamia cecropia* (Lep) 8^c see *Exorista*.
- " (*Exorista*) *flavicauda* (US) Ins IX. 28. Lar. parasitic in caterpillars. Riley 2^d Rp 51.
- " ? (US) Ins V. 18. Md. Aug.
- " { (*Deltoidea*) *bifasciata* Fab (Md West Ind. Brazil US) OS 65. Wied 2. 305.
Ins V. 17 Md. July Larva destroys *Dryocampa* (*Anisota*) *rubicunda*.
(Lep) Riley 5th Rep. 1873. p. 140.
- " { (*Comptosia*) *inflata* (Eu) Westw. 2. 568. Larva parasitic in the larva
of a sawfly *Tenthredo grossulariata*. (Hym)
- " { *pacta*. Meig (Eu) Meig 4. 324. Westw 2. 567. The larva is parasitic in
beetles *Carabus gemmatus* & *C. violaceus*. (Col)
- " { *septennis* (Eu) Lar said to be parasitic in an Earwig (Orth)
(Forficula)
- " { *viridis* Harr (Md US) Harr 612. Ins IV. 6. Md. May. Larva is
parasitic in caterpillar of *Eacles* (*Dryocampa*) *imperialis* (Lep)

Tachinidae. Fam 34. Læw 1 p 34.

Tachydromia Fab. (Eu US.) Læw (Fab) 4 91. Pack. 402. O.S. 46. Westw Syn 132. & 2. 547.
Mid 2. 12. Læw. 64. Anat. A 35. Meig pl. 35 Ins probably predaceous
they run very swiftly with their wings lying flat on their backs. &
are found on trunks of trees and amongst herbage.

" *fasciata* Meig (Eu) Ins XI. 8 Meig 3. 86 pl. 23.

Tachydromiidae. Fam 30 Læw 1. p 31.

Tanytus. Meig. (Eu. US.) Læw 1. 5. Meig. 1. 44. OS. 4. Westw Syn. 125 & 2. 516.
The larva of one species forms for itself a case of silk & moss. (W)
this insect when at rest has a habit of extending its fore feet.
hence the german name "Streckfussmücke."
in fam 2. Læw. Chironomidae.

- Tanyptus*. Meig. *varius*. Leunis 605 (Eu) Meig 1. 45 Pack 371. Westw 2. 516.
 { Ins V. 1. 2. Meig pl 2. Eggs deposited by the female on leaves of aquatic plants & are covered with a kind of gluten. (Fries in Westw)
 { *monilis* Linn. (Eu) K & S. 435. Meig 1. 48. Larva found in water. it swims like a serpent. & is furnished with 3. tentacles or legs.
- Tanystoma*. Lat. Stirps 3. of *Diris* Brachocera. Westw 2. 502. & 536. (Ex *Sabunus*)
- Teichomyza*. *fusca* Macq. (Eu) Pack 366. Larva lives in human urine.
 { (probably in fam 36 Muscidae or 37. Anthomyiidae. ?)
- Tephriti*. Lat. (Eu 26). Leuw. 1. 49. O.S. (*Trypeta*) 79. Westw Syn. Latr 148.
 { see *Trypeta* also (in fam 44. Leuw. *Trypetidae*.)
 " *arctii*. Dugor (Eu) Meig 5. 317. see *Trypeta*.
 " *artemesiae* (Eu) Leunis 623. Westw 2. 573. see *Trypeta*
 " *asteris*. Harr. (US) Pack 620. see *Trypeta solidaginis*.
 " *melliginis* Fitch (US.) Fitch 1st Rept. 64 & 1854. 769. see *Rivellia viridulans*.
 " (*Euleia*) *onopordinis* Fab. (Eu) Westw 2. 573. Meig 5. 316. see *Trypeta*.
- Tetancocera* Dum (US) Leuw 1. 108. Westw Syn 146. Wied 2. 529. (in fam 40 Sciomyzidae)
 { *arcuata* Leuw. (Md. US.) Fitch 1st Rept 68. 1854. 772. Leuw 1. 115.
 { Ins V. 11. Md. Aug. Insect marked with a network of brown on its wings & feeds on honey dew.
 " { *canadensis*. Macq. (Can. & Md.) Fitch 1st Rept 68. 1854. 772.
 { Ins feeds on Honey dew.
 gutturalis. Wied probably a variety of *Canadensis*. Fitch 1854.
 " { *plumosa* Leuw. *T. vicina* Macq. & *Istruthis* Walk syn) Leuw 1. 21.
 { O.S. 83. Ins IV. 40 fm coll of O.S.
 " { *Saratogensis*. Fitch (Md. N.Y. U.S.) Fitch 1st Rept 68 & 1854. 772.
 { Leuw 1. 119. O.S. 83. Ins IV. 33. Md. Aug.
- Thelida* (Rob Desv) *vespertilinea*. (K & S 147.) (Eu) Larvae live on dung of Bats.
- Thoreva* Latr (*Thoreua* Lat) Leuw 1. 24. (Eu) Meig. 2. 90. O.S. 38. Pack 396.
 { Westw Syn. 134. Anat A 83. Meig 15. The larvae generally inhabit vegetable soil or wood mould. it is however also stated that the larva of one species resembling the wire worm in shape feeds upon the pupae of some moths (Pack) The perfect insect is predaceous.
 " { ? (Eu) Ins IV. 24. Meig pl. 15. 1. O.S. says this fig is doubtful although it is copied from Meigon Vol 2 pl 15. page 86. (O.S mss. note)
 " { ? (Eu) Ins XI. 14. Meig pl 15. (see O.S note above)
- Thorevidae* (*Thoreuidae*.) Fam 20 Leuw 1. 24.
- Tipula* Linn (Eu. US.) Leuw. 1. 10. Meig 1. 133. O.S. 8 Pack 360. 381. Westw Syn. 128.
 { & 2. 525. K & S 29. Anat. A 13. Meig pl. 6. "Crame fly" "Daddy long legs" &
 { This insect is found in great numbers in damp meadows in the autumn. The female deposits her eggs in the ground. with the assistance of an exerted scaly ovipositor at the end of her abdomen.
 over.

Tipula. continued.

- the larvae of *Tipula* will bear freezing with impunity. They feed on decomposing vegetable matter, & sometimes do much damage by disturbing & detaching roots (Am Ent 1.100) A large species of *Tipula* came out of a grass sod placed in a breeding box as food for an *Aretia*, in Md. This insect in Europe is much infested with a red mite, *Ocypete rubra*.
- " *ferruginea* Fab. (Nova Scotia Md. U.S.) O.S. 7. Wied 1.53. Walk 1.78.
Ins V. 16. Md. Aug. Larva destructive to roots of grass, grain, vegetables &c
- " *flavicans* (Fab) (Nova Scotia Md. U.S.) Walk 166. Wied 1.48. Ins 1.15.
Md. Aug & Sep. habits same as *T. ferruginea*.
- " *fuliginosa*. Say? (Md. U.S.) Ins. V. 15. Md Sep.
- " *oleracea* Linn (Eu) Leew 607. KDS. 145. 180. 527. &c Meig 1.150.
Mortons Cyclop. Ag. Westw 2.525. L.P. VII. 10. Westw. L.P.I. X. 27. Morton.
The larvae injure roots of Beets. Cabbage. Dahlia. Mangel wurzel.
Oats. Turnips. Grass. Grain. & vegetables in general. The pupa is formed under ground. & when ready to change into the perfect fly it works its way to the surface of the ground. & remains sticking half way out of the earth until, the fly bursts its way from the pupa skin. the perfect insect when flying, places its forelegs horizontally pointing forwards, the four hind legs being stretched out in an opposite direction. Frost is said not to kill the larvae. (KDS 527.)
- " *tricolor*. Fab. (Md. Nova Scotia. Geo. U.S.) O.S. 8 Wied 1.44 Ins. V. 12. Md. Sep.
- " *trivittata* Say (U.S.) Am Ent. 1.100. Say 1.50. OS 8. Pack 382. Wied 1.42.
"Three banded Crane fly." This is one of the most common species in Pa. & Mass. Am Ent.

Tipulidae. Fam 6. Læw. 1. 9 (Eu. U.S.) Some of them are destroyed by a hymenopterous parasite, *Diapriæ*, others are infested with red mites, *Ocypete rubra*. (Arach) see also *Astoma*. &c

- Toxophora*. Meig. (Md. U.S.) Læw 1.25. Meig 2.179. O.S. 22. Ins V. 35. Md. June.
This insect was bred from the flask shaped mud nest of *Eumenes fraternæ* (Hyman) where its larva feeds either upon the caterpillars stored up as food for the larva of the *Eumenes*; or upon the larva itself. (In fam 21. Læw *Bombylidae*.)
- " *fasciata*. (Eu) Pack 388 The larva is said by Dufour to be parasitic in a *Bombex*. (Hyman)

Toxorhina. (Læw) (*Limnobia* or *hynobius* Westw.) (North, & South Am.) Pack 383 O.S. 6.
in fam 4 Læw. *Tipulidae*.

- Trichocera*. Meig (Eu U.S.) Læw. 1. 10 Meig 1.166. O.S. 9. Pack 381. &c Westw Syn 128.
Anat A. 12. Meig pl 7. "Winter gnats" The larvae are found in fungi, vegetable mould. roots &c. & the perfect flies are very abundant on warm days in winter dancing by troops in the air.
in fam 6 Læw *Tipulidae*.

- Trichocera hyemalis* Degeer (Eu) K&S 523 Leun 607. Meig 1.168 Morton's Cyclop
 ag^{is} Ins V.1.3. OS. coll & X.31. Morton "Winter turnip gnats." The larvae
 live in decaying or diseased turnips. & have been falsely accused of
 causing the disease in turnips commonly known as "Unbury", or
 "Fingers & toes". (see Unbury in list of vegetable substances. -
 figure X.32 from Morton.)
- Trichopoda* Latr. pennipes Fab. (Fla. Md. US) OS. 64 Wied 2.274 Ins. IV.14 Md. Sep.
 { Ins with thickly fringed legs. (in fam 34 Tachinidae.)
- Tropidea* Meig. Læw 1.26. OS. 53. Meig 3.346 Westw syn 137 see *Ezylota*. in fam 22 Syrphidae
- Trypanea* Macg OS. 32. apivora Fitch (US) Pack 396. & Rept Ag Mass 1869 p 225. see
 { *Promachus bastardi* (note *Trypanea* of Shrank is a *Trypeta* Læw 1 p 49.?)
- Trypeta* Meig (Eu US) Læw 1.41. Meig 5.310 Pack 412 Westw syn 149. Wied 2.476.
 { Anat. A.61. Meig. pl 38 (see also *Sepritis* *Ortalis* *Acinia* &c.)
- " { (*Sepritis*) *arctii*. De Geer (Eu) Meig 5.317. Westw 2.573. Wing XI.24.
 Meig pl 48 Larva forms a gall in the calyx of the blue bottle flower.
 { (*Gentaurea cyanea*) Dandelion. (*Taraxicum*) & Burdock. (*Lupula*)
- " *arcuata*. Walk see *Ortalis flexa* Læw 1.57.60. OS. 79. in fam 44 Trypetidae
- " *asteris* Harr (US) see *Trypeta solidaginis*.
- " { (*Sepritis*) *artemesiae* (Eu) Leun 623. Westw 2.573. Larva mines in
 the leaf of the Artemesia (*Chrysanthemum*)
- " { (*Acinia* Fitch) *bella* Læw (US) Læw. 188 Ins IV.29. Md Aug. Insect
 frequents Rag weed (*Ambrosia*)
- " *calyptera* see *T. sparsa*.
- " { *cerasi*. Leun 623. (Eu. US.) *Ortalis cerasi* Meig 5.282. OS. 76. Westw 2.272.
 K&S. III. Larvae feed in fruit of cherry.
- " { *comma* Mied (Md US) Læw 1.58.93. OS. 79. Wied 2.278. Ins V.6.
 Md. Aug.
- " { *continua* Meig (Eu) Meig 5.312. Westw 2.573. Wing XII.21. Meig pl 48.
 { Larvae live in the berries of wild rose. Bouche'
- " *flexa* see *Ortalis flexa*
- " *melliginis* see *Rivellia viridulans*.
- " *novaeboracensis* Fitch 1st Rep Læw 1.59.60. 78. OS. 70. see *T. sparsa*
- " { (*Sepritis*) *onopordinus* Fab (Eu) Meig 5.316. Westw 2.573.
 wing XII.23. Meig pl 48. Larva mines in leaves of Celery. Parsnip
 Parsley. & occasionally Thistle It is itself destroyed by a parasitic
 insect *Alysia apii*. (Hym) & possibly by *Pachylarthrus smaragdinus*.
 (Hym) which destroys either the Trypeta. or its parasite *Alysia*.
- " *oleae*. see *Dacus*.
- " *picta*. Fab. (Md. US) Læw. 1.61. OS. 79. Wied 2.489. see *Camptoneura*.
- " { *polita* Læw. (Md US) Læw. 1.77. OS Tr Am Ent Soc. 2.301. Ins V.8 Md
 July. The larvae form galls not unlike Brussels sprouts caused by
 over.

Trypeta polita continued.

- the arrest of the growth of the side branches of *Solidago*. In some cases as many as four to six galls occupying the end of the stalk.
- " *pomonella* Walsh (U.S.) Am Ent 1. 59. & 2 273. Riley M.R. N.Y. 1871. 10.
- " Walsh. 1st Rep Illin 24. fig 2. Ins IX. 14 Walsh. 104 The larva injures stored Apples by eating long winding passages through them destroying the pulp.
- " *quadrifasciata* Fitch (U.S.) Fitch 1st Rep. Macq Exotic Dyr. 2. 226 see *Pirellia vinidulans*
- " (*Acinia*) *solidaginis* Fitch (Md. U.S.) Fitch 1st Rep 67. 1854. 771. O.S. 80
Lew 50 382. Prac. Ent. 114. Pack (*Tephritis asteris*) 620. Gall XI. 33. Md.
Ins IV. 39. Md June. The larva forms a large globular swelling on the stalk of Golden Rod (*Solidago*) which contains only one large cell in the centre. This insect has also been known as *Tephritis asteris*. from the belief that it makes a somewhat similar gall on the Aster.
- " *sparsa* Wied (U.S.) (*T. calyptera* Say.) (*Acinia novaeboracensis* Fitch)
Fitch 1st Rept 67. O.S. 69. (*Platystoma latipennis* Macq.) Lew 1. 60. 78.
Ins found in brakes upon meadows (Fitch)
- " *speciosa* (Ew) Larva said to live in fruit of Honeysuckle (*Lonicera*)
- " *stylata* (*Tephritis*) Fab. (Ew) Lew 623. Meig 5. 327 Using XII. 22
Meig pl 49. Larva lives in the blossom buds of Thistles which are thereby hardened into galls.
- " *suavis*. Lew (Ill. U.S.) Lew 1. 75 Ins XI. 12. from Dr. LeBaron who states that the larvae reside & feed in the old black pulp of the decaying husks of Walnuts.
- " ? Berna fly. Pack. 412 Insect deposits its eggs in wounds on mankind & animals. It frequently lays its eggs in the nostrils of sleeping negroes. the larvae from which in some cases. cause death
- " *tabellaria*. (*Tephritis*) Fitch 1st Rep. 66. & 1854. 770. O.S. 80. This insect is not among the *Trypetidae* known to Lew. It is probably an *Ortalis* (Lew 1. 60)

Trypetidae. Fam 44 Lew. 1. 10.

- Trypoderma*. Wied (*Euterebra*) *cuniculi* Clark. (Md. U.S.) Harr (*Astrus buccatus*?)
624. O.S. 62. Am Ent. 1. 86. Rathvon in Am Ent. 1. 116. Wied 2. 256. L.P.S. IV. 2. Md
May & June. "Hare or Rabbit skin bot. fly" The larvae form ulcers under the skin of the rabbit (American hare) & if carefully taken out of trapped rabbits in the autumn or early winter & placed on moist earth they will immediately bury themselves. & appear as perfect flies the following spring They are very common in Md. & Va. in rabbits. Oct & Nov (see also *Euterebra buccata*, an allied insect) in Fam. 32 Lew *Astridae*.
- " *buccata*. see *Euterebra* Wied 2. 259.

Tahtsalza fly. (Africa) Westw 2 539. see Limb. *Tabanus moroccensis*.

Isotac fly. (Africa) Pack, 407. see *Glossina morsitans*.

Tyrophaga. *casei*. K&S. see *Prophila*.

{ Unknown. Larva somewhat resembling *Tipula* found in water on Virginia
L. IX 39. Va.

Dermileo. - *Degerii*. see *Leptis vermicola*.

Volucella. (Geoff.) (Eu. U.S.) K. & S. 407. Loew 1. 33. Meig 3. 406. OS. 56. Pack 131. 149. 400.

{ Meid 2. 196. Anat A 76. Meig pl 32. Linn 606. Larvae reside in the nests
of Humble bees. Wasps. upon the larvae of which they are said to feed.
Ins feed on honey, & pollen of flowers. (Am Nat. V 291.)

..... " *iniana*. Linn (Eu) Meig 3. 409 Linn 626. Larvae live in wasps nests.
{ Above into the cocoons to feed on the pupae.

..... " *pellucens* Linn (Eu) Linn 626. habits probably same as above.

..... " *zonaria* Schr (Eu) K. & S. 158. Linn 626. Meig 3. 406. Ins VI. 35. Meig pl 32.
{ according to Reaumer. the larvae live in nests of Humble bees, & devour
both larvae & pupae.

Warenga fly. ? (Brazil) This insect is said to lay its eggs in mankind, and
{ animals, & causes large & terrible sores. (probably allied to musca.)
{ see also *Dermatobia* &c.

Xylorhagidae Fam 11. Loew 1. p 3. 4 & 15.

Xylorhagus. Meig (Eu. U.S.) Linn 616. Loew 1. 15. Meig 2. 7. OS. 18. Westw Syn 130 & 2. 535.

{ Meid 1. 84. & 2. 618. Anat A 44 Meig, pl 18. Larvae found in rotten wood
upon which by some they are said to feed but other & later authors state
that they do not eat the wood itself but feed on the wood boring larvae.

..... " ? (Md U.S) L.P.S. V. 36. were all found in rotten wood. in Md. Apr & May.

..... " *ater*. Fab. (Eu) Meig 2. 8 Westw 2. 535. Lar VII. 14 Westw. Ins XII. 3. Meig pl 12. Larvae
live in rotten wood. but feed upon other wood inhabiting insects.

..... " *rufipes*. Loew (Md U.S) Ins II. 18. Md. July.

Xylota. Meig (U.S. Eu) Linn 625. Meig 2. 211. OS. 49. Brae Ext 2. 9. Westw Syn 136 & 2. 557.

{ Anat A 70. Meig pl 28. Larvae live in decayed wood under bark. (in Fam 22
Loew. Syrphidae) see also *Syrphid* pupae.

..... " *ejuncida* Say (U.S) OS. 49. Say 1. 15 Meid 2. 100. Ins IX. 9 Say pl 8.

..... " *florum*. Fab. (Eu) Meig. 3. 217. Westw. 2. 559. Pupa VII. 26. Westw. Ins frequently
flowers.

..... " *haematodes*. Fab. (U.S. Nova Scotia) OS. 49. Meid 2. 99. L.P.S. V. 32. Md. May. under bark.

..... " (*Tropidea*) *quadrata*. (U.S) OS. 49. Say 1. 15. Meid 2. 101. Ins IX. 8. Say pl 8.

Bylotomae. Fam 9. of Osten Sackens catalogue. it contains *Scenopinus Thoreva* &c.

Limbe of Bruce. *Tobanus moroccanus*. (Africa) (*Idaltalya* fly) K&S. 52. Westw 2 539.

{ injures Camels, Rhinoceros, & Elephant when Camels are attacked the
head & legs break out into large bosses which swell, break, & putrify. sometimes
causing the death of the animals.

Alphabetical List of Predaceous or Parasitic Diptera

The larvae or perfect flies of which destroy other insects.

- Anthomyia incana*. (Eu) Larva parasitic in the nest of a wasp.
- Anthrax morio*. (Eu) *ornata*. (Eu) *sinuosa*. U.S. Larvae parasitic in nests of wild bees
- " ? (Md) bred from the chrysalis of a moth. (Lep)
- Asilus* Ins ♀ predatory killing humble & honey bees. wasps (Polistes) grasshoppers &c.
- " *diadema* (Eu) Ins. kills bees.
- " *missouriensis* (U.S.) Ins. kills honey bees & other insects.
- " *sericeus*. U.S.) Ins kills flies & other insects
- Atamasia*. (U.S.) Ins probably predatory
- Baccha*. (U.S.) Lar destroy Aphides or plant lice.
- Braula*. *caeca* (Eu) Ins. parasitic in body of bees.
- Bombylius*. (Eu) Lar. destroy wild bees (*Andrena*)
- Cassidomyia*. (*Tachina*) (Eu) Lar destroy tortoise beetles (*Cassida*)
- Cecidomyia*. (Eu) Larva of one species is said to destroy mites on *Celandine*
- Charophila*. (*Tachina*) *floralis* (Eu) Larv. feed either on the food of larvae or on the young grubs themselves. of a wild bee. (*Andrena*)
- Conops*. (Eu U.S.) Larvae parasitic on Humble bees & feed in bodies of *Bombus*. *Odynerus*. *Pompilus*. *Sphex*. &c. one species is said to destroy the drones of honey bees.
- " *flavipes* destroys the wild bee. *Osmia*. & *C. rufipes* (Eu) destroys the humble bee.
- " *sagittarius* (U.S.) Larva parasitic in body of bees.
- Dasygaster*. (Eu U.S.) ♀ Ins predatory & destroy other insects.
- Diectria*. " " " " " " "
- " *calandica* (Eu) Ins. destroys Hymenoptera.
- Diplosis*. (*Cecidomyia*) the larvae of some species are parasitic & destroy plant lice Pack 372 (Eu)
- Dolichopus*. (Eu U.S.) ♀ predatory & destroy other insects.
- Empis*. (Eu U.S.) ♀ predatory. & amongst other insects is said to destroy the Wheat midge (*Diplosis tritici*) in Europe
- Erae*. (Eu U.S.) ♀ predatory & destroys other insects.
- Exorista* (*Tachina*) Lar live in bodies of caterpillars & which they eventually destroy
- " *flavicauda* &c. " " " " " " "
- " { *leucaniae* Lar. destroy caterpillars of *Leucania*. *Prodenia*. *Eudryas* & other Lepidoptera
- " { (*Enometopia*) *militaris* } (U.S.) Larvae destroy caterpillars of *Platysamia* (*Attacus*)
- " { (*Tachina*) *cecropiae* } *cecropia*. *Agrotis*. & other Lepidoptera.
- " (*Tachina*) *phycitae*. Lar. destroy caterpillars of *Phycita nebula* (Lep.) (U.S.)
- Comerodromia* (U.S.) Ins. probably predaceous
- Hilara*. (U.S.) Ins predaceous & feeds on other insects.
- Hylas*. " " " " " " "

Parasitic or Predaceous - Diptera.

- Hyalomyia* (*Tachina*) (Eu) said to destroy *Brachyderus* (Coleop. Curculion)
- Laphria*. (US) ♀ Ins. predatory & destroys other insects
- Leptis*. (US) " " " " " " " "
- ... " ... (Eu) vermileo. Larvae form conical holes in sand, entrap & destroy other insects
- Leptogaster*. (US) Ins. supposed to be predatory & to destroy other insects
- Leucopis*. (US) Larva destroys eggs &c. of grape vine leaf gull louse. (*Empfigus vitifoliae*)
- Liancolus*. (US) Insect probably predaceous.
- Lydella*. (*Tachina*) *doryphorae*. (US) Larva destroy the larvae of the Colorado. or western potato beetle. *Doryphora decimlineata*.
- Masicera*. (*Tachina*) *archippivora* (US) Larvae destroy Caterpillars of *Danaus*.
 { *archippus*. *Prodenia autumnalis*. &c. (Lepid.)
- Medeterus*. *Coripes*. (Eu) Ins. capture & destroy *Podura*. (Orth) on surface of water.
- McLanophora*. (*Tachina*) *diabroticae* (US) Larva destroys the pregnant female of the striped cucumber beetle (*Diabrotica vittata*)
- Midas fulvipes*. (US) Larva said to be insectivorous. & to feed on other insects
- ... " ... *ticolor*. (Cuba) Larva said by Mac Leay to destroy a species of *Proctos*. (Coleop.)
- Mitogramma* (*Tachina*) *punctata* (Eu) Larva parasitic in wild bees (Pack 147)
- Musca domestica*. (Eu) Larvae have been found in bodies of dead spiders.
- ... " ... *stabulans*. (Eu) Larvae feed in bodies of caterpillars like *Tachina*.
- Myofra*. (Eu) Larvae said to be parasitic in bees.
- Ocyptera bicolor* (Eu) Larva parasitic in a plant bug. *Acanthosoma* (*Pentatoma*) *grisea*.
- ... " ... *cassida*. (Eu) " " " a beetle. *Cassida viridis*. (Coleop.)
- Panopea carnea*. (Eu) said to be parasitic in a *Pembex*. (Hym)
- Phora atricapella*. (Eu) Larva probably is parasitic in *Coccinella*. (Coleop)
- ... " ... *florea*. (Eu) Larva parasitic in nest of an European wasp. (Hymen)
- ... " ... { *incrassata*. (Eu) Larva is suspected of injuring bees by destroying the young.
 { causing the disease known as "foul brood"
- ... " ... *sphingidis*. (Eu) Larva parasitic in body of *Sphingidae*. (Lepid)
- Pipra*. (US) Larva destroys plant lice. (*Empfigus rhois*) (Homop) in Sumach gall.
- ... " ... *radicum* " " " " (*Empfigus pyri*) " on roots of pear.
- Proctacanthus millerti*. (US) ♀ predatory, & destroys other insects.
- ... " ... *philadelphicus*. (US) ♀ " " " " "
- Promachus bastardi*. { (US.) Ins. injurious as killing honey bees, but also
 ~ *Traponea apivora*. } somewhat beneficial by destroying the western or Colorado bug, & other injurious insects.
- Rhamphomyia*. (Eu. US) Ins. predatory & destroys other small insects.
- Sarcophaga*. (US) Larvae destroy caterpillars in a similar manner to *Tachina*.
- ... " { *nudipennis* (US) Larva parasitic in nest of a mud wasp, or "dirt dauber"
 { *Pelopaeus flavipes* where it probably feeds upon the spiders stored up by the wasp.

Senometopia. see *Exorista*.

Tribunus atratus (Wb.) Larvae said to feed on fresh water mollusks. (Planorbis)

" *linola*, Ws. " said by walsh to feed on Snails. & insects.

Acherontia. *Acronycta*. *Anisapteryx*. *Dilephila*. *Limnatis*. *Orygia*. *Pieris*.
 ♂ & ♀: also destroy Spiders eggs. (Eu) *Mantis carolina*. & one species
 (probably a *Phora*) is stated by Walsh to destroy trees.

....." *septennis* (Eu)....."....." *Eanwigs* (Forficula Y. Orthop)

Tachina. see also *Cassidomyia*. *Exorista*. *Hyalomyia*. *Lydella*. *Masicera*. *Melanophora*.

1. *Miltogramma. Senometopia. 8°*

[illegible]

{(Hym) a small mud wasp.

Volucella inanis. (Eu) Larvae parasitic in Wasps. nests.

"... *Xonoxia* (Eu) ... " " " nests of Humble Bees

Bylophagus. (Em. U.S.) Larvae reside in rotten wood, where they are said to feed upon wood eating larvae.

Alphabetical List of Vegetable & Animal Substances &c.

inhabited, injured, or destroyed by Diptera.

Acer. see Maple.

Agaricus. see Mushroom &c.

Alder. Alnus. gall. see gall.

Allium. see Onion, Shallot &c.

Alnus. see alder.

Amanita muscaria. a poisonous fungus used in Europe to kill flies

Amanthium muscaetoxicum. " " " . The southern states to kill flies (D^r Porcher)

Ambrosia. see Ragweed

Anatomy, of Diptera. For plate exhibiting difference of structure between genera &c. see PLA

Antony. a disease in roots of Turnips, where the roots become knotted it was formerly attributed (falsely) to the attacks of a dipterous insect *Trichocera hyemalis*. In a kindred disease called "fingers and toes" the roots are more forked

Angelica. subputrescent stalk infested by larvae of *Chironomus stercorarius* (Eu. N. & S.)

Animals, in Brazil are injured by the Warenga fly. see also Berra fly. *Dermatobia*. *Trypeta*, &c.

" in Eu & U.S. annoyed & injured by *Musca cadaverina*. *Sarcophaga*. *Cestrus*.

Trypodermu &c. see also Cattle Horses Sheep &c.

Animal substances, in a state of decomposition eaten by Lar of *Calliphora vomitoria*

Lucius Caesar. *Musca*. *Sapromyza* &c. see also Carrion.

Opium. see Belary.

Apples. (*Pyrus malus*) infested by Lar. of *Drosophila aceti* &c. (Eu U.S.) *Sciara*

(*Molobrus*) *mali* & *Trypeta pomonella*. (U.S.)

Apricot. (*Prunus armeniaca*) fruit, when rotting infested by the larvae of *Drosophila*.

Apterous, or wingless diptera. *Borborus pedestris* (Eu) *Chionexa*. *Chlorops brevipennis*

(Eu) & nearly apterous. *Erioptera atra* (wings very short.) &c.

Aquatic. Larvae of *Chironomus* (some) *Corythæra*. *Culex*. *Cristalis*. *Hebiophilus*. *Limnobia* (some)

Merodon barilus. *Phryganea* (some) *Simulium*. (mostly) *Tabanus atratus*

(semiaquatic) *Tanytus*. *Tipula* (some) &c. &c.

Artemisia. gall formed by *Cecidomyia artemesiae*. (Eu) see Gall.

" leaf mined into by Larvae of *Trypeta artemesiae*. (Eu) see Galls.

Ash. (*Fraxinus*) galls. see galls & *Cecidomyia fraxini*.

Asparagus. injured in Europe by Larvae of *Ortalis tumidans*. which lives in stems.

Ass. annoyed and injured by bots *Gasterophilus flavipes* (Eu) in the stomach & *G. nasalis* in throat. see also Horse as many of the same insects injure both animals.

Aster. & Golden Aster. see Galls.

Avena. see Oats.

Animal & vegetable Substances - injured &c

- Bacon injured by "cheese skippers" the larvae of *Prophila casei*. (U.S. Eu)
- Badger, dung, used upon by Lar of *Teria melina* (H & S) Eu.
- Bark of trees The larvae of *Conatopogon*. Sciaræ. &c &c &c are found under bark. see Apple Oak &c
- Barley. (*Hordeum*) injured by *Cecidomyia cerealis*. (Eu) *C. destructus* (between stalk & sheath leaf) (U.S) *Chlorops* frit. & *herpini* (in grain) (Eu). *Chlorops. lineola* *C. pumilionis* *C. taeniopus*. (in stalk) (Eu) & *Cecidomyia (Diplosis) trilevi* (in heads) (Eu U.S) &c.
- Bats. infested by Fleas. (*Pulex*) *Nycteribia vespertilionis*. (Eu) *N. westwoodii* (East Ind.) *Leptotena phyllostomatis* (Eu) Parasites in fur & their dung used upon by Larva of *Thelidia vespertilionæ*. (Eu) (H & S. 147.)
- Beavers, are infested by a parasite allied to the Diptera, *Phalipsyllus castoris*. (Eu)
- Beech. (*Fagus*) gall. see galls.
- Beer. see fermented liquors.
- Beets. (*Beta vulgaris*) Leaves mined into by Larva of *Anthomyia conformis*. (Eu)
 { roots injured by Lar of *Tipula clavicornis* &c (Eu)
- Betula. see Birch.
- Birch. trees frequented by Ins of *Phamphomyia*.
- Camels. injured by *Tabanus moroccanus*. *Saltsalva* fly. or Lamb. of Africa.
- Carpinus. see Hornbeam.
- Carpets. Larvae of *Scenopinus pallipes* found under Carpets, & probably only accidentally there
- Currier, devoured by Larvae of *Calliphora vomitoria*. *Lucilia Caesar*. (Blow flies)
 { *Sarcophaga cornuta*. *Sapromyxa*. &c. & probably thereby useful in removing noxious decaying animal substances. (Eu U.S.)
- Carrot. (*Daucus carota*) roots injured by Lar of *Phora dauci*. (Eu) & *Bila rosæ* (Eu)
- Carya. see Hickory.
- Cattle, are annoyed or injured by the following insects which either sting & suck blood, or annoy, by alighting on nose, eyes or any other unprotected tender parts,
 { *Asilus*. (author: Mocc.) *Chrysops*. (U.S) *Glossina morsitans* (Setze fly of Africa) *Haematopota*. *Hydrotaea*. *Hippoboscæ*. (horse louse fly) *Pangonia incisuralis* (prob) *Simulium columbianensis*. (Eu) *S. molestum* &c. (U.S) *Stomoxys calcitrans*. - *Tabanus atratus* &c. &c. (U.S) The larvae of *Hypoderma bovis*. form tumors under skin sometimes called. wormholes. & *Sarcophaga*. *Calliphora* & *Lucilia* sometimes lay their eggs in festering old wounds & sores.
- Cats. infested & annoyed by Flea. *Pulex felis*.
- Cave. Mammoth. & other Caves inhabited by Ins of *Phora*. & *Anthomyia*.
- Chelidone. (*Chelidonium*). (the mites on this plant are said to be destroyed by the Lar of a *Cecidomyia*.
- Celery. (*Apium graveolens*) injured by Lar of *Phytomyxa apii*. (feeds in stalk) & *Trypeta. onopordinis* { which feeds in pulp of leaf. (the last named insect is also sometimes found in Thistles) (Eu)
- Cellars. of wine & other fermented liquors, are infested by L P & I of *Drosophila cellaris*. &c. (Eu U.S)

Animal and Vegetable Substances injured &c

- Centaurea*. (Blue bottle) Leaf mined by Lar of *Trypeta arctii*. (Eu)
Cheese. injured & eaten by Lar of *Musca cornuta*. (Eu) & by "skippers" the larva of
 { *Prophila casei*.
Chelidonium. see *Celandine*.
Cherry. (*Cerasus*) fruit eaten into & injured by Lar of *Trypeta cerasi*. (Eu) & leading shoot
 { crumpled up, & injured by Lar of *Cecidomyia cerasi*. (Eu)
Chrysanthemum. see *Artemisia*.
Chrysoides mariana. see Golden aster. or Aster.
Cider. infested by *Drosophila funebris*. *D. cellaris* &c
Cirsium. see Thistle.
Citrus. see Orange. Lemon &c
Cott'sfoot. (*Tussilago*) leaf said to be mined by Larva of *Stomoxys calcitrans*. Eu (Doubtful)
Copal see gum copal.
Corn. see *Maize*.
Corn feverfew. gall see gall.
Cotton thistle. see *Oenopordon*.
Cow dung. see *Dung*. manure &c
Cranberry. (*vacinium*) see Gall
Cress-water. (*Nasturtium officinale*) see *Water cress*.
Cypress. (*Cupressus*) gall. see galls.
Dahlia. roots. are injured by Larvae of *Tipula vleracea*. &c. (Eu)
Dandelion. (*Taraxacum*) gall formed in Calyx by *Trypeta arctii*. (Eu) see also galls.
Daucus. see *Carrot*.
Deer. injured by *Hypoderma*. (*Citrus*) the larvae of which form tumors under the skin
 { also by a species of *Astus* (*Cephalomyia*) the larva of which lives in the throat
 { (Fallow Deer) by *Astus Stimulator*. the larvae of which live in the frontal sinus
 { (Deer) by *Cephenomyia*. the larva of which lives in the throat (Prob. *Gasterophilus*
 { *nasalis* is the same insect) *Leptotena cervi* is also parasitic when wingless on
 { deer, but when winged it infests Grouse. Reindeer are injured by *Lilanus*
 { *tarandinus*. (KDS 8?) which makes an incision in the horn when tender
Dogs. carcasses devoured especially by a *Cynomyia*. (Eu) In South America, they are
 { injured by *Dermatobia noxialis*, which forms tumors under the skin. in
 { Africa the Tsetse fly, *Glossina morsitans*, injures & sometimes kills them.
 { whilst the common Dog flea (US) is very annoying to them in warm weather
Dogs grass. Gall. see Gall.
Dung. is inhabited & probably forms food of Larvae of *Bibio*. *Chironomus stercorarius*.
 { *Musca domestica*, *M. stabulans* *Psychoda*, *Scatophaga*, *Scatopse*, *Stomoxys*.
 { *Syriza pupis*. (horse dung) &c &c see also Manure &c
 " { or the Cow. is inhabited by larvae of *Gnasia vacconum*. *Rhingia nasica*.
 { *Rhyphus punctatus*. *Sargus* &c &c see also manure excrements &c

Animal & Vegetable substances injured &c

- Earth.** The larvae of the following insects are found in or under the earth. *Bibio*
Chionea valga. *Cenomyzia pallida*. *Etenophora*. *Dolichopus*. *Empis* *Lertis*.
Sargus Tabanus. &c & probably by (some) *Bombylius*. &c
 " wood. see Wood earth or mould.
- Elder.** *Sambucus*, see Golds
- Elephants.** are injured & annoyed by the Tint of Africa (*Talanus moroccanus*)
- Elephantiasis.** a disease in South America consisting of an immense swelling of the leg which by some is supposed to be caused by the larva of a *Chlorops*.
- Elk.** injured by a species of *Hypoderma* the larvae of which form tumors under the skin
- Elm.** (*Ulmus*) rotten wood inhabited by Lar. of *Mycetobia pallipes* (Eu) & putrescent sap is inhabited by the larvae of a *Mycetobia*, & *Cerulopogon flavipons*.
- Empusa.** (*Sporondonema*) muscae, a fungus destroying flies *Musca domestica* &c in *Science Gossip* 1865. p. 134. this fungus is said to be the terrestrial state of an aquatic species "*Caprolegnia ferax*" which infests fishes (see also *E. aulica*. in fungi. &c)
- Euphorbia.** Leaf mined by the larva of *Agromyza pusilla*.
- Excrements.** frequented & inhabited by Ins. or Lar. of *Anthomyia scalaris*. *Lucilia caesar*.
Scatophaga. *Sepsis* &c see also Dung, manure &c
- Fagus.** see Beech.
- Fallow deer.** see Deer.
- Fatty substances.** injured by larvae of Cheese fly. *Prophila casei*. (Eu U.S.)
- Fermented liquors.** frequented by *Drosophila funebris*. *D. aceti*. &c &c
- Fingers & toes.** a disease in Turnips like Anbury, having the roots not so much knotted but more forked. see also Anbury & *Trichocera hyemalis*. &c
- Fish.** young Trout &c are destroyed by the larva of a species of *Simulium* (see Trout.)
- Flesh.** or fresh butchers meat. is injured by the larvae or maggots of "blow flies"
Calliphora vomitoria. *Lucilia caesar*. *Sarcophaga carnaria*. &c
- Flowers or Blossoms.** are said to be injured by *Bibio hortulana* in Europe. & are frequented by flies in general. *Acrocera*. *Anthomyia*. *Anthrax* *Bombylius*.
Campioneura. *Conops*. *Dilophus*. *Eristalis*. *Gymnosoma*. *Helophilus*. *Loxocera*.
Merodon. *Milesia*. *Myopa*. *Oxycera*. *Phtheria*. *Callophistria* *Rhingia*. *Rivellia*.
Senicomyia. *Stratiomys*. *Syrphus*. *Trypeta* *Dylophagus*. *Xylota* &c &c
- Fossil.** *Bibio* is one of the oldest forms of *Diptera* amongst the fossils.
- Fowls.** are infested with bird lice flies *Ornithomyia aricularia* &c &c see also poultry
- Fraxinus** see Ash.
- Frogs.** in Australia are infested by a parasitic fly *Batrachomyia*. which sometimes kills them.
- Fruit.** when decaying or rotten is infested & fed upon by the larvae of *Sciara*.
Drosophila. *Ortalis*. *Rivellia*. &c see also Apple, cherry, Plum &c
 " blossoms. in spring infested but not injured by the Ins of *Bibio albipennis* (U.S.)

over.

Animal and Vegetable Substances injured &c.

Galls on *Ulmus*, are inhabited by the larvae of *Diplosis* (*Pecidomyia*) *septem* =
 { *maculata*, a guest gall gnath. (US)

6. " Mallow, and inhabited by a Scatopsa as a guest gall fly.

" " " " " *Drosophila* " " " "

Saylussacia. Whortleberry.

Gladiolus flowers are frequented by the fly of *Nemestrina longirostris*, (Ew).

Goats are injured and annoyed by a species of *Cephalomyia*, the larva of which
 { lives in the frontal sinus. *H.* of *Gasterophilus nasalis*, the larvae of which live
 in the throat. (Eu) a species of *Hypoderma* also forms tumors under the skin (Eu)

Golden. aster. see Aster.

" nod. see *Solidago*.

Gooseberry. (*Grossularia*) Fruit injured or destroyed by Larva of *Becidomyia grossu-*
 = *larvae*. (U.S.)

Grain. roots injured by the larvae of *Tripula oleacea*, G.^s (Eu.) see also Wheat, &c.

Gross. frequented by *Platypera*, *Sapromyxa*, &c. & roots injured by larvae of *Tyrula*.
{*Bubo*, &c. (Eu. U.S.)

Bregarious. Larvae of *Sciana Thomas*, in Europe & an allied species in the U.S.
 { they mass together, & move together in a snake like form. & are said
 { to feed on Fungi.

Grossularia, see. Gooseberry.

Ground, see earth.

Grouse, are infested by a Parasite, *Leptotena cervi*. when winged, but when wingless
 } it is found on deer.

Gum copal. A fly (*Styringomyia*)¹ found in Gum copal from Zanibar. (Africa)

Hobbits unknown. See Unknown.

None American, see Rabbit.

Harts tongue, (*Scolopendrium*) a fern, the leaf of which is mined by Lar of *Phytomyza*
 {Hawa. (Cw.)

Hedgei are frequented by insects of *Loxocera cylindrica*. *Sapromyza conpedita* ♂ (Eu)

Hedgehogs are infested with fleas (*Pulex erinaceae* Er)

Herbaceous roots, are injured by the larva of *Lipula* V. (Eu. U.S.) see also Cabbage Grass &c.

Hickory (Carya) leaf infested by *Becidomyia glutinosa* V. (for Hickory galls see Galls)

Hogs. see swine.

Holly. (Ilex) leaf mined by larva of *Phytomyza olivaceella*. (Eu)

Honey bee. see Bee.

Honey. or the nectar of flowers, see Nectar

Honey Dew. (the sweet substance exuded by plant lice (Aphidos) is fed upon by the
 { flies of *Pirellia viridulans*. Trypteta, Ectanocera. &c. (U.S.)

Animal and Vegetable Substances injured &c.

Honeysuckle. (*Lonicera*) Leaf mined by larva of *Phytomyza obscurella*. (Eu)
 { & fruit inhabited & injured by Larvae of *Trypeta speciosa*. Eu.
 { see also Woodbine.

Horses { are injured & annoyed by the following insects, which bite severely, &
 suck blood. *Chrysops carcutiens*. (Eu.) *C. ferrugatus*. niger. ♂ & ♀ (U.S.)
Chrysops vittatus. (Western can fly.) *Glossina morsitans*. Tsetse fly (Africa)
Hæmatopota. (U.S.) *Simulium columbascheris*. (Eu.) *Stomoxys calcitrans*.
Tabanus atratus. *T. cinctus*. ♂ & ♀ (U.S.) *T. bovinus*. (Eu.) ♂ & ♀. *Hydrotaea*
metorica. (Eu.) & *Musca domestica*. (U.S. & Eu.) torment them by crawling in
 their eyes, ears, & noses. Unlike the larvae of Bot flies, *Gastrophilus*
 (*Gastrophilus*, equi, *G. inermis*, hæmorrhoidalis. ♂ & ♀ live in the stomach or rectum
 In Europe, the larvae of *Gastrophilus nasalis*, are said to live in the throat
 & *G. pecorum*, & *G. veterinus*, in the stomach. like our common horse bot.
G. equi

Hotbeds, are frequented, & young plants probably somewhat injured by the Lar of *Bibio* (U.S.)

Huckleberry. see Whortleberry

Human body. The larvae of *Homalomyia*, *scolaris*, *Musca domestica*, ♂ & ♀.
 { are said to live occasionally in the human stomach. (Eu. U.S.) see also mankind.
 Humble bee. see Bee.

Hibernation. The Lar of *Sphyrnophora lucinis*, are said by Walsh to hibernation.

Hyacynth. injured by larvae of *Ecidomyia fuscicollis*. (Eu)

Ilex. see Holly.

Imygation fulva. (Touch me not) see gall.

Iris pseudacorus. the leaf is mined by the larva of *Agromyza rana*. (Eu)

Isaria a fungoid growth said to kill insects. *Isaria farinosa* grows to a height
 { of 1-2" on dead pupae. Spiders nests, &c. (Mic Dict p. 368) see also
 { *Empusa*, *Sporodromoma* &c.

Juglans. see Walnut.

Juniper. leading shoots injured by Lar of *Ecidomyia juniperana* (Eu)

Kohl rabi. (*Brassica oleracea* var.) injured by larvae of *Ocyptera brassicae*. (Eu. in root.

Lactuca. see Lettuce.

Lappa. see Burdock.

Leaves, when dead & damp, are fed upon by Lar. of *Bibio albipennis* (U.S.) see also Apple &c.

Lemon trees, (*Citrus*), are frequented & perhaps injured by *Petalophora capitata*. (Eu)

Lettuce (Lactuca) Lett is injured or destroyed by the larvae of *Anthonomyia lactucarum*. (Eu)

Lough. (*Robinia*) galls. see Galls.

Lonicera. see Honeysuckle & Woodbine

Lotus galls. see Galls.

Liriodendron see Tulip tree.

Animal and Vegetable Substances destroyed &c.

- Lucern (*Medicago sativa*) Leaf mined by larva of *Agromyza nigripennis*. (Eu)
- Maire (Tea mays) injured by larva of *Anthomyia* ree. which feeds on the grains
 { when newly planted.
- Mankind The females of the following diptera either bite, pierce, suck the blood or
 { otherwise injure or annoy mankind. *Anopheles quadrimaculatus*. (Es.)
Ceratopogon fulvicarius (Eu) *Chrysops*, *Culex*. *Haematopota*. *Pulex*. *Simulium*.
Stomoxys. *Tabanus* &c. see also Human body.
- " { The larva of a species allied to *Cephalomyia* ovis. is said to have been
 taken from the shoulder of a boy in Texas. (Am nat VII. 437)
- " { The larva of a species of *Chlorops* in South Am. is considered to be the cause
 of a disease called Elephantiasis. from the immense swelling of the leg.
- " { The larvae of *Dermatobia noxialis* form tumors under the skin & *Hadrus*
lepidotus (a fly allied to *Haematopota*) attacks Indians in South America
- " { The larvae of *Helophilus pendulus* (Eu) is said to have been discharged from
 the stomach of a woman (Eu) R & S. 75.
- " { The larva of *Homolomyia* is said also to have been discharged from
 the human stomach (Eu)
- " The larvae of *Lucilia caesar*. *Sarcophaga* &c. sometimes infest sores on Man
- " { The larvae of *Lucilia hominisvorax* (?) infest gums. frontal sinus &c. of
 mankind in Cayenne & sometimes cause death (Fiquier. 72)
- " { The larva of *Calliphora vomitoria* is said by Prof Leidy to have been
 vomited by mankind
- " { The insect of *Musca domestica* is very annoying to Mankind. by swarming
 about food. & alighting on unprotected skin. Their larvae are said to have been
 vomited by mankind. & the flies themselves are accused of conveying
 infectious diseases from house to house (Am nat VI. 694)
- " injured by *Astrus* (humanus) hominis in S. Am. (R & S. 72) prob. *Dermatobia*.
- " annoyed by the flea (*Pulex*) which bites & sucks blood.
- " { " " *Ornithomyia avicularia* &c. or bird louse flies (R & S 58) which
 crawl over the skin. & cause an itching sensation. (Eu)
- " { Sores & wounds in Mankind are infested by *Sarcophaga carnaria*. which
 being viviparous deposits its living maggots in them. *Lucilia coesar* &c. lays eggs.
- " { injured by the Chugie (*Sarcophylla penetrans*) a kind of flea which buries itself
 in the flesh & deposits its eggs in the cavity. these hatching. the young larvae
 disperse & still burrow in the flesh. causing dangerous sores (Fla W. Ind. S. Am)
- " { annoyed and injured by Ins. of *Simulium columbaschensis* (Eu) & by
S. molestum. *S. nocuum* &c. in the U.S.
- " { annoyed by Ins. of *Stenopteryx hirundinis*. or the Swallow fly louse
 (Eu) which crawls over the body &c. R & S. 58.

Animal and Vegetable Substances injured &c.

- Mankind injured by the larva of a species of *Syrphus*. (Barna fly of Brazil)
 " " " " " " *Musca*. (Warenga " " ")
 { see also *Dermatobia noxialis* which perhaps may be the same insect.
- Map's. (Ucer.) see gall.
- Mangelwurzel. (Beta) Leaves mined by larvae of *Anthomyia betae* (Eu)
 " { roots injured by the larvae of *Spila olivacea* &c (Eu)
- Manure. is inhabited by the larvae of some species of *Anthomyia*. *Bombus*. *Cratichneumon*.
 { *lateralis*. *Chironomus stercorarius*. *Musca* *Psychoda*. *Scatophaga*.
 { *stercoraria*. *Scatopse notata*. *Sepsis* &c. (see also Dung. Excrements. &c.
- Martins. are infested with fleas. (*Pulex martis*) (Eu)
- Mantles. are inhabited by the larvae of *Bittacomorpha clauipes* (probably) by
 { Lar of *Psychoda*. *Henops*. &c. *U.S.* & are frequented by Lar & Insects of
 { *Bittacomorpha clauipes*. *Culex*. *Erioptera calyptera*. *Limnobia*. *Limnobia*.
 { *Limnobia*. *Lonchaea tristic*. *Psychoptera paludosa*. *Lonchoptera*. &c
- Meat. fresh. is destroyed by larvae of *Lucilia caesar*. (the true green bottle blow fly)
 { *Calliphora vomitoria* ("the blue bottle meat fly") & by *Sarcophaga*.
 { *carnaria* ("the uniparous flesh fly") (Eu & U.S.)
- Mice. are infested with fleas. (*Pulex musculi*) (Eu)
- Moles. " " " " (*Pulex talpae*) (Eu)
- Mollusks. Fresh water (*Planorbis*) are said to form food of *Tabanus atratus*. (U.S.)
- Monkeys. are infested & injured by *Dermatobia noxialis*. the Lar of which form ulcers.
- Moose. " " " " a species of *Hypoderma*. " " " "
- Moths. The larva of one sp of *Therera*. is said to feed on pupae of moths (Eu)
- Moltwort. is frequented by *Cecidomyia bicolor*. (Eu)
- Mould garden. is inhabited by Larvae of *Empis*. *Therera* &c see also earth.
- " { Vegetable. " " " *Boris*. *Microdon*. *Midas*. *Milesia*
 { *Rhamphomyia*. *Therera* *Trichocera* &c. (see also Wood earth.)
- Muck heaps. see Manure &c.
- Mules. { are injured by *Gasterophilus*. (*Gastus*) *equi*. (prob.) & *G. flavipes* the
 { larvae of which live in the stomach. (Eu) & *G. nasalis*. the larvae of which
 { live in the throat. (Eu) (See also Horse & the insects injuring it)
- Mushrooms. (*Agaricus campestris*) are fed upon & injured by larvae of *Platypera*
 { *vestina* (Eu). & *Sciophila striata* (Eu) see also *Boleti* fungi &c.
- Narcissus Roots are injured by the larvae of *Merodon clauipes*. or *M. narcissi* (Eu)
- Nectar of flowers. is fed upon by Ins of *Bombylius*. *conops*. *Empis*. & *Myopa*.
 { *Stratiomys*. *Syrphus*. &c. (Eu. U.S.)
- Nasturtium. see Water cress.
- Neurulation of wings see Supplement A Anatomical plate
- " " " of *Asilus*. *Cecidomyia* *Chironomus* *Culex*. *Diplosis*. *Eraa*.
 { *Lasiptera*. & *Promachus*. See pl IX.

Animal and Vegetable substances injured &c.

- Nightshade. (*Solanum*) The leaf is said by Deeger to be mined by *Stomoxys*
 { *calcitrans*. in Europe (but doubtful.)
- Oaks. (*Quercus*) galls see galls. The insect of *Subula varia* (Eu) is found on Oaks. &
 { the larvae of *Lonchaea nigra* is found under oak bark. (Eu)
- Oats. (*Avena*) are injured by the larvae of *Diplosis* (*Excudomyia*) *tritici* (Eu. US)
 { the roots are injured by Lar of *Ipula oleracea*. (Eu)
- Olive. (*Olea*) The fruit is injured by the larvae of *Dacus* (*Trypeta*) *oleae* (Eu)
- Onion. (*Allium*) is injured and destroyed by the larva of *Anthomyia ceparum*, in the
 { eastern states & by *Ortalis flexa*. (*Trypeta arcuata*) or the black Onion
 { fly. of the western states.
- Onopordon. (Cotton thistle) Leaves are mined by the larvae of *Trypeta onopordinis*.
- Orange. (*Citrus aurantica*) The foliage is frequented by a species of *Baccha* the
 { larvae of which feed upon the aphides. or plant lice which injure the
 { tree. The fruit in Europe is infested by *Ceratitis citriferda* (affinis
 { *Trypeta*) the larvae of which are found in the pulp of the fruit.
- Owls horned. are infested with parasitic bird louse flies *Hippobosca* & *Ornithomyia* (US)
- Oxen. are sometimes annoyed by a parasitic louse fly *Hippobosca equina*. see also cattle &
- Parsley. (*Apium petroselinum*) is injured by *Trypeta* (*Xiphritis*) *onopordinis* (Eubia
 { of Mortons Cyclop. (eg) the larva of which feeds on the pulp & blisters the leaves
- Parsnip. Water. Sum see Water parsnip
- Parsnip. (*Pastinacea*) the leaves are injured by the larvae of *Trypeta onopordinis*. (Eu,
 { & the hulls are inhabited by, the larvae of *Excudomyia pisi*. (Eu)
- Peach. (*Persica*) The exuding gum &c. from the tree when injured by the Peach worm.
 { *Algoria* (*Trochilium*) *exitiosa* (Lepid.) is fed upon by the larvae of
 { *Mycetobia persicae*. (US)
- Pear. (*Pyrus communis*) The young fruit & blossoms are injured by the larvae of
 { *Sciara pyri*. (Eu) & *Excudomyia nigra* (Eu) The ends of the leading
 { shoots are rolled up, & injured by the larvae of *Excudomyia pyri*. (Eu)
- Persica. see peach.
- The plant. see Rhubarb.
- Pigeons. are infested & annoyed by fleas *Pulex columba*. (Eu US)
- Pine. (*Pinus*) see Galls. on
 " { The larva of *Diplosis pinicola* inhabit Scotch pine & may be found in
 { May in semiliquid lumps of resin. (US) Pines in Europe are likewise
 { infested by *Excudomyia brachyptera* (Schwägor) the larvae of which
 { live at the base of the leaves. producing no gall or swelling but
 { causing the leaves to wither. (Eu)
- Pollen of flowers is eaten by Ins. of *Existalis tenax*. *Musca domestica*. *Rhizingia*.
Syrphus. *Scatophaga* *Volucella* &c. Am Nat. 5. 290.

Animal and Vegetable Substances injured &c.

Poplar. (*Populus*.) The larva of a *Lonchaea* is found under the bark (Eu).

Potato. (*Solanum tuberosum*.) When damp or diseased are infested by the larvae of
 { *Anthomyia tuberosa*, (Eu) *Drosophila cellaris*, (Eu) *Musca stabulans*, (Eu)
Psychoda nervosa, (Eu) (Curtis 472.) *Scatopse punctatus*, (Eu) *Sciara fucata*, (Eu)
 & *Sciara quinque-maculata*, once supposed to be the cause of disease called
 "Scab" (Eu) the larva of a sp of *Sciara* was found in blister like scales in
 some potatoes from Delaware, by Walsh (Fr Ent. n. p 71)

" " The larvae of *Dilophus febrilis*, are said to injure the roots under ground. (Eu)

" " Insects of *Limosina geniculata* were bred by Curtis from potatoes

" " { " of *Sapromyza obsoleta*, were bred from eggs laid on new shoots, & this
 insect was once erroneously supposed to be the cause of the potato rot. (Eu)

" " { *Scatophaga furcata*, was also formerly supposed to be the cause of the potato
 rot but erroneously, as its larva lives, feeds, in the manure on, or in the ground.

Poultry, are infested by parasitic bird lice flies. *Ornithomyia avicularia* & by
 { poultry fleas, *Pulex gallinae*.

Prunus. see Apricot, plum, &c.

Pyrus. see Apple, pear, &c.

Pyrethrum, *inodorum*, see Corn Feverfew.

Quercus. see Oak.

Rabbits. (American hare) injured by *Trypoderma* (*Cuterebra*) *tuccatus*, & *cuniculi*
 { the larvae of, which form tumors under the skin. (US) They are also
 infested with flies (*Pulex*) which suck their blood

Radish. (*Raphanus*.) The roots are injured by larvae of *Anthomyia radicum*, (Eu)
 { *Anthomyia raphani*, (US) & *Phora clausi*, (Eu.)

Ragweed. (*Ambrosia*) is frequented by the insect of *Trypeta bella* (US)

Raphanus. see Radish.

Raspberry. (*Rubus idaeus*.) Fruit when over ripe, is infested with larvae of *Ortali*. *Trypeta* (US)

Reindeer, are injured & annoyed by the larvae of *Hypoderma tarandi*, (Eu, US) &
 { by *Astrus stimulator*, & *auricularis*. (See also Deer.)

Rheum, see Rhubarb.

Rhinoceros. is injured by *Tabanus moroccanus*, (see Limb.) and by a fly allied to
 { *Gasterophilus*, the larvae of which live in the stomach. (Africa)

Rhubarb, or *Rap plant*, the roots are injured by the larvae of *Ustilus sericeus*, (US)

Rhus. see Sumach.

Robinia pseudacacia, &c. see Locust.

Roots, are injured by the larvae of *Bilibis*, *Cyrtura*, (some) *Ortali*, *Phora*, (some)
 { *Tripula*, *Trypeta* (some) *Trichocera* &c. &c. see also Grain Grass trees, &c.

Rose. (wild) (*Rosa*) The berries are inhabited & fed upon by larvae of *Trypeta continua* (Eu).
 { & the plant lice or Aphides are destroyed by *Syrphus pyrastris* &c. (Eu)

Rotten wood. (see wood, wood mould &c.) is inhabited by larvae of *Subula maculata* &c. Eu.

Animal and Vegetable Substances injured &c

- Rubus*, see Bramble, Blackberry, & Raspberry.
- Rutabaga*, or Swedish Turnip. (*Brassica campestris*) roots & stems eaten into by Larva of *Anthonomyia brassicae*. (Eu)
- Rye*. (Scale cereale) is injured by *Cecidomyia destructor*. Larva lives between
 { stem & leaf stalks. (Eu, U.S.) *Chlorops glutinosa* Larva lives in stem (Eu) *Chlorops*
 { (*Oscinis*) *lineata*, *C. humilioris*. Larvae in stalk or stem (Eu) & *Leptosis*
 { (*Cecidomyia*) *tritici*. Larvae in chaffy scales of head. (Eu, & U.S.)
- Salix*. see Willow.
- Salt*. German is said to have bred the insect of *Phryphila casei*, or Cheese fly, from
 { salt alone. (Linn's 622.)
- Salt water*. The larvae of *Chironomus oceanus*, live in Sea water. U.S.
- { is inhabited by Larvae of *Ephydra salinaria*, (Siberia) by Lar of *Ephydra*
 { *halophilus* (U.S.), & the larvae of (some) *Eristalis*. (U.S.)
- Sambucus*, see Elder.
- Sand on the sea shore*. Holes are dug in the Sand by *Proctacanthus philadelphicus*,
 { as burrows in which to deposit its eggs.
- Scab*, a disease in potatoes, attributed to the Larvae of *Scara lineata*, & *quinque maculata* (Eu)
- Scolopendrium vulgare*, see Hart's tongue, a fern.
- Sea water*, see Salt.
- Scales cereale* see Rye.
- Sea*. (not specified) destroyed by some species of *Callophora*. (Eu)
- Semiaquatic*. Larva of *Sabaneus atratus*, is said by some to be semiaquatic. (U.S.)
- Shallot*. (*Allium ascalonicum*) roots destroyed by Larvae of *Anthonomyia platyura*. (Eu)
- Sheep*, are injured, and annoyed by *Cephalomyia ovis*, the larvae of which live in the
 { forehead or frontal sinus. (Eu, U.S.) by Larvae of *Hypoderma ovis*, which
 { live in tumors under the skin (Eu). a parasitic house fly. *Melophagus*
 { *ovinus*, lives amongst the wool. (Eu) & the insect of *Simulium colum.*
 { *baschensis*, in Hungary, frequently kills them. (Eu)
- Swim*, see Water parsnip.
- Stunk cabbage*, see *Symplocarpus foetida*.
- Solanum*, see Potato. & Night Shade.
- Solidago*, see Golden rod. & galls.
- Snow*. The insects of *Chionia valga*. (U.S.) & *Chionia araneoides*. (Eu) are frequently
 found upon the snow in winter.
- Spredwill*, see *Veronica*.
- Spell*. (*Triticum spelta*) injured by Lar. of *Cecidomyia cerealis*, which lives between the
 stalk and sheath. causing the stem to become distorted.
- Sporendonema*. (*Empusa*) *muscae*, a fungoid growth killing flies see Fungi.

Animal and Vegetable Substances injured &c.

- Sphaeria morbosa* (Schweinitz) a disease in Plum & Cherry trees, &c. which is commonly known as the "black knot" from the black & knotty appearance of the swellings or excrescences on the trunk and limbs. It is caused by a fungoid growth "*Sphaeria morbosa*" These warts or "Black knots" are inhabited by various insects which may be considered as the effects, but by no means as the cause of the disease. (Pr Ent. 1.50 & 2.96) amongst the insects found in these black knots are the following diptera.
- The black knot is inhabited by the larvae of *Cecidomyia septemmaculata* (see *Diplosis* Prac Ent 1.50) & a species of *Ceratopogon* has also been bred from the black knot together with the plum Curculio *Conotrachelus*.
- renuphar* (Coleop.) & several other insects (Prac Ent 1.50.)
- Squirrels. are injured by *Cuterebra emasculator* of Fitch the larvae of which live in the scrotum. *Trypodermus* (*Cuterebra*) *buccata* in the larva state is said to form tumors under the skin. & to be found in the regions of the kidneys (U.S.) (may not these two insects be very closely allied if not the same insect as they feed in the same animal.?)
- Starlings. are infested by a parasitic bird louse fly. *Carnus homipterus* (Eu)
- Sticks. The larva of *Merodon globosus*. (U.S.) was found under sticks in company with shells.
- Sturnus. see Starling.
- Sugar. fed upon & injured by the insect of the common house fly. *Musca domestica*. &c. &c. (Eu. U.S.)
- Sumach. (*Rhus*) gall. see Gall.
- Swallows nests, are infested with the larvae of *Lucilia dispar* (Eu) & the birds with lice flies, or Bird ticks. *Stenopteryx hirundinis*, & *Anapera pallida*. a species of flea (*Pulex*) also sucks their blood.
- Twine. are injured by the fly of *Simulium columbianensis* (Europe)
- Sylvia sialis*. see blue bird. (U.S.)
- Symphlocarpha fetida*. (Skunk cabbage) The insects of *Sphyracophala brevicornis*, were found in may between the leaves of this plant. (U.S.)
- Tanacetum*. see Dandelion
- Thistle. (*Cirsium*) blossom buds hardened. & galls inhabited by larvae of *Trypeta stylata*. (Eu)
- Thistle. cotton. (*Oenothera*) The larvae of *Trypeta onopordinis* mines in leaves (Eu)
- Toadstools. (Fungi) are inhabited & fed upon by the larvae of *Mycetophila* (U.S.) see Fungi.
- Touch me not. see *Impatiens fulva*.
- Triticum see Wheat. *Triticum spelta* see Spell.
- Trout. are injured by a species of *Simulium*. the larvae of which are aquatic & spin webs which destroy eggs & young fish.
- Truffles. (*Tuber cibarium*) inhabited & fed upon by Lar of *Helomyxa tuberivora* (Eu)

Animal and Vegetable Substances injured &c.

Tulip. roots are injured by the larvae of *Cecidomyia fuscicollis* (Eu)

Tulip tree (*Liriodendron*) see galls.

Turnip (*Brassica rapa*) attacked by diseases, called "Unbury" & "fingers & toes"

- { (see *Trichocera* and Unbury,) formerly attributed to the larva of a fly,
Trichocera hyemalis attacking the roots & causing them to become deformed.
 " injured by the larvae of *Anthomyia brassicae* which attacks roots & stems (Eu)
 " " " " " " " *canicularis*. *A. radicum* & *Tijula oleracea* (Eu)
 { which attack the roots, the larvae of *Sciara fucata* feed in putrid roots (Eu)
 whilst the larvae of *Drosophila flava*, & *Phytomyza nigricornis*, mine in the leaves (Eu)

Tussilago see Coltsfoot.

Ulcers { are infested by the larvae of *Lucilia caesar*, & other flesh flies which lay
 their eggs in them, & frequently cause dreadful sores.

Ulmus see Elm.

Unknown. The habits of the following insects are at present not known, or not
 { described. *Aspistes*. *Blepharicera*. *Cordylura*. *Diastata*. *Dilophus*. *Dinora*.
Genon. *Heteromyia* *Himoneura*. *Lauxania*. *Macrocera*. *Oethora*. *Paloptera*
Parydra. *Plecia* *Porphyrrops*. *Somula*. *Systropus*. *Trichopoda*, &c.

Urine human is inhabited by the larvae of *Teichomyza fusca* (Eu)

Vaccinium see Whortleberry & Cranberry.

Vegetables see Cabbage Carrot. Bat &c.

Vegetable mould see mould.

- " { substances when decaying or decayed are inhabited by the larvae of
Anthomyia (some) *Chionea araneoides* (Eu) *Ctenomyia pallida* (US.)
Musca domestica. *Sciara*, &c. (Eu. US)

Voronica speedwell see galls.

Vinegar { is infested by & probably fed upon by the larvae & ins. of *Drosophila aceti*
D. cellaris. *D. funebris*, &c. (Eu. US)

Vitis see Grape

Univiparous *Sarcophaga carnaria*. The ovaries of this fly are arranged in a spiral
 { manner, & are said to contain sometimes 20,000 eggs, which are hatched
 in the body of the mother. (Eu. US.) See *Sarcophaga*.

Walnut (*Juglans*) The old husks are inhabited & fed upon by the larvae of *Trypeta*
 { suavis, according to Dr Le Baron who has reared these insects.

Water. living in, or on *Phytophore*... This insect runs with agility upon water (Eu)
 { & the larvae of some *Tipulidae* which were found under stones in
 running water. (US) See also Aquatic.

Weasel, dung fed upon by the larvae of *Lenia mustelinia* (Eu) N & S. 147.

Animal and Vegetable Substances injured &c.

- Wheat. (*Triticum*) is injured, or supposed to be injured by Larvae of *Agromyza denticornis*. (Eu) & *A. tritici* (US) which are said to suck immature grains.
- ... " is injured or supposed to be injured by Larvae of *Cecidomyia calyptera*. (US) *C. cerealis*. (Eu) causes talk to become distorted. *C. culmicola* (Eu) feeds above leaf joints. *C. destructor*. (or Hessian fly) one of the most destructive insects to the wheat crop in this country. (US & Eu) *Cecidomyia* (*Diplosis*) *tritici* (or Wheat midge, another very destructive insect. (Eu & US) *C. graminis* (formerly *circalis* Fitch) is supposed to injure Wheat. (US)
- ... " is probably injured by the larvae of *Chlorops*. (*Oscinis*) *coxendix*. (US) *C. crassifemoris*. (US). *C. antennalis*. US. & *C. pumilionis*. (Eu) in stem & causes the disease called "Smut"
- ... " is injured by *Diplosis* (*Cecidomyia*) *tritici*, the larva of which lives in the head, & is very destructive. (US & Eu)
- ... " is probably injured by the larvae of *Hylomyia deceptiva*, & *similis*. Fitch (US)
- ... " " " " " " *Meromyza americana*, which lives in stalks. (US)
- ... " { The larvae of *Oscinis granarius*. (Eu) *O. tibialis*. (US) *O. vastator*. (Eu) & *O. vulgaris*. (US) are said to injure early ears of wheat. by eating out the plum. (Oscinis. see also *Chlorops*.)
- ... " { Fields are frequented by Inds of *Siphonella obesa*. in N.Y. the larvae of which are suspected of injuring the crops. (US)
- ... " roots, are injured by Larvae of *Tipula ulmacea*. &c. (Eu)
- Whortleberry. (*Vaccinium*, or *Gaylussacia*) fruit when overripe is fed upon by the larva of an *Ortalis*. (US) for whortleberry gall. see Gall.
- Mallow. (*Salix*) is injured, by a species of *Cecidomyia*, in Europe, which is itself destroyed by a *Phlygaster* (*Hym.* Eu)
- ... " { A species of *Louchusa*, when in the larva state forms blister like swellings on the twigs. (US)
- Wine { is probably fed upon by the Larvae of *Drosophila aceti*. *D. funebris* &c. &c. as their pupae have been found floating in wine These insects are abundant in wine cellars, & any where there is fermented liquor.
- Woodbine, or honeysuckle. (*Lonicera*) the leaf is mined by the Larva of *Phytomyza flaviceps*. (Eu)
- Wood rotten, or decayed, see Wood mould.
- Wood mould. is inhabited by & forms the food of the larvae of *Chrysotoxum*. { *Ctenomyia*. *Ctenophora*. *Dolichopus* *Metaponus*. *Merodon* *Milesia*. *Midus* *Oxyera*. *Pachygaster*. *Scenopinus*. *Shorea*. *Dylota*. &c. &c. (US & Eu)
- Yucca may. see Maize

Alphabetical List of Insects of other Orders either destroying Diptera or destroyed by them.

- Acanthosoma*. (Curtis) (*Pentatoma*) *grisea*. (Sect) is destroyed by *Cryptina bicolor*. (Eu)
Acani. (mites) On the underside of leaves of *Celandine*, are destroyed by the larva
 { of a *Cecidomyia*. (Eu)
Acheilonia. (Ochs) *atrophas* or Deaths head Moth. (Lep) is destroyed by the larva of a *Tachina*
 { *Senomelopsis*. *utroquinora*. (Eu)
Aceromyia. (Ochs) *populi*. (Lep) The caterpillar is destroyed by the Larva of a *Tachina*. (US)
Agrotis. *inermis*. &c. Cut worms. " " " " " " " " (US)
Aleochara. (Favon) *anthomyiae*. a rove beetle. (Col) destroys the larvae of *Anthomyia*
 { *brassicae*. (Sprague. Am Ent. 2 370. US)
Alysia (Latr) *apii*. (Hym) Larva destroys *Trypeta* (*Tephritis*) *onopordii* &c. (Curtis 621 Eu)
 " *manducator*. (Hym) Larva destroys *Anthomyia brassicae* (Curtis 163. Eu)
 " *niger* see *Coelmis*.
Andrena. (Fab. Hym) is destroyed by the Larva of *Charitophila*. (*Tachina*) *floralis*. (Eu)
Animalcules. aquatic. serve as food for the larvae of *Stratiomys* *chameleon*. (Eu)
Anisopteryx *vernata*. see *Canker worms*. (Lep) (US)
Anisota *rubicunda*. Lep destroyed by *Tachina anonyma*. (US)
Ants (see *Formica* also) The nests are frequented by *Microdon* *apiformis*. (Eu) & they destroy
 { the larvae of *Scara* *thomae*. (Eu)
Anthrophora. (Latr) destroyed by the larva of *Anthrax* *invis*, which is said to be parasitic
 { in the was nest. (Eu)
Aphides. (or plant lice. Homop) on Orange. are destroyed by the larvae of *Proctos*. (US)
 { they the larvae of *Diptera* (some) *pipira*. *Syrphus*. *Scara* &c. Several other *Diptera*.
Apredius. (Nes) *flavipes*. (Hym) is a parasite in *Phora* *rufipes*. (Eu)
Apis. see *Bees*.
Arachnida. Spiders. destroy an immense number of *Diptera* & are themselves destroyed
 { by a *Sarcophaga*.
Asoma *gryllaria* L. Buron 2nd Ill. rep. p. 157. (*Asoma* Latr) *Arach.* a small red mite which
 is parasitic in flies. (*Musca domestica*) & *Grasshoppers* &c. Am Ent 1 269. (see also
Proctos.) *Asoma* *locustarum* of Halsh. is very common on grasshoppers. &
 when young some of the mites are apparently only 6. legged. For remarks on name
Asoma. & for purity of description? see Am. Ent. 2. 50. & 2nd Ill. State Rep. p. 157.
Atreus. this see *Polydora*.
Bees wild. (Apis. Hym) see also *Anthrophora*. *Bombus*. *Megachile*. *Odynerus*. *Pompilus*. *Sphex* &c.
Bees wild & humble. are destroyed by the larvae of *Anthrax*. *Bombus*. *Conops*.
Myopa. *Phora*. *Tachina*. & *Volucella*. Their nests are infested by larvae of
Anthomyia. & the bees themselves are killed by the perfect flies of *Asilus* *deidamia*. (Eu)
A. missouriensis. (US) *Proctos* *phidolephicus*. (US) They are likewise infested
 over.

Insects of other Orders destroying *Diptera* or destroyed by them.

By a parasitic Bee *Louse*. *Brachycaea*. (Eu) The larva of a fly *Phora*
incrassata. injures Honey bees. Has been accused of causing the disease
 in Europe. Known as the "foul brood". Honey bees are also destroyed by
 the misce of a large rapacious fly. *Promachus bastardi*. (*Trepiana*
apivora. Tuck.) which catches them on the wing, & sucks out their juices
Bees. *Bombus*. *Odynerus*. *Sphex* & *Pompilus* (wild bees) are destroyed by the larva of
 { a *Conops* which lives in their bodies (Eu)
Bombex (Fab) *Hym*. is said to be infested by a dipterous parasite *Panopea curvae* (Eu)
 { The nest of *Bombex* is infested by a parasitic fly *Toxophora fasciata*. The larva
 of which destroys either the food stored up for the young *Bombex*. or the young
 insect itself. (Eu) Another *Bombex*. destroys the flies of *Syrphus* in a
 similar manner. (Eu)
Bombex. *fasciata*. (Hym) Ins. carries of the fly of *Lucilia caesar* as food for its young (Eu)
 "..... *nostrata* "..... "..... "..... "..... *Erastalis* & other diptera " " " (Eu)
 "..... *tarsata* "..... "..... "..... "..... *Bombylius* " " " " (Eu)
Blatta. (*Periplaneta*) *americana*. The Cockroach. is said by Guyon to destroy the *Chagas*.
 { *Parcopsylla penetrans*. (Ann Nat 2. 1844)
Bombus. The Bumble or Humble bee. is destroyed by the larva of *Conops rufipes*. (Eu)
Brachyderes (a *Cureulio*) is destroyed by a *Tachina*. (Eu) Pests 408.
 Bumble bee. *Bombus*.
Callimone. (Spin) *dura*. (Hym) a chalcid parasite which destroys *Diplosis testici* in Europe
 "..... *elvia* "..... "..... "..... "..... "..... *Lasioplera vites* (US)
 Canker worms. (*Anisopteryx vernata*. Lepid) The caterpillars are destroyed by a *Tachina*. (US)
Cerabius. *gemmatius*. & *C. violaceus*. (Col) are destroyed by the larvae of *Tachina pucta*.
 { (Eu) *Mettis* 2. 567.
 Carpenter bee. see *Xylocopa*.
Cassida. (Col) *Chortaise* beetle. in Europe. is destroyed by the larva of a *Tachina*.
 { (*Cassidomyia*) which feeds in their bodies.
 " *viridis*. (Col) is destroyed by the larva of *Ocyptera cassidae*. (Eu)
 Caterpillars. (Larvae of *Lepidoptera*.) are destroyed by the larvae of *Erorista*. *Muscaria*
 { *Musca stabulans* (Eu) *Sarcophaga* & *Tachina* which feed in their bodies
Ceraphron (Jur) *destructor* (Hym) (see also *Semiostellus* Larva destroys the *Hessian*
 { fly *Cecidomyia destructor* when in the pupa or flaxseed state. (Eu)
 " *niger* (Hym) Larva destroys *Drosophila flava* (Eu)
 " *syrphi* "..... "..... "..... *Syrphus* (Eu)
Chalcis (Fab) *Hym*. Larva destroys *Cecidomyia destructor* (*Hessian* fly). *Crucians* & (US)
Chelifer. (Laff) *cancroides*. (Arach) a hook scorpion which is said by Guyon to destroy
 { the *Gla.* (*Pulex*)
Coccinella. (Lady bird) (Col) is probably destroyed by *Phora atricippella*. (Eu) &
 { the larvae of *Coccinella*. is said to destroy the larvae of the wheat midge.
 (*A. of Louis* *indici*. (US)

Insects of other Orders destroying Diptera or destroyed by them

- Coelinius* (Nees) *niger* *Alysia nigra* (Oliv.) a parasitic hymenopterous insect which
 { destroys *Chlorops taeniorus*, *Oscinis vastator*. &c and is itself said to
 { be destroyed by another hymenopterous insect *Steromalus micans*
 { which also destroys other diptera. (Eu) see also *Steromalus*.
- Colletes* (Latr.) a wild bee which is destroyed by a parasitic fly *Melogramma*
 { *Tachina* *funclata* (Eu)
- Crabro* (Fab) (Hym) This insect carries off the flies of *Conops* (*Oncodes*) *gibbosus*. &
 { other diptera as food for its young.
- Curculionidae* (Colop) are said to be destroyed by a *Myobia* on authority of
 { St. Fargeau, Westw 2.569. (Eu) see also *Brachyderes* which is destroyed
 { by a *Tachina*.
- Danaus* (Latr.) *archippus* (Lepid) Caterpillar is destroyed by the larva of a *Tachina*
 { *Masicera archippivora*, which feeds in its body. (US)
- Nelephila* (Ochs) *lineata*. (Lepid) Caterpillars destroyed by the larva of a *Tachina* (US)
- Diabrotica vittata* (Col) Striped cucumber beetle. Ins. destroyed by the larvae of
 { *Melanospora* (*Tachina*) *diabroticae*. which feeds in body of the female (US)
- Diapria* (Latr) (Hym) The larvae destroy some of the *Lepulidae*. (Eu)
 " { *agromyzae*. Larva destroys *Agromyza tritici* a fly injuring wheat
 " { *cecidomyiarum* the larva destroys larvae of *Cecidomyia antennariae* (Eu)
- Doryphora* { *decumlineata*. (Col) The Colorado potato beetle is destroyed by the larvae of
 { *Lydella* (*Tachina*) *doryphorae*. which lives in the body of the larva (US)
- Dryocampa* (Harr) *imperialis* see *Eacles*.
- Dronees* { males of the honey bee are destroyed by the larva of a *Conops* The female
 { insect lays its egg on a drone, the larva or grub of which being hatched
 { enters the body of its victim & eventually kills it by eating the interior (Eu)
- Eacles* *Hübner imperialis* (Lepid) the caterpillar is destroyed by the larva of
 { *Tachina virida*. (US)
- Eanwig* see *Torpacula* (Orth)
- Eriosoma pyri* (Hom) "Pear tree woolly root louse" is said to be destroyed by
 { the larva of *Pipira radicum*. (US)
- Eudryas* (Boisd.) *grata* (Lepid) The caterpillars are destroyed by the larvae of
 { *Exorista* (*Tachina*) *leucaniae*. (US)
- Eumenes* (Latr) *fraternus* (Hym) "Potter wasp" The nest is inhabited by the larva
 { of a parasitic fly *Toxophora* which feeds either upon the caterpillars stored
 { up in the clay nest or upon the young larvae themselves.
- Eucura* (Newm) *gemma*. (Hym) The larva makes a gall on willows which is inhabited
 { by *Cecidomyia orbitalis* as a guest gall gnat (US)
- Figites* (Latr) (Hym) a parasite destroying *Sarcophaga* (Eu)
- Torpacula* (Linn) *auricularia* (Orth) The earwig is said by Westw to destroy the wheat
 { midge. (*Stiplosis tritici*) in Eu. but Curtis appears to feed on Trips infesting
 { wheat. Earwigs are said to be destroyed by the larvae of *Tachina septennis* (Eu)

Insects of other Orders destroying Diptera or destroyed by them.

Gamasus, a mite see also *Uropoda*.

Grasshoppers (*Orth*) are destroyed by a large species of *Asilus*. (U.S.)

Helix see Snail.

Hemiteles maia (*Lep*) destroyed by *Tachina unonyma* (U.S.)

Hymenoptera are destroyed by *Diocoria celandica*. (H.B.S. 152. U.S.)

Humble bee see Bee & *Bombus*.

Inostemma (*Hal*) see *Platygaster*.

Insects wood boring are destroyed by the larva of *Dytola*.

Lepidoptera caterpillars of moths & butterflies &c are destroyed by the larvae of *Tachina*

{ *Exorista* &c. & the pupa of a moth (pl 3) was destroyed by the larva of an *Anthrax* (U.S.)

" The larva of *Thereva* is said to feed on some small moths. (Pack 396.) (U.S.)

Leucania inipuncta (*Lep*) the caterpillars are destroyed by the larva of *Exorista*. (*Tachina*)
{ *leucaniae*. (U.S.)

Limenitis (*Tab*) *disippus* (*Lep*) Larva destroyed by the larva of a *Tachina*. (U.S.)

Macroglenes. (*Westw*) *penetrans* (*Hym*) the larva is said to destroy the larvae of the wheat
{ midge (*Diplosis tritici*) (*Eu*) but by other naturalists it is said to destroy the
larvae of *Platygaster tipulae* (*Hym*) an insect that destroys the larvae of
the midge.

Mantis. carolina (*Orth*) This insect is destroyed by a species of *Tachina* nine such flies
{ having emerged from the body of one *Mantis* (U.S.) (auth? C.R. Dodge)

Megachile (*Latr*) *muraria* (*Hym*) The nests are infested with the larva of *Anthrax*

" *ornata* the larvae of which are parasitic & probably destroy the young bees. (*Eu*)

Mellinus (*Tab*) (*Hym*) destroys *Stomoxys calcitrans*. (*Eu* H.B.S. 151)

" *arvensis*. provisions its nest with flies. (*Eu* H.B.S. 152.)

Microgaster (*Walk*) *cinctipes* (*Hym*) a parasite destroying *Drosophila* *flava* (*Eu*)

Mites. on *Celandine*. are destroyed by the larva of a *Cecidomyia* (*Eu*) see also *Acari* &c.

Mollusks. fresh water. are destroyed by the larvae of *Tabanus atratus* (U.S.) see *Planorbis*.

Moths. larvae & pupae destroyed by the larvae of *Anthrax*. *Thereva* &c &c.

Myodaires. (*Hym*) were found in the pupa of a *Tachina* that had destroyed one of
{ the *Noctuidae* (*Lep*) (*Westw* 2568.)

Ocypteta. (*Koch*) *rubra* (*Arach*) a red mite infesting *Tipula*. (*Eu*) (*Ocypteta* *Leach* *Agassiz*)

Odynerus (*Latr*) (*Hym*) a wild bee which is destroyed by the larva of *Conops rufipes* (*Eu*)

Oryzia. (*Ochs*) *leucostigma* (*Lep*) caterpillars are destroyed by the larva of *Tachina*
{ *oryziae*. *Le Baron* 1st Ill. Rep. p. 16. (U.S.)

Osmia. (*Punx*) a bee which is destroyed by the larvae of *Conops rufipes*. (*Eu*)

Oxybelus. (*Latr*) (*Hym*) Ins. destroys *Diptera* as food for its larvae. (*Eu*)

Pachylarthrus. (*Westw*) *sonaraglinus* (*Hym*) Larva parasitic in either *Trypeta*
{ *onophordinis* or in its parasite *Alysia* (*Hym*) (*Eu*)

Pepelia. (*Tab*) *glycerium* (*Lep*) is destroyed by *Tachina archippivora*.

Insects of other Orders destroying Diptera or destroyed by them.

- Pelopaeus* (Lat) *flavipes* (Hym) a "mud wasp" or "dirt dauber" which is probably
 { destroyed by the larva of *Surcophaga nudipennis* which feeds either
 upon the spiders stored up in the nest as food for its young or upon the
 young wasps themselves
- Pemphigus* (Hartig) *caryaecaulis* (Homop) is destroyed by some some dipterous
 { parasite supposed to be a *Syrphus* (U.S.)
- " *vitifoliae* is destroyed by the larvae of *Leucopis* & *Syrphus* (U.S. Iowa)
- Pentatoma* (Lat) (*Acanthosoma*) *grisea* (Heter) is destroyed by the larva of *Ooypara*
 { *bicolor* (Eu) Westw 2. 567.
- Periplaneta* (Burm) *americana*, see *Blatta*.
- Phycita* (Curtis) *nebulosa* (Walsh) (Lep) caterpillar is destroyed by the larva of *Exonista*
 { (*Tachina*) *phycitae*. Le Baron 2^a Rep. & Pack. 331. (U.S.)
- Pieris* (Schrank) *rapae*. The white cabbage butterfly. Caterpillar is destroyed by a
 { *Tachina*. Pack 76 & 249. Am nat VII. 242. (U.S.)
- Planorbis*, a fresh water mollusk. Said to form food of the larva of *Tabanus atratus* (U.S.)
- Plant lice. see *Aphides*
- Platygaster* (Lat) (Hym) a small parasitic insect which destroys the larva of a *Cecidomyia*
 { on the willow. (Eu) A *Platygaster* also lays its eggs in the eggs of the Hessian
 fly. (*Cecidomyia destructor*) these however do not prevent the eggs of the Hessian
 fly from hatching & assuming the larva & pupa or flax seed state. & when the
 pupa dies, the parasites spin themselves cocoons in the dried skin of their
 victim, and eventually emerge as perfect flies. Some entomologists however
 say that the egg is deposited in the larva. (Eu)
- " *error* (Fitch) This insect has been suspected of destroying *Diplosis* (*Cecidomyia*)
tritici or the wheat midge in the U.S. but in the Practical Entomologist. 2.
 p 94. it is expressly stated that "no parasite on this insect (the wheat midge)
 has yet been found here." (U.S.)
- " (*Inostemma*) *inserens* (Hym) The larva is said by some to destroy *Diplosis*
tritici or the wheat midge in Europe. but by others it is thought "to destroy
 the eggs of *Platygaster tipulae* an insect which is known to destroy the wheat
 midge. & thus limits its increase." Curtis. (Eu)
- " *penetrans* (Hym) is said to destroy the larvae of *Platygaster tipulae* a
 { parasite of the wheat midge. but by others it is said to destroy the midge
 itself (Eu) see also *Macroglones*.
- " *tipulae* (Hym) the larva destroys the wheat midge (*Diplosis tritici*) in
 { Europe. & is itself said to be destroyed by the larva of *Platygaster inserens*
 & *P. penetrans*. (Eu)
- Plutysamia* (Altacus) *cecropia* (Lep) Caterpillars destroyed by the larva of *Exonista*
 { (*Tachina*) *cecropiae* or *militaris* U.S.

Insects of other Orders destroying Diptera or destroyed by them

- Podura*, (Linn) (Orthop.) is destroyed by the insect of *Madetorus longipes*, which
 { captures them on the surface of the water. (Eu) Westw.
- Polistes*, (Latr) (Hym.) is said to be destroyed by a raptorial fly, *Asilus*. (Eu)
- Pompilus*, (Fab) (Hym) is destroyed by the larva of *Conops rufipes* (Eu)
- Prionus*, (Geof) (Col.) is said to be destroyed by *Midas tricolor* in Cuba.
- Pristiphorus* (Latr) *sycophanta*, (Hym) is inquilinous or a guest gall fly in the gall
 { of a *Cecidomyia* on the willow. (U.S.)
- Proctotrupes* (Latr) (Hym) The larvae destroy the larvae of a *Cecidomyia* & of
 { *Lasiophora vitis*. (U.S.)
- Prodenia* { (Guen) *autumnalis*. (Lepid.) The caterpillar is destroyed by the larva of
 { a *Tachina* (*Muscaria archippivora* (U.S.)
- Pteromalus* (Swed) (Hym) a parasite which is said to destroy *Cecidomyia destructor*.
 { or the Hessian fly.
- " { micans a brilliant little parasite that destroys the eggs of *Celinius*
niger, which is itself parasitic in *Chlorops taeniopus* a dipterous fly
 { destroying wheat. *P. micans* is said also by Curtis to destroy the larvae
 { of *Chlorops taeniopus* & probably of *Oscinis vastator* a dipterous insect
 { injuring grain. Curtis 249. (Eu)
- Raphitelus*. (Walk) (Hym) see *Semiutellus*.
- Semiutellus*. (Cenaphron & *Raphitelus*) *destructor* (Hym) a parasite the larva of which
 { destroys the Hessian fly (*Cecidomyia destructor*) when in the larva seed
 { or pupa state (Eu)
- Sigalphus*, (Latr) *caudatus*. (Hymen) Larva destroys *Oscinis vastator* a fly injuring
 { wheat in Europe.
- Snail - (*Helix*) is destroyed by the larva of *Tabanus lineola* & which is said to
 { feed on snails. & insects. (U.S.)
- Sphex*. (Linn) This insect is destroyed by the larva of a *Conops*. (Eu)
- Sphingidae*, (Lepid) are destroyed by a dipterous parasite. *Phora sphingidis*, when
 { in the caterpillar state. (Eu)
- Spiders. (Arach) destroy immense numbers of *Diptera*, but are themselves destroyed
 { by some *Diptera* (see below.)
- " { The larva of the common house fly, (*Musca domestica*) has been found
 { in the bodies of dead spiders in Europe. The larva of *Sarcophaga nudipennis*
 { probably feeds on the dead spiders stored up in the mud nest of *Pelopaeus*
flavipes as food for its young. The larva of a *Tachina* is said to destroy
 { spiders eggs, (Eu) & spiders themselves, are sometimes killed & carried off
 { by a raptorial fly *Asilus*.
- " { nests. a fungoid growth. *Isavia farinosa* attains the height of 1-2"
 { on Spiders nests. Mic Dic p 368.

Insects of other Orders destroying Diptera, or destroyed by them.

- Peleus* (Latr.) (Hymen) a parasite that destroys some of the *Mycetophilidae*. the
 " { larva is said to destroy the wheat midge (*Diplosis tritici*) in Europe.
- Centrocampa* (Linn.) *grossulariae* (Hym) The larva is destroyed by the larva of *Tachina*
inflata, (Eu) Westw. 2. 568.
- Thrips*, (Linn.) (Orth) This insect is said by Walsh to destroy the eggs of the wheat
 { midge, (*Diplosis tritici*.) U.S. Trac Ent 2. 56.
- " destroys *Lasiophora vitis* (U.S.) Wigg 5th Rep.
 " { in the wheat fields of Europe is thought to be destroyed by an earwig
Torpacula (Orth) *Thrips cercaurum* is said by Curtis to have destroyed
 { one third of the wheat crop in the richest plains of Piedmont, in 1805
- Uropoda*, (Latr.) (Arach) a mite which attaches itself to certain dung or carrion
 { beetles, and flies w. by the tail, or a long tube. Packard (p 631) says that
 { "they attach themselves to their hosts by a product like silk, which hardens
 { on exposure to the air." U.S.
- Vespa*, see wasp.
- Wasps*, (Hymen) nests, are infested with the larva of a fly, *Anthomyia incana*, (Eu)
- " { *Poistes*, is destroyed by the insect of an *Asilus*, which sucks out its
 { juices & kills it
- " { when dead are devoured by the larvae of *Musca domestica*, or the
 { common house fly, these larvae having been found in dead wasps (Eu)
- " *Eumenes* the nest is inhabited by a parasitic fly *Toxophora*,
 { are destroyed by a *Phora*, the larvae of some of these insects
 { being parasitic in wasps. (U.S.)
- " { are probably destroyed by *Volucella xonaria*, the larvae of which
 { are found in wasps nests, where they are thought to devour the
 { larvae, or pupae.
- Xylocopa*, Latr (carolina) *virginica* (Hym) is destroyed by *Anthrax sinuosa* the
 { larvae of which is parasitic in its nest. It is said to devour the
 { young larvae or pupae of the Carpenter bee.

Alphabetical List of names of Authors, & of Authorities quoted.

- Acad. nat. Sci. Phil. Academy of Natural Sciences, Philadelphia Founded 1812.
- Acad. Sc. Chicago. " Science. Chicago
- Agass. { Agassiz Louis. "nomina systematica generorum dipterorum &c. by L. Agassiz
Hist. nat. in Acad. Neom. Professore.
- Am. Acad. Arts & Sci. Boston. American Academy of Arts & Sciences, Boston.
- Am. Ass. Adv. Sci. American Association for the Advancement of Science
- Am. Ent. American Entomologist Halsh & Riley 2 vol. St. Louis, Missouri. 1868.
- Am. Nat. American Naturalist. Packard & Putnam. Essex Inst. Salem Mass. 7 vol.
- Bauché, P. Fr. "Naturgeschichte der insecten" 1834. 4. "Der schädlichen und nützlichen
garten insecten" Berlin 1833.
- Burm. { Burmeister Dr. Hermann. "Handbuch der Entomologie," 4. & 8. H. H. Hallé
from 1832 to 1858. Published Berlin. 8.
- Cal. Acad. Sc. California Academy of Science, San Francisco, Cal.
- * Can. Ent. Gasse. Canadian Entomologist, by P. H. Gasse. London 1840.
- Can. Ent. Canadian Entomologist, London, Ontario Co. Canada (incorporated in 1871.)
{ Edited by Rev. C. J. S. Bethune.
- Clarke, Bracy. Essay on bats. &c London 1815.
- Conn. Acad. Sc. Connecticut Academy of Science. New Haven.
- Conn. Rep. Bd. Ag. Report of the Connecticut Board of Agriculture 1869. - 71. containing
papers on Insects from Prof. A. E. Verrill, & S. I. Smith.
- Curt. { Curtis John. "Lear's Insects" &c. articles in Morton's cyclopaedia of Agriculture. 1855.
{ Published in London. Edinburgh, & Glasgow.
- Dalm. Dalmian. Joh. Wilh. "Amalbeta Entomologica." 8. Stockholm 1823.
- Leg. Legeer, Carl. Baron. "Abhandlungen zur geschichte der insecten &c." Nürnberg 1788.
- Desv. Desv. idy. Robineau "Essai sur la tribu des Culicidae" Paris 1827. V. "Essai sur les
Myodaires." &c. &c.
- Dru. { Druy "Illustrations of Nat. History" London, 1770. & a new Edition published
by Westwood. 1837
- Huf. Hufner. "Recherches anatomique" &c. "sur les Hemipteres" &c. born at 5^e Senon. 1782.
- Dumér. Dumeril Dr. A. M. Constant "Considerations générales sur la classe des Insectes" &c.
Paris 1823 &c.
- Essex Ins. Essex Institute, Salem, Massachusetts.
- Fabr. { Fabricius, Dr. Joh. Christ. "Entomologia systematica" &c. "Species insectorum"
Genera insectorum &c. &c. Kiel & Copenhagen 1748 to 1808.
- Fall. Fallén, Carl. Fr. edrich "Diptera Suecia descripta" Lund 1814. 27. 8.
- Farg. Fargeau, A. S. in Ferrusac. Bulletin des Sciences Naturelles &c. Vol. 17. Paris 1829. Orth.
- Fisch. Fischer, Dr. Gotthelf. Fischer von Waldheim. "Entomographia imperii Russici"
Moscow. 1820. 28. 8.
- Fitch, Asa. Dr. Stat. Entomologist of New York. in Annual Reports of the New York
State agricultural Society. from 1853.
- * (error) Canadian naturalist.

Alphabetical List of names of Authors & of Authorities quoted.

- Geoff. Geoffroy, Etienne Louis "Histoire abrégée des insectes" Paris 1799.
- Germ. Gorman Dr. Ernest Fr. "Insectorum Species novae" "Zeitschrift für Entomologie"
 { v. Halle 1812. to 1844. & "Magazin der Entomologie" Halle. 1813.
- Green Dr. "House bee" in New England Farmer Vol 4. 345. &c. Mass.
- Guer. Guerin & Percheron. "Genera des insectes" Paris 1831. 35 &c.
- Hald. Haldeman Prof. D.D. in American Journal of Agriculture & Science Vol VI. p. 183
 { 1847. & other papers
- Hal. { Haliday, A.H. Entomological Magazine &c. 1836. London. & Catalogue of
 { Diptera occurring about Hollywood in Downshire in Ent. Mag 1832
- Harr. { Harris Dr. Thaddeus W. "A treatise on some of the insects injurious to vegetation"
 { Edited by C.L. Flint. Boston. 1863. (The first edition was published in 1841.
 { & "Catalogue of Insects of Massachusetts."
- Hbst. Herbst. "Genre des Mouches" Diptera. Zurich 1802.
- Heerr. Schaeff. Herrich Schaefer Dr. G. A. W. "Nomenclator Entomologicus &c." Regensburg. 1840.
- Hegg or Hoff. Hoffmannsegg. Graf von. "Insects & plants of Portugal" lived at
 { Dresden 1766 to 1850
- Htg. { Hartig Dr. Theodore. "Fürstliches Conversations Lexicon." &c. &c. Berlin 1834.
 { Jorstrath. & Professor in Braunschweig.
- Illig. { Illiger Dr. Joh. C. W. "Magazin für insectenkunde." Braunschweig 1822 &c.
 { & in Wiedemann
- Ins. Nat. Sci. Institute of natural Science. Halifax.
- K. & S. Kirby & Spence. "Introduction to Entomology." London 1858. 7th Edition.
- Koll. Kollar Vincent. "Naturgeschichte der schädlichen insecten" &c. Vienna 1837.
- Latr. or Lat. Latreille Peter Andreas. "Genera crustaceorum. et insectorum."
 { Paris 1806. "Cours d'Entomologie" &c. 1831. &c.
- Leach. W. B. "Eproboscideous insects" in Wernerian Transactions, Vol 2. Edinburgh 1817. &c.
- Le B. Le Baron Dr. W. State Entomologist of Illinois 1870 &c. in State Agricultural
 { reports & in manuscript notes prepared for this work.
- Leun. { Leunis John. "Synopsis der naturgeschichte des Thierreiches" Insecten
 { p 578. to 629. Hannover. 1860.
- Lyc Nat Hist. N.Y. Lyceum of natural history. New York.
- Lin. Linne (Linnaeus) Carl Ritter von "Systema naturae" Lepsic 1835
 { 1788 &c. Sweden.
- Loew, Dr. H. "Dipterologische Beiträge" Maseritz 1845. 59. & Monographs of the
 { Diptera of North America. Parts 1. & 2. Edited with additions by R
 { Osten Sacken. Washington D.C. Smithsonian Institution 1862. 1864.
- Macq. Macquart, J. "Histoire naturelle des dipteres" 2 Vol Paris 1834. 5.
 { "Dipteres Exotiques. nouveaux, ou peu connus." Paris 1838. 55.
- Meig. { Meigen Dr. J. W. "Systematische Beschreibung der Europäischen zweiflügeligen
 { insecten" 7 vol Aachen & Hamm, 1818. 1834

Alphabetical List of names of Authors & of Authorities quoted.

- Mic Dic., "Micrographic Dictionary" by Griffith & Henfrey, London, 1856.
 Morris Miss. in *Pr. Acad. Nat. Sci. Phil.* 1849 Vol 4. p. 194. (on *Cecidomyia culmicola*.)
 Mort. Cycl. Ag. Morton, Jno. P. "Cyclopaedia of Agriculture." 2 vol Glasgow, London.
 { & Edinburgh, 1856. "Insects by Curtis.
 Mus. Comp Anat. Museum of comparative anatomy, Cambridge, Mass.^{ts}.
 Nat Hist Soc. Boston. Natural history Socy. Boston.
 " " " Port. " " " Portland.
 Nitz. { Nitzsch Dr. C. W. "Darstellung der Familien und Gattungen der Thierläuse."
 { in *German's Magazine*. Halle 1813..
 N.Y. St. Ag Soc., New York State Agricultural Society. Reports &:
 Oken Dr. Lorenz "Lehrbuch der Zoologie" &c. Jss 1817. 1848. Professor of Zoology
 { in Zurich.
 Oliv. Olivier Dr. Wm Anton. Entomological articles. in *Encyclopaedia methodique* &:
 { Aalfoin, near Paris, 1756 to 1814 Olivier. A. G. Ency Method. 1850 et.
 O.S. { Osten Sacken, R. Baron, von. "Catalogue of the described diptera of North
 { America" prepared for the Smithsonian Institution, Washington D.C. Jan'y.
 { 1858. & in Lewis monographs.
 O.S. coll. collection of Baron Osten Sacken.
 Pack. Dr A.S. Packard "Guide to the study of Insects. Salem, Mass. 1869. &c
 Pal. de Beauv. Palisot de Beauvois. "Insectes recuilles en Afrique et en Omerique" Paris 1805. 21.
 Peabody Academy of Science, Salem Mass. Founded by George Peabody. 1867.
 Pr. acad. nat. Sc. Phil. "Proceedings of the academy of Natural Sciences" Philadelphia
 Prac. Ent. "Practical Entomologist" published by the Entomological Society of
 { Philadelphia. Oct. 1865. to Sep. 1867.
 Pr. Ent soc. Phil. Proceedings of the Entomological Society of Philadelphia from 1863.
 Ratn.. Ratzeburg Dr. J. L. "Forst insecten" Berlin 1839. "Waldverderber und
 { ihre Feinde" 1856 &c.
 R. Desv. see Desvoidy Robinseau.
 Rept. Conn.^{ts} Bd. Ag. Report of the Connecticut board of Agriculture 1869. & 71. Smith & Merrill.
 Rept. Dep. Ag. Reports of Department of Agriculture. (Annual & monthly) Washington. D.C.
 Riley, C.V. State Entomologist of Missouri. State Agricultural reports & sundry papers
 { in *American Entomologist* &c &c
 Say Thomas Entomology of North America edited by Dr. John Le Conte, New York 1859. 2. vol.
 Schk. { Schrank. Franz von Paula "Enumeratio Insectorum Austriae, Augsburg
 { Professor of Botany in Ingolstadt. & died in München.
 Schwaeg. Schwaegrichen Dr. C. F. "Entomologische Beobachtungen" Leipzig.
 { did 1853. as director of the botanic garden.
 Scop. Scopoli, Dr. J. A. Entomologia Carniolica "Vienna 1673. &c
 Serv. { Serville. Audinet von. in "Encyclopaedia methodique" Paris. 1782. 1820.
 { & author of many articles on Insects in French papers.

Alphabetical List of names of Authors & of Authorities quoted.

Smith S. J. New Haven State Entomologist of Connecticut. See Rep. Conn. Bd. Ag. 1871. p. 203.

Smiths Inst. Smithsonian Institution Washington D.C. Founded 1846.

St. Farg. Lepelletier de St. Sargeau.

Tr Am Ent Soc. Transactions of the American Entomological Society Philadelphia 1867 &c.

Verrill Professor. A.E. "Parasites of Domestic Animals in Report of the Connecticut board of Agriculture 1869. p. 73 & 1871 p. 321.

Walker F. List of specimens of Dipterous insects in the collection of the British museum London 1848. - 55 (see also O.S. catalogue)

Walsh. Bory de Entomologist of the state of Illinois first annual report printed at Chicago (1868.) see also in Practical Entomologist. & American Entomologist

Westw. or W. Westwood. J. O. "Introduction to the modern classification of Insects" London 1839. 8°. "Arcana Entomologica" 1843.

Westw. Syn Westwood Synopsis at end of Vol 2, of Introduction to modern classification.

Wied Wiedemann Dr C. R. W. "Auser Europäische zweifluegelige insecten" Hamn 1828, 30. 4°. born in Brunswick, & died in Kiel.

Wood. Rev. J. G. Illustrated natural History. 3 vol London 1863 Entomology in vol 3.

Zett. Zetterstedt J. W. Diptera Scandinaviae. Lund. 1842. 8°.

Abbreviations used in this work.

Alab. Alabama	Lor Ins. Image or Insect.	Phil. Philadelphia
Anat. Anatomy. see P.L.A.	Iowa.	Pa. Pennsylvania.
Apn. April	Jan. January.	Pl. Plate
Arach. Arachnida.	Kans. Kansas.	Rh. Isl. Rhode Island
Ark. Arkansas.	Ky. Kentucky.	S. Am. South America.
Aug. August	L. or Lat. Letters.	Sep. September.
Cal or Calif. California	L. or Lar. Larva.	S. C. South Carolina.
Can. Canada.	Lep. Lepidoptera.	Sp. species or specimen.
Car. Carolina	La. Louisiana.	Syn. Synonym
Cat. Catalogue.	Me. Maine.	Syn. Tab. Synoptical table
Coc. Cocoon.	Md. Maryland.	Tenn. Tennessee
Coll. Collection.	Mass. Massachusetts	Terr. Territory.
Conn. Connecticut	Mch. March.	U. S. United States
D. C. District of Columbia	Mex. Mexico.	Verm. Vermont.
Dec. December.	My. May.	Va. Virginia.
Del. Delaware	Mich. Michigan.	Wis. Wisconsin
Denis. Denivation.	Minn. Minnesota.	♂. male.
Dip. Diptera.	Miss. Mississippi	♀. female.
Eu. Europe.	Mo & Miss. Missouri.	♀. nester.
Ex. Example.	Myth. Mythological.	
Fam. Family.	Neb. Nebraska.	
Feb. February	N. J. New Jersey. N. Y. New York	
Fig. Figure	Nov. November.	
Fla. Florida	N. C. North Carolina	
Gen. Genus	Oct. October.	
Geo. Georgia.	Ohio	
Gr. Greek.	Oreg. Oregon.	
Hab. Habitat.	Or. Order.	
Hem. Hemiptera	Orth. Orthoptera.	
Het. or Heter. Heteroptera.	OS Cut. Osten Sackens	
Hom. Homoptera.	{ Catalogue:	
Hym. Hymenoptera.		
Ill. Illinois.	jp. page	
Ind. Indiana	P. putia.	

? The note of interrogation affects the term to which it is attached if applied to the generic name, it indicates that it is doubtful whether the species is referred to the proper genus. & if applied to the specific name, it shows a doubt, as to the species. &c.
(See 13.)

*Alphabetical list of some of the principal Genera &c. of Diptera
with derivation of names..*

<i>Acalyptera</i> .	Gr. a without, kalyptr. <i>Page 1.</i> a covering.	
<i>Acanthomera</i> .	Gr. akantha, a spine, & meros. " <i>2</i> the thigh.	
<i>Acinia</i> .	Gr. akinos, a grape.	
<i>Aerocera</i> .	Gr. akros high, & keras horn	
<i>Agomyza</i> .	Gr. agros, a field, & muia a fly.	
<i>Anapera</i> .	Gr. anaperos mutilated	
<i>Anopheles</i> .	" anopheles troublesome	
<i>Anthomyia</i> .	" anthos a flower, & muia a fly. " <i>3.</i>	
<i>Anthrax</i> .	" anthrax, charcoal.	
<i>Aphaniptera</i> .	" aphanes hidden, pteron, wing	
<i>Asilus</i> .	Lat. Asilus, a horse fly " <i>4.</i>	
<i>Aspistes</i> .	Gr. aspistes, armed with a shield	
<i>Asteia</i> .	" asteios, belonging to a city.	
<i>Atomisia</i> .	" a-tomos, undivided, uncut.	
<i>Athericera</i> .	" a. without, ther, a wild beast, & Keras, a horn.	
<i>Baccha</i> .	Myth name.	
<i>Batrachomyia</i> .	Gr. batrachos a frog & muia a fly.	
<i>Bereni</i> .	" beros, a garment.	
<i>Bibio</i> .	Lat. bibio a small insect of the ancients bred in wine, from bibo, I drink	
<i>Bittacomorpha</i> .	from Bittacus, an insect, morpho form.	
<i>Blepharocera</i> .	Gr. blepharos, an eyelash, & keras horn. <i>5</i>	
<i>Boletophila</i> .	" boltes, a fungus, & philes to love	
<i>Bombylius</i> .	" bombylios, a buzzing insect.	
<i>Borborus</i> .	" borboros, dung	
<i>Brachyocera</i> .	" brachus short, Keras horn.	
<i>Brachypalpus</i> .	" " palpus.	
<i>Braula</i> .	" braula, a louse.	
<i>Calliphora</i> .	" kalos beautiful, & pheros, tearing	
<i>Callipistria</i> .	" " " ?	
<i>Calobata</i> .	" kalon a stilt & bato to walk on account of its long legs.	
<i>Camptoneura</i> .	" kamptos, curved, neuron, nerve	
<i>Carnus</i> .	" carnos, a louse. <i>6</i>	
<i>Cassidomyia</i> .	Cassida a beetle, muia, a fly. <i>7</i>	
<i>Cecidomyia</i> .	Gr. kekis a gull apple " " "	
<i>Cephalomyia</i> .	" kephale head " " " <i>12</i>	
<i>Cephenemyia</i> .	" kephen, a drone bee " "	
<i>Ceratitis</i> .	" keratistos horned	
<i>Ceratopogon</i> .	" keras horn & pogon beard. <i>13</i>	
<i>Ceria</i> .	" " "	
<i>Chantophila</i> .	" chantos doubtful phile friend	
<i>Chionea</i> .	" chion, snow.	
<i>Chironomus</i> .	" cheir, nerves moving the hands <i>14</i> from the motions of its fore feet.	
<i>Chlorops</i> .	" chloros green ops eye. <i>15</i>	
<i>Chrysopila</i> .	" chrysis, golden, pilum, hair.	
<i>Chrysops</i> .	Gr. chrysis, golden ops eye <i>page 15.</i>	
<i>Chrysotoxum</i> .	" chrysis-toxos, golden bow	
<i>Chrysotus</i> .	" chrysotus, gilt.	
<i>Clinocera</i> .	" klino, to incline, keras the horn.	
<i>Celopia</i> .	" koilos, hollow, ops face.	
<i>Canomyia</i> .	" kainos, common, muia fly.	
<i>Canosa</i> .	?	
<i>Conops</i> .	" konops a kind of fly <i>16</i>	
<i>Condylura</i> .	" kondyle a club & oura tail	
<i>Coriacea</i> .	Lat. Corium leather.	
<i>Conethra</i> .	Gr. Korethron a broom or bunch of hair from their tufted antennae	
<i>Culex</i> .	Lat Culex a gnat <i>17</i>	
<i>Cuterebra</i> .	" cutis skin & terebra a borer	
<i>Cynomyia</i> .	Gr. Kynos, a dog & muia a fly	
<i>Cyrtus</i> .	" kyrtos, a curve	
<i>Dacus</i> .	" dakos gnawing, or biting	
<i>Dasygogon</i> .	" dasus, thick pogon beard	
<i>Dermatobia</i> .	" derma skin & bio to live.	
<i>Dexia</i> .	" dexia, the right hand <i>18</i>	
<i>Diastata</i> .	" diastatos standing far apart. in allusion to the two cross veins of the wings.	
<i>Dilophos</i> .	" di-lopchos double crest.	
<i>Dinira</i> .	" dineros, two, hollow.	
<i>Dioctria</i> .	" dioctes, a chaser, or follower.	
<i>Dipsis</i> .	" dia, apart. opis, eye.	
<i>Diplosis</i> .	" diplos, double, or twofold. <i>19</i>	
<i>Discocephala</i> .	" discos, a disk, kephale, head. <i>20</i>	
<i>Dolichopus</i> .	" dolichos, long, pous foot.	
<i>Drosophila</i> .	" drosos, dew, & phile, friend. <i>21</i>	
<i>Elephantomyia</i> .	" elphas an elephant & muia a fly.	
<i>Empis</i> .	" Empus a gnat.	
<i>Ephydra</i> .	" ephedros, wet or moist.	
<i>Erax</i> .	Gr. araxos to assail or strike <i>22</i> erax is the first aortic (L.A.)	
<i>Erioptera</i> .	" eriion wool, & pteron wing	
<i>Enistalis</i> .	" enistalis a precious stone.	
<i>Exorista</i> .	" exoristos expelled <i>23</i>	
<i>Gasterophilus</i> .	" gaster belly & phile friend <i>24</i>	
<i>Gcomyzidae</i> .	" ge earth, & muia a fly	
<i>Geranomyia</i> .	" geranos a crane " "	
<i>Geron</i> .	" geros old age, in allusion to the many appearances of the fly	
<i>Glossina</i> .	" glossa the tongue.	
<i>Gonipes</i> .	" gonu the knee.	
<i>Gymnosoma</i> .	" gymnos naked, some, body.	
<i>Haemabora</i> .	" haiva blood, & bora, voracious.	
<i>Haematopota</i> .	" haiva blood & potes a drinker <i>25</i>	
<i>Helomyza</i> .	" elos a marsh & muia, a fly.	
<i>Helophilus</i> .	" " " & phile, friend	

Alphabetical list of some of the principal Genera &c. of Diptera.
with derivation of names.

<i>Hemerodromia</i>	Gr. <i>hemera</i> day <i>dromios</i> page 25 a runner.	<i>Micropera</i>	Gr. <i>mikros</i> small <i>pera</i> foot, page 32
<i>Hemops</i>	Gr. <i>eis</i> one of eye the two eyes being very close together	<i>Midas</i>	proper name 33
<i>Hemina</i>	Gr. <i>era</i> . Juno.	<i>Milesia</i>	<i>Milesius</i> .
<i>Heteromyia</i>	" <i>heteros</i> dissimilar <i>myia</i> fly 26	<i>Mullogramma</i>	Gr. <i>Mullos</i> , ochre, or red earth. & <i>gramma</i> . a line.
<i>Heteroneura</i>	" <i>neuron</i> . a nerve.	<i>Molobrus</i>	" <i>molobros</i> . a glutton.
<i>Hilara</i>	" <i>ilaros</i> . lively	<i>Musca</i>	Lat. <i>musca</i> . a fly. 34
<i>Hippobosca</i>	" <i>hippos</i> . a horse & <i>bosko</i> to feed.	<i>Mycetobia</i>	Gr. <i>mukes</i> . fungus <i>bios</i> . to live. 35
<i>Himoneura</i>	" <i>irmos</i> . a retinue. <i>neuron</i> nerve	<i>Mycetophila</i>	" " " & <i>phile</i> friend.
<i>Homologmyia</i>	" <i>omalos</i> equal, or smooth <i>myia</i> fly	<i>Nemotelus</i>	" <i>nema</i> a thread <i>teleo</i> . bend. 36
<i>Hybos</i>	" <i>ebos</i> . hump backed.	<i>Notacantha</i>	" <i>notos</i> back & <i>akantha</i> . a thorn.
<i>Hydrotasa</i>	" <i>udor</i> . water	<i>Nycterybia</i>	" <i>nyctis</i> . a bat. & <i>bios</i> to live
<i>Hydrophorus</i>	" " <i>phoros</i> bearing	<i>Ochthera</i>	" <i>ochtheros</i> . rough.
<i>Hydromyia</i>	" <i>ule</i> . wood, & <i>myia</i> . a fly. 27	<i>Cecyptera</i>	" <i>okus</i> swift & <i>pteron</i> . wing.
<i>Hyproderma</i>	" <i>ups</i> . under. <i>derma</i> skin	<i>Odontomyia</i>	" <i>odon</i> tooth & <i>myia</i> a fly. 37
<i>Laphnia</i>	" <i>prol</i> <i>laphuron</i> or <i>laphnia</i> . 28 <i>Liana</i> or a forager	<i>Astrus</i>	" <i>oistros</i> . rage or fury prob. =ably alluding to their effects on cattle.
<i>Lasioptera</i>	" <i>lasios</i> hairy <i>pteron</i> wing	<i>Oncodes</i>	" <i>ogkodes</i> . inflated.
<i>Lauconia</i>	" <i>lauxo</i> . to feast.	<i>Ornithobia</i>	" <i>ornis</i> a bird & <i>bios</i> to live.
<i>Leia</i> , or <i>Leya</i>	" <i>leios</i> light or swift.	<i>Ornithomyia</i>	" " " & <i>myia</i> a fly. 38
<i>Leptis</i>	" <i>leptos</i> . slender (from form) 29	<i>Ostalis</i>	" <i>ontalio</i> to shake or flap the wings, from its habit
<i>Leptogaster</i>	" " & <i>gaster</i> . belly.	<i>Oscinis</i>	<i>Oscamens</i> . (Agassiz)
<i>Lora</i>	" <i>lenos</i> <i>Leria</i> . (Agassiz)	<i>Oxycephala</i>	Gr. <i>Oxus</i> acute & <i>kephale</i> . head. 39
<i>Leucopis</i>	" <i>leukos</i> . white. <i>ops</i> eye or appearance.?	<i>Oxycera</i>	" " " & <i>keras</i> horn
<i>Liancalus</i>	" <i>leis</i> smooth & <i>ankale</i> arm, the anterior femora having no bristles.	<i>Pachygaster</i>	" <i>pachus</i> . thick. <i>gaster</i> belly.
<i>Limnobia</i>	" <i>limne</i> a marsh, & <i>bios</i> to live. 30	<i>Palloptera</i>	" <i>pallio</i> agitation. <i>pteron</i> wing
<i>Limnobia hynchus</i>	" " " " " " " & <i>mygkos</i> . about.	<i>Pangonia</i>	" <i>pas</i> . all. <i>gonia</i> angle.
<i>Limosina</i>	" <i>limous</i> . muddy or slimy.	<i>Panopea</i>	" " " <i>ops</i> . face, or eye
<i>Lipstena</i>	?	<i>Parydra</i>	" <i>para</i> . near. & <i>udor</i> water.
<i>Lonchaea</i>	Gr. <i>logche</i> a lance. from the shape of the third joint of Antennae.	<i>Pedicia</i>	<i>pedica</i> a fetter or snare.
<i>Lonchoptera</i>	" <i>logche</i> a lance. & <i>pteron</i> wing.	<i>Petalophora</i>	Gr. <i>petalon</i> a leaf & <i>phoros</i> . bearing.
<i>Loxocera</i>	" <i>loxos</i> . oblique. " "	<i>Phora</i>	" <i>phora</i> . rapidity, from its motions.
<i>Lucilia</i>	Lat. <i>lux</i> . light. 31	<i>Phthiria</i>	" <i>phthir</i> a louse. 40
<i>Lydella</i>	Gr. <i>Lydus</i> . ? Agassiz.	<i>Phycodromia</i>	" <i>phukos</i> . a sea weed. & <i>dromios</i> . a runner. ?
<i>Macrocera</i>	" <i>makros</i> . long. <i>Keras</i> horn.	<i>Phytomyza</i>	" <i>phuton</i> a plant. & <i>myzo</i> . to suck, or <i>myia</i> a fly. ?
<i>Macropera</i>	" " <i>pera</i> . pious. foot.	<i>Prophila</i>	" <i>pios</i> . fat. & <i>phile</i> . friend.
<i>Masicera</i>	" <i>masti</i> a flail & <i>Keras</i> horn	<i>Pipira</i>	<i>pipiro</i> to chirp. 41
<i>Medeterus</i>	" <i>medeterus</i> . neither as belonging rather to <i>Dolichopus</i> , or yet to another family.	<i>Pipuncul</i>	Lat. <i>pipulus</i> an outcry or a piping noise.
<i>Melanophora</i>	" <i>melas</i> . dark. <i>Sombro</i> & <i>phoros</i> . bearing.	<i>Platypora</i>	Gr. <i>platus</i> . broad. <i>peus</i> . foot.
<i>Melophagus</i>	" <i>melon</i> a sheep & <i>phagcin</i> to eat. 32	<i>Platysphylus</i>	" " " 3,
<i>Merodon</i>	" <i>meros</i> the thigh & <i>odon</i> tooth.	<i>Platystoma</i>	" " " <i>stoma</i> face.
<i>Meromyza</i>	" " " " & <i>myzo</i> to inflate from its thickened hind thighs (Le Baron)	<i>Plecia</i>	" <i>pleko</i> to twist or twine
<i>Microndon</i>	Gr. <i>mikros</i> small. <i>odon</i> tooth.	<i>Porphyrus</i>	" <i>porphureos</i> purple. <i>ops</i> . eye or appearance.
		<i>Proclacanthus</i>	Gr. <i>proklos</i> anus or tail or <i>akantha</i> . thorn. 42
		<i>Promachus</i>	Gr. <i>promachos</i> a champion.

Alphabetical list of some of the principal Genera & of Diptera.
with derivation of names.

<i>Psila</i> .	Gr. psilos slender	page 42
<i>Pelopus</i> .	" " " & pous foot.	
<i>Psychoda</i> .	" psyche. a butterfly.	
<i>Psychoptera</i> .	" psuche a gold & pteron a wing	43
<i>Psychopteryx</i> .	" " " " "	
<i>Pulex</i> .	Lat. pulex a flea.	
<i>Pyrgata</i> .	Gr. purgatos. lured from the form of head.	
<i>Rhagio</i> .	" rha. a berry or regnumi to tear (Linné)	44
<i>Rhamphomyia</i>	Gr. ramphos a bill or beak & muia a fly.	
<i>Rhynchofinion</i>	Gr. rhugkos. a snout. & finia a saw.	
<i>Rhingia</i> .	" " "	
<i>Rhyphus</i> .	" rufhos a curve.	
<i>Rivellia</i> .	Lat. rivus a brook.	
<i>Sapromyza</i> .	Gr. sapos putrid. & muia a fly	45
<i>Sarcophaga</i> .	" sarco.-phagos. flesh eating.	
<i>Sarcopsylla</i> .	" " & psylla, a flea.	46
<i>Sargus</i> .	a proper name. or a kind of fish?	
<i>Scæva</i> .	Lat. scæva. the left hand.	
<i>Scatomyza</i>	" skatos filth or excrement & muia. a fly.	
<i>Scatopsis</i> .	" skatos. filth or excrement & opsia. face, or appearance.	
<i>Scatophaga</i> .	" skatos filth. & phagein to eat.	47.
<i>Scenopinus</i> .	Gr. skenopios. tent making.	
<i>Sciara</i> .	" skiaros shady. on account of its sooty wings	48
<i>Sciomyza</i> .	" skia shade & muia a fly.	
<i>Sciophilila</i> .	" " " & phile friend	
<i>Stenomtopia</i> .	" stenos narrow. metopon front.	
<i>Sepidon</i> .	" sepidon putrefaction.	
<i>Sepsis</i> .	" sepsis "	
<i>Sevicomyia</i>	" sevikas. silky. muia fly.	
<i>Simulium</i>	perhaps a contraction of stimulus to prick or goad. Linné says. Simulo. to resemble.	49
<i>Siphonella</i> .	Siphon, a siphon.	
<i>Simula</i> .	?	
<i>Sphecomyia</i>	Gr. sphera a kind of hoop & muia fly	
<i>Sphyraccephala</i> .	" sphaira a globe. Kephale head	
<i>Stenopteryx</i> .	" stenos narrow & pteron wing.	
<i>Stomoxys</i> .	" stoma mouth & xus point	50
<i>Stratiomys</i> .	" stratiotes a soldier & muia fly.	
<i>Styringomyia</i> .	" styra a gum & muia a fly.	
<i>Strickle</i> .	" stricklas twisted from its wing veins.	
<i>Subula</i> .	Lat. subula. an awl or bodkin	
<i>Subistoma</i>	Gr. subine a dark. & stoma. food?	
<i>Syrilla</i> .	Syrusa a proper name	Page 51
<i>Syrphus</i> .	Gr. surphos a fly	52
<i>Tabanus</i> .	Tabanus. proper name	53
<i>Tachina</i> .	Tachus. swift. Gr.	54
<i>Tachydromia</i>	" " dromos. runner	
<i>Tanypus</i>	Gr. tanus to extend pous foot	55
<i>Tanystoma</i> .	" " " stoma the mouth	
<i>Teichomyza</i> .	" teichos a wall & muia a fly	
<i>Tephritis</i>	" tephros ashes.	
<i>Tetanocera</i>	" tetanos extended. keras. horn.	
<i>Thelida</i>	" thele a nipple & eidos aspect.	
<i>Therera</i>	" therero to hunt.	
<i>Tipula</i>	proper name.	56
<i>Toxophora</i>	Gr. toxos an arch & phoros leaving	
<i>Toxonhina</i>	" toxos an arch & rhugkos. a bill or snout.	
<i>Trichocera</i> .	Gr. trich a hair & keras horn.	
<i>Trichopoda</i>	" " " & pous foot	57
<i>Trupanea</i> .	" trupane. a borer.	
<i>Trypeta</i> .	" trupetes " "	58
<i>Trypoderma</i> .	" trupia a hole & derma skin.	
<i>Volucella</i> .	Lat. volucer winged. ?	59
<i>Xylophagus</i>	Gr. xulon wood. & phagein to eat.	
<i>Xylota</i>	Gr. xulon wood.	
<i>Xylotomæ</i> .	" " " tomæus. cutter.	

Some of the derivations of names as given above, not having been found in any reliable authority. are taken from dictionaries &c. when applying to the form, food, or habits, of the insects mentioned, & may possibly be incorrect, but if so, can be corrected, should this work ever be republished.

Lo or Lat. Latin

in Italic's.

9. or 9r. 8 rub.

[illegible]

List of Species.

- calyptera. Cecidomyia. Gr. Kales beautiful. }
 " Erioptera. " pteron, wing. }
 " Trypeta. " " "
 canadensis. Tetanocera. Lat. Canadian.
 cancrroides. Chelyfer (Arach) Lat. cancer, a crab.
 canicularis. Anthomyia Lat. canicula, a little dog.
 canis. Pulex. Lat. canis, a dog.
 capitata. Ceratitis. Lat. capitalis having a head.
 " Petalophora " " "
 carbonifera. Cecidomyia. Lat. carbon charcoal.
 " ferens. bearing }
 carnaria. Sarcophaga. Lat. carnis a lover }
 " of flesh. }
 carnea. Panopea. Lat. caro, carnis, flesh.
 carolina. Mantis. (Orthop) Carolina.
 " Dytiscus (Hym) " "
 caryas. Cecidomyia. Lat. carya, the walnut.
 " Diplosis " " "
 caryacaulis. Pemphigus (Hom) " caulis, stalk.
 casei. Pischilus Lat. caseus, cheese.
 " Tyrophaga. " " "
 cassidae. Oxyptera. Cassida a tortoise beetle.
 castoris. Platysyllus. Lat. castoris of the beaver
 caudatus. Sigalphus (Hym) Lat. caudatus having a
 " tail
 cecidomyiarius. Diapria (Hym) of the fly Cecidomyia
 cecropia. Atticus (Lep) Athens, from Cecrops, king. }
 " Platysamia (Lep) of Athens }
 * coryloides. Cecidomyia. Lat. corylus, a hork nut.
 costalis. Tabanus. Lat. costa a rib, or side.
 coxendix. Chlorops. Lat. coxa, the hip.
 crabroniformis. Asilus. Lat. Crabro, a sp. of wasp.
 " forma. form. }
 crassifemoris. Chlorops. Lat. crassus thick, femur, thigh
 " Osenis. " " " "
 crassirostris. Odontomyia " rostrum beak.
 culiciformis. Conethra. Lat. culx, a gnat. forma form.
 culmicola. Cecidomyia Lat. culmen the top, colo to
 " inhabit }
 cunicularis. error for canicularis (Anthomyia)
 cuniculi. Cuterebra. Lat. cuniculus, a rabbit.
 " Taxyoderma. " " "
 cylindrica. Loxocera. Lat. cylindricus, cylindrical
 cylindricus. Syphus " " "
 cynipica. Cecidomyia. Cynips a hymenopterous
 " insect. }
 dauci. Phora. Lat. daucus carota, the carrot
 deceptiva. Anthomyia. Lat. deceptivus, deceiving.
 decomlineata. Doryphora Lat. decem, ten. }
 (Col) lineatus, lined. }
 decempunctata. Sapromyza. decem, ten. }
 " punctatus dotted }
 * cerasi. Culex Lat. of the cherry
 comma. " " having a comma
 " " " like mark on wing
- decora. Somula. Lat. decorus handsome
 decorus. Targus
 degeerii. Leptis. - of Degeer.
 diadema. see diadema. Asilus.
 denticornis. Agromyza Lat. dens dentes a tooth }
 " & cornu horn. }
 destructor. Cecidomyia. Lat. destructor, a destroyer.
 " Crophron (Hym)
 " Raphites (Hym)
 " Somiotellus (Hym)
 diabroticus. Melanophora. Diabrotica, a beetle.
 " Tachina
 diadema. Asilus. Lat. diadema a diadem
 " Dasygogon " " "
 diaphanus. Porphyrus Gr. dia through & }
 " phanein to show, diaphanous }
 disippus. Linenitis (Lep) disippus name of a }
 " butterfly. }
 dispar. Henops. Lat. dispar unlike.
 " Lucilia " " "
 " Oncodes " " "
 domestica. Musca. " domesticus domestic.
 dorsalis. Peris " dorsum the back.
 dorsata. Laphnia " " "
 doryphora. Lydella, of the beetle Doryphora
 " Tachina " " "
 dura. Callimone (Hym) Lat. durus, hard, rough
 Ebnia " " Lat. Ebnia plentiful. }
 ejuncida. Dytiscus Lat. ejuncides slender, thin.
 elegans. Clenophora Lat. Elegans. Elegant.
 equestris. Merodon. Lat. equester, of a horse.
 equina. Hippobosca Lat. equus, a horse.
 equi. Gastraphilus " " "
 " Gastrus. " " "
 " Ostrus. " " "
 erinacei. Pulex. Lat. erinacei of the hedgehog
 erythrocephala. Musca. Gr. erythros, red & }
 " Kephale head. }
 erubescens. Cecidomyia. Lat. erubescere to blush. }
 " or grow red. }
 excentrica. Milesia. Gr. excentricos, abnormal.
 fagi. Cecidomyia. Lat. fagi, of the beech.
 farinosa. " Lat. farinosus, covered with }
 " powder. }
 fasciata. Anthrax. Lat. fasciatus, banded.
 " Bemex (Hym) " "
 " Chrysopila " "
 " Heteromyia. " "
 " Leptis. " "
 " Tachyromia " "
 " Toxophora " "
 fibrilis. Dilophus. Lat. fibrus, fever. }
 " }

List of Species.

felis. *Felis*. Lat. *felis*. a cat.
femorata. *Bibio*. femur the thigh.
fenestralis. *Scenoporus*. Lat. *fenestralis* }
of the window.
ferrugatus. *Chrysops*. Lat. *ferrugo*. iron rust.
" *Tabanus* " " "
ferruginea *Tipula*. " " "
filatus *Midas*. Lat. *filatus* thread like.
flava. *Drosophila* Lat. *flavus* yellow.
" *Phytomyza*.
flavibarbis. *Laphnia*. " barba a beard
flavicans *Tipula* " "
flavicauda *Exorista*. " cauda. tail.
" *Tachina*. " "
flaviceps. *Phytomyza*. " "
flaviprons. *Ceratopogon* " prons front.
flavipes. *Aphidius* (Hym) " pes foot.
" *Conops*. " "
" *Gasterophilus* " "
" *Pelopaeus* (Hym) " "
flexa. *Ortalis*. Lat. *flexus*. a bending.
" *Trypeta*. " " "
florea *Phora*. Lat. *flos* a flower.
fraterna. *Eumenes* (Hym) Lat. *fraternus*. brotherly.
frigida *Caelopa*. Lat. *frigidus*. frigid.
frut. *Chlorops*. frut Swedish name for barley fly.
from the small grain at the end of ear.
frontosus. *Brachyphalus*. Lat. *frons*. forehead.
fucata. *Anthomyia*. Lat. *fucatus* painted. stained.
" *Sciara* " " "
fuliginosus. *Molophilus*. Lat. *fuliginosus* of a sooty }
" *Sciara*. " " " color. }
" *Tipula*. " " "
fulminans *Ortalis*. Lat. *fulminans*. thundering?
fulvicauda. *Laphnia* " *fulvus*. yellow. cauda tail.
fulvipes. *Midas* " " " pes. foot.
fulvohirta. *Anthrax* " " " yellow haired.
fulvus. *Bombus* " " "
funebis. *Drosophila* Lat. *funebis*. funeral.
furcata. *Scatophaga*. " *furcatus* forked.
" *Pyroga*. " " "
fuscus. *Mycetophila*. Lat. *fuscus*. tawny yellow.
" *Seichomyza*. " " "
fusciellus. *Cecidomyia* " " *collum* neck.
fusipennis. *Sepedon* " " *penna* wing.
gallinae. *Pulex*. Lat. *gallinae* of the hen
gemina. *Myopa*. Lat. *gemina* twin or double.
geminatus. *Syrphus* " " "
gemmatus. *Carabus* (Col) Lat. *gemma*. a gem.
geniculata. *Limosina* Lat. *geniculatus*. elbowed.
genualis. *Diancalus*. Lat. *genualis*. of the knee

georgina. *Sarcophaga*. Georgia.
gibbosus. *Henops*. Lat. *gibbus* a hump.
" *Microdon* " " "
" *Encodes* " " "
glaucus. *Chironomus*. Lat. *glaucus*. bluish gray.
glutinosa. *Cecidomyia*. " *glutinosus* very or }
most glutinous }
glycerium. *Paphia*. Lat. *glyceria* a plant.
gnava. *Anthomyia* Lat. *gnavus*. quick. active.
graminis. *Cecidomyia* Lat. *graminis* of grass.
granarius. *Oscinis*. Lat. *granarium* a granary.
grata. *Eudmya* Lat. (Lep) *gratus* agreeable
grisea *Acanthosoma* (Hbt) Lat. *griseus* gray.
" *Pentatoma* " " "
griseola *Leucotis* " " "
grossulariae *Asphondylia* Lat. *grossulariae* of the
" *Cecidomyia* { *gossberry*.
" *Tenthredo* (Hym) " "
guttularis. *Tetanocera* Lat. *guttula*. a little drop.
haematodes. *Dylota*. Lat. *haematodes*. of a }
blood color. }
haemorrhoidalis *Gasterophilus*. stained with }
blood }
" *Gastus* " " "
halophilus *Ephyra*. Gr. *als*. salt & *phile* friend
harpia *Musca*. *Harpyiae* the Harpies }
Myth name }
hemipterus. *Carnus*. Gr *Emi* half. *pteron*. wing.
herpini *Chlorops*. of Herpin.
hirtipes *Cecidomyia*. Lat. *hirtus* hairy pes. foot.
hirundinis *Craterina* Lat. *hirundinis* of the }
" *Stenopteryx* " " swallow }
holotrucha. *Cecidomyia*. Gr. *otos* all. *thrix*. hair.
hominis *Oestrus* Lat. *hominis* of man.
humorum *orax*. " " " vorax. voracious.
hordeoides *Cecidomyia*. Lat. *hordeum* barley.
horripilum *Cuterebra*. Lat. *horridus* rough }
or shaggy. *pilus* hair. }
hortulana *Bibio*. Lat. *hortula*. a small garden
humanus. *Oestrus* Lat. *humanus*. human.
humidicola *Limnobia*. Lat. *humidus* moist }
& cold to inhabit. }
hyemalis *Anopheles*. Lat. *hyemalis* - }
belonging to winter }
" *Trichocera*. " " "
impatiens. *Cecidomyia*. Lat. *impatiens*. }
the plant touch me not }
imperialis. *Eaehs* (Lep) Lat. *imperial*.
" *Dryocampa* (Lep) "
inanis *Volucella*. Lat. *inanis* foolish. or }
empty. }

List of species

- incana*. *Anthomyia*. Lat. incanus hoary, gray.
incisa. *Pangonia*. Lat. incisus, cut into, incised.
incisuralis. " " " " "
inconstans. *Molobrus*. Lat. inconstans, changeable
 " *Sciara* " " "
incrassata. *Phora*. Lat. incrassate.
inermis. *Agrotis*. (*Lep*) *inermis*. unarmed.
 " *Gastus*. " " "
inimica. *Cecidomyia*. Lat. inimica, hurtful }
 hostile }
inivens. *Inostemma* (*Hym*) Lat. inivens, to thrust in
 " *Platygaster*. " " " "
irritans. *Pulex*. Lat. irritans irritating.
 " *Stomoxys* " " "
irrorata. *Anthrax*. = *irroratus* sprinkled.
juniperana. *Cecidomyia*. Juniper, a tree.
juniperi. " " "
lactucarum. *Anthomyia*. Lat. lactuca, lettuce.
lasiophthalmus. *Tabanus*. Gr. lasios, hairy. }
 ophthalmus, eye. }
lateralis. *Ceratopogon*. Lat. lateralis lateral }
 or belonging to the side }
 " *Phytomyza*. " " " "
latifrons. *Holophilus*. Lat. latus, broad, frons. }
 forehead, or front. }
latipennis. *Platystoma*. Lat. latus, broad, penna wing.
lepidotus. *Hedrus*. Lat. lepidus, lively, pretty.
leucaniae. *Exotista*. *Leucania*. a moth (*Lep*)
 " *Tachina*
leucostigma. *Oryzia*. (*Lep*) gr. leukos white stigma }
 a spot. }
limbipennis. *Scoromyia*. Lat. limbipennis with }
 bordered or edged wings. }
lineata. *Chlorops*. Lat. lineatus, lined, or striped.
 " *Dalephila* (*Lep*) " " "
 " *Hypoderma*. " " "
 " *Sciara*. " " "
lineola. *Tabanus*. Lat. linea, a line.
liviodendri. *Cecidomyia*. Lat. of the Sulf tree.
lituus. *Cecidomyia*. Lat. lituus, a crooked }
 instrument, a trumpet }
longicauda. *Rhamphomyia*. Lat. longus, long, cauda, tail.
longipennis. *Dolichopus*. Lat. longus long, & penna, wing
longipes. *Plecia*. " " & pes, foot.
longirostris. *Rhamphomyia*. " " & rostrum beak }
 or trunk. }
loripes. *Medeterus*. Lat. loripes, bow legged.
loti. *Cecidomyia* " loti of the plant lotus.
lupulina. *Lausania*. Lat. lupulina a little wolf }
 alluding to its colors, gray & rust yellow }
macer. *Systropus*. Lat. macer, meager, thin.
macrocera. *Limnophila*. & makros, long. Heras, horn.
 " *Limnobia*. " " " " "
maculata. *Cephalomyia*. Lat. maculatus spotted
 " *Cinocera* " " "
 " *Oxycera*. " " "
 " *Simulium* " " "
 " *Vespa* *Hym* " " "
major *Bombylius*. Lat. major, greater
manducator. *Alysia* (*Hym*) Lat. manduco }
 to chew or eat. }
mantis. *Oecithera*. *Mantis*. an Orthopterous }
 insect. }
marginata. *Rhamphomyia*. Lat. marginated.
maris. *Pulex*. Lat. maris of the marion.
meigenii. *Diopsis*. of Meigen.
melliginis. *Ostalis*. Lat. melligo, the juice of }
Tephritis. " " (bees or gum }
 " *Trypeta*.
meteorica. *Anthomyia*. meteoricas meteoric.
 " *Hydrotaea*. " " "
mexicanus. *Bombylius*.
micans. *Pleromalus* (*Hym*) Lat. micans shining
milberti. *Proclacanthus*. of Milbert.
militaris. *Exonista*. Lat. militaris military
 " *Senometopia* " " "
 " *Tachina* " " "
missouriensis. *Asilus*. of Missouri.
molestum. *Simulium*. Lat. molestus troublesome.
monacha. *Asphondylia*. Gr. monachos, solitary.
monostigma. *Hemerodromia* & monostigma }
 one spot only. }
morbose. *Sphaeria*. Lat. morbosus sickly (*Fungus*)
monilis. *Tamypus*. Lat. monile a collar or necklace
morio. *Anthrax*. Lat. morio, a dark brown gem.
moroccanus. *Tabanus*. Morocco.
morsitans. *Glossina*. Lat. morsitans stinging }
 or biting. }
moyocuil. (*Dermatobia noxialis*) So Am.
muraria. *Megastyle* (*Hym*) Lat. murus, a wall.
muscarius. *Amanita* (*Fungus*) musca a fly, Lat)
Muscae. *Empusa*. (") " " "
 " *Sporendonema* (") " " "
musculi. *Pulex*. musculus a small mouse (Lat)
mustelina. *Leria* (Lat) mustelinus a weasel.
mutabilis. *Microdon*. Lat. mutabilis, changeable.
nana. *Agromyza*. Lat. nanus, a dwarf.
narcissi. *Merodon*. Lat. of the narcissus.
nascia. *Rhingia*. Lat. nascius, having a nose.
nasalis. *Gastrophilus*. Lat. nasus a nose.
 " *Gastus* " " "
nebulos. *Phycta* (*Lep*) Lat. nebulos, a rascal.
neglectus. *Chrysobus*. Lat. neglectus neglected.
nervosa. *Dychocha*. Lat. nervosus, full }
 of nerves. }
niger. *Covaphron*. (*Hym*) Lat. niger black.

List of Species.

- niger*. *Caeninus*. *Hym.* Lat. *niger*. black
 " *Chrysops*. *Dip.* " " "
nigra. *Alysia*. *Hym.* " " "
 " *Lonchaea*. " " "
nigricornis. *Phytomyza*. " " cornu. horn.
 " *Pella*. " " "
nigricornis. *Agromyza*. " " penna. wing.
 " *Myopa*. " " "
 " *Oxycephala*. " " "
nigripes. *Rhynchomyia*. " " pes. foot.
nivivirida. *Cecidomyia* Lat. *niviviridis*. white. pilus.
 { hair.
nocivum. *Simulium*. Lat. *nocivus*. hurtful.
notata. *Scatopse*. Lat. *notatus*. marked.
novaeboracensis. *Trypeta* of New York.
noxialis. *Dermatobia*. Lat. *noxius*. hurtful.
nubilis. *Heteronera*. Lat. *nubilus*. cloudy. dusky
nudipennis. *Sarcophaga* Lat. *nudus*. naked. bare. B
 { penna. a wing.
obesa. *Siphonella*. Lat. *obesus*. obese. stout.
obscura. *Hirmonera*. Lat. *obscurus*. obscure.
obscurella. *Phytomyza*. " " "
obscurus. *Syrphus*. " " "
obsoleta. *Sapromyza*. Lat. *obsoletus*. obsolete.
obliquus. *Syrphus*. Lat. *obliquus*. oblique.
oceaneus. *Chironomus*. Lat. *oceanicus*. of or
 { belonging to the Ocean.
ocellaris. *Cecidomyia* Lat. *ocellus*. a small eye.
odipus. *Anthrax*. Trop. name.
oelandica. *Diochroa*. *Oelandia* an island in
 { the Baltic sea.
oleae. *Lacus*. Lat. *oleae* of the olive.
 " *Trypeta*. " " "
onopordinis. *Tephritis*. Lat. *Onopordon* the
 { cotton thistle.
oleracea. *Tripula*. Lat. *oleracea*. pot herb or cabbage
opaca. *Empis*. Lat. *opacus*. opaque. dusky.
orbitalis. *Cecidomyia*. Lat. *orbis*. an orb. circle.
ornata. *Anthrax*. Lat. *ornatus*. adorned.
 " *Leptis*. " " "
 " *Melisia*. " " "
ovinus. *Melophagus*. Lat. *ovis*. a sheep
ovis. *Cephetomyia*. " " "
 " *Cestus*. " " "
paeta. *Tachina*. Lat. *paetus*. agreed. or espoused.
pallida. *Anapera*. *pallidus*. pale.
 " *Canomyia*. " " "
 " *Conelina*. " " "
 " *Ornithobia*. " " "
 " *Ornithomyia*. " " "
 " *Stenopitox*. " " "
palipes. *Mycetobia*. " " pes. foot.
 " *Scenopinus*. " " "
paludosa. *Ptychoptera* Lat. *paludosus*. marshy
parvula. *Cecidomyia*. Lat. *parvulus*. timidous.
pecorum. *Gasterophilus*. Lat. *pecorum*. of cattle.
 " *Gastrius*. " " "
pedestris. *Borborus*. Lat. *pedester*. on foot.
peller. *Cecidomyia* Lat. *peller*. a mistress or harlot
pellucens. *Volucella*. Lat. *pellucens*. pellucens
pencilus. *Helophilus* Lat. *pencilus* hanging down
penetrans. *Macroglossus* (Hym.) Lat. *penetrating*
 " *Platygaster* (Hym.) " "
pennipes. *Trichopoda* Lat. *penna*. a feather. pes. foot.
persicae. *Mycetobia*. Lat. *persicae* of the peach.
persicoides. *Cecidomyia*. " " "
phalaenoides. *Psychoda*. Lat. *phalaena*. a moth
 { moth like.
philadelphicus. *Proctacanthus*. *Philadelphia*.
 " *Syrphus*. " "
phyllostomatis. *Lipoptena*. Gr. *phullon* a leaf.
 { stoma. mouth. a sp. of bat.
picta. *Ortolis*. Lat. *pictus*. painted.
 " *Trypeta*. " " "
piligera. *Cecidomyia*. Lat. *pilus*. hair. *gero*. to carry.
pini. *Cecidomyia* Lat. *pini*. of the pine
pini. unopis. " " " *pini* in ops.
 { scrub pine
pupiens. *Culex*. Lat. *pupiens*. puping.
 " *Syrta*. " " "
 " *Dylota*. " " "
pisi. *Cecidomyia*. Latin *pisum*. a pea.
platyura. *Anthomyia*. Gr. *platys*. broad. *oura*. tail.
plebeia. *Thera*. Lat. *plebeius*. common.
plumosa. *Chironomus*. Lat. *pluma*. a plume. feather.
pluvialis. *Haematopota*. Lat. *pluvialis*. of rain.
proctum. *Cecidomyia* Lat. *proctum*. a drinking cup.
polita. *Syrphus*. Lat. *politus*. polished.
pomonella. *Trypeta*. Lat. *pomum*. apple.
pomum. (vitis) *Cecidomyia* " "
populi. *Acronycta* (Lep.) *populus*. the poplar.
pratensis. *Meromyza*. Lat. *pratensis* of meadows
pseudacaciae. *Cecidomyia* Lat. *pseudacacia* the locust
pubera. *Cordylura*. Lat. *puberus*. full grown adult.
pudibunda. *Cecidomyia*. Lat. *pudibundus*. modest.
pulcher. *Pachygaster*. Lat. *pulcher*. beautiful.
pulicarius. *Ceratopogon*. Lat. *pulex*. flea. (flea like)
punctipennis. *Corethra*. Lat. *punctum* a point
 { or spot. *penna* wing;
pumilionis. *Chlorops*. Lat. *pumilio*. dwarf.
punctata. *Melogramma*. *punctatus*. pointed. or dotted.
 " *Scatopse*. " " "
 " *Tachina*. " " "
punctatus. *Dasypogon*. " " "
 " *Nemotulus*. " " "
pustilla. *Agromyza*. *pustillus*. very small.

List of Species.

<i>pyrastri</i> . <i>Syrphus</i> . Lat. <i>pyrus</i> . the pear.	(<i>Sambuci</i>) <i>umbellicola</i> . <i>Cecidomyia</i> . Lat.
<i>pyri</i> . <i>Cecidomyia</i> . " " " "	<i>Sambuci</i> . of the elder, <i>umbellicola</i> }
" <i>Eriosoma</i> . (<i>Homop.</i>) " " " "	dwelling in the umbel.
" <i>Pemphigus</i> . " " " "	<i>sanguinolenta</i> . <i>Cecidomyia</i> . Lat. <i>sanguino</i> }
" <i>Sciara</i> . " " " "	<i>lentus</i> . full of blood, or bloody.
<i>pyrthaca</i> . <i>Laphnia</i> . Gr. <i>pyr</i> . fire, <i>akra</i> . end or point.	<i>saniosa</i> . <i>Laphnia</i> . Lat. <i>saniosus</i> " }
<i>quadrata</i> . <i>Tropidea</i> . Lat. <i>quadratus</i> . quadrated.	<i>saratogensis</i> . <i>Tetanocera</i> . of <i>Saratoga</i> .
" <i>Dylota</i> . " " " "	<i>scalaris</i> . <i>Anthomyia</i> . Lat. <i>scala</i> , a ladder.
<i>quadrinaculatus</i> . <i>Anopheles</i> . Lat. <i>quatuor</i> . four.	" <i>Homolomyia</i> " " " "
<i>maculatus</i> . spotted. }	<i>scatophora</i> . <i>Mycetophila</i> . Gr. <i>skatos</i> filth, & }
<i>quadrinaculata</i> . <i>Sciara</i> .	<i>phoros</i> . bearing.
<i>quatuor fasciata</i> . <i>Trypeta</i> . see <i>quadrifasciata</i> .	<i>scutellatus</i> . <i>Syrphus</i> . Lat. <i>scutellum</i> the scutel.
<i>quadrifasciata</i> .. " Lat. <i>quatuor</i> . four.	<i>septennis</i> . <i>Tachina</i> . Lat. <i>septennis</i> . of seven years.
<i>fasciata</i> . banded or striped }	<i>sericea</i> . <i>Laphnia</i> . Lat. <i>sericeus</i> . silky.
<i>racemicola</i> . <i>Cecidomyia</i> . Lat. <i>racemus</i> a raceme, & <i>colo</i> . to inhabit }	<i>sericeum</i> . <i>Simulium</i> . " " " "
<i>radicum</i> . <i>Anthomyia</i> . Lat. <i>radix</i> a root or radish }	<i>serotinus</i> . <i>Dilophus</i> . Lat. <i>serotinus</i> . late, or backward }
" <i>Pyrva</i> . " " " "	<i>serrolata</i> . <i>Cecidomyia</i> . from the tree. <i>Alnus</i> .
<i>rapae</i> . <i>Pieris</i> . (<i>Lep.</i>) Lat. <i>rapae</i> . of the cabbage, or rape. }	<i>serrolata</i> on which the gall grows }
<i>regius</i> . <i>Medetorus</i> . Lat. <i>regius</i> . royal.	<i>siliqua</i> <i>Cecidomyia</i> . Lat. <i>siliqua</i> . a pod.
<i>reptans</i> . <i>Simulium</i> . Lat. <i>reptans</i> creeping.	<i>similis</i> <i>Anthomyia</i> . Lat. <i>similis</i> . similar, alike
<i>resinicola</i> . <i>Diplosis</i> . Lat. <i>resina</i> . resin }	" <i>Hylemyia</i> " " " "
<i>resinicola</i> . <i>Diplosis</i> . Lat. <i>resina</i> . resin }	<i>Simpson</i> . <i>Anthrax</i> . <i>Simpson</i> .
<i>resinicola</i> . <i>Diplosis</i> . Lat. <i>resina</i> . resin }	<i>sincerus</i> <i>Eristalis</i> . Lat. <i>sincerus</i> . whole, entire
<i>rhodis</i> <i>Pemphigus</i> . <i>Homop.</i> <i>rhus</i> . sumach? }	<i>sinuosus</i> <i>Anthrax</i> . Lat. <i>sinuosus</i> . full of curves.
<i>ribesii</i> <i>Scaeva</i> . Lat. <i>Ribes</i> . the currant.	<i>sipho</i> . <i>Psilopus</i> . " <i>sipho</i> a siphon.
" <i>Syrphus</i> . " " " "	<i>smaragdinus</i> . <i>Pachylanthus</i> (<i>Hym.</i>) Lat.
<i>robiniae</i> . <i>Cecidomyia</i> . Lat. <i>Robinia</i> pseud-	<i>smaragdus</i> . an emerald }
<i>acacia</i> . the locust tree. }	<i>socialis</i> . <i>Cecidomyia</i> . Lat. <i>socialis</i> . social.
" <i>Diplosis</i> . " " " "	<i>solidaginis</i> . <i>Acinia</i> . Lat. <i>solidago</i> . golden rod.
<i>rosae</i> . <i>Pila</i> . Lat. <i>rosae</i> of the rose.	<i>Cecidomyia</i> . " " " "
<i>rosaria</i> <i>Cecidomyia</i> . Lat. <i>rosa</i> . the rose.	" <i>Lasioptera</i> " " " "
<i>rostrata</i> . <i>Bembex</i> . (<i>Hym.</i>) Lat. <i>rostratus</i> }	" <i>Trypeta</i> . " " " "
<i>having a beak or rostrum.</i> }	<i>sordida</i> . <i>Mycetobia</i> . Lat. <i>sordidus</i> . sordid. }
<i>rotundata</i> . <i>Gymnosoma</i> . Lat. <i>rotundus</i> . round.	<i>sparsa</i> <i>Trypeta</i> . Lat. <i>sparsus</i> . scattered, speckled.
<i>rubi</i> <i>Lasioptera</i> . Lat. <i>rubus</i> . the blackberry. }	<i>speciosa</i> . " " <i>speciosus</i> . showy, beautiful.
<i>or bramble.</i> }	<i>spectabilis</i> . <i>Empid.</i> " <i>spectabilis</i> . remarkable.
<i>rubicunda</i> . <i>Alniota</i> . (<i>Lep.</i>) <i>rubicundus</i> . ruddy.	<i>sphinxoides</i> . <i>Phora</i> . <i>Sphinx</i> . a moth.
" <i>Dryocampa</i> " "	<i>spinipes</i> <i>Rhamphomyia</i> . Lat. <i>spinus</i> a spine, & <i>pes</i> foot.
<i>rubra</i> . <i>Ocypte</i> . (<i>Arach.</i>) <i>umile</i> . <i>ruber</i> . red.	<i>stabularis</i> . <i>Musca</i> . Lat. <i>stabulo</i> to stable cattle &.
<i>rufipes</i> <i>Conops</i> . Lat. <i>rufus</i> . reddish. <i>pes</i> . foot.	<i>stercoraria</i> <i>Scatophaga</i> . Lat. <i>stercorarius</i> of or }
" <i>Dylophagus</i> . " " " "	<i>belonging to dung &</i> }
" <i>Dylophagus</i> . " " " "	<i>stercorarius</i> . <i>Chironomus</i> . " " " "
<i>rufitarsus</i> <i>Hemina</i> . " " <i>tarsus</i> . foot joint	<i>stimulans</i> . <i>Stomoxys</i> . Lat. <i>stimulo</i> to prick or stimulate.
<i>sagittarius</i> <i>Conops</i> . Lat. <i>sagittarius</i> . an archer.	<i>striata</i> <i>Sciophila</i> . Lat. <i>striatus</i> striped, striated.
<i>salicina</i> <i>Cecidomyia</i> . Lat. <i>salix</i> a willow.	<i>stigmaterus</i> . <i>Chironomus</i> . Lat. <i>stigmaterus</i> }
<i>salicis</i> . " " " " "	<i>marked</i> }
" <i>brassicoides</i> see. <i>brassicoides</i> .	<i>strobiloides</i> . <i>Cecidomyia</i> from <i>Rhus strobilus</i> . - }
" <i>hordeoides</i> " <i>hordeoides</i> .	<i>the tree on which the gall grows</i> }
" <i>siliqua</i> " <i>siliqua</i> .	<i>stomathis</i> . <i>Tetanocera</i> . Lat. <i>stomathis</i> . an ostrich.
" <i>triticeides</i> . " <i>triticeides</i> .	<i>stylata</i> . <i>Trypeta</i> . Lat. <i>stylatus</i> having a style.
<i>salinaria</i> <i>Ephydra</i> . Lat. <i>salina</i> a salt pit.	

List of Species.

stylata. *Leptis*. Lat. *stylatus*, having a style.
suavis. *Trypeta*. Lat. *suavis*, pleasant.
sulsessilis. *Cecidomyia*. Lat. *sulsessilis*, somewhat

{ sessile,

Sulphurea. *Phthiria*. Lat. *sulphurea*, sulphur.
 { color.

superba. *Dalloptera*. Lat. *superbus*, superb.

sycoantha. *Prestiphora* (Hym.) *sycoanth*.

symmetrica. *Cecidomyia*. Lat. *symmetrica*, equal.

syphi. *Ceraphron*. (Hym.) Lat. *syphi* of the
 { *syphi*.

tabellaria. *Trypeta*. Lat. *tabella*, a tablet.

taeniopus. *Chlorops*. Fr. *taenia*, a ribbon, & *pous*, foot.

talpa. *Pulex*. Lat. *talpa*, a mole.

tarandi. *Hypoderma*. Lat. *tarandi* of the
 { reindeer.

... *Oestrus*. " " "

tarandinus. *Tabanus*. " " "

tarsata. *Bembex*. (Hym.) *tarsus*, foot joint.

tauschorii. *Nemestrina*, of Tauschor.

tenax. *Existalis*. Lat. *tenax*, firm, tenacious.

... *Helophilus*. " " "

tergisa. *Laphnia*. probably from its tergum.
 { for upper side of abdomen.

thomae. *Sciara*. *Thomas*.

thoracicus. *Hybos*. Lat. *thorax*.

thoracica. *Laphnia*. " " "

... *Leptis*. " " "

tibialis. *Oscinis*. Lat. *tibia*, shank.

tipulæ. *Platygaster* (Hym.) of the Tipula.

transversus. *Existalis*. Lat. *transversus*, crosswise.

tricolor. *Midas*. Lat. *tricolor*, three colors.

... *Tipula*. " " "

trifasciatus. *Dasygogon*. Lat. *trifasciatus*.
 { three banded.

trimaculatus. *Tabanus*. Lat. *three spotted*.

tristis. *Lonchoplera*. Lat. *tristis*, sad.

tritici. *Agromyza*. Lat. *tritici*, of wheat.

... *Cecidomyia*. " " "

... *Leptis*. " " "

triticoideus. *Cecidomyia*, resembling wheat.

trivittata. *Tipula*. Lat. *three banded*. or.
 { filletted.

trompe. *Oestrus*.

tuberosa. *Helomyza*. Lat. *tuber*, & *vorare* to devour.

tuberosa. *Anthomyia*. Lat. *tuberosus*, but probably
 { refers to the potato.

tubicola. *Cecidomyia*. Lat. *tubus*, a tube, & *colo*, to inhabit.

tulipifera. " Lat. refers to the tree
 { *Liriodendron tulipifera*

undata. *Pyrigota*. Lat. *undatus*, wavy.

" *Sphocomyia*. " " "

ungulatus. *Dolichopus*. Lat. *ungulatus*.
 { having claws.

ustulata. *Helomyza*. Lat. *ustulatus*, burnt, scorched.

vaccarum. *Carnesia*. Lat. *vaccarum*, of cows.

vaccini. *Cecidomyia*. Lat. *vaccinium*, cranberry.
 { or whortleberry.

valga. *Chionea*. Lat. *valgus*, bow legged.

valida. *Sphicomyia*. Lat. *validus*, strong, or active.

varia. *Subula*. Lat. *varius*, various.

* *vastator*. *Oscinis*. Lat. *vastator*, a spoiler or waster.

venusta. *Erioptera*. Lat. *venustus*, beautiful.

* *varius*. *Tanyptus*. Lat. *varius*.

vermileo. *Leptis*, Vermileo and lion from its habit.

vernata. *Onisopteryx*. Lat. *vernus*, of the spring time.

vertebrata. *Leptis*. Lat. *vertebrata*, in form.

vespertilionæa. *Thelida*. Lat. *vespertilio*, a bat.

vespertilionis. *Nycteria*. " " "

... *Strebla*. " " "

vespiformis. *Milesia*. Lat. wasp shaped.

veterinus. *Gasterophilus*. Lat. *veterinus*, a farrier.

... *Gastor*. " " "

vibrans. *Oralis*. Lat. *shaking*, from motion of wings.

vicina. *Tetanocera*. Lat. *vicinus*, near.

violaceus. *Carabus*. (Col.) Lat. *violat*.

virginica. *Dylocopa* (Hym.) Lat. *Virginian*.

virginensis. *Milesia*. " " "

viridis. *Boris*. Lat. *viridis*, green.

" *Cassida*. (Col.) " " "

" *Ornithomyia*. " " "

viridulus. *Pirella*. " " "

vitifolia. *Pemphigus* (Hym.) Lat. of grape leaves.

vitis. *Lasiopoda*. Lat. *vitis* the grape vine.

(?) ... *coryloides*. *Cecidomyia*. see, *coryloides*.

(?) ... *lituus*. " see, *lituus*.

(?) ... *pomum*. " see *pomum*.

vittata. *Diabrotica*. (Col.) *vittatus* from *vitta*.
 { a ribbon or line (Lat)

vittatus. *Chrysops*. " " "

vivida. *Tachina*. Lat. *vivid*, or of bright colors.

vomitona. *Calliphora*. Lat. *vomo*, to vomit.

... *Musca*. " " "

vulgaris. *Chlorops*. Lat. *vulgaris*, common.

... *Diophus*. " " "

winthemi. *Lia*, or *Lia*, of Winthemi.

westwoodii. *Elephantomyia*, of Westwood.

... *Nycteria*. " " "

zeae. *Anthomyia*. Lat. *zēa*, mays —

{ Indian corn, maize.

zonaria. *Volucella*. Lat. *zonarius*, girdled.

Supplement. 1. Remedies

see Report of the Department of Agriculture. Washington D.C. 1862 p 123.

The following remedies, to guard against the injuries caused by the Diptera, or two-winged flies as well as for the destruction of the insects themselves, have been selected with great care from the works of our best entomological authorities, from reliable agricultural correspondents & from experiments made in the Department. It will however be necessary to commence with a short description of their transformations, natural history, and habits. so as to show at what period of their existence it is they do the most injury, and to enable us to decide as to whether it is in the egg, larva, pupa, or perfect state that the insect can the most readily be found & destroyed.

The order of Diptera includes such insects, or flies, as possess two wings only, and are provided with a proboscis, or trunk for sucking alone, and not with mandibles, or jaws, for biting or masticating their food. This order is very important to farmers, as introducing several of the most minute, but at the same time most formidable enemies which they have, as from the extremely small size of the larvae, and their habit of hiding or burrowing in the stems, leaves, or roots of plants, they escape observation until the injury has been accomplished. The immense numbers, also, in which the flies appear all at once enable them to spread almost simultaneously over his fields, and lay their eggs in or on nearly every individual plant in it, before anything can be done to prevent them. The egg of the female fly being deposited in some suitable locality in the course of a short time, a larva or maggot is hatched from it which is generally of a yellowish-dirty white, or greenish gray color, with a soft naked body and having no legs. Some of these larvae are provided with a distinct head, but many of them have no apparent head whatever and that part is merely indicated by its position at the anterior part of the body. It is worthy of observation, also that it is in this larva state that the Diptera do the most injury to the vegetable products, by eating or boring into roots and stems, mining into leaves, seeds, and fruits, forming galls &c. The larvae of the grain destroying Diptera are generally so minute & hidden within the substances they attack that they escape the observation of the farmer until the damage is done, & it is only by the sickly yellow appearance of his crop that the Agriculturist is led to examine the plants in order to find out what is troubling him, and then too late he discovers the millions of almost invisible grubs which have totally ruined his hopes of a good harvest. When the larva of a dipterous insect is fully fed, & ready to undergo its metamorphosis, it either sheds its skin & changes into a naked pupa, or the skin of the larva shrinking and hardening it assumes an oval form, & changes to a chestnut or brown color, and it is in this hardened skin of the former larva that the pupa is formed, which lies, for a shorter or longer period of time - perfectly motionless, & eats nothing whatever until at last the perfect fly bursts out of one end of its pseudo cocoon, & flies off to perpetuate its species on the surrounding plants.

It is in the perfect or winged state only that many of the Diptera annoy mankind and cattle by piercing the skin in order to suck the blood, as in the case of the House, or Gafflies the mosquitos, & many others. In some of the other Diptera however, the pupa is not - quiescent, but is active and lively, as in the case of the mosquito, the pupa of which insect swims about with great activity & restlessness. The larva of the common Mosquito (Pl. 1 Pg 1) lives in stagnant water, and may be seen on any summer day swimming about, with a sort of wriggling motion, in small ponds, or pools of water by the roadside, and especially in rain water reservoirs, or hog-heads placed under the eaves of gutters, from the eaves of houses. Here they swarm in the form of young "tailpoles" or "bullheads" and our rain water casks, unless tightly covered serve as nurseries or breeding places for the millions of Mosquitoes, which annoy us so much in the evening and during the night. A single picher or bucket of rain water carelessly left for a few days in a bedroom will serve as a convenient and commodious breeding pond for some thousands of Mosquitos. A little sweet oil - poured on the water in a cask or reservoir, will destroy these larvae, as they have to come

Remedies.

to the surface for the purpose of breathing, the air closing up their organs of respiration. If the water be drawn from below the oil by means of a siphon or syringe, the oil will still remain on the surface, & not become mixed with the water. so as to injure it for the purpose of washing &c. at the same time it is somewhat questionable if the water will not lose some of its good qualities for drinking purposes, by being completely cut off from the action of the air. The larvae of mosquitoes, are said to be of some utility as forming food for young fishes and as destroying minute coniferous and other substances which would otherwise generate in the water, and by their decay render it putrid and offensive. When "camping out" in the woods, a "smolder" of smoke from damp wood & leaves to windward will drive the insects away. Citron or Lemon juice, ammonia or ether, & camphor, will allay the irritation caused by their bites, & burning camphor in a room, is said to drive the insects away, and when unprotected by veils or mosquito nets. a little of the oil of pennyroyal rubbed over the hands and face has been found useful in banishing them and a sponge saturated with it, hung at the head of the bed, over the face of the sleeper, when unprotected by anything else is said to be effectual in driving them off. as they endeavour to avoid this scent which appears to be offensive to them. Dilute carbolic acid and coal oil or kerosine have been used in the same manner but it is somewhat doubtful whether the smell of, the coal oil is not more offensive even than the bite of the mosquito to most persons, and in that case "the remedy" would be almost "worse than the disease."

The eggs of the Hessian fly (*Cecidomyia destructor* pl. 1. fig 8.) are deposited in longitudinal creases in the blade of the plant of wheat, barley, rye, &c. in autumn and spring. These eggs hatch in from four to twenty days according to the state of the weather. The larvae or grubs crawl down, working their way between the leaf & main stalk till they come to a joint, where they remain and suck the sap. They attain their full growth in from four to six weeks. the pupa is formed in the same place. its outer covering or peridium resembling a flax seed. The winged insects appear in April and May & lay their eggs in wheat, and other cereals. Curtis says that feeding the wheat off with sheep in winter might possibly save the crop from the Hessian fly. Dr. Harris recommends the same as a partial remedy. Mr. Bennet states that the stouter varieties of wheat should be chosen and the land kept in good condition, if fall wheat is sown late some eggs will be avoided, but the risk of winter killing will be increased, Great numbers of the pupae, may be destroyed, by burning the stubble, immediately after harvest, and then ploughing and harrowing the land. Steeping the grain and then sowing it in plaster or lime tends to promote a vigorous growth, and is therefore beneficial. Quacklime strewed over the field immediately after the grain is cut would doubtless destroy many of the pupae. Sowing the field with wood ashes two bushels to the acre, in autumn and then again the first and last weeks in April and as late in May as the field can be passed over without injury has been found useful and it is recommended that fresh seed be procured from localities not infested by the insect there are several parasitic hymenopterous insects in Europe which destroy this insect, viz. *Chusci*, *Macroglus*, *Platygaster* (*Inostemma*) *Semiotellus* (or *Ceraphron* &c.) and which serve very materially to diminish the number of these insect pests, and which might possibly be introduced with benefit. — The larvae of the wheat midge (*Diplosis* (*Ectomyza*) *triacis*. pl. 1. fig 10, 11.) in the western states are frequently miscalled the weevil or red weevil, from the color of the maggots, they are very destructive to wheat, barley, rye, grass, &c. The eggs are deposited in June and July in the growing joints of the grain, they hatch in about eight days, and produce minute orange colored grubs, which feed upon the juices of the grain when in a milky state. Inside the chaff or outer covering, or upon the pollen of the flower when fully grown most of the larvae descend and burrow in the earth, where they remain all winter. The pupae usually are formed in the ground in May or June. Some however remain in the heads, and the perfect fly or midge makes its appearance the following season. & deposit its eggs on the grain and grass. Dr. Fitch says that late sowing, is one of the most easy and successful

Remedies.

expedients to avoid the injury caused by them. Dr Harris states that fumigation, by burning strips of woollen cloth dipped in melted brimstone, to the windward side of the field, at the time the grain is in bloom, proves very offensive to the fly when depositing its eggs. Some farmers, however, who have made a trial of it, say that the remedy is of no practical benefit. Lime or ashes strewn over the grain, when in blossom and wet with dew, will be useful. Newly slacked lime and wood ashes in the proportion of a peck to a bushel to the acre, when the maggots have left the grain and are in the ground ploughing is recommended as soon as the grain is harvested. perhaps thoroughly liming the soil before ploughing might aid in the destruction of these insects. A sieve may be used in winnowing to separate the chaff from the pupae and dust, which should be destroyed or the chaff and refuse straw together containing the larvae or pupae, should be scalded, burnt, or otherwise destroyed. Early sowing of all wheat in the autumn, or late sowing of spring wheat in the spring, will enable the wheat to become too far advanced, to hand, before the fly makes its appearance in the first case, & by not coming into blossom, in the last until the flies have disappeared, when the midge has been very abundant the previous summer, deep fall ploughing has been recommended, and a different crop should be put in the next season. In Massachusetts, wheat sown after the 15th or 20th of May generally escapes the ravages of the midge, Dr Fish states that in 1854 this insect caused a loss in the State of New York of \$15,000,000. It has been suggested not to sow wheat at all, for some time wherever the insect has been plentiful but Dr Fish thinks it is of no use to try to starve the midge out by depriving it of wheat for a year or two, as it would probably feed upon grasses, and return to its favorite food when wheat was cultivated again. He likewise says that the flies or midges do not thrive in a warm, dry, atmosphere, and that hence we learn that if the last half of June is unusually dry, the wheat escapes, but, if wet & showery, it is likely to suffer from the midge. Burning the stubble as in the case of the Hessian fly, is said not to affect this insect, as the larva burrows beneath the earth to change into the pupa, but lime or ashes ploughed into the soil might be of utility. These insects multiply with great rapidity, and it is said, that as yet no parasite has been discovered in this country to destroy or keep them in check, while several exist in Europe and many of our best entomologists have recommended that these European parasites should be imported, at any expense, in order to destroy the wheat midge here. Boards smeared with some adhesive substance have been recommended, and might no doubt catch many of the flies, but would be almost useless in any large fields; bonfires at night, also recommended, would doubtless attract numbers of these insects and lure them to their destruction especially if they were disturbed by drawing a light cord over the heads of the grain at the time the flies were burning. But until we find some parasitic fly, like the European species, to aid us in their destruction, there is very little hope of successfully battling with this little pest. In this country a species of *Thrips* (Orthoptera) is said to destroy the eggs, or larvae. A *Coccinella*, or ladybird (Coleoptera) feeds upon the larvae, and the yellow bird (*Carduelis tristis*) is said to feed upon them. In Europe they are destroyed by several parasitic hymenoptera viz *Callimone*, *Macrogenes*, *Platygaster* &c. The earwig also destroys either the wheat midge or a thrips that frequents the wheat. The goosberry midge *Cecidomyia grossu-* = larva injures goosberries (Pl XI. fig 28) by depositing its egg in the fruit and the larva or grub being hatched, feeds inside and causes the goosberry to present a prematurely = appearance, to turn red, and then to drop from the bush. It is recommended to pick all fallen fruit from the ground and burn them immediately as although this pro- = ceeding may not be of any use the same season the berries being already destroyed, the following year the horticulturist will experience the benefit of having done so, as the last seasons generation being destroyed there will be scarcely any midges to attack his future crops, when galls are formed by the larvae of *Cecidomyia* or *Dasioptera* upon trees, or plants on lawns, or planted out for ornamental purposes, they can be materially dimin- = ished by cutting off and burning the part affected, as early as possible in spring or sum- = mer so as to destroy the late generations: this is especially the case with the curved

104 Remedies.

leaves of the Locust. which are caused by the locust gall gnats *Cecidomyia robiniae*. (pl. X. 11. 33 b.) and *Cecidomyia pseudacaciae*. (X. 11. 33. a) The larvae of the "Crane fly" or "daddy long legs" reside in the earth and in Europe are very injurious by eating the roots of grass, grain, vegetables, and flowers. & *Tipula olivacea* (VII. 10. & X. 27) is most especially complained about as doing a great deal of injury in gardens & fields. These insects are infested with a parasitic mite. *Orypeto rubra*. Some of the *Tipulidae* are of a large size they have two wings and are remarkable for the extreme length and slenderness of their legs. They must not however be confounded with what is here called "Daddy long legs" - which is a spider (*Phalangium*) and has eight instead of six legs, possesses no wings, and feeds upon other insects. Curtis states that rolling the ground with clod crushers will destroy the larvae, pupae, and perfect insects of the *Tipula* as the latter is somewhat sluggish in its movements. especially early on cold mornings, when the dew is on the grass. hand-picking is recommended for small gardens and enclosures, and soot, salt, & sea sand sown on the surface will prevent their increase. paring and burning the turf is recommended where they are especially numerous and injurious. in pastures and meadow land; and watering the ground with salt, or nitrate of soda, is said to be efficacious in destroying the larvae. Some of the crane flies appear to prefer low damp meadows, and in such cases draining is said to be useful. In this country however we do not appear to suffer so much from these insects as in England, where the climate is more moist and the frost in winter is not so severe as with us, and probably also our hot dry summers are not so favorable for their increase. Turnips in England are frequently affected by a disease, in which the roots become knotted and gnarled. This is called Mubury (Pl. X. fig. 32) and was at one time attributed to the attacks of a small turnip gnat (*Trichocera hyemalis*. pl. X. fig. 31) which appears on warm days in winter in multitudes dancing in the air in the sunshine. This gnat, however, has been found not to be the cause, but merely the effect of the disease, as the semipetrid and unhealthy roots present a proper locality for the insect on which to deposit her eggs, and the larvae of course find a suitable food in the diseased roots. Should this insect affect our turnip crops, Curtis says that marl or chalk is a certain cure for it. The *Simuliidae* are very small bluish and gray gnats and are generally known as sand flies and midges, they are exceedingly annoying to mankind and animals by their painful bites which feel as if a spark of fire had been dropped on the naked skin. The larvae live in the water and have been accused of destroying very young trout by spinning their webs among the oars in the water of breeding ponds. The remedies used to prevent the attacks of the flies are the same as those recommended for mosquitoes, viz. veils, nets, and anointing the hands and face with essence of Penny royal &c. (See Mosquito & Culex p. 101) one species *Simulium columbianum* (pl. X. 36. & pl. X. 11. 5) is extremely numerous in Hungary in certain seasons & actually kills cattle horses &c. To prevent the attacks of these insects, Kollar recommends two pounds of tobacco leaves first boiled in twenty pounds of water down to one half, then strained and again boiled to the consistence of honey, this preparation is then mixed with one pound of old lard, and half an ounce at least of petroleum oil & makes a very efficacious salve. Perhaps a wash of diluted carbolic acid would prove equally efficacious in driving them away. The females of the *Tabanidae*, horse or gad flies are exceedingly troublesome in attacking and biting horses and cattle especially in woody districts, a large black species (*Tabanus atratus* Pl. X. 40. & 11. 14) is especially troublesome in Maryland, from its great size, and the severity of its bite or sting. A smaller species (*Chrysops* pl. 11. 18) known as the golden eyed forest fly from the beauty and metallic lustre of its eyes, when alive and in the western states usually called the "ear fly" from its habit of its attacking generally the ears of horses, is very annoying. It is however stated, that if the horse be washed with a strong decoction of Walnut leaves or smartweed before commencing a journey, it will not be attacked by gad flies as they avoid the odor or taste. *Solitaria*, *Quassia*, & *Alas* are sometimes added. Petroleum oil, or very dilute carbolic acid would most probably have the same effect. Sheep are sometimes severely injured by the larvae of a fly known as "the sheep bot" or "head maggot" (*Cestrus Cephalomyia*, ovii. pl. VII. 26 & X. 28.) The egg of this fly is deposited in the nostrils of the sheep. the

Remedies.

maggots make their way up the nostrils into the head where they live in the maxillary and frontal sinuses. when ready to change they descend or are sneezed out, fall to the ground & change to pupae in the shortened and hardened skin of the larva, which forms a kind of cocoon for them. & the perfect fly appears in a few weeks. Kollar states that formerly they were taken out of the head by trepanning but that process must be extremely dangerous. Injections and the smoke of burnt leather have been recommended smearing the noses of the sheep with tar is also highly spoken of as preventing the fly from laying her eggs in the nostrils and Professor Kerrill says that "the sheep may be made to do it themselves by boring large auger holes in logs to contain salt and frequently smearing the adjacent wood with tar." when the grubs are in the nostrils they may be removed to a considerable extent by a feather wet with the oil of turpentine, camphor, or a weak solution of carbolic acid, or creosote. Lime in fine powder is sometimes used as by sniffing it, the sheep sneezes and thus expels the larvae. salt water or dilute carbolic acid may be injected into the nose with a syringe. It is also advisable that sheep should not be placed in pastures where other sheep have already been that were troubled with the head maggot or "sheep bot fly" as the larvae remain on, or on the ground from six to ten weeks and after that time a fresh supply of flies will make their appearance to annoy the flock. Cattle are frequently annoyed and injured by a skin bot fly.

Hypoderma (Oestrus) bovis. (P. VI. 87 & VIII. 21.) the larvae of which reside in large open tumors, or abscesses under the skin on the backs of oxen, cows, &c. These in England are known by the name of "worms" (probably derived from the words wormholes), and the larvae subsist on the purulent matter produced by the constant irritation caused by the grub. The larvae remain all winter in these tumors and when fully developed the following season they squeeze themselves through the aperture, in the skin, purposely rent open by the larva. Fall to the ground, change to pupae in the shrunken oval and hardened brown skin of the larva and appear from the month of June to September as perfect flies which again lay their eggs, in or on the backs of cattle. a very simple and safe remedy for the skin bots is to enlarge the opening of the tumor with a knife and press the sides of the swelling until the larva is squeezed out, taking care however not to burst the skin of the grub. the wound then heals without any further remedy, if it is only kept clean. The stomach bot fly of the horse (*Gastrophilus (Gastros) equi*) (V. 11) is very troublesome to horses when kept in open pastures. the larvae live in the stomach and are commonly known as "bots" the eggs are deposited by the female on the hair of the horse, commonly on the knees and shoulders. and after being bitten or licked off, by the animal, hatch almost immediately when in the mouth by the heat and moisture and are swallowed with the food, when once in the stomach the young bots or grubs fasten themselves, by means of hooks, at the anterior portion of the body to the coating of the stomach, frequently forming clusters. When fully grown these bots let go their hold upon the stomach, are voided with the excrements, and fall to the earth, in which they bury themselves. The skin of the larva then, shrinking and hardening an oval brown case is formed in which is formed the pupa and after thirty or forty days it emerges through a hole burnt through the puparium, or cocoon like case, in the form of a bee like two winged fly which again deposits its eggs on horses. Professor Kerrill in his interesting and able report says "the bot worms have been accused of perforating the walls of the stomach, and this may possibly be the case in very rare instances, but the perforations of the stomach so often found in post mortem examinations are generally caused by the digestive action of the gastric juice after the death of the animal" Dr. Hames states that "no sure and safe remedy has yet been found, or removing bots from the stomach" Kollar recommends animal oils but Mrs. Bracy Clark doubts the beneficial results as oils which might seem efficacious by closing the spiracles or breathing pores of the bot and thus destroy it, are soon reduced to soap, and digested, so as to be of scarcely any avail, and as prevention is better than cure he suggests an effectual mode of preventing the introduction of bots into the stomach by washing off the eggs (which on dark horses are very conspicuous from their lighter color) as soon as observed, from the knees, mane, and shoulders of the horse

Remedies.

or by removing them with a pair of scissors. It is believed by many farmers that molasses and milk taken by the horse will cause the bot to lose its hold on the coating of the stomach to feed upon the sweet mixture, and a powerful purgative - being given soon afterwards the horse will eject the bot before it has had time to refasten itself to the stomach. bleeding the horse in the mouth or nose, and causing him to swallow the blood is said by some to have the same effect. Entrails of chickens, and pieces of raw flesh have also been used, but we have no faith in such remedies, and they are merely mentioned as having been used. Some farmers recommend the use of salt, or brine in the horses food once a week. Professor Verrill says "a wash of carbolic acid soap has been recommended to destroy the eggs on the hairs of the horse and - that oil, or spirits of turpentine is a remedy in common use, but should be used - with caution if at all. In cases of drugs being used where the larvae were thereby voided it is possible that those already in the intestines were the only ones affected. - Dr Porcher in his work on the resources of the South when speaking of the Prudee of India or China tree (*Melua uredonach*) says that trees are "planted around stables - in order that the horses by eating the berries might be prevented from having the bots" he then adds that "the leaves and berries packed with dried fruit will preserve them from insects, and will also prevent moths in clothes. he likewise recommends a solution or decoction made with the berries. (half a bushel of the berries and fifteen gallons of water) soaked one or two days sprinkled with a watering pot over the plants. This he states will in most cases, prevent the depredations of the black grub, or cut worm. That planted in peach orchards, it is said to prevent the attacks of insects. If these berries and leaves have proved so useful in the southern states in destroying insects, or preventing their depredations, would it not be well to institute a series of experiments to test their real value as an insecticide. ?

The family Tachinidae are almost all beneficial as their larvae destroy the caterpillars of noxious moths and other insects. House flies living bred in filth and manure may be prevented from multiplying about houses by keeping the premises clean, & by frequently sprinkling quick lime wherever they are likely to breed. Stables, hogpens & hen houses, should be placed as far as possible from the dwelling. A mixture of quassia and water, boiled together then strained and sweetened with syrup, or molasses, benumbs the flies and strong green tea, well sweetened, is said by Harris to poison them. Fly stone (gray powdered crude arsenic) mixed with sugar & water, or syrup, is deadly poison to flies but unfortunately, to mankind also. The so called fly paper is nothing more than - blotting paper soaked in some similar mixture & then dried, when used for poisoning flies it is to be placed in a saucer & a small quantity of water poured over it. This remedy, however should never be used where the dying flies are apt to fall into food or drinking utensils, and, as it is a deadly poison, care should also be taken not to use it in farmhouses. For if the dead flies are swept or thrown into the yard the young chickens will be very apt to eat them. Paper smeared with some viscid substance, to which they will adhere is also recommended. & in Europe is frequently used to entrap flies. Chloride of lime, scattered around the house, in the drains, and outhouses is said to kill the larvae and at the same time it acts as a disinfectant & deodorizer, in low rooms in country houses, flies may be destroyed at night by thousands as they congregate on the ceiling by merely filling a tumbler half full of frothy soap suds & suddenly placing it under, and over them. On attempting to fly they are caught in the frothy liquid and when the tumbler is filled they can be emptied out and destroyed. When flies are very troublesome in shop windows, a little persian insect powder strewed daily over the lower portions of the woodwork of the window frames will destroy multitudes as these insects almost invariably rest upon the frame before or after attempting to climb up the glass. There is a plant growing in the southern states which is mentioned by Dr Porcher as "fly poison," or "gall poison" (*Umbanthium muscatonicum*) which is said to be a narcotic poison used by some families to destroy the common housefly.

108 Remedies.

The bulbs are triturated and mixed with molasses. but the flies, if not swept into the fire or otherwise destroyed, revive in the course of twenty-four hours. "its foliage also poisons cattle which feed upon it in the autumn." There is a fungus found in Europe (*Armanita muscaria*) which when infused in milk, is a deadly poison to flies and is frequently used for that purpose. This fungus also possesses some very peculiar intoxicating properties, and is used as a stimulant by several of the northern nations. Houseflies are destroyed by several parasites among which are some Hymenopterous insects. *Bombus vespas* (wasps) &c. which eat & carry them off as food for their young. A species of *Chalcid* also lives in their bodies. a red mite infests them externally, and numbers are destroyed by a parasitic fungus *Empusa* (*Sporodendronema*) *muscarum*, which grows in their bodies and eventually kills them, leaving the dead fly adhering to the substance on which it died and surrounded by a ring of a dusty white powder, which consists of spores of the fungus. The common house fly, and some other insects are said sometimes to be dangerous to mankind by conveying infectious diseases from house to house until several cases have been reported where the bite of an apparently common fly had caused dangerous festering sores. In such cases however it was presumed that the fly had previously been feeding on decaying carrion & had inoculated the wound with putrid virus. There is a small fly *Stomoxys calcitrans* (Pl. IV. fig 10.) resembling in general the common house fly which stings mankind, horses, & cattle very severely. They are sometimes very abundant, especially before rain in dwelling-houses, and more especially when in the vicinity of stables. The same remedies recommended for houseflies (*Tabanus*, *Chrysops* &c.) will apply to these also. and it is stated that horses may be protected from their attacks, by rubbing or washing the animals with a strong decoction of tobacco leaves, of smartweed, (*Polygonum hydropiper*) or the leaves of the English walnut, & doubtless a weak solution of Carbolic acid would answer the same purpose. The insects of *Sarcophaga carnaria* (Pl. IV. 22.) and other flesh flies are frequently very troublesome by depositing their larvae, or eggs in open wounds, or festering sores in Man & beast. The remedy is to wash frequently with a weak solution of carbolic acid, to keep the wound clean, and if possible to protect it with some slight covering, so as to prevent the flies from settling on it. The larvae or grubs of *Calliphora vomitoria* (the blue meat fly Pl. IV. fig 21) and *Lucilia caesar* (The green bottle fly. Pl. IV. 20. & V. 22.) and other so called "meat" or "blow flies" have been used with great success as food for young pheasants in this country. & no doubt would form a healthy article of food for young turkeys and chickens. When wanted for this purpose, a piece of lights, or liver, or a sheep's head is hung up in some place away from the dwelling where it is exposed to the flies but at the same time protected from the attacks of predaceous animals and birds. the meat flies in the neighborhood will soon discover it, lay their eggs upon it, and in a few days it will be full of these voracious maggots. A large box filled with bran is then placed directly underneath, and in a short time the grubs having attained their full size, drop into the box & bury & cleanse themselves in the bran. When wanted the box is taken away, and a fresh box substituted. It is however necessary that the maggots should remain a day or two in the bran to cleanse themselves before being fed to the young golden or silver pheasants, as if fed directly they fall from the meat. They appear to act as a putrid poison and cause the death of the young birds, this cleansing or scouring process should be attended to most carefully as a friend who takes great interest in raising golden and silver pheasants one season lost almost all of his young brood by feeding them but one day on uncleansed maggots. This food would also be very healthy for moulting birds, and also form a good bait for certain kinds of fish and are well known to all rod & line fishermen in England by the name of "gentles" Housekeepers using the ordinary wire net covers to protect meat, are often astonished finding maggots in it notwithstanding all their care, but it has been asserted that some of these blow flies, being unable to get at the meat itself, do the next best thing, & that is, to get directly over it and drop the eggs through the gauze wire onto the meat below, where they hatch and produce the maggots. in such cases the top should be -

Remedies.

covered so as to prevent the flies from settling above.

The larvae of a small fly the Onion fly (*Anthomyia ceparum* pl. VII. 33 & VIII 18) -- somewhat resembling a miniature house fly. are very destructive to the onion crop in the Eastern States. the eggs of this fly are laid on the leaves close to the earth, the larvae -- destroy the root and cause the plant to turn yellow wither and die. the larva state lasts about two weeks, the pupa is formed in the bulb itself, or in the earth near it and the fly appears in two or three weeks afterwards. and it is stated that there are sometimes as many as three generations in one season. The insect was imported about forty years ago. A dressing of sand and spirits of tar is said to be effective in preventing the ravages of *Psila rosea* (pl. X fig 10) a small fly of somewhat similar habits which attacks carrots &c. in Europe. and might be used perhaps with advantage with our onion flies. Petroleum coal tar or oil might probably be used with sand in a similar manner. In order to create a bad smell to drive away this insect and similar flies injuring Onions. Carrots turnips. radishes. &c. it has been recommended to water near the plants with a mixture of one gallon of soap suds to four quarts of gas water or two quarts of tar. This is said to keep the flies away from the plants, so that they do not deposit their eggs on them: but it is doubtful unless it is constantly renewed especially after rains & even then might injure the young plants if it came in contact with them. Dr Barnes suggests sowing the seed on -- ground, where a quantity of straw has been burnt. Tar and water wood ashes. lime. powdered charcoal, flour of sulphur. lime water. soot. &c. have all been highly spoken of as remedies. Mr Sanborn recommends petroleum sprinkled along the rows & water -- ing with soap suds. soot, or pyroligneous acid. Curtis recommends lime & salt to destroy the maggots; boiling hot water poured over the root, is highly recommended & is said to destroy the maggot without injuring the plants. The eggs of this fly are said to be destroyed by the larva of a neuropterous insect *Chrysopa*.

For another species of Onion fly *Oxalis flexa* (pl. VIII. fig 28) found in the western states it is said that a pound of copperas dissolved in a pail full of soft soap. when thinned with water and applied to the onions, is good to keep off the maggots, and also to promote the growth of the plant. A preventive is suggested in Mr Packard's report of 1872. which is to sow the seeds deeper than usual so that the fly cannot so readily get at them to lay its eggs. it is however especially recommended that all yellow or diseased onions, or other bulbs or roots should be at once removed from the beds with as much of the roots and fibres as possible and burnt or otherwise destroyed -- immediately. for other insects injuring roots such as *Psila rosae* the small fly injuring carrots in Europe. *Anthomyia raphani* & *A. radicum* (pl. X fig 9) which injures radishes &c. many of the same remedies as have been recommended for *Anthomyia ceparum* will answer. The larvae of some of the Oxalidae feed in the fruit stems. and leaves. The larva of one species before mentioned *Oxalis flexa* (pl. VIII fig 28) is injurious to the onion in the western states. The remedies for this insect will be found under the head of *Anthomyia ceparum*. The Trypetidae are small flies with mottled. marbled, or variegated wings some of their larvae feed in fruit others are leaf miners while others form galls on plants, they however as yet have done very little harm, and are merely mentioned as they are common on flowers in summer.

The larvae of several species of small flies *Chlorops*, *Oscinis* &c. in Europe are very destructive to all kinds of grain. wheat. barley. rye &c. One species alone, *C. frut.* is said to have caused a loss of \$100,000 in one year in Northern Europe, to the barley crop. the larvae of this species live in the grain and cause it to shrivel. another of these larvae injures grain by destroying the central shoot & still a third *C. taeniopus*, does great damage to wheat and barley by destroying the plant and causing a peculiar swelling at the joint popularly known by the name of gout. it is somewhat singular that we hear no particular, or decided complaints from our own farmers of any insects in the stalk of wheat. excepting the well known joint worm, which -- is a hymenopterous insect & has four wings instead of two. we have several species -- of *Chlorops* in this country the flies of which are extremely abundant among the plants in grain fields. and no doubt do attack our grain in the same manner as the European

Remedies.

species, but as yet they have not done damage sufficient to attract the attention of the Agriculturist. In Europe where these insects do much damage the remedy is - to change the crops to others which do not attract the fly, and it has been suggested that perhaps the parent flies themselves might be decoyed to their own destruction by some poisoned liquid, and although one authority states that plowing and harrowing are of use, as the pupae are formed under the earth yet it appears plausible that a good rolling, plowing & harrowing would so disturb the pupae & throw many of them to the surface where they would perish from exposure, and at the same time, bury the rest so deep under the earth that, even if they completed their transformations they could not struggle through the superincumbent earth to appear as flies the next season. In Europe *Caloraps taeniopus* is destroyed by a parasitic four winged fly *Coelinius niger*. The larvae of the Agromyridae are generally leaf miners, one species, *Agromyris tritici* of Fitch is accused of sucking the grains when immature, and causing them to shrivel in a similar manner to those injured by *Diplosis tritici*, or the common wheat midge, and the same remedies will answer for both insects. It is however destroyed by a small parasitic hymenopterous insect *Diapria agromyris*, which prevents its multiplying to any great extent. The Phytomyxidæ being leaf miners, produce the blister like spots, and winding passages which may be so plentifully found, produce the blister like spots, and winding passages which may be so plentifully found, deforming the leaves of our culinary vegetables, shrubs and trees. They can readily be destroyed when they make their first appearance by pinching the part affected, between the thumb and finger, & thus killing the maggot within. Where there are a multitude of these leaf miners at work, a top dressing of gas-lime, wood ashes, or soot, &c. might be useful in destroying such maggots as fall to the ground to bury themselves in the earth or undergo their metamorphoses on the surface.

The Hippoboscidae or louse flies are flat, leathery, insects some of them (*Hippoboscidae*) having wings while others (*Melophagus*) are apterous they live among the hair of animals or the feathers of birds. The females of these insects do not lay eggs like other flies but produce their young only one or two at a time, and are born alive as larvae ready to assume the pupa state. *Hippobosca equina* (pl VII. 40) in Europe is troublesome to horses and cattle, they possess two wings, and from their flat shape, and the peculiar formation of their legs they are able to crawl backward or sideways among the hair or features of the animals or birds they infest. They may be destroyed or driven away by spirits of turpentine, or by washing with a decoction of tobacco. *Melophagus ovinus* (pl VII. 45 & VIII. 3) or the sheep tick is a small louse fly, without wings, that lives among the wool of sheep, and in Europe is very troublesome. They may be destroyed by dipping the sheep (with the exception of the head & face) in a mixture of arsenic, soft soap, potash and water, or other arsenical preparations, but they, being highly poisonous, are very unsafe remedies and cannot be recommended for general use. Decoctions of tobacco, applications of brimstone, lard, paraffine oil &c about the neck, have been highly spoken of by some farmers. Professor Verrill says that snuff or sulphur in powder, rubbed thoroughly into the wool, is sometimes used with good results, and a bath, made by steeping tobacco in water, about 2 lbs to 10 gallons of water, in which the lambs are immersed (except the face) is said to be effective, but in some cases has proved injurious to the health of the lambs; probably the same solutions, as used for fleas, would be equally effective for these insects but the strength of the liquid should be adapted to the age &c of the animal to which it is applied.

The flea (*Pulex*) although not mentioned by Linn or Schneider among the Diptera, by many other entomologists is classed with them, and Professor Verrill regards fleas as "degraded diptera" in which the wings are represented only by two pairs of stiff scales which have little or no power of motion. These insects are very abundant in the neighborhood of hosties &c & may be driven away by scattering quick lime about their haunts. The principal remedy against them is cleanliness and should the house dogs be permitted to sleep on the floor mats, or rugs, these should be scalded every week, or two, to destroy the living imagoes as well as their eggs and larvae which are in the form of small, brown.

Remedies.

white maggots and live upon decaying vegetable and animal matter found in dirt and rubbish, when dogs are kept in kennels. The straw or shavings upon which they sleep should be carefully burned every few weeks. As floor mats and old refuse straw are perfect nurseries for these insects, when the animals themselves are very much infested with fleas a thorough washing with strong soap suds, or a decoction of tobacco will drive many of them away. Professor Merrill says "to remove fleas from the animals themselves a wash containing 6 to 10 per cent of petroleum naphtha or benzine, well shaken together may be used. a weak solution of carbolic acid about two or three parts to one hundred parts of water, will also be efficacious." a mixture of ten parts benzine, five parts soap, and eighty-five parts water has been recommended great care should however be taken not to make any of these mixtures too strong, as otherwise they are very apt to injure the animals to which they are applied. Chamomile flowers are said to be very obnoxious to fleas and to drive them away. Persian insect powder, which is the pulverized flowers of *Pyrethrum roseum* or *caucasicum* rubbed in among the hair will drive off the fleas but the animals when operated upon with it, should be taken out of doors, as a small portion of this powder paralyzes the fleas only, and if they fall on the carpet they are apt to revive in a few hours. The animal, after an application of the persian powder should be well washed with soap and water. The flowers of feverfew, Chamomile, & even the Ox eye daisy, when dried & pulverized have a somewhat similar effect, but much slighter and when applied to common house flies appear partially to paralyze them.

The Tigger or Chiga (*Sarcopsylla penetrans* pl. VII. fig 168) in the extreme South is exceedingly troublesome especially in the West Indies and South America. The insect is a small species of flea which gently insinuates itself into the feet of Man-kind, &c. under the flesh, and generally under a toe nail, in doing so it gives no pain but the victim feels only a kind of itching sensation. When once settled it buries itself in the flesh where it remains, and if not removed in time, deposits its eggs the young from which burrow still deeper and cause most dangerous sores. In the West Indies they are easily taken out by old negro women who understand their habits, and are able to extract the whole insect with a needle, without rupturing the abdomen, which is greatly swollen and distended and appears like a small bag filled with eggs. Should the bag or abdomen burst, and the eggs remain in the wound, they must be cleansed out immediately, and some substance put in the wound that will destroy the eggs, or young if hatched out. One Chiga that we brought from Venezuela in the toe, did not develop itself perfectly until two or three weeks afterwards in New Orleans, when having no negroes to cut it out, the swelling was carefully cut open with a pen knife and the insect extracted piecemeal and the wound or hole filled up with hot cigar ashes. This remedy certainly was somewhat painful, but it was perfectly effectual, as no young ever made their appearance although the body of the parent had been burst open. & some of the eggs no doubt remained in the wound. If a neighborhood is infested with these insects a little spirit of turpentine poured in the boots is said by the negroes to have the effect of driving them away. As before stated it is of the utmost consequence, for the practical entomologist and farmer to study in the field, or from living specimens the habits transformations and instincts of the various insects he wishes to destroy. So as to find out exactly at what season of the year they make their first appearance. How and where they pass the winter, whether as egg, larva, pupa, or perfect insect, what weeds or wild plants they frequent, so as to extirpate them if necessary what substances they are particularly fond of, or what they avoid, and at what stage of their transformations they may most readily be found and destroyed. If the larvae infect stagnant water. Let such pools be drained and afterwards sprinkled with fresh lime, if they breed in the weeds or grass, in the angles of fences, the weeds should be cut, & burned when dry. If they hibernates under bark of dead trees, let all such stumps be burned, as before planting, for it must be remembered that beet root borers, stone walls,

111. Remedies.

and decayed stumps are the very best nurseries for noxious insects that could be invented and any farmer may convince himself of the fact by merely pulling off dead loose bark, or looking in the crevices of his loosely built stone wall, protected as they generally are by a tall growth of weeds on each side. & he will find them swarming with noxious insects and larvae or pupae, which securely protected from the winter frost and cold, hibernate in peace and quietness until the warmth of spring throws them out & induces them to leave their comfortable quarters in order to deposit their eggs for the coming season. ~ Quick lime plowed into the earth will free the soil from many larvae especially such as perform their metamorphoses under ground. and when an insect has become so numerous as to endanger certain crops. it would be advisable to discontinue planting such crops in the infested neighborhood until the insect is, as it were, starved out, unless it is found from experience that the insect in such a case can subsist upon other plants, weeds, or grasses, until the same crop is again grown. Quassia, Aloes, Tankspur or Stavesacre seed, China berries & leaves, are all useful in destroying certain insects, and should be experimented with by practical agriculturists and the results made known through the medium of the agricultural press. Borax powdered, has been highly recommended to drive away cockroaches & but with us however it has totally failed. One part of chloride of lime mixed with half the quantity of some fatty matter, put on a bandage and tied around the trunk of trees, is said to prevent insects from ascending, this however would not last long, & might probably injure the tree by running down the bark when heated by the sun. it would also prevent many beneficial insects from ascending to feed upon such noxious ones as the plant lice (Aphides) &c. Carbolic soap suds, no doubt will destroy many root eating larvae, & boiling hot water poured upon certain roots is said to kill the injurious maggots, & yet not to injure the roots themselves, might this not be good also for the grape vine yell disease, so destructive to the vineyards in France, & found in our western states? it deserves a trial at least. Salt strewn upon the surface, or plowed into the earth, is greatly recommended for the destruction of certain insects but should be used with caution as if too much is used the plants themselves would be destroyed. When operating for the destruction of the perfectly winged insects themselves it should first be ascertained if certain species are attracted by lights at night. if so multitudes may be lured to their own destruction by burning torches, or small fires made at the proper season when the insects are most numerous, if attracted by sweets, they may be destroyed by placing boards covered with molasses or syrup mixed with some poisonous substance, such as "flystone" or gray crude arsenic. Paris green &c. Glycerine is said to combine well with arsenic and might be tried, in all cases however where deadly poisons are used care should be taken to give due warning to children, by word of mouth, as well as by having the word poison marked on the boards or plates used for such as could read.

Certain insects also appear only at certain hours of the evening or night, for example many moths fly only from eight o'clock to half past nine or ten, another genus or species then takes its place until eleven, and so on until the morning dawn, all these apparently insignificant details ought to be carefully studied and noted down so as to know exactly how & when we may expect to meet with certain insects. In short, the duty of the practical entomologist should be to enquire into the minutest detail of the lives and habits of the insects he has to deal with as much as the physician does of the diagnosis of diseases, so as to know when, where, & how they may be combated to the greatest advantage.

- * Sheep tick, or Couse, *Melophagus*. p. 109. *

Synoptical Tables.

The following synoptical tables of the sections and families of Diptera have been prepared for this work by Dr W. L. Baron, State Entomologist of Illinois, to whom the author has already been under many obligations for various notes and suggestions in the body of the work and it is hoped that these tables will be found useful to the young Entomologist in assisting him to classify & arrange the insects of this much neglected but interesting order.

Synopsis of the Sections and Families of Diptera, by Dr W. L. Baron.

The three primary divisions of the Diptera may be tabulated as follows.

- A. { Head attached to the thorax by a distinct neck; antennae exposed and with at least three distinct joints, body of ordinary consistency, parturition oviparous, rarely viviparous.
- B. { Antennae filiform at least six jointed, and usually 10 to 16 jointed. palpi 4 or 5 jointed. pendulous. Body usually more or less elongated & slender. Nemocera.
- B.B. { Antennae short, and apparently 3 jointed the third joint being usually either annulated at the extremity, or furnished with a style; palpi one or two jointed horizontal. Body usually robust. Brachycera.
- A.A. { Head inserted in the thorax or buried over the back; antennae very short, apparently only one or two jointed and concealed in a cavity of the head or under its inferior extremity. Body depressed, & of a tough leathery consistency parturition pupiparous Cryptocera.

For the sake of uniformity of nomenclature we have applied to the third primary division of the Diptera the term Cryptocera (from Kryptos concealed & Keras antenna.) in allusion to the very small and partially concealed antennae. This corresponds with the pupipara of Latreille and the Coniacea of Loew, but was restricted by him to the family of the Hippoboscidae, (W. L. B.)

Families of Nemocera of Latreille

- A. { Proboscis long & slender, composed of seven pieces, veins of wings almost always fringed with scales, Culicidae.
- A.A. { Proboscis very rarely elongated and composed of two or fewer pieces (except Simuliidae) veins naked. (except Psychodidae.)
- B. { Body & legs elongated, antennae usually as long as the head & thorax, or longer, & almost always composed of more than 12 joints.
- C. { Antennae usually plumose in the males & pilose in females. size small, larvae aquatic. Chironomidae.
- C.C. antennae not plumose.
- D. { Thorax with a deep transverse angulated suture head more or less prolonged into a beak venation complete, basal cells reaching to middle of the wing, or beyond; usually a discal cell at the end of the basal. size various. often large. Larvae mostly terrestrial. Sipulidae.
- D.D. { Thorax without transverse suture head not prolonged venation less complete basal cells not reaching to the middle of the wing. discal cell wanting (except in Rhyphus.)
- E. { Coxae elongated, tibiae usually spinous, or bristly and terminated with long spurs two or three ocelli; size small, Larvae live in fungi Mycetophilidae.
- E.E. { Coxae not elongated tibiae not spinous without terminal spurs or with very small ones.
- F. { Antennae compact, shorter than the head and thorax, & 16 jointed 3 ocelli. wings with a discal cell, hind tibiae with minute spurs. size medium. Larvae inhabit dung. Rhyphidae.
- F.F. { Antennae usually long & loose moniliform, the joints often petiolate, & verticillate no ocelli Tibiae without spurs. size very small.
- G. { Body attenuated, naked wings usually clear & with few veins Larvae usually inhabit galls. Cecidomyiidae.
- G.G. { Body short & hairy wings with many longitudinal veins which are densely fringed with hairs. Psychodidae.

Synoptical tables.
Families of Nemocera continued.

BB. Body robust, legs moderate. antennae short, compact, submoniliform, but little or not at all longer than the head, 3 or 8 to 12 jointed..

HC. 3 ocelli. Prothorax much developed. hind tibiae with short spurs. size moderate. Larvae terrestrial. Bibionidae.

HC. no ocelli. Prothorax small. tibiae without spurs. hind tibiae & first joint of tarsi somewhat thickened. parts of mouth short, but fully developed. size very small. Larvae aquatic. Simuliidae.

Divisions of the Brachycera. Macquart

The Brachycera on account of their great numbers and diversity are usually divided into a number of branches, called Stirpes, and then are subdivided into families.

The Brachycera are divisible into the four following stirpes.

A { Third joint of the antennae with annulated incisions usually without a style. feet terminating in 3 pulvilli.

B. { Proboscis short, soft, retractile & imperfectly developed. veins of the wings often attenuated and not reaching the margin. Scutellum usually armed with spines, habits of the larvae various some terrestrial, and others aquatic. Pupae subcoarctate. perfect insects subsist upon honey & other excretions of plants. Notacantha.

BB { Proboscis firm & erect & fully developed enclosing six lancet like pieces in the female, and four in the male. veins complete, scutellum unarmed. Larvae terrestrial, pupae uncovered. perfect insects preeminently carnivorous. Hexachaeta.

A.A. { Third joint of antennae not annulated. usually with a style. feet usually terminating in two pulvilli.

C. { Proboscis firm, and more or less elongated. & usually with the terminal lips very small, and enclosing four pieces. third joint of antennae usually elliptical, with the style apical or wanting. wings usually with two submarginal cells and four or five posterior. basal cells considerably elongated. third basal cell nearly or quite reaching the margin of the wing. Larvae terrestrial, pupae uncovered. perfect insects mostly predaceous. Tanystoma.

C.C. Proboscis short, soft & retractile. terminating in two large fleshy lips and enclosing two pieces. (Except Syrphidae.) third joint of antennae of various forms. & with a dorsal style, wings usually with one submarginal cell, and three posterior. Second and third basal cell very short (3rd cell elongated in Syrphidae but not reaching the margin of the wing.) Larvae either carnivorous. (Syrphidae) parasitic. (Tachinidae) or putridivorous. (Muscidae.) pupa coarctate. perfect insects very rarely carnivorous. Athericera.

*

* Note to printer from Dr Le Baron.

The primary divisions Nemocera, Brachycera, & Cryptocera, on p. 113. The numerous families ending in idae & the subfamilies ending in inae constitute 3. grades, all of which are to be printed in capitals but which should be distinguished by type of gradually receding series. The stirpes on p. 114 Notacantha, Hexachaeta, Tanystoma, & Athericera are of intermediate rank, and may be indicated either by the size of the caps or by Italic caps. Terms in Italic, not in caps are indicated by a line drawn underneath, as usual. (H. & B.)

The order Diptera is therefore divided according to Dr Le Baron, as follows.

Primary Divisions.	{	1. <u>Nemocera</u> longhorned gnats &c.	Stirpes {	Families <u>Culicidae</u> &c.
		2. <u>Brachycera</u> short horned flies.		1. <u>Notacantha</u> <u>Stratiomyidae</u> &c.
				2. <u>Hexachaeta</u> <u>Tachinidae</u> &c.
				3. <u>Tanystoma</u> <u>Midasidae</u> &c.
		3. <u>Cryptocera</u> house flies with concealed or hidden horns.		4. <u>Athericera</u> <u>Muscidae</u> &c.
				<u>Hippoboscidae</u> &c.

Synoptical tables.
Families of Notacantha. Latr.

- A. { Third joint of antennae usually with 8 divisions. veins of wings normal & complete, abdomen with six or seven visible segments. }
B. { Third joint of antennae compressed. Scutellum without spines, size very large (not found in North America.) } Acanthomeridae.
BB. Third joint of antennae not compressed. scutellum with 2 spines.
C. Palpi cylindrical, body robust. size above medium. Ctenomyidae.
CC. Palpi clavate, body rather slender. size medium, or below. Xylophagidae.
AA. { Third joint of antennae with 4 or 5 divisions. Discal cell small, discal veins attenuated & not reaching the margin of the wing. abdomen with but 5 distinct segments, scutellum with 2 spines, rarely more. size medium or below. } Stratiomyidae.

Family of Hexacheta. Macquart.

The stripes of Hexacheta the characters of which have been given above comprises but one family, that of the well known horse flies. Tabanidae.

Families of Tanytoma Latridio.

- A. Proboscis exerted, usually elongated, & slender. Style apical or wanting.
B. Body elongated wings incumbent & without spots. Habits predaceous.
C. { Antennae 5 jointed & clavate. proboscis fleshy. terminal veins parallel with the margin. size large. } Midasidae.
CC. { Antennae apparently 3 jointed, 4th & 5th joints rudimental or wanting, proboscis horny terminal veins perpendicular to the margin. }
D. { Vertex concave; face hirsute. legs bristly, 3^d basal cell nearly or quite reaching the margin. size large or medium. } Asilidae.
DD. { Vertex plane, face naked, legs not at all, or but little bristly, third basal cell not longer than the second, size small, or very small. }
E. Proboscis horizontal. thorax globose & much elevated. Hybotidae.
EE. Proboscis directed downwards. Thorax moderately elevated. Empididae.
BB. Body short, & broad. wings divaricate & often variegated. subsist on the honey of flowers.
F. Head very small and low. Thorax & abdomen inflated. feet with 3 pulvilli. } Cyrtidae.
FF. Head ordinary. Thorax & abdomen not inflated, feet with 2 pulvilli. — } Domyliidae.
AA. Proboscis retractile rather thick & fleshy & terminated with 2 large lips. Style usually apical.
G. Basal cells more or less elongated, the third nearly or quite reaching the margin, tibiae usually not bristly at the sides
GG. Two submarginal cells, five posterior, Style apical.
I. Style short twojointed, palpi clavate, Tarsi with 2 pulvilli. Therevidae.
II. Style simple, & setiform, palpi cylindrical, Tarsi with 3 pulvilli. Leptidae.
GGG. Two submarginal cells, three posterior, style wanting. Scenopinidae.
GGG. One submarginal cell three posterior.
H. Head large almost wholly occupied by the eyes, style basal. Rhynculidae.
KK. Head ordinary, style apical, hind tarsi dilated. Pratyperiidae.
GG. { Basal cells very short. discal cell wanting or continuous with the second basal; Tibiae usually bristly, male appendages large, & lamelliform. }
L. Fourth longitudinal vein forked, hind transverse vein wanting. } Lonchopteridae.
LL. Fourth vein simple, hind transverse vein present. — } Dolichopidae.

Synoptical tables.~ Families of Athericera Latreille.

A. Proboscis short, enclosing four pieces. antennae usually inclined, with the style - almost always dorsal, first posterior cell closed before reaching the end of the wing, and usually rounded, or foot shaped at the end. third basal cell prolonged near to the hind margin. body usually smooth & shining, and usually variegated with black and yellow. Larvae of various habits, usually predaceous. Syrphidae.

Art. Proboscis enclosing two pieces

B. Proboscis long slender & geniculate, antennae horizontal or inclined; second joint at least as long as the third; style sometimes apical; sometimes dorsal. Abdomen usually clavate, first posterior cell almost always closed before reaching the end of the wing, and pointed at the end. third basal cell elongated, color usually black, the abdomen varied with fulvous. Larvae parasitic in the bodies of other insects, Myopidae.

B.B. Proboscis short & fleshy, antennae inclined or vertical, second joint shorter than the third. style dorsal, first posterior cell, either wholly open or nearly or quite closed at the terminal margin, third basal cell very short. Body usually more or less bristly & of obscure black or grayish colors. Larvae putridivorous or parasitic. Muscidae.

B.B.B. Proboscis rudimental or wanting. venation like that of Muscidae. Larvae parasitic in the bodies of quadrupeds. Cestridae.

The Syrphidae constitute a somewhat numerous, isolated & homogenous family, and the Myopidae and the Cestridae are very limited in the number of species, but the Muscidae contain a great number of species distinguished by the slight modifications of structure whilst in the immense multiplication of individuals, they surpass every other family of insects. The family of the Muscidae is divisible into 3 sections, which gradually merge into each other, but which, in most cases are readily distinguished, and each of which contains a number of groups, which may be regarded as subfamilies, with their names, ending in ides

Section 1. Crepophilae Latreille. Eyes approximate in the males. style of antennae usually composed of two or three joints, first posterior cell nearly or quite closed at the terminal margin of the wing. Tegulae large. Size medium or small, rarely very small. Larvae subsist mostly upon decaying animal matter, or are parasitic in the bodies of other insects.

Section 2. Anthophilae; (Anthomyiidae of Latr & Macq) eyes approximate in the males. style usually one jointed first posterior cell widely open. Tegulae moderate or small. Size small or very small. Larvae subsist mostly upon decaying vegetable matters, perfect insects usually found on flowers.

Section 3. Acalypterae, Macquart. Eyes distant in both sexes. Tegulae rudimental or wanting. style and first posterior cell like those of Anthophilae. Size mostly very small, Larvae subsist upon decaying matters both animal & vegetable, a few inhabit galls.

The Crepophilae with a few partial exceptions, can be grouped in two large subfamilies, as follows.

A. style of antennae naked, body usually clothed with stout bristles. Larvae parasitic. Tachinides.

AA. style plumose body usually clothed with hairs or weak bristles. Larvae parasitic. Muscides.

The Anthophilae constitute one large subfamily that of the Anthomyides.

* note to printer The subfamilies ending in ides should be printed in somewhat smaller capitals than the foregoing families in idae. (H. L. B.)

Synoptical tables - Acalyptera.

The Acalyptera comprise an immense number of minute flies which are subdivided into the following subfamilies.

Subfamilies of Acalyptera. The terminations have been changed from ina to ides

A. Nervations complete, auxiliary vein separate throughout, from the first longitudinal, especially divergent at the tips

B. Costa bristly, vibrissae one at each side, all the tibiae with spurs, and an anti-terminal bristle. Helomyzides.

B.B. Costa not bristly;

C. Mouth with vibrissae.

D. Vibrissae, more than one at each side.

E. Vibrissae strong bristle like, whole lateral border of front bristly. Cordylurides.

E.E. Vibrissae slender, hair like.

F. Thorax and abdomen flat, last joint of all the tarsi enlarged, with stout claws, & long pulvilli. Phycodromides.

F.F. none of the last mentioned characters.

G. Abdomen tapering to the base, head rounded palpi obsolete basal cell rather large. Sepsides.

G.G. Abdomen not tapering, auxiliary veins abbreviated, basal cells small, wings elongated, ululae very small or wanting. Opomyzides.

DD. Vibrissae one on each side, front with long bristles, palpi broad auxiliary vein closely approximated to the rather short, first longitudinal, legs slender. Heteroneurides.

CC. Mouth without vibrissae

HC. One or more of the longitudinal veins bristly, post basal cell usually prolonged to a point.

I. Third longitudinal vein usually bristly; auxiliary vein joining the costa, at the ordinary acute angle, clypeus and proboscis much developed, front without bristles at sides. Ortalides.

SS. First and sometimes 3^d & 5th longitudinal veins bristly, auxiliary vein joining the costa at an obtuse angle, clypeus and proboscis not enlarged, front with bristles at the sides. Tryptetides.

HC.C. veins not bristly, post basal cell not prolonged to a point

K. Body not remarkably elongated, front bristly at sides, as well as vertex.

I. Auxiliary vein well separated from the 1st longitudinal, 2 posterior basal cells rather large, with antiterminal tip bristle. Sciomyzides.

II. Auxiliary vein closely approximated to the first longitudinal, two posterior basal cells small

M. All the tibiae with a small erect bristle on the exterior side before the end, ovipositor not horny. Sapromyzides.

M.M. Tibiae without the antiterminal bristle, ovipositor horny & flattened. Tonchaeides.

KK. Body elongated, slender, with very short hairs and very few bristles, front with few bristles on the vertex only, antiterminal tibial bristle wanting.

N. Wings with a transverse fold running from the tip of the auxiliary vein, to the base of the third posterior cell, face receding. Psilides.

N.N. Wings without a transverse fold, legs short, last segment of abdomen in ♀ prolonged into a cylindrical tube. Microperides.

Synoptical tables.
Acalyptera continued.

- At. Neuration incomplete; auxiliary vein, more or less coalescent with the 1st longitudinal especially at the tip, sometimes rudimentary or wanting.
- O. Wings with transverse veins
- P. eyes pedunculated, anterior femora incrassated. Diopsiides.
- Q. Middle and posterior transverse veins both present.
- R. Face convex, clypeus large. Style of antennae except in a few genera ciliated on the upper side. Ephydrinides.
- RR. Face not convex, clypeus small. Style not ciliated
- S. Costa of the wing bristly. Geomyzides.
- SS. Costa not bristly
- T. Auxiliary vein united with the first longitudinal only at the tip, posterior transverse vein usually far removed from the border of wing, } Agromyzides.
- TT. Auxiliary vein coalescent with the first longitudinal into whole length, neuration otherwise complete, clypeus rudimentary. } Piophilides.
- TTT. Auxiliary vein rudimentary, or wanting.
- U. Face excavated, clypeus developed. Thorax & abdomen flat, first joint of posterior tarsi abbreviated.
- UU. Face with distinct subantennal furrows separated by a carina first longitudinal vein exceedingly abbreviated. } Grosophilides.
- UUU. Face neither excavated or carinated, frontal, & facial bristles very small or wanting, auxiliary vein and post basal cell wholly wanting } Oscinides.
- QQ. Posterior transverse vein wanting
- V. Basal cell existing, but small. Phytomyzides.
- VV. Basal cell wanting Asteides.
- OO. Wings without transverse veins, antennae inserted near the epistoma, apparent-ly one jointed. Style long. Phorides.

Families of Cryptocera. Le Baron. (Coniacea Loew)

- A. Head of ordinary size and position. Antennae immersed in a cavity of the head, usually with wings. Parasitic upon the bodies of various animals. Hippovosidae.
- At. Head very small, attached to the anterior and dorsal part of the thorax. Antennae inserted under the anterior part of the head, parasitic upon the bodies of bats. Nycteribidae.

Definition of some of the terms used in the above tables of Diptera (Hd. 13)

Acalyptera, without tegulae.	Oviparous, bringing forth young in the egg state.
Annulated, in the form of rings.	Parturition, the bringing forth of young.
Anthophilae, lovers of flowers.	Petiolate, attached by a narrow foot stalk.
Brachycera, short antennae.	Pilose, hairy.
Breophilae, lovers of flesh.	Pucelli, little cushions or pads.
Cryptocera, antennae concealed.	Pupharous, bringing forth young in the pupa state.
Divaricate, spread wide apart.	Stipites, a trunk or branch.
Exserted, projecting, not concealed.	Subcoracate, enclosed loosely in the larval skin.
Hexachaeta, six bristles, or enclosed mouth pieces.	Tanystoma, mouth or proboscis extended.
Incrassated, thickened.	Tigula, the sort above the pincers.
Incumbent, lying down or upon.	Venticillate, with a wheel or circle of hairs.
Parasitiform, in the form of a thin plate.	Unissae, one bristles at the side of the mouth.
Remocera, antennae filiform or thread like.	Viviparous, bringing forth young alive.

addenda.

As part 3. of "Monographs of the Diptera of North America" by J.C. Law. of Guben, published by the Smithsonian Institution Dec. 1873. was not ready for general distribution, until the present work was nearly finished. it has been thought advisable to add notes and references from it, which relate to several of the Diptera previously mentioned in the body of the work, by which the Entomological student will be enabled to refer to this work of Dr. Law as the latest authority up to date, on the Ortalidae and Trypetina, and should a second edition of these notes ever be published, these references can be inserted in their proper places in the body of the work.

The recent determinations and changes in the nomenclature of Genera &c. by J.C. Law, in part 3. of "Monographs of the Diptera of North America" published Dec. 1873. by the Smithsonian Institution, are distinguished by a star ★, the letters J.C. refer to the page in the body of this work, and the names in Italics are Synonyms.

- *Acidia* (Law) *suavis*. Law 3. p. 235 see *Trypeta* J.C. p. 58.
- Acinia*, comma. see *Trypeta*. Law 3. p. 281. J.C. p. 57.
- Acinia*. *novaeboracensis* (Fitch) see *Trypeta* *sparsa*. Law 3. p. 274 J.C. p. 58.
- Acinia*. *solidaginis* (Fitch) see ★ *Euxosta* Law 3. 280. & *Trypeta*. J.C. p. 58.
- Callopteria* (Law) *annulipes*. Macq. Law. 3. 62 v. 141. see J.C. p. 5.
- Calobatidae* Law 3. 30. J.C. p. 5.
- Bamptoniura* (Macq.) *picta* (Fab) Law 3. p. 27. 109. 337. J.C. p. 5.
- Ceromya*. *quadrifasciata*. of Macq. Law 3. p. 44. belongs to genus *Rivellia*.
- Celopa*. (Meig) Law 3. p. 22. J.C. p. 15.
- Dacus*. *oleae*. (Fab) Law 3. p. 28. J.C. p. 17.
- Drosophilidae*. Law 3. p. 24. J.C. p. 20.
- *Euxosta* (Law) comma (Wied) Law 3. 280. see *Trypeta*. J.C. p. 57.
- *Euxosta* (Law) *bella*. Law 3. p. 311. see *Trypeta* J.C. p. 57.
- *Euxosta* (Law) *solidaginis* (Fitch) Law 3. p. 279. see *Trypeta* J.C. p. 58.
- *Eutreta* (Law) *sparsa*. (Wied) Law 3. p. 274. see *Trypeta*. J.C. p. 58.
- *Euxosta* (Law) (*Ortalis*) *notata*. (Wied) Hab. Ab. N. Y. Ill. & C. on? Law 3. 157. }
Insect bred from the pulp of Osage Orange.
- Heteromyridae* Law 3. p. 27. J.C. p. 25.
- Herina*. *quadrifasciata*. (Macq.) Law 3. 90. J.C. p. 58. see *Rivellia* *viridulans*. J.C. 44.
- Herina*. *nuptasus*. Law 3. 90. J.C. p. 25.
- Lonchaea* (Fall) Law 3. 224. J.C. p. 30.
- Myopa*. *nigripennis* (Gray) Law 3. p. 77. J.C. p. 35.
- Ortalis*. *color*. J.C. p. 38. see ★ *Scioptera* Law 3. p. 152.
- Ortalis*. *flexa*. see also ★ *Tritona* Law 3. 349.
- Ortalis* *fulminans* J.C. 38. see also *O. praecileptera* Law 3. p. 3.
- Ortalis*. *notata* see *Euxosta*. Law 3. 157
- Ortalis*. *praecileptera* Law 3. 3. see *O. fulminans*. J.C. p. 57.
- *Edaspis* (Law) *pulita* Law 3. p. 256 see *Trypeta* J.C. p. 57.
- Ortalis*. *quadrifasciata* Law 3. p. 89. see also *Herina*.
- Ortalis*. *vibrans*. J.C. p. 38. see *Scioptera*. Law 3. p. 152.
- Oscinis* (Roc Desc.) Law 3. p. 16. J.C. p. 38.
- Platystoma*. *annulipes* (Macq.) Law 3. 141 J.C. p. 41 see also *Calloptera*
- Pallopteridae*. Law 3. 9. 11. 30. J.C. 39.
- *Peromyia*. *quadrifasciata*. Law (probably identical with *Trypeta* *quadrifasciata* of Macquart. Law 3. p. 337.
- Platystoma* *latipennis* is probably *Eutreta* *sparsa*. Law 3. p. 337. & see J.C. p. 41.

RU 6. 23.9.4.4

SMITHSONIAN INSTITUTION LIBRARIES

3 9088 00276088 2

nhent qQL534.G56 1874a
Manuscript notes from my journal,