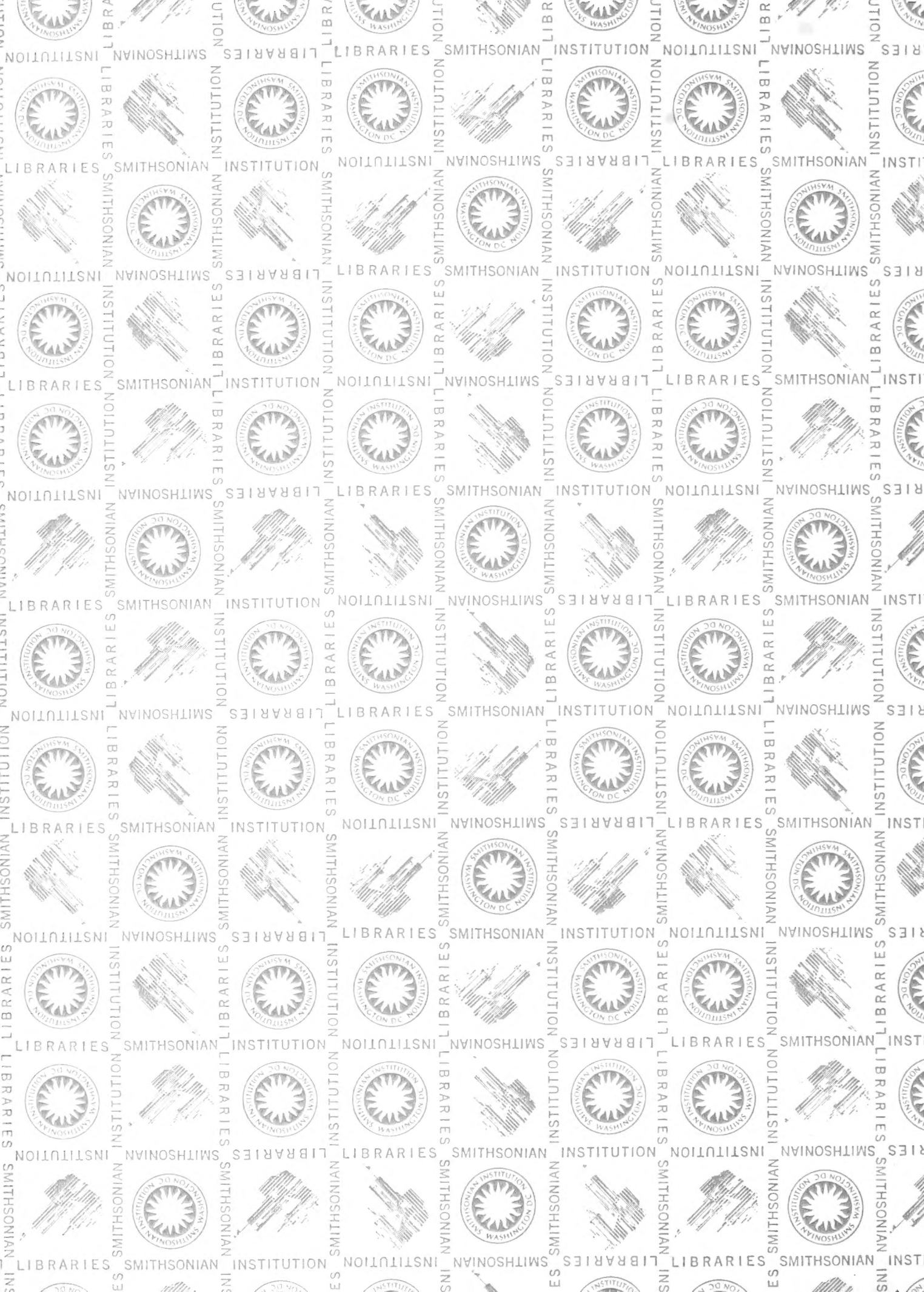
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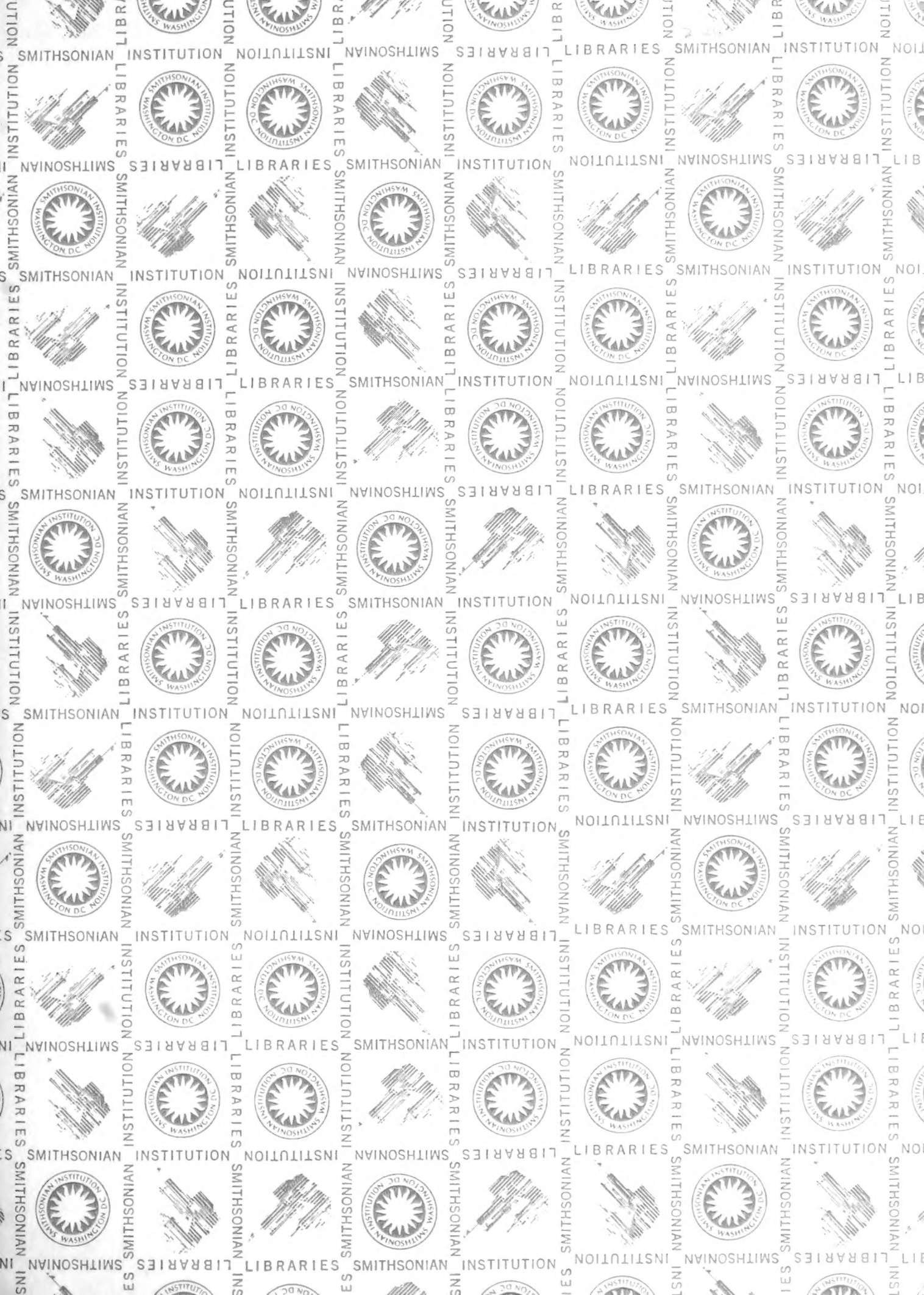
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S. F. BAIRD.

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.

WASHINGTON:
1874.

Manuscript notes from my Journal,

or

Illustrations of Insects, Native and Foreign.

Diptera

or

Two-winged flies.

By Townend Glover,
Washington, D.C.

CONTENTS.

Washington D.C. 1874. written by Townend Glover
Transferred & printed. from stone by Jas. F. Gedney.

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 Lewis and others will most probably be condemned by some of our scientists as antiquated and not sufficiently scientific for 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.

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 given 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 Westwood 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, Walsh &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 Meigens work and were originally intended to illustrate the principal genera in a translation of Lewis "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 like 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

associate the insect itself with its scientific name. Should some of these free translations prove erroneous they can readily be corrected, if the work itself 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 revised & most of the names will be changed. Should however the Entomologists or Agriculturist 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. Culex (Linn.) ciliatus. Fab. ♀. nat size. OS. p. 1.* Loew p. 5 Fam. 1. Culi.
" 2, " " " " ♂ " " " " " " " " " "
" 3. Anopheles. (Meig.) hyemalis. Fitch. ♂♀. mag.d " " " "
" 4. Chironomus. (Fab.) O.S. p. 3. " " Fam 2. Chi.
" 5. Ceratopogon. (Meig.) ♂ O.S. p. 4. " " " "
" 6. " ♀ " " " " " "
" 7. " Lar. & Pupa " " " " "
" 8. Cecidomyia. (Latr.) destructor. Say. ♂♀. " O.S. p. 5. " p. 6. Fam. 3. Cec.
" 9. " Lar. & Pupa " " " " "
" 10. Diplosis. (Loew.) tritici. Kirby. ♂♀. " O.S. p. 6. " " " "
" 11. " " Lar. & Pupa. " " " " " "
" 12. Psychoda. (Latr.) " O.S. p. 6. " p. 9. Fam. 5. Psy.
" 13. Eriptera. (Meig.) caliptera. Say 2. 44. " O.S. p. 6. " p. 9. Fam. 6. Tip.
" 14. Limnobia. (Meig.) humidicola. OS. nat. size. Loew p. 10. " "
" 14. a. Geranomyia. (Hal.) head ♂. mag.d " " "
" 14. b. Limnobiorhynchus. (Westw.) " O.S. 6. " " "
" 14. c. Limnobia (Meig.) fimbriata. Meig pl. 5. fig 4 mag.d (Eu.) " " "
" 15. Tipula. (Linn.) flavicans. Fab. nat size. O.S. p. 7. " " "
" 16. Bittacomorpha. (Westw.) clavipes. Fab. " O.S. p. 8 " " "
" 17. Leja. (Meig.) Winthemi. (Meig.) mag.d Loew p. 13. Fam. 7. Myc.
" 18. Mycetophila. (Meig.) O.S. 10 " " "
" 19 Sciara. (Fab.) thomae Linn (affinis) " " " "

Abbreviations. L. or Lar. Larva. P. or Pup. Pupa. I. or Ins. Imago. or perfect insect. Md. Maryland. Eu. Europe. mag.d magnified. ♀

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

Loew. Monographs of diptera of North America by H. Loew. part 1. 8vo. prepared for the Smithsonian Institution. 1862. 8vo.

Say. Thomas. Entomology of North America. Edited by John. Le Conte. M.D. in two vol. New York. Balliere brothers. 1859.

II

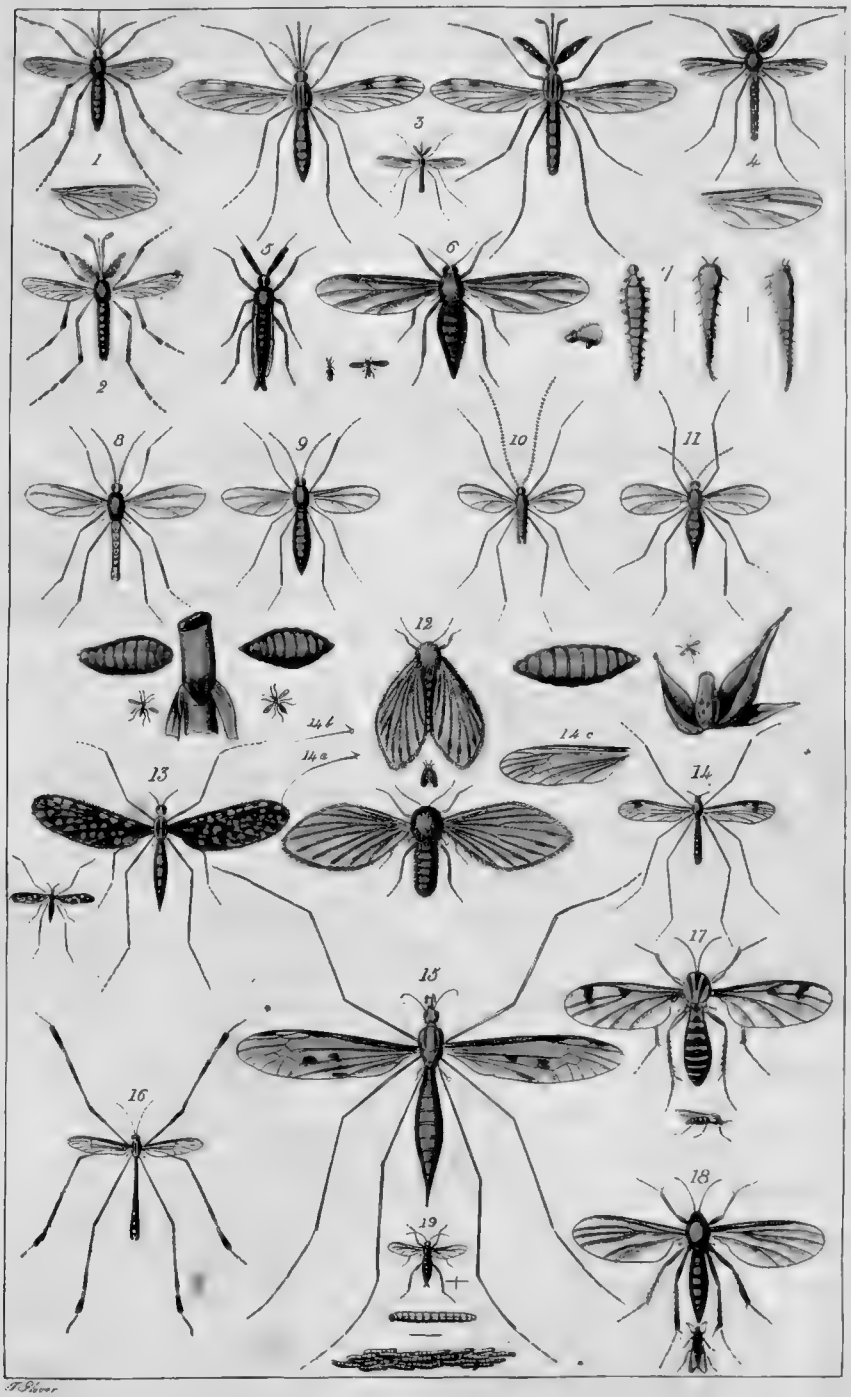

Plate III. Diptera.

Fig. 1. Sciara. (Fab.) mag^{d} 0. S. 11. Loew. p. 13. Fam. 7. Mycet.
" 2. Simulium. (Latr.) " " 12. " 14. Fam. 8. Sim.
" 3. Scatopse. (Geoff.) notata. Say. " " 0. " " " 9. Bri.
" 4. Plecia. (Wied.) longipes. Loew. nat. size. " 0. " p. 15. " " ".
" 5. Dilophus. (Meig.) serotinus Loew. ♀ " " " 0. " p. 14. " " ".
" 6. " " " ♂ " " " 0. " " " " " ".
" 7. Bibio. (Geoff.) albipennis. Say. 2. 69. " " " 13. " p. 15 " " ".
" 8. " femoratus. Wied. " " " 13. " " " " " ".
" 9. Rhyphus. (Meig.) punctatus. Fab. mag^{d} " 0. " p. 15 Fam 10. Rhy.
" 10. Metaponia. (Macq.) dorsalis. Say 1. 257. nat. size. " 14. " p. 17. Fam. 12. Strat.
" 11. Odontomyia. (Meig.) crassirostris. Loew. " " " 0. " " " " ".
" 12. Sargus. (Fab.) decorus. Say 1. 257. " " " 17. " " " " ".
" 13. Xylophagus. (Meig.) rufipes. Loew. " " " 0. " p. 15. Fam 11. Xylo.
" 14. Coenomyia. (Latr.) pallida Say. 1. 42. " " " 18. " p. 16 " ".
" 15. Tabanus. (Linn.) atratus. Fab. " " " 19. " p. 19. Fam 14. Taba.
" 16. " abdominalis. Fab. " " " " " " " ".
" 17. " trimaculatus. Pal. " " " 24. " " " " ".
" 18. Chrysops. (Meig.) vittatus. Wied. " " " 25. " " " " ".
" 19. Midas. (Fab.) tibialis. Wied. " " " 27. " p. 22. Fam 18. Mid.
" 20. " clavatus. Drury. " " " 27. " " " " ".
" 21. Dasypogon. (Meig.) discolor. Loew. " " " 0. " p. 24. Fam 19. Asil.
" 22. Asilus. (Linn.) " " " 35. " " " " ".
" 23. Dasypogon (Meig.) trifasciatus. Say 2. 64. " " " 30. " " " " ".
" 24. Laphria (Fab) thoracica. Fab. " " " 31. " " " " "

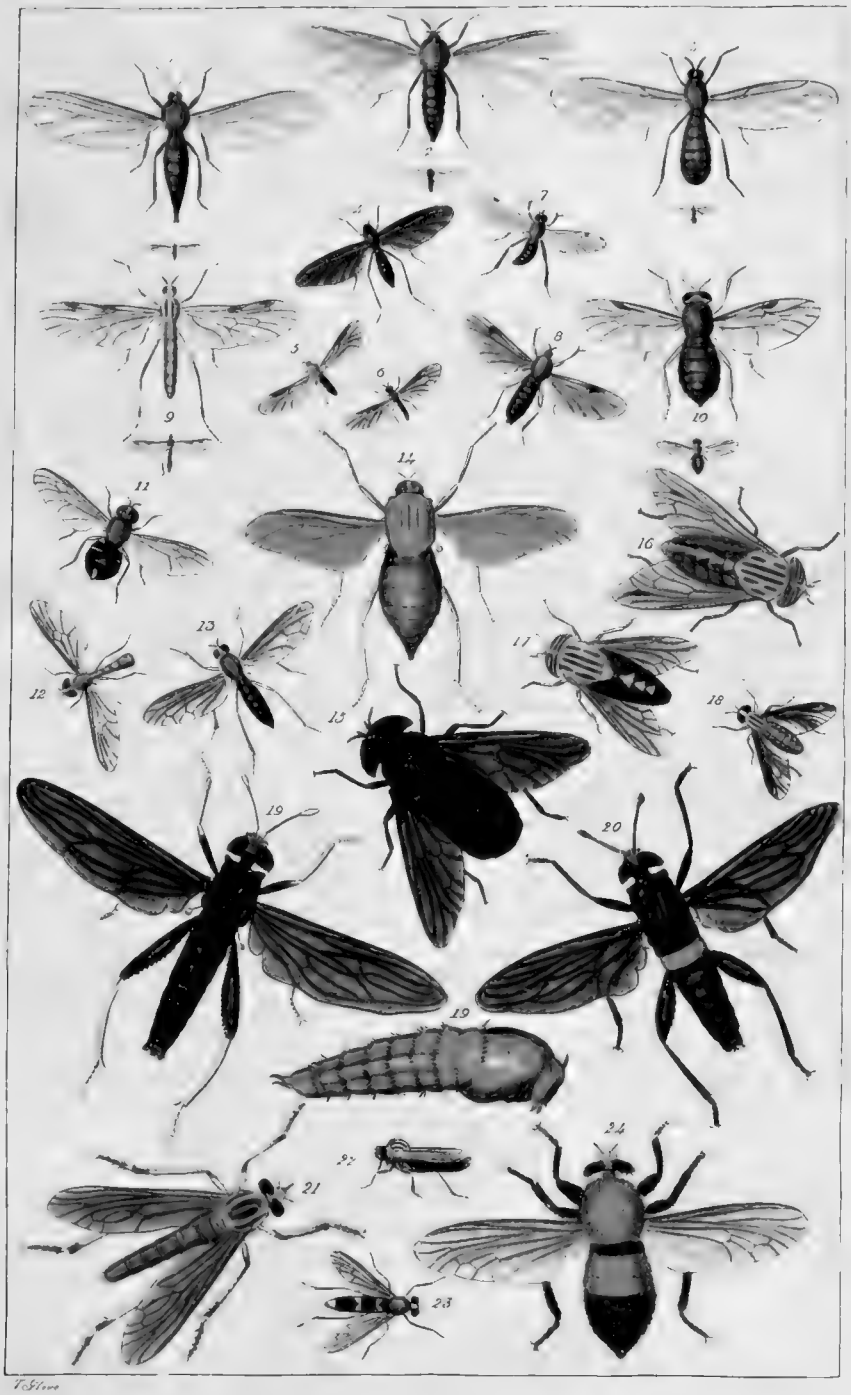
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Plate IIII. Diptera.

Fig 1. Laphria. (Fab) dorsata. Say. ♂ nat. size. 08. p. 30. Læw. p. 24. Fam. 19. Asilid.
" 2. " " " " ♀ " " " " " " "
" 3. Erax. (Macq.) aestuans. Linn. ♂ " " p. 33. " " "
" 4. " " ♀ " " " " " " "
" 5. Erax. ? " " " " " " "
" 6. Asilus (Linn.) sericeus. Say. 2. 63. " " p. 35. " " "
" 7. Proctacanthus. (Macq.) millbertii. Macq. " " p. 34. " " "
" 8. Leptogaster. (Meig.) " " p. 36. " " "
" 9. Chrysopila. (Macq.) thoracica. Fab. " " p. 37. " " "
" 10. Scenopinus. (Latr.) fenestralis. Linn. mag. " " 0. " p. 28. Fam. 25. Scenop.
" 11. Anthrax. (Scop.) nat. size. " p. 38. " p. 24. Fam. 21. Bomb.
" 12. " irrorata. Macq. Say 2. 61. " " " p. 40. " " "
" 13. " sinuosa. Wied. " " " p. 42. " " "
" 14. " fulvohirta. Wied. " " " p. 40. " " "
" 15. " simpson. Fab. Say 2. 60. " " " p. 41. " " "
" 16. Bombylius (Linn) fulvus. Wied. " " " " p. 42. " " "
" 17. " (denuded specimen) " " " " p. 42. " " "
" 18. " mexicanus. Wied. " " " " p. 43. " " "
" 19. Geron. (Meig.) mag. " p. 43. " " "
" 20. Systropus. (Wied) macer. Læw. nat. size. " 0. " p. 25 "
" 21. Hybos. (Fab.) thoracicus. Say. 2. 68. mag. " p. 44. " p. 29. Fam. 28. Hybot.
" 22. Empis. (Meig.) spectatissis. Læw. nat. size. " 0. " p. 30. Fam. 29. Emp.
" 23. Rhamphomyia. (Hgg) longicauda. Læw. ♂ " " " 0. " " "
" 24 " " ♀ " " " 0. " " "
" 25. Baccha. (Fab.) mag. " " " p. 48. " p. 26. Fam. 22. Syrph.
" 26. Milesia. (Latr.) ornata. Fab. nat. size " p. 50. " " "
" 27. Syritta. (St Farg) pipiens Macq. Say 1. 27. " " " p. 48. " " "
" 28. Rhingia. (Fab) nasica. Say 2. 81. " " " p. 50. " " "
" 29. Syrphus. (Linn.) geminatus. Say. 1. 22. " " " p. 51. " " "
" 30. " obliquus. " " " " " p. 52. " " "
" 31. " politus. Say. 1. 24. " " " p. 52. " " "

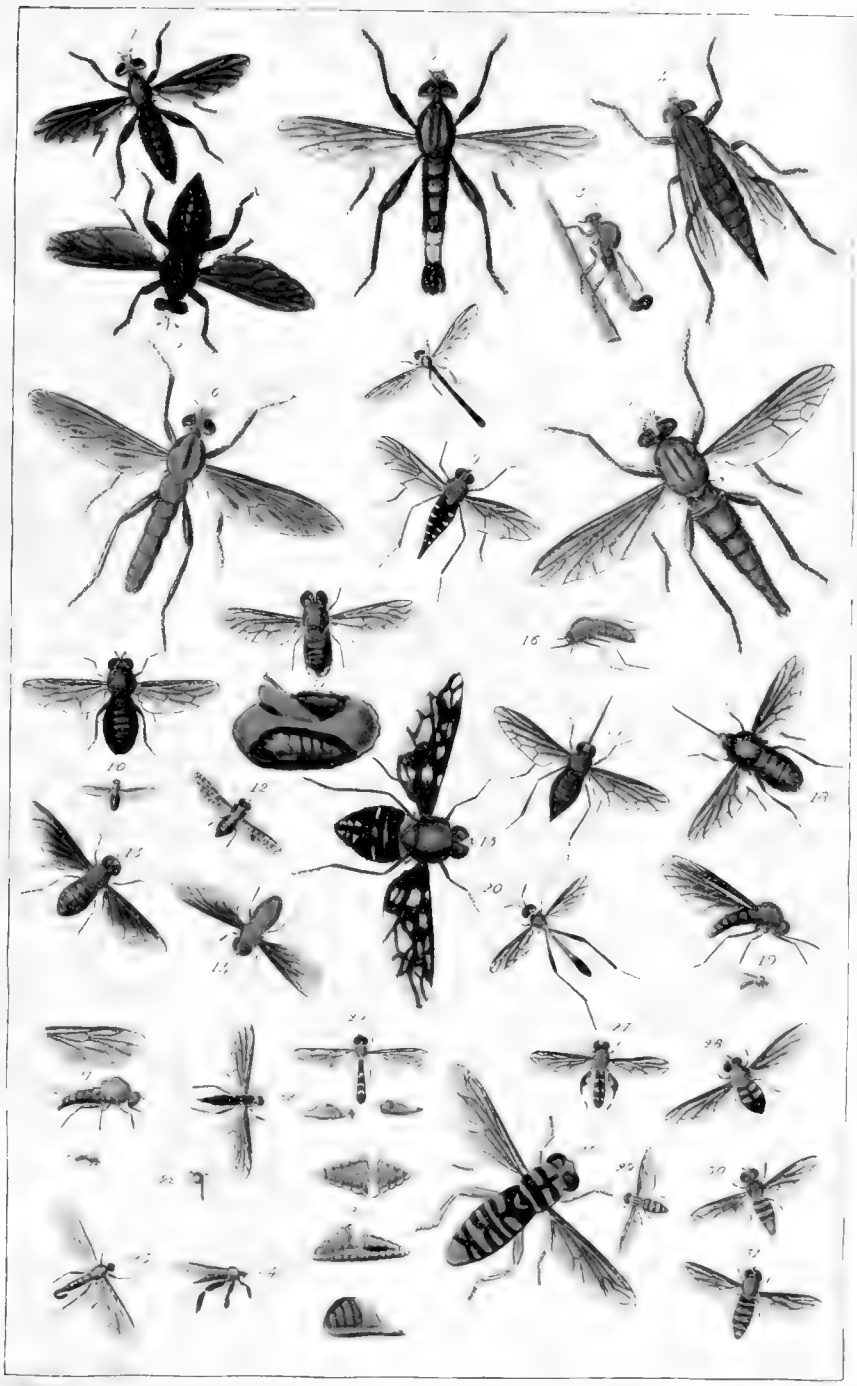

Plate IV. Diptera.

Fig. 1. Syrphus. (Fab.) ribesii. Fab. nat. size. OS. p. 52. Loew p. 26. Fam. Syrphidae.
" 2. Helophilus (Meig.) similis. Macq. " " " p. 54. " " " "
" 3. Eristalis (Latr.) aeneus. Linn. " " " O. " " " "
" 4. " transversus. Wied. " " " p. 56 " " " "
" 5. Psilopus. (Meig.) sipho Say 2.75. " " " p. 58 " p. 32. Fam. 31. Dolichopid.
" 6. " " " " " " " " " " " "
" 7. Dolichopus (Meig.) " " " p. 59. " " " "
" 8. Conops. (Linn.) saggitarius Say 2.73. " " " p. 60 " p. 27. Fam. 23 Myopid.
" 9. " " ? " " " " " " " "
" 10. Stomoxys. (Geoff.) calcitrans. Linn " " " p. 61 " p. 35. Fam. 36. Muscidae
" 11. Gastrus. (Meig.) equi Linn. " " " p. 62. " p. 33 Fam 32. Oestridae
" 12. Hypoderma. (Wied.) cuniculi. Clark " " " p. 62. " " " "
" 13. Gymnosoma (Fallen) rotundata Volk (var) " " p. 63 " p. 34 Fam 34. Tachinidae.
" 14. Trichopoda (Latr.) pennipes Fab. Say 2.364 " " p. 63 " " " "
" 15. Ocyptera. (Latr.) " " " p. 63 " " " "
" 16. Tachina. (Meig.) vivida. Harris " " " p. 67. " " " "
" 17. Sarcophaga. (Meig.) " " " p. 68. " " " "
" 18. " " ? " " " " " " "
" 19. " " " " " " " "
" 20. Lucilia (Rob. Desv.) caesar. Linn. " " " p. 71. " p. 35. Fam. 36. Muscidae.
" 21. Calliphora. (Macq.) vomitoria. Linn. " " " p. 73. " " " "
" 22. Sarcophaga (Meig.) carnaria. Linn. " " " p. 68. " " " "
" 23. Musca. (Linn.) domestica. Linn. " " " p. 71. " " " "
" 24. Scatophaga (Latr.) furcata. Fab. " " " p. 76. " p. 36 Fam. 38 Cordyl.
" 25. Anthomyia (Meig.) " " " p. 73. " p. 36. Fam. 37. Anthom.
" 26. Rivellia (Rob. Desv.) viridulans. Rob. Desv. magd " " p. 79. " p. 40. Fam. 43 Ortalid.
" 27. Sepsis (Fallen) " " p. 78. " p. 43 Fam. 50. Sepsid.
" 28. Lauxania. (Latr.) lupulina. Fab. " " p. 78. " p. 41. Fam. 48. Saprom.
" 30. Loxocera. (Latr.) cylindrica Say 2.24 nat. size. " p. 80. " p. 38. Fam. 41. Psilid.
" 31. Sphyracephala. (Say) brevicornis. Say. magd " p. 81. " p. 44. Fam. 51. Diops.
" 32. Callopistria. (Law.) annulipes. Macq. " " p. 81. " p. 40. Fam. 44. Tryphet.
" 33. Tetanocera (Dumer.) saratogensis. Fitch 1st Rep. " " p. 82. " p. 37. Fam. 40. Sciom.
" 34. Ochthera. (Latr.) mantis Linn. " " O. " p. 45. Fam. 53. Ephyd.
" 35. Parydra. (Stenh.) bituberculata. Linn. " " O. " " " "
" 36. Drosophila. (Fallen) " " p. 84. " p. 45. Fam. 55. Droso.
" 37. Agromyza. (Fallen) " " p. 85. " p. 46. Fam. 57. Agrom.
" 38. Borborus. (Meig.) " " p. 85. " p. 47. Fam. 60. Borbor.
" 39. Trypeta. (Meig.) solidaginis Fitch. 1st Rep. nat. size. " p. 80. " p. 40. Fam. 44. Tryphet.
" 40. Tetanocera. (Dumer.) plumosa. Loew. nat. size. " p. 83. " p. 47. Fam. 40 Sciom.
" 41. Pyrgota. (Wied.) undata. Wied. " " " p. 82. " p. 40. Fam. 43. Ortal.
" 42. Ornithomyia. (Leach.) on Owl. Bubo virginianus. " " p. 86. " p. 48. Fam. 62. Hippo.
" 43. Chlorops. (Meig.) magd " p. 85. " p. 46. Fam. 56 Oscin.

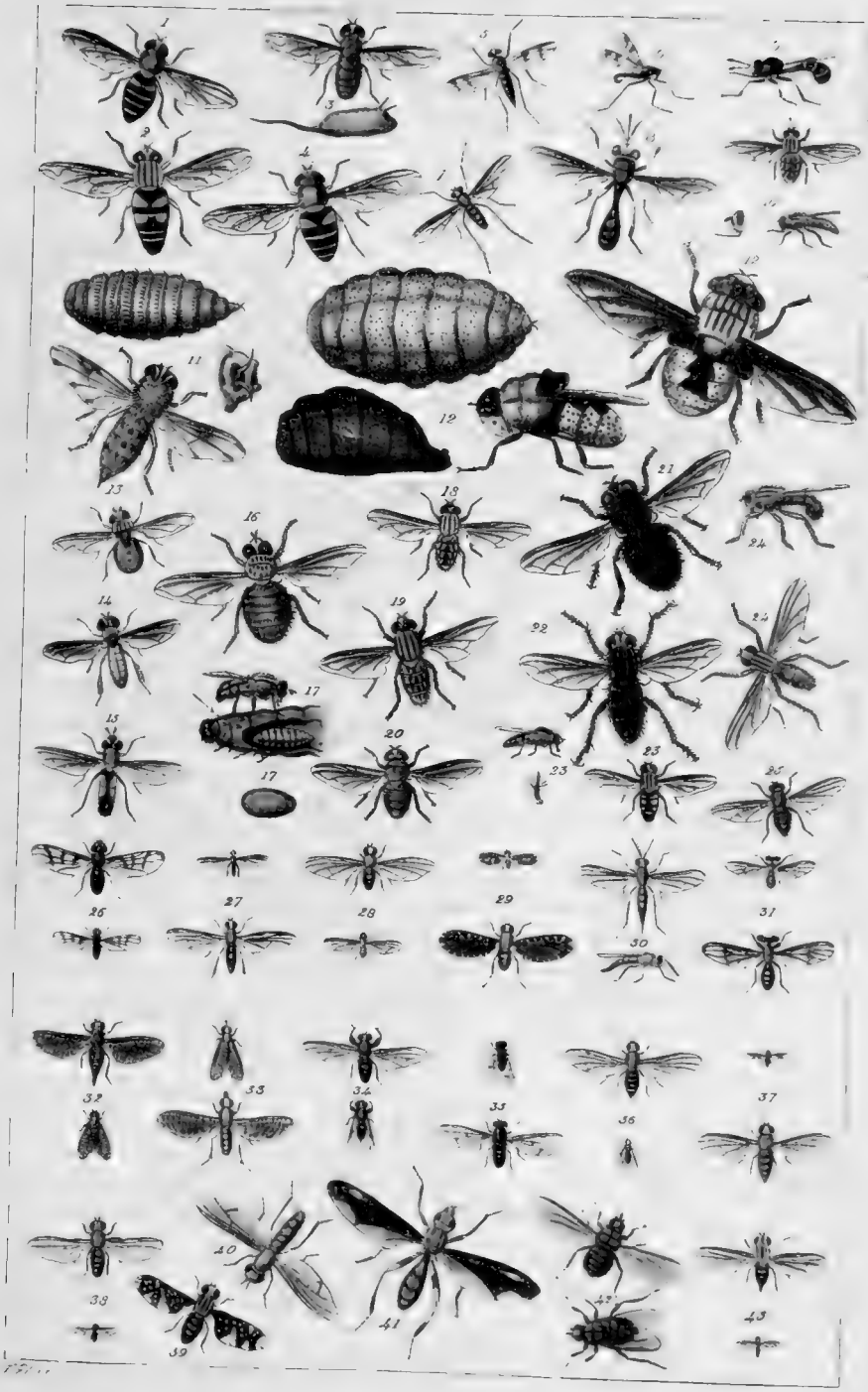
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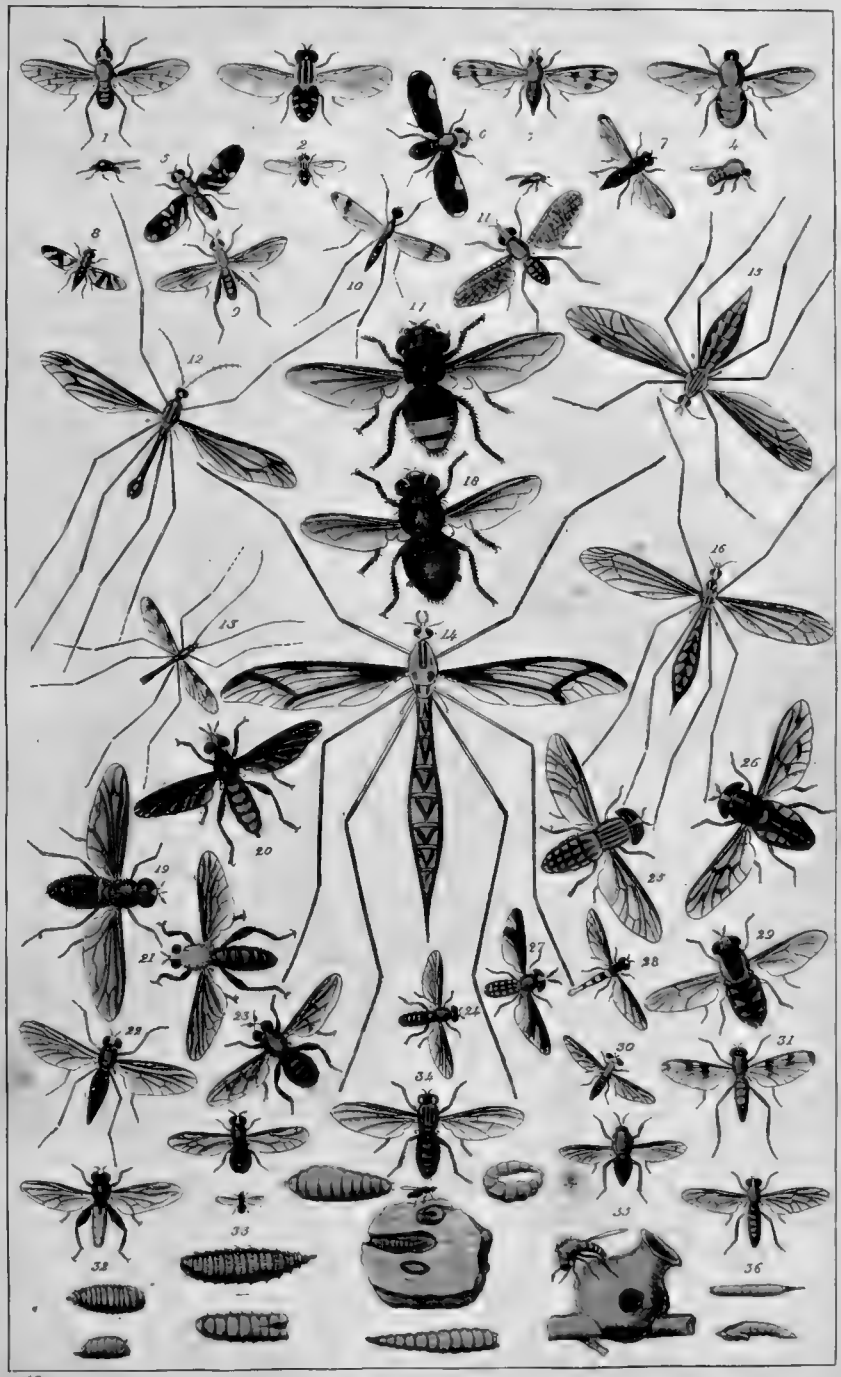
Plate V. Diptera.

Fig. 1. Thereva (Meig.) sulphurea Law. mag^{d} O.S.O. Læw. p. 25. Fam. 21. Bomb.
" 2. Oxycera (Meig.) sculata Oliv. " " 16 " p. 17. Fam. 12. Strat.
" 3. Sapromyza (Fall.) compedita Law " " 41. " p. 41. Fam. 46. Sapr.
" 4. Oncodes (Latr.) dispar. Macq. " " 26. " p. 27. Fam. 16. Cyrt.
" 5. Camptoneura (Macq.) picta. Fal. nat size " 79. " p. 40. Fam. 44. Tryp.
" 6. Trypeta (Meig.) comma. Wied. " " " 79. " " " " "
7. Ortalis (Fall.) colon. Loew. " " " 77. " p. 39. Fam. 43. Orta.
" 8. Trypeta (Meig.) solata. Læw. " " " 0. " p. 40. Fam. 44. Tryp.
" 9. Sepedon (Latr.) pusillus. Law. " " " 0. " p. 37. Fam. 40. Scion.
" 10. Calobata (Meig.) antennipes. Say 2. 33. " " " 30. " p. 38. Fam. 42. Micro.
" 11. Tetanocera (Dumer) arcuata. Læw. " " " 0. " p. 37. Fam. 40. Scion.
" 12. Tipula (Linn.) tricolor. Fab. " " " 8. " p. 10. Fam. 6. Tipul.
" 13. Limnophila (Macq.) macrocera. 2. 46. Say. " " " 6. " " " " "
" 14. Pedicia (Latr.) albivitta. Walk. " " " 5. " " " " "
" 15. Tipula (Linn.) fuliginosa. Say. " " " 0. " " " " "
" 16. " " ferruginea. Fab. " " " 7. " " " " "
" 17. Tachina (Meig.) bifasciata. Fab. " " " 64. " p. 35. Fam. 34. Tachi.
" 18. " " Sp? " " " " " " " "
" 19. Anthrax (Scop.) fasciata. Macq. " " " 40. " p. 25. Fam. 21. Bomb.
" 20. Laphria (Meig.) saniosa. Say. 2. 355. " " " 31. " p. 23. Fam. 19. Asilid.
" 21. " " flavicollis. Say. " " " " " " " "
" 22. Leptis (Fab.) ornata. Say. 1. 26. " " " 37. " p. 20. Fam. 15. Leptid.
" 23. Brachypalpus. (Macq.) frontosus. Læw. " " " 0. " p. 26. Fam. 22. Syrph.
" 24. Atomosia (Macq.) " " " 31. " p. 23. Fam. 19. Asilid.
" 25. Tabanus (Linn.) lineola (Fabr.) " " " 21. " p. 19. Fam. 14. Tabanus.
" 26. " " lasiopthalmus. Macq. " " " 28. " " " " "
" 27. Chrysops. (Meig.) " " " 24. " " " " "
" 28. Syrphus (Fab.) cylindricus. Say. 1. 22. " " " 57. " p. 26. Fam. 22. Syrph.
" 29. Odontomyia (Meig.) cincta. Oliv. " " " 15. " p. 17. Fam. 12. Strat.
" 30. Discocephala (Macq.) abdominalis. Say. 264. " " 28. " p. 24. Fam. 19. Asil.
" 31. Leptis (Fab.) boscii. Macq. " " " 36. " p. 20. Fam. 15. Leptid.
" 32. Xylota (Meig.) haematodes. Fab. " " " 49. " p. 26. Fam. 22. Syrph.
" 33. Pachygaster (Meig.) pulcher. Læw. mag^{d} " 0. " p. 18. Fam. 12. Strat.
" 34. Piophila (Fall.) casei. Linn. " " 82. " p. 44. Fam. 52. Piophi.
" 34. Tocophora (Meig.) nat. size " 44. " p. 25. Fam. 21. Bomb.
" 36. Xylophagus. (Meig.) " " " 18. " p. 16. Fam. 11. Xylo.

V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J. Plener

Plate VII. Diptera.

Fig. 1. Corethra (Latr.) pallida. Fal. mag? Meig pl 1. Eu. Loew p. 6. Fam. 1. Culici.
" 2. Tanypus. (Meig). varius. Fab. " " pl 2. " (OS. 4) " p. 5. Fam. 2. Chirono.
" 3. Trichocera (Meig) hyemalis. Meig. " " " " " p 10. Fam. 6. Tipulid.
" 4. Macrocera (Meig) . . . . . " OS. coll. US. " p. 13. Fam. 7. Mycet.
" 5 Blepharocera. (Macq.) . . . . " " " " " p. 8. Fam. 4. Bleph.
" 6. Hilara (Meig) cilipes. Meig. . . " Meig pl 22. Eu. " p. 30. Fam. 29. Empi.
" 7. Hemerodromia (Hgg) monostigma. Hgg " " pl 23. " " p 31. Fam 30. Tachy.
" 8. Clinocera (Meig) maculata. Loew. " OS. coll. US. " p. " " "
" 9. Medeterus (Fischer) regius Fab. " Meig pl 35. Eu. " p 32 Fam. 31. Dolich.
" 10. Porphyrops (Meig) diaphanus. Fab. " " " " " " " " "
" 11. Chrysotus (Meig.) neglectus. Wied. " " " " " " " " "
" 12. Beris (Latr) viridis Say. I. 251 " OS. coll. US. OS 14 " p. 17. Fam 12. Strat.
" 13. Nemotelus (Geoff.) punctatus Fab S. " Meig pl 25. Eu. " " " "
" 14. Sapromyza. (Fall). decempunctata Fall. " pl. 46. " " p. 43. Fam 46 Sapr.
" 15 Psila (Meig) bicolor . . . . . " " pl. 51 " " p. 48 Fam 41. Psilid.
" 16. Micropera (Meig). corrigiolata Linn. " " pl 52 " " p. 38. Fam 42. Micr.
" 17. Pipunculus (Latr) . . . . . OS. coll. US. " p. 28. Fam 24. Pipun.
" 18. Myopa (Latr) germina Weid. " Meig pl. 37. Eu. " p. 27. Fam 23. Myop.
" 19. Phora. (Latr) incrassata. Meig " " pl. 63 " " p. 47. Fam 61. Phor
" 20. " " " " " " " " " " "
" 21. Ctenophora (Meig) elegans. Meig 2. nat. size " pl. 5 " " p. 10. Fam 6. Tipulid.
" 22. Psychoptera (Meig) rufocincta. " " OS. coll. US. " p. 11. " " "
" 23. Chionea. (Dalm) valga. Harr. p. 601. " " Harr. " (OS. 9) " p. 11. " " "
* " 24. Thereva (Latr.) (?) Meig 2. p. 186 " " Meig pl. 15. Eu. " p. 24. Fam 20. There.
" 25. Laphria (Fal) thoracica. Fal. (dark var) " " OS. coll. US. " p. 19. Fam 23 Asilid.
" 26. Haematopota. (Meig) " " " " " " p. 14. Fam 19. Taban.
" 27. Chrysops (Meig) " " " " " " " " " "
" 28. Palloptera (Fall.) superba. Loew. " " " " " " p. 45. Fam 41 Lonchae.
" 29. Liancalus (Hal.) genualis. Loew. " " " " " " p. 32. Fam 31. Dolichop.
" 30. Dolichopus (Meig) longipennis Loew. 2. 57. " " " " " " p. " " " "
" 31. Mesogon (Latr) equestris. Fab. " " Meig pl. 31. Eu. p. 26. Fam 22 Syrph.
" 32. Somula (Macq) decora. Macq. " " OS. coll. US. (OS. 47) " " " "
" 33. Microdon (Illig) authracinus. Meig. " " Meig pl. 26. Eu. " " " "
" 34. Sericomyia (Meig) limbipennis. Macq. " " OS. coll. Nova Scotia (OS. 53) " " "
" 35. Volucella. (Geoff) zonaria. Schr. " " Meig pl. 22. Eu. " " " "
" 36. Chrysotoxum. (Meig.) arcuatum Linn S " " " " 27 " " " " "
" 37. Hypoderma. (Clark) bovis. Fab (affinis) " Heel fly of Texas. p. 32. Fam 32 Oestrid.

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

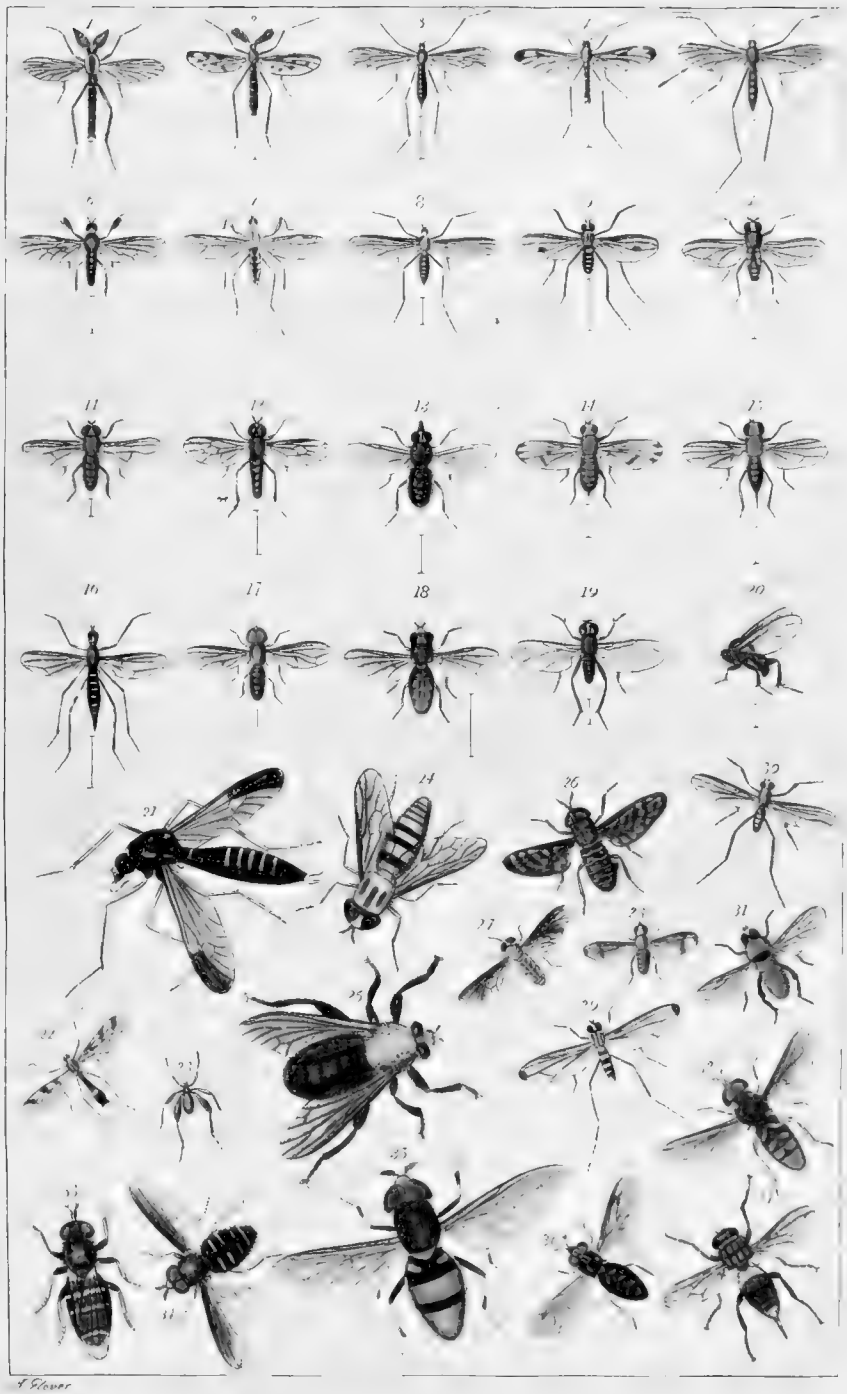
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Plate VII. Diptera.

Fig. 1.	L.P.	Culex. (Linn)	Westwood. 2. p. 508.	Eu.	mag.	♀	Loew. p. 6	Fam. 1. Cul.
" 2.	"	" Chironomus. (Fab)	" "	"	"	"	" p. 5.	Fam. 2. Chi.
" 3.	"	" " plumosus. Linn	" "	"	"	"	" "	"
" 4.	"	" " stercorarius. Dej	" "	"	"	"	" "	"
" 5	L.	Ceratopogon. (Meig)	" 2. p. 678.	"	"		" "	"
" 6.	L.P.	Cecidomyia. (Meig)	" "	"	"		" p. 6	Fam. 3. Cec.
" 7.	L.	Rhyphus. (Meig)	" "	"	nat. size.		" p. 15.	Fam. 9. Rhy.
" 8.	"	Mycetophila. (Meig) fusca De Geer.	" "	"	mag.		" p. 13.	Fam. 7. Myc.
" 9.	L.P.	Mycetobia. Meig	" 2. p. 524.	"	"		" "	"
" 10.	"	" Tipula. (Linn) oleracea. Linn	" "	"	nat. size.		" p. 10.	Fam. 6. Tip.
" 11.	"	" Ptychoptera (Meig) paludosa. Meig	" "	"	mag.		" "	"
" 12	"	" Bibio. Geoff.	" "	"	"		" p. 15.	Fam. 8 Bib.
" 13.	"	" Stratiomys. (Geoff.) chamaeleon. Linn	" 2. p. 531.	"	"		" p. 17.	Fam. 10 Strat
" 14.	L.	Xylophagus (Meig) ater. Fab.	" "	"	"		" p. 15.	Fam. 11. Xyl.
" 15.	"	Tabanus. (Linn) bovinus. Linn	" 2. p. 538.	"	nat. size.		" p. 19.	Fam. 14. Tab.
" 16	P.	Bombylius (Linn) major Linn	" "	"	"		" p. 25.	Fam. 21. Bom.
" 17.	L.	Anthrax. (Scop) ornata	" "	"	"		" "	"
" 18.	"	" Rhamphomyia (Meig) spinipes. Fall	" 2. p. 546.	"	mag.		" p. 30.	Fam. 29. Emp.
" 19	L.P.	Thereva (Latr) plebeia Linn	" "	"	nat. size.		" p. 24.	Fam. 20. Ther.
" 20.	"	" Asilus. (Linn)	" "	"	"		" p. 24.	Fam. 19. Asil
" 21.	L.	Leptis. (Fab) vermileo. Linn	" 2. p. 551.	"	mag.		" p. 20.	Fam. 15. Lep.
" 22.	L.P.	Leptis (Fab) sp?	" "	"	"		" "	"
" 23.	"	" Dolichopus. (Meig) ungulatus. Linn	" "	"	"		" p. 32.	Fam. 31. Dol.
" 24.	"	" Syrphus. (Fab) pyrastri. Linn	" "	"	nat. size.		" p. 26.	Fam. 22. Syr.
" 25.	L.	Volucella. (Geoff.)	" 2. p. 558.	"	"		" p. 26	"
" 26.	P.	Xylota (Meig) florum. Fab.	" "	"	"		" "	"
" 27.	L.	Merodon. (Latr.) clavipes. Fab.	" "	"	"		" "	"
" 28.	"	Helophilus (Meig) tenax	" "	"	"		" "	"
" 29	P.	" "	" "	"	"		" "	"
" 30.	L.	Ocyptera. (Latr) bicolor.	" "	"	"		" p. 35.	Fam. 34 Dex.
" 31.	L.P.	Tachina. (Meig.)	" "	"	"		" "	"
" 32.	L.	Lucilia. (Rob Desv)	" 2. p. 569.	"	"		" p. 35.	Fam. 36. Mus.
" 33.	L.P.	Anthomyia. (Meig) ceparum. Hgg.	" "	"	mag.		" "	"
" 34.	L.	Gasterophilus. (Leach.) equi. Fab. (Gastrus Meig)	" "	"	nat. size.		" p. 32.	Fam. 32. Oest.
" 35.	L.P.	Hypoderma. (Clark) bovis. Linn	" "	"	"		" "	"
" 36.	L.	Cephalomyia. (Latr) ovis. Linn	" "	"	"		" "	"
" 36.a.		" " " posterior view.	" "	"	"		" "	"
" 36.b		" " " Anterior view with hooks on head	" "	"	"		" "	"
" 37.	L.	Phora. (Latr) dauci. Meig	Westwood 2. p. 569.	Eu.	mag.		" p. 47.	Fam. 61. Phor.
" 38.	"	Platypeza. (Meig) boletina. Fall	" 2. p. 551.	"	"		" p. 28.	Fam. 26. Plat.
" 39.	L.P.	Sargus. (Fab.)	" 2. p. 531.	"	"		" p. 17.	Fam. 12. Strat.
" 40.	L.	Hippobosca. (Linn) equina. Linn	Meigen pl. 63.	"	"		" p. 48.	Fam. 62. Hipp.
" 41.	"	Ornithobia (Meig) pallida. Meig.	" 63.	"	"		" "	"
" 42.	"	Ornithomyia (Leach) viridis. Leach	" 64.	"	"		" "	"
" 43.	"	Stenopteryx (Meig) hirundinis. Linn	" 64.	"	"		" "	"
" 44.	"	Anapera (Meig) pallida. Leach	" 64.	"	"		" "	"
" 45.	"	Melophagus (Lat) ovinus Linn	" 64.	"	"		" "	"
" 46.	"	Nycteribia (Linn) (Strebla Wied) vespertilionis. Linn	" 64.	"	"		" "	"
* " 47.		Pulex. (Linn) irritans. Linn. Westwood 2. 489.	Eu & US.	see Packard p. 389.			Linnis p. 611.	
" 48.		Sarcopsylla. (Westw) penetrans.	" "	"	"		" "	"

* No 47. & 48. are not classed in the Diptera in Osten Sacken. or Loew. Cat. or Monog.

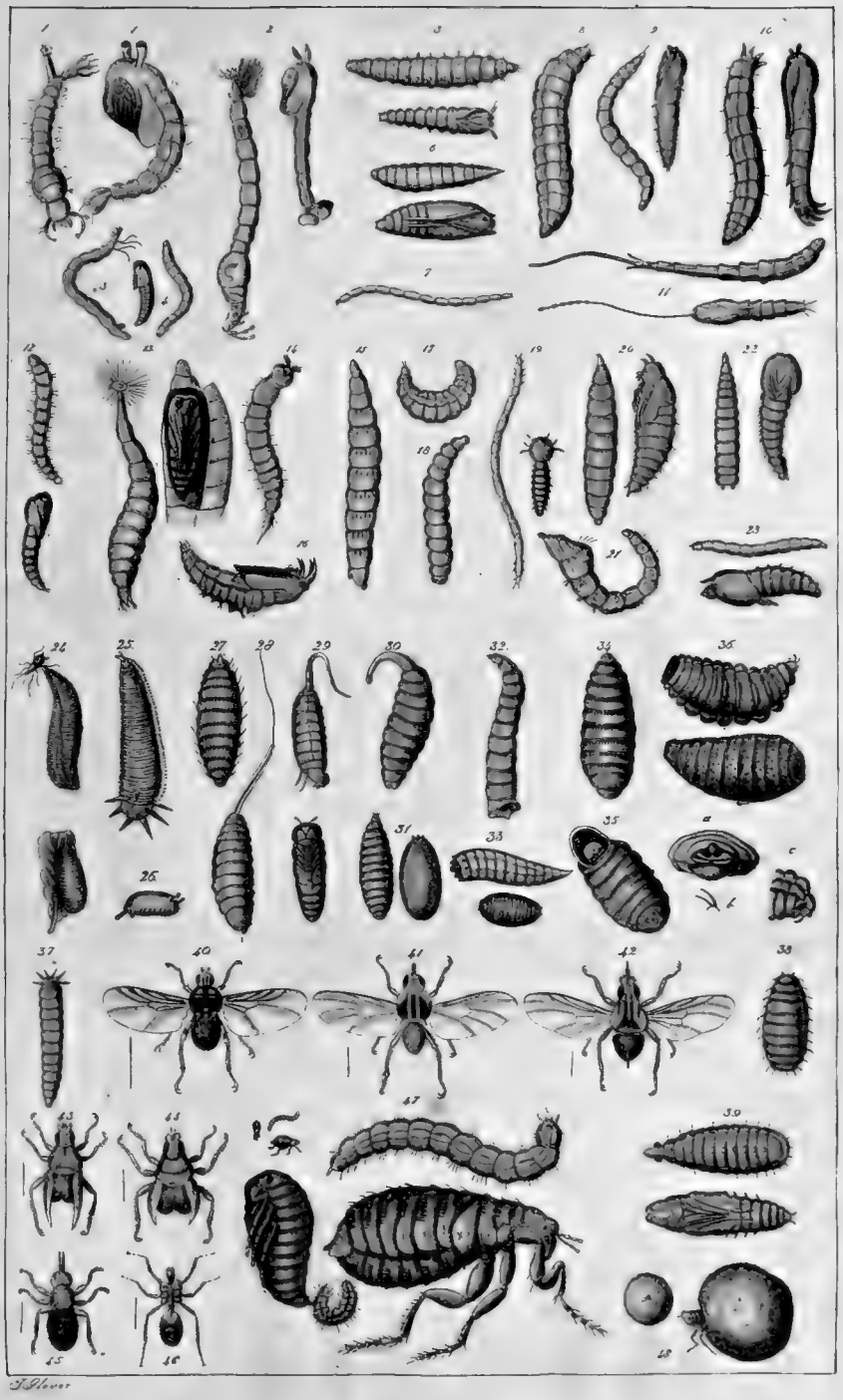

Plate VIII. Diptera.

Fig 1. L. Dermatobia . . .	noxialis . Goudot . . .	mag^3	S Am.	Pack p 406	Leow p 32.	Jam 32 Oe.			
" 2 L.P. Musca (Linn).	domestica Linn. OS. 71. . . .	"	Eu. & US.	"	p. 410.	"	p. 35.	"	36. Mus.
" 3. I. Melophagus (Latr.)	ovinus . Linn . OS. 86. . .	"	"	"	p. 417.	"	p. 48.	"	62. Hipp.
" 4 " Braula (Nitz.)	coeca (Nitz)	"	"	"	p. 418.	"	"	"	4 "
" 5 L.P. Chironomus (Fab)	oceanus . Pack.	"	US.	"	p. 371.	"	p. 5.	"	2. Chir.
" 6. P. Ptychoptera. (Fab)	. . . . .	"	"	"	p. 383.	"	p. 9.	"	6. Tip.
" 7. I. Phora (Latr)	incrassata . Meig	"	Eu.	"	p. 416.	"	p. 47.	"	61. Phor.
" 8. L. Simulium (Latr)	molestum	"	US.	"	p. 391.	"	p. 14.	"	8. Sim.
" 9. I. Nycteribia (Latr.)	westwoodii . Guerin	"	East Ind.	"	p. 418.	"	p. 48.	"	63. Nyc.
" 10. L. Chionea (Dalm.)	araneoides . Dalm	"	Eu.	"	p. 383.	"	p. 9.	"	6. Tip.
" 11. L.P.I. Mycetobia (Meig.)	sordida . Pack	"	US.	"	p. 387.	"	p. 13.	"	7. Myc.
" 12. L. Anthomyia (Meig)	(in nest of Bombus) Am. nat.	"	"	"	p. 731.	"	p. 36.	"	37. Anth.
" 13. L. Tipula (Linn)	. . . . .	nat. size.	"	"	p. 381	"	p. 9.	"	6. Tip.
" 14. P. Drosophila (Fall)	funebris . Meig (app) Am Nat VI. 34.	mag^3	"	"	p. 414.	"	p. 45.	"	55. Dros.
" 15. I. Lydella (Macq)	doryphorae . Riley Am. Ent. 1. 46.	"	"	"	p. 408.	"	p. 34.	"	34. Tach.
" 16. L.I. Lonchaea (Fall)	. Am nat	"	"	"	p. 412.	"	p. 41.	"	45. Long.
" 17. L. I. Ephydra (Fall)	halophilus . Pack Am nat . .	"	"	"	p. 414.	"	p. 44.	"	53. Ephy.
" 18. L.I. Anthomyia (Meig.)	ceparum . Hgg	"	"	"	p. 411.	"	p. 36.	"	37. Anth.
" 19 L.I. Drosophila (Fall)	. . (Apple fly.)	"	"	"	p. 416.	"	p. 46.	"	55. Dros.
" 20. L.P.I. Microdon (Meig)	globosus . Fallen. OS. 47.	nat. size.	"	"	p. 398.	"	p. 26.	"	22. Syrp.
" 21. L.I. Hypoderma (Clark)	bovis Linn. . OS. 62.	mag^3	Eu. US.	"	p. 404.	"	p. 32.	"	32. Oestr.
" 22. I. Gastrus (Meig.)	equi . Linn. . . . OS. 62.	nat. size	"	"	"	p. 404.	"	"	" "
" 23. L.I. Scenopinus (Latr.)	fallipes . Say	mag^3	US.	"	p. 401.	"	p. 23.	"	25. Scen.
" 24. L. Lucilia (Rob. Desv.)	caesar . Linn. (Ent. soc. Phil.) OS. 71.	nat. size.	Eu. US.	"	p. 408.	"	p. 35.	"	36. Mus.
" 25. P. Eristalis (Latr)	(in salt water.)	mag^3	US.	"	p. 399.	"	p. 26.	"	22. Syrp.
" 26. L. Anthomyia (Meig.)	zeae . Riley Am Ent. 1. p 244.	"	"	"	p. 419.	"	p. 36.	"	37. Anth.
" 27. I. Hippobosca (Linn)	equinus . Pack . . OS. 86.	nat. size.	"	"	p. 417.	"	p. 48.	"	62. Hipp.
" 28. L.I. Ortalis (Fall.)	flexa . Wied. (Onion fly.) OS. 79. arcuata . Walk. Am Ent. 2. 110.	"	"	"	p. 472.	"	p. 39.	"	43. Ort.
" 29. I. Simulium (Latr.)	molestum	mag^3	"	"	p. 391.	"	p. 14.	"	8 Simu.
" 30. P.I. Merodon (Latr.)	bardus . Say 2. 356. . .	nat. size.	"	"	p. 399.	"	p. 26.	"	22. Syrp.
" 31. I. Trypoderma (Wied.)	beccata . Fab. . . . OS. 62.	"	"	"	p. 406.	"	p. 32.	"	32. Oestr.
" 32. I. Tabanus (Linn.)	cinctus . Fab. fr Harris. OS. 20	"	"	Harris. p. 602.	"	p. 19.	"	14. Taba.	
" 33. I. Milesia (Latr.)	excentrica . Harr. " . . " 49.	"	"	"	"	609.	"	p. 26.	" 22. Syrp.

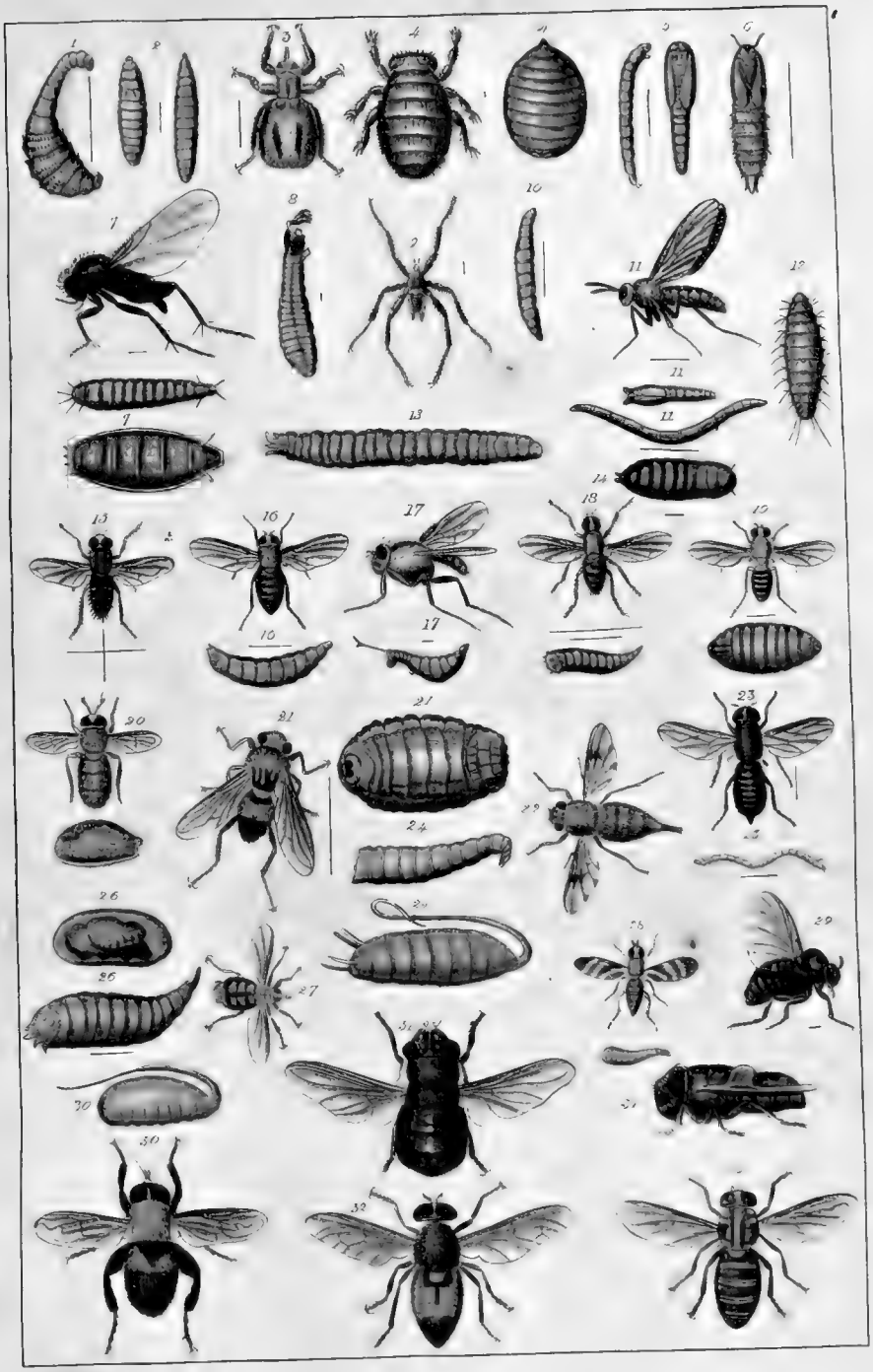
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Plate IX. Diptera.

Fig 1. Anthomyia (Meig.) . . . . . Am. Nat. 5. 745. mag. Loew p. 36. Jam. 37. Anth.
" 2. Heteromyia (Say.) fasciata Say 1. 80. pl. 35. . . . . " " p. 5. " 2. Chiro
" 3. Agromyza (Fall.) tritici. Fitch. OS. 85 Fitch 1st Rep. pl. 1. " " " p. 46. " 57. Agro.
" 4. Leptis. (Fab.) fasciatus. Say . . OS. 36. Say 1. 28. pl. 13. " " p. 20. " 15. Lept.
" 5. Pipiza (Fall.) radicum. Walsh. Am Ent. 1. 83. . . . . " " p. 26. " 22. Syrph.
" 6 Leptis (Fab.) albicornis. Say . . OS. 85. Say. 1. 27. pl. 13 . . " " p. 20. " 15. Lept.
" 7 " . . . vertebratis. Say. . " " . " . " " . " " " " " "
" 8. Xylota (Meig.) quadrata. Say. OS. 49. Say 1. 16. pl. 8. . " " p. 26. " 22. Syrph.
" 9. " . . " . cuncida Say. OS. 49. " . " . " . " " " " "
" 10. Syrphus (Fab.) obscurus. Say OS. 50. " 1. 23 pl. 11. . . " " " " " "
" 11. " . . " . cylindricus. Say. " . " . " . " . " " " " "
" 12. Pangonia (Latr.) incisuralis. Say. OS. 19. Say 1. 76. pl. 33 & nat. size. " p. 19 " 14. Tabai
" 13. Laphria (Meig.) fulvicauda. Say. OS. 30 " 1. 12. pl. 6. . " " p. 22 " 19. Asil.
" 14. Trypeta (Meig.) pomonella. Walsh. 1st Rep. 104. . . Mag. " p. 40. " 44. Tryp.
" 15. Laphria (Meig.) sericea. Say. OS. 30. Say 1. 12. pl. 6. . . nat. size. " p. 22. " 19. Asil.
" 16. " . " . dorsata Say. " " . " . " " . " . " " " " "
" 17. Syrphus (Fab.) philadelphicus. Macq. OS. 52. Am Ent 2. 142. " " p. 26 " 22. Syrph.
" 18. Cecidomyia (Latr.) strobiloides. Pack. p. 377 . . . . . mag. " p. 6. " 3. Cecid.
" 19. " . graminis (Fitch. olim cerealis) OS. 4 Fitch 2d Rep. p. 90. " . " " " " "
" 20. Phora (Latr.) (in mammoth cave) OS. 85. Am. nat. 5. 745. . " " p. 47. " 61. Phor.
" 21. Helophilus (Meig.) latifrons. Loew. Am Ent 2. 142. nat size " p. 26 " 22. Syrph.
" 22. Promachus (Loew) bastardi. Macq. OS. 32. Riley. 1st Rep. p. 168. " " " p. 22. " 19. Asil.
{ Trupaena (Macq.) apivora. Fitch.
" 23. Exorista (Meig. T. 255.) leucaniae Riley 2d Rep. p. 51. . . . " . " " p. 34. " 34. Tach.
" 24. L. Cecidomyia (Latr.) (eggs in larva.) Pack. 180. . . . mag. " p. 6. " 3. Cecid.
" 25. J. Asilus (Linn.) missouriensis Riley 2d Rep. p. 122 . . nat size " p. 22. " 19. Asil.
* " 26. { Exorista (Meig.) militaris. Walsh. * (E. cecropiae) Riley Am Ent. 2. p. 101. " " p. 34 " 34. Tach.
{ Senometopia. (Macq.) Pack 108 . . . . . .
" 27. L. P. J. Erax. (Macq.) bastardi. Macq. OS. 33. Riley 2d Rep. 124 " " p. 22. " 19. Asil.
" 28. J. Exorista (Meig.) flavicauda. Riley 2d Rep. 51 . . . . " " p. 34 " 34. Tach.
" 29. Wing of Cecidomyia (Latr.) showing neuration. Pack 379. mag. " p. 6. " 3. Cecid.
" 30. " . Diplosis (Loew) . . . " . " . " . " . " " " " " "
" 31. " . Lasioptera (Meig.) . " . " . " . " . " " " " " "
" 32. Ins. Anthomyia. (Meig.) zeae. Riley. 1st Rep. 134. Pl. 2. 24. " p. 36. " 37. Antho.
" 33. " Meromyza (Meig.) americana. Fitch. OS. 84 Fitch 2d Rep. 299. " " p. 46 " 56. Osci.
{ Riley 1st Rep. 159. Pl. 2. 28.
" 34. Wing. Promachus (Loew) fm. Riley 2d Rep. 122. . . nat size. " p. 22. " 19. Asil.
" 35. " " Asilus (Linn) . " . " . " . " . " " " " " "
" 36. " " Erax. (Macq) . " . " . " . " . " " " " " "
" 37. L. P. Anthrax. (Linn) sinuosa. Wied. OS. 42. Pack. p. 140. pl. 4. mag. " 25 " 21. Bomb.
" 38. L. Homolomyia. (Bouché) Am Ent 2. 138. . . . " 36. " 37. Antho.
" 39. Larva from Virginia. . . . . nat. size. "
" 40. L. P. Tabanus. (Linn) atratus. Fab. OS. 19. fm Riley 2d Rep. 128. " " " p. 19. " 14. Tabi.
" 41. " " Pipiza (Fall.) radicum. Walsh. Am Ent. 1. 83. . . mag. " p. 26 " 22. Syrph.

* Exorista cecropiae.

IX

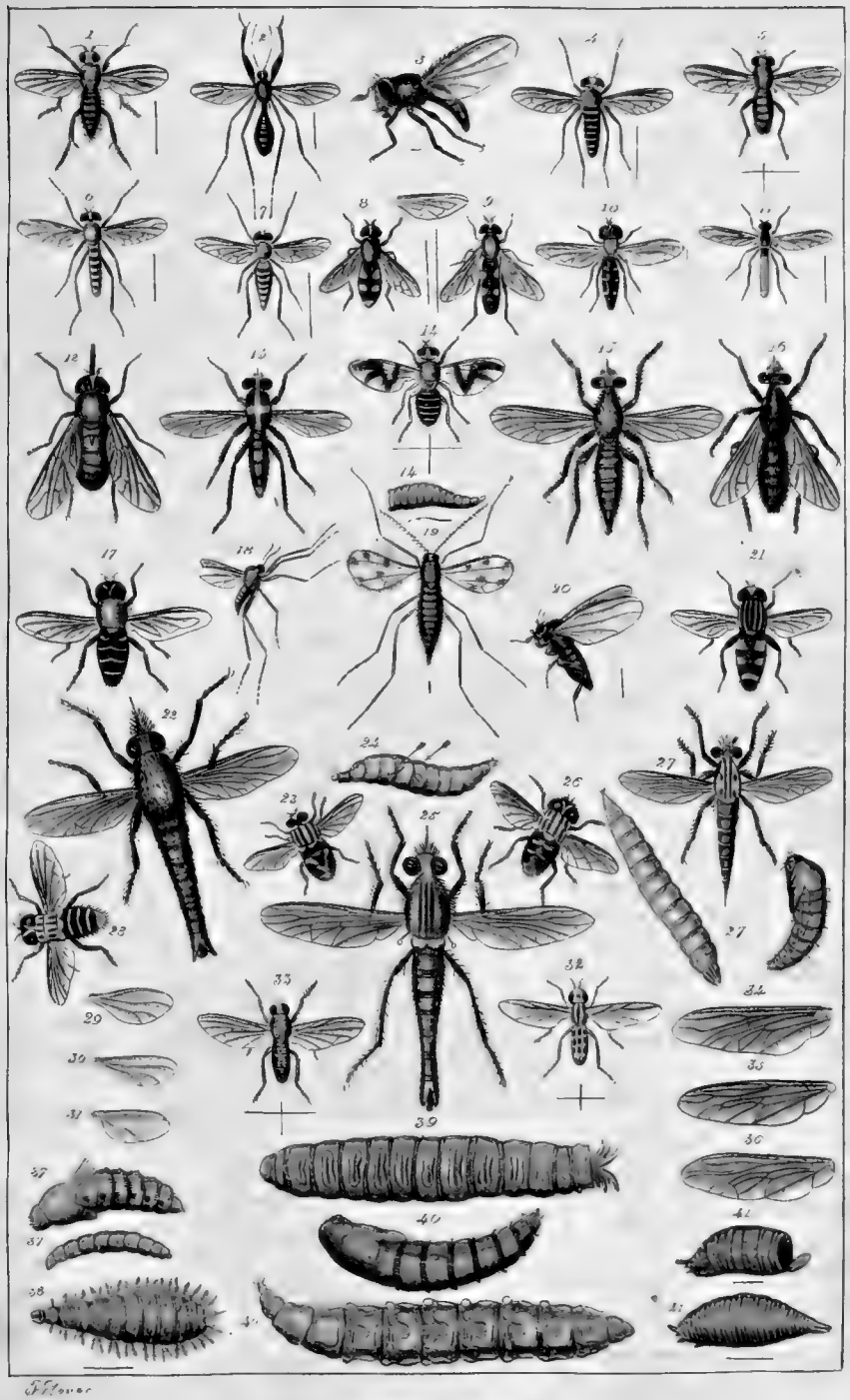

Plate X. Diptera.

Fig 1. I. Chlorops (Meig) taeniopus. Meig . . . . ✻ from Curtis. Eu. mag.[2] Loew p. 46 Fam 56. Oscin.
" 2. " " " " vulgaris. Fitch 1st 2d Rep. 291. OS p. 85. US. " " " " " "
" 3. L. I. Oscinis (Rob. D). granarius. . . . . Curtis. Eu. " " " " " "
" 4. I. " " tibialis. Fitch 1st 2d Rep. p 300. OS p. 85. US. " " " " " "
" 5. L. I. " " vastator. . . . . Curtis. Eu. " " " " " "
" 6. L. P. I. Drosophila. (Fall.) . . . . . " " " " p. 45. Fam. 55. Dros.
" 7. L. I. Anthomyia. (Meig.) tuberosa. . . . . " " " " p. 36. " 37. Anth.
" 8. L. P. I. Sciara. (Fab.) fucata. Meig . . . . " " " " p. 73. " 7. Myce.
" 9. L. I. Anthomyia (Meig) radicum. Linn. . . . . " " " " p. 36. " 37. Anth.
" 10. L. P. I. Psila (Meig). rosae. Fab. . . . . " " " " p. 45. " 41. Psil.
" 11. I. {Hylemyia (Macq) deceptiva. Fitch 1st 2d Rep. 301. . . US. " " p. 36. " 37. Anth.
{Anthomyia OS. cat. . . . . .
" 12. I. Phytomyza. (Fallen.) nigricornis. Macq. . . . Curtis. Eu. " " p. 47. " 58. Phyt.
" 13. I. Melanospora. (Meig) (Tachina.) diabroticae. Shimer Am nat. 5. 219 US. mag.[2] " p. 34. " 34. Tach.
" 14. S. Simulium (Lat) sericeum ♂ . . . . . Curtis. . Eu. mag.[2] Loew p. 14. " 8. Simu.
" 15. " " " " " ♀ . . . . . " " " " " " " "
" 16. " Leucopis (Meig) griseola. Fall. Meig 6. p. 183. pl 60. . " " Loew O. but placed by Meigen between Ephydra & Chlorops.
" 17. " Agromyza (Fall) denticornis. Fall. Meig. 6. p. 175. pl. 61. . Eu. mag.[2] Loew p. 46. Fam 47. Agro.
" 18. Helomyza. (Foll.) ustulata. Meig 6. p. 54. pl. 57. . . . " " " p. 37. " 39. Helo.
" 19. " Dacus (Meig.) oleae. (Fab) Meig 6. p. 61. pl. 56. . . . " " " p. 40. " 44. Trype.
" 20. " Meromyza (Meig.) pratorum. Meig 6. p. 163. pl. 61. . . . " " " p. 36. " 56. Oscin.
" 21. " Syrphus. (Fab) (Scaeva) ribesii, Fab. OS. 51. Curtis Eu & US. nat. size. " p. 26. " 22. Syph.
" 22. " Hypoderma. (Clark) ((Oestrus.) tarandi Linn. OS. 62 Meig 4. 169. pl. 38 " " p. 32. " 32. Oestr.
" 23. " Masicera (Macq) (Tachina Meig) . Meig 7. p. 241. pl. 71. . Eu. nat. size. " p. 34. " 34. Tach.
" 24. " Ornithomyia. (Leach) avicularia. Linn. from Curtis. " mag.[2] " p. 48. " 62. Hippa.
" 25. L. P. I. Syrphus (Fab) . ? Larvae feeds on eggs &c of Pemphigus vitifoliae. US. " p. 26. " 22. Syph.
" 26. Gall made by Pemphigus vitifoliae. on Grape vine leaves. see no 25. above. (Homop.)
" 27. L. P. I. Tipula. (Linn.) oleracea. Linn. . from Curtis. Eu. nat. size. Loew. 9. Fam. 6. Tipu.
" 28. I. Cephalomyia (Latr.) (Oestrus) ovis Linn. OS. 62. Meig 4. p. 164. pl. 38 " " " p. 32. " 32. Oestr.
" 29. I. Gasterophilus. (Leach) haemorrhoidalis. Fab. OS. 62. Curtis. Eu. US. mag. Loew. p. " " " "
" 30. L. P. I. Leucopis. (Meig) found in Md. eating eggs &c of Pemphigus vitifoliae. US. " see fig 16. above.
" 31. L. P. I. Trichocera. (Meig) hyemalis. De Geer. fm Curtis. Eu. nat. size Loew p. 9. Fam 6. Tipu.
" 32. a disease called Anbury in turnips. supposed to be caused by Trichocera hyemalis.
" 33. L. Tabanus (Linn) bovinus. Linn . . . . . Curtis . . Eu. nat. size Loew. p. 19. Fam 14. Tab.
" 34. P. Proctacanthus. (Macq.) philadelphicus. Macq. OS. 35 . US. " " " p. 22. " 19. Asil.
Pack 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 (Latr) columbaschensis. Fab. fm Curtis. Eu. mag.[2] " p. 14. " 8. Simu.

✻ Curtis. John Curtis F.L.S. "Farm Insects" and in "Cyclopedia of Agriculture." edited by John C. Morton. Blackie & Sons. Glasgow. Edinburg. & London.

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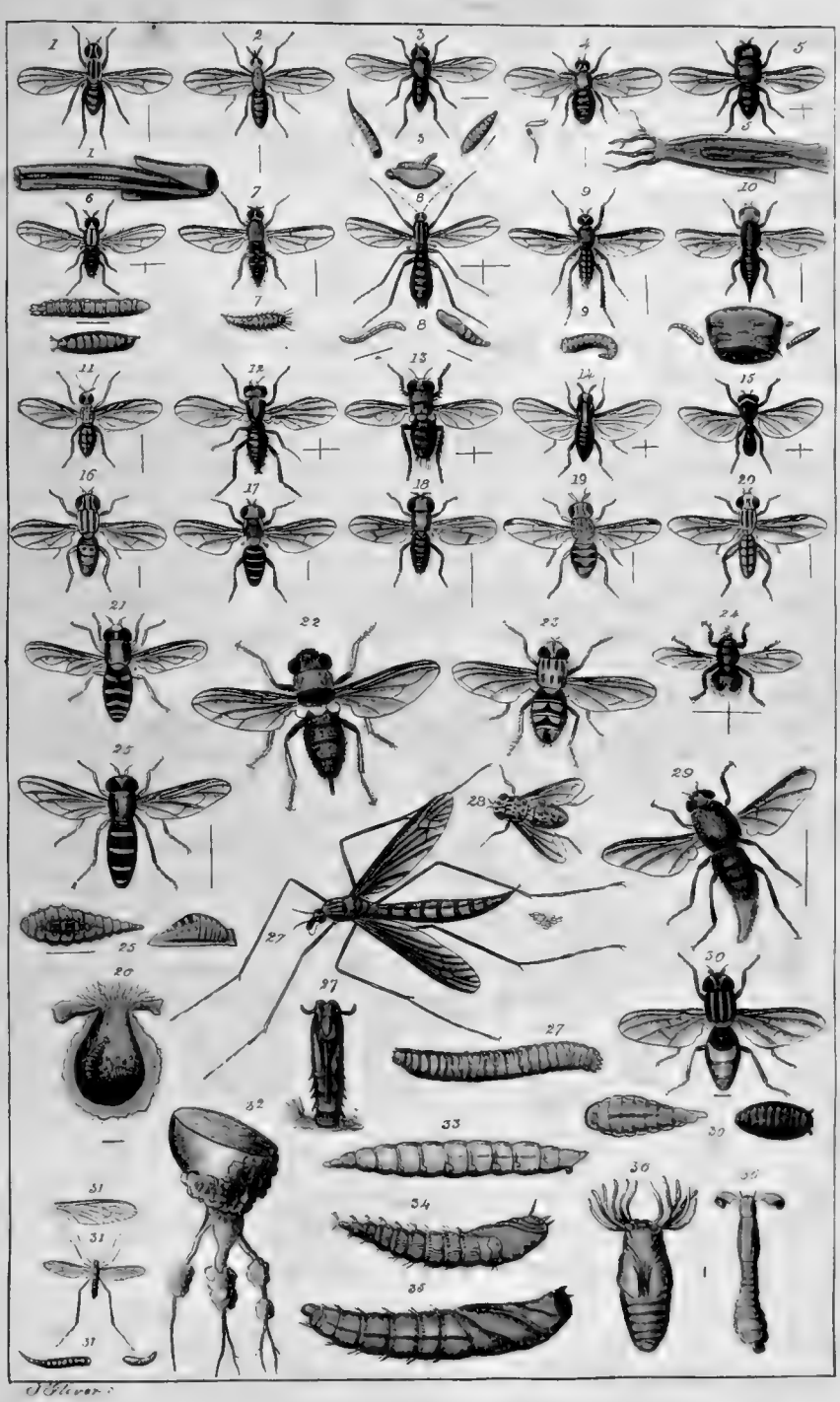
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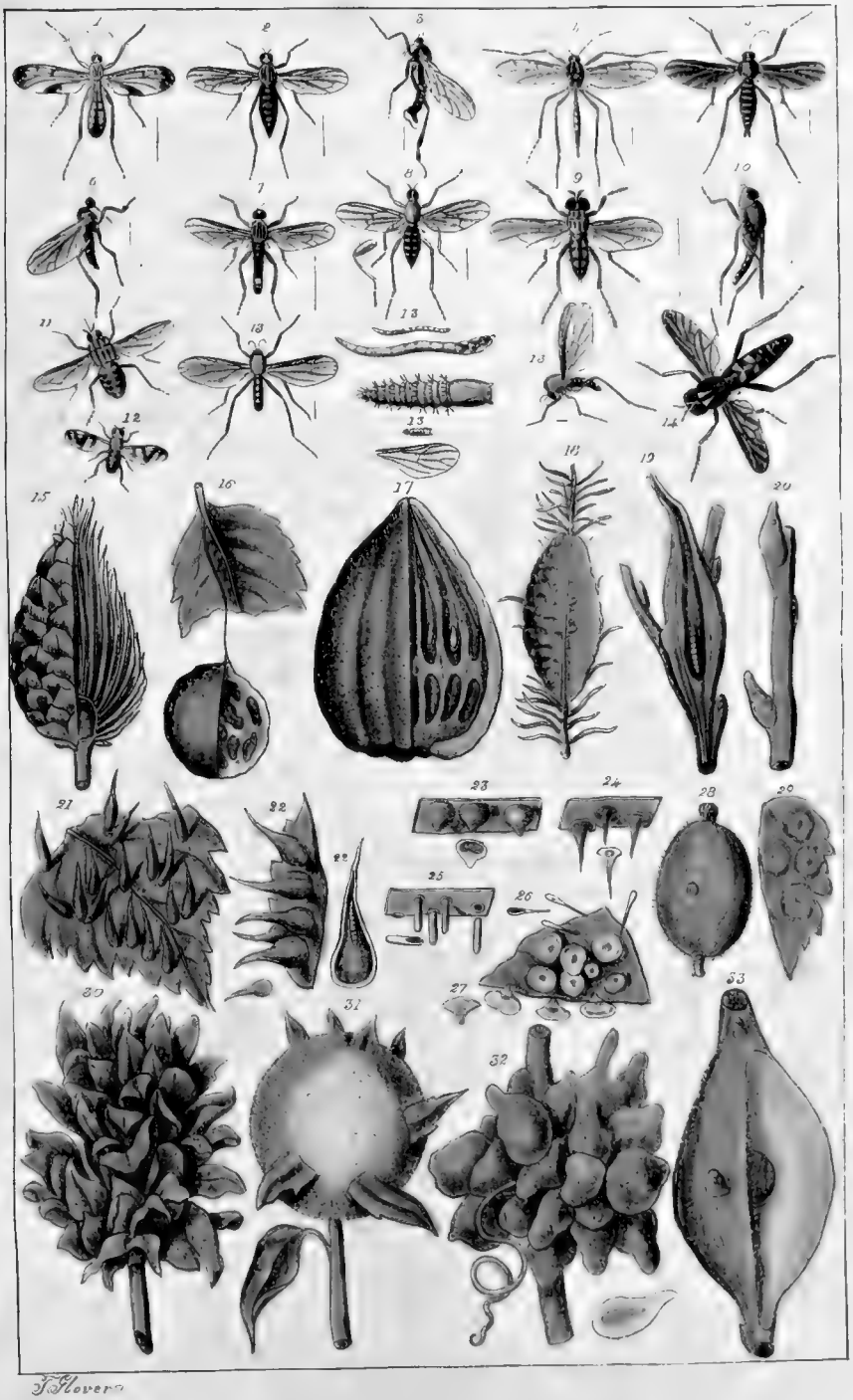
Plate XII. Diptera.

Fig 1. Sciophila (Meig) striata. Meig . . Meig 1. p. 192. pl 9. mag. Eu. Loew. p 13. Fam 7. Myc.
" 2. Rhamphomyia (Meig) nigripes. Fab . . " 3. p. 48. pl 23. " " " p. 30. " 29. Emp.
" 3. " " longipes. Meig . . " 3. p. 55. pl. 23. " " " " " "
" 4. Boletophila. (Meig.) cinerea. Hgg . . . " 1. p. 174. pl. 8. " " " p. 13. " 7. Myc.
" 5. Sciara. (Fab). Thomae. Linn. . . . . " 1. p. 217. pl 4. " " " " " "
" 6. Empis (Linn) chioptera. Fallen . . . " 3. p. 27. pl. 22. " " " p. 30. " 29 Emp.
" 7. " " opaca. Fab. . . . . " 3. p. 17. pl 22. " " " " " "
" 8. Tachydromia. (Meig) fasciata. Meig . . " 3. p. 86 pl 23 " " " p. 31. " 30. Tachy.
" 9. Hylemyia. (Macq) . . . . . " 7. p. 317 pl 7+4 " " " p. 36. " 37. Anthe.
" 10. Psila. (Meig) rosae. Fab . . . . . " 5. p. 358. pl 51. " " " p. 38. " 41. Psil.
" 11. Glossina (Wied) morsitans. Pack 407. Woods. Nat. hist. p. 574. nat size. Africa. " 135 " 36 Mus
" 12. Trypeta. (Meig) suavis Loew. 175 . . fm Dr. LeBaron. . " US. Loew p. 20 Fam 24 Try.
" 13. L.S.I. Mycetobia. (Meig) persicae. Riley Am Ent 1. 223. . . mag. " " " p. 13. " 7. Myc.
" 14. I. Thereva Latr Meig 2. p. 86. pl. 15. nat. size. Eu. " p 6. " 3 Cecid
" 15. Gall of Cecidomyia (Latr). strobiloides. O.S. on Willow Loew. 203. " US. " " " "
" 16. " . " . . " impatientis O.S. Loew. 204 Am Ent. 2. 68. . . . " " " " " "
" 17. " . " . . " (vitis) pomum OS (on Grape.) Pack. 377. . . . . " " " " " "
" 18. " . " . . " ananassa. Riley. Am. Ent. 2. 244. . . . . " " " " " "
" 19. " . " . . " (salicis) siliqua. Walsh. Am Ent. 2. 214 . . . " " " " " "
" 20. " . " . . " orbitalis. Walsh (a guest gall gnat) Am Ent 2. 28 " " " " " "
" 21. " . " . . " (vitis) lituus. Riley Am Ent 2. 28 (on Grape. " " " " " "
" 22. " . " . . " " " (affinis) (a var. found in Maryland) " " " " " "
" 23. " . " . . " holotricha. OS. (on Hickory) Loew. 1. 193 " " " " " "
" 24 " . " . . " caryaecolae OS. . . . . Loew. 1. 192. " " " " " "
" 25. " . " . . " tubicola . . OS. . . . . Loew 1. 192. " " " " " "
" 26. " . " . . " ? . . . . . (Oak leaf on red) " " " " " "
" 27. " . " . . " poculum Fitch 2d Rep. (Oak) Loew. 1. 201. " " " " " "
" 28. " . " . . " grossulariae. Fitch 1st Rep 179. (Gooseberry. Loew 1. 187. " " " " " "
" 29. " . " . . " acallaris. O.S. (on Maple) Loew. 1. 199. " " " " " "
" 30. " . " . . " (salicis) brassicoides. Walsh. (on Willow) Am Ent. 1. 104. " " " " " "
" 31. " . " . . " chrysopsidis. OS. (on Golden Willow) Loew 1. 203. " " " " " "
" 32. " . " . . " (vitis) coryloides. Walsh. (on Grape) Pack 377. " " " " " "
" 33. Gall of { Trypeta (Meig) . . solidaginis. Fitch. OS. 80. (Golden rod) " " " " " "
Acinia (Macq) . . . . . Fitch. 1st Rep. 67 & 1854. p. 77. " " " " " "
Trypeta. asteris. of Harris an error.



J. Flower

Plate XIII. Diptera.

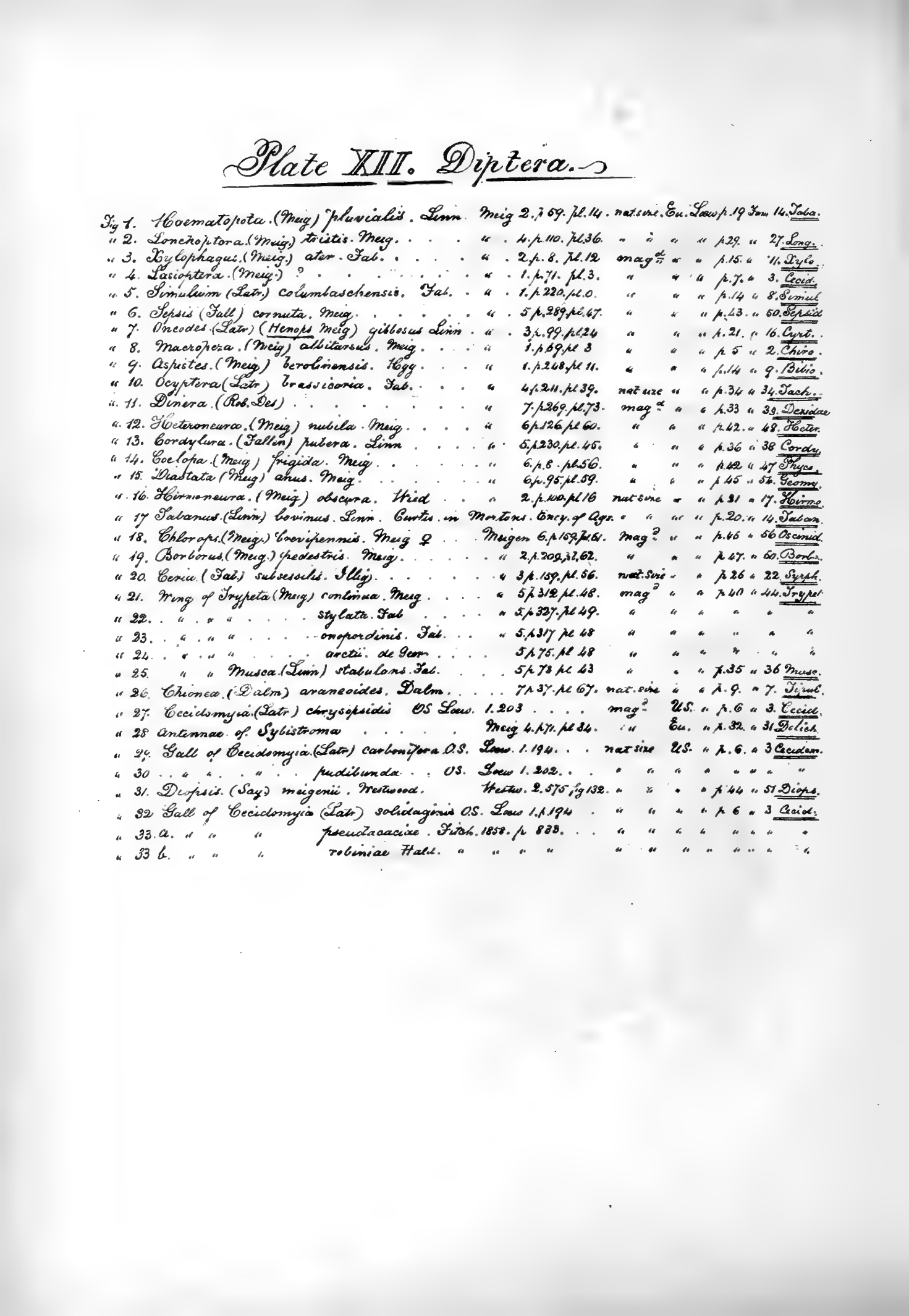


Fig 1.	Hoematopota (Meig) pluvialis. Linn	Meig	2.	69.	pl. 14.	nat. size	Eu.	Leach	p. 19 Fam. 14. Taba.
" 2.	Leucheptera (Meig) tectis. Meig.	"	4.	110.	pl. 36.	"	"	"	p. 29. " 27. Long.
" 3.	Xylophagus (Meig) ater. Fab.	"	2.	8.	pl. 12	mag^{d}	"	"	p. 15. " 11. Xylo.
" 4.	Lasiopteva (Meig) ?	"	1.	71.	pl. 3.	"	"	"	p. 7. " 3. Cecid.
" 5.	Simulium (Latr) columbaschensis. Fab.	"	1.	220.	pl. 0.	"	"	"	p. 14 " 8. Simul.
" 6.	Sepsis (Fall) cornuta. Meig.	"	5	289.	pl. 47.	"	"	"	p. 43. " 50. Sepsid.
" 7.	Oncodes (Latr) (Henops Meig) gibbosus Linn.	"	3.	99.	pl. 24	"	"	"	p. 21. " 16. Cyrt.
" 8.	Macropeza (Meig) albitarsis. Meig.	"	1	69.	pl 3	"	"	"	p. 5 " 2. Chiro.
" 9.	Aspistes (Meig) berolinensis. Hgg.	"	1.	248.	pl 11.	"	"	"	p. 14 " 9. Bibio.
" 10.	Ocyptera (Latr) brassicaria. Fab.	"	4	211.	pl 39.	nat size	"	"	p. 34 " 34. Tach.
" 11.	Dinera (Rob. Des)	"	7.	269.	pl. 73.	mag^{d}	"	"	p. 33 " 33. Dexiidae
" 12.	Heteroneura (Meig) nubila. Meig.	"	6	126	pl 60.	"	"	"	p. 42. " 48. Heter.
" 13.	Cordylura (Fallen) pubera. Linn	"	5.	230.	pl. 45.	"	"	"	p. 36 " 38 Cordy.
" 14.	Coelopa (Meig) frigida. Meig.	"	6.	8.	pl 56.	"	"	"	p. 42 " 47 Phyc.
" 15.	Diastata (Meig) adusta. Meig.	"	6	95	pl. 59.	"	"	"	p. 45 " 54. Geomy.
" 16.	Hirmoneura. (Meig) obscura. Fabr	"	2.	100.	pl 16	nat size	"	"	p. 31 " 17. Hirmo.
" 17	Sabanus (Linn) bovinus. Linn. Curtis in Mortons. Ency. of Agr.	"	"	"	"	"	"	"	p. 20. " 14. Taban.
" 18.	Chlorops (Meig) brevipennis. Meig ♀	Meigen	6.	159	pl 61.	mag?	"	"	p. 46 " 56 Oscinid.
" 19.	Borborus (Meig) pedestris. Meig.	"	2.	209.	32. 62.	"	"	"	p. 47. " 60. Borb.
" 20.	Ceria (Fab) subsessilis. Illig.	"	3	159.	pl. 56.	nat. Size	"	"	p. 26 " 22. Syrph.
" 21.	Wing of Trypeta (Meig) conimua. Meig.	"	5	312	pl. 48.	mag?	"	"	p. 40 " 44. Trypet.
" 22.	" " " " stylata. Fab	"	5.	327.	pl 49.	"	"	"	" " "
" 23.	" " " " oneopordinis. Fab.	"	5.	317	pl 48	"	"	"	" " "
" 24.	" " " " arctii de Geer		5	75.	pl 48	"	"	"	" " "
" 25.	" " Musca (Linn) stabulans. Fab.		5	73	pl 43	"	"	"	p. 35 " 36 Muse.
" 26.	Chionea (Dalm) araneoides. Dalm.		7	37.	pl 67.	nat. size	"	"	p. 9. " 7. Tipul.
" 27.	Cecidomyia (Latr) chrysopsidis OS Leew.	1.	203			mag?	US.	"	p. 6 " 3. Cecid.
" 28	Antennae of Sybistroma	Meig	4.	171.	pl 34.	" "	Eu.	"	p. 32. " 31 Delich.
" 29.	Gall of Cecidomyia (Latr) carbonifera O.S.	Leew.	1.	194.		nat size	US.	"	p. 6. " 3 Cecidom.
" 30	" " " pudibunda OS.	Leew	1.	202.		"	"	"	" " "
" 31.	Diopsis (Say) meigenii. Westwood.	Westw.	2.	575	fig 132.	"	"	"	p. 44 " 51 Diops.
" 32	Gall of Cecidomyia (Latr) solidaginis OS.	Leew	1.	194		"	"	"	p. 6 " 3 Cecid.
" 33 a.	" " " pseudacaciae.	Fitch.	1858.	p. 838.		"	"	"	" " "
" 33 b.	" " " robiniae Hall.	"	"	"	"	"	"	"	" " "

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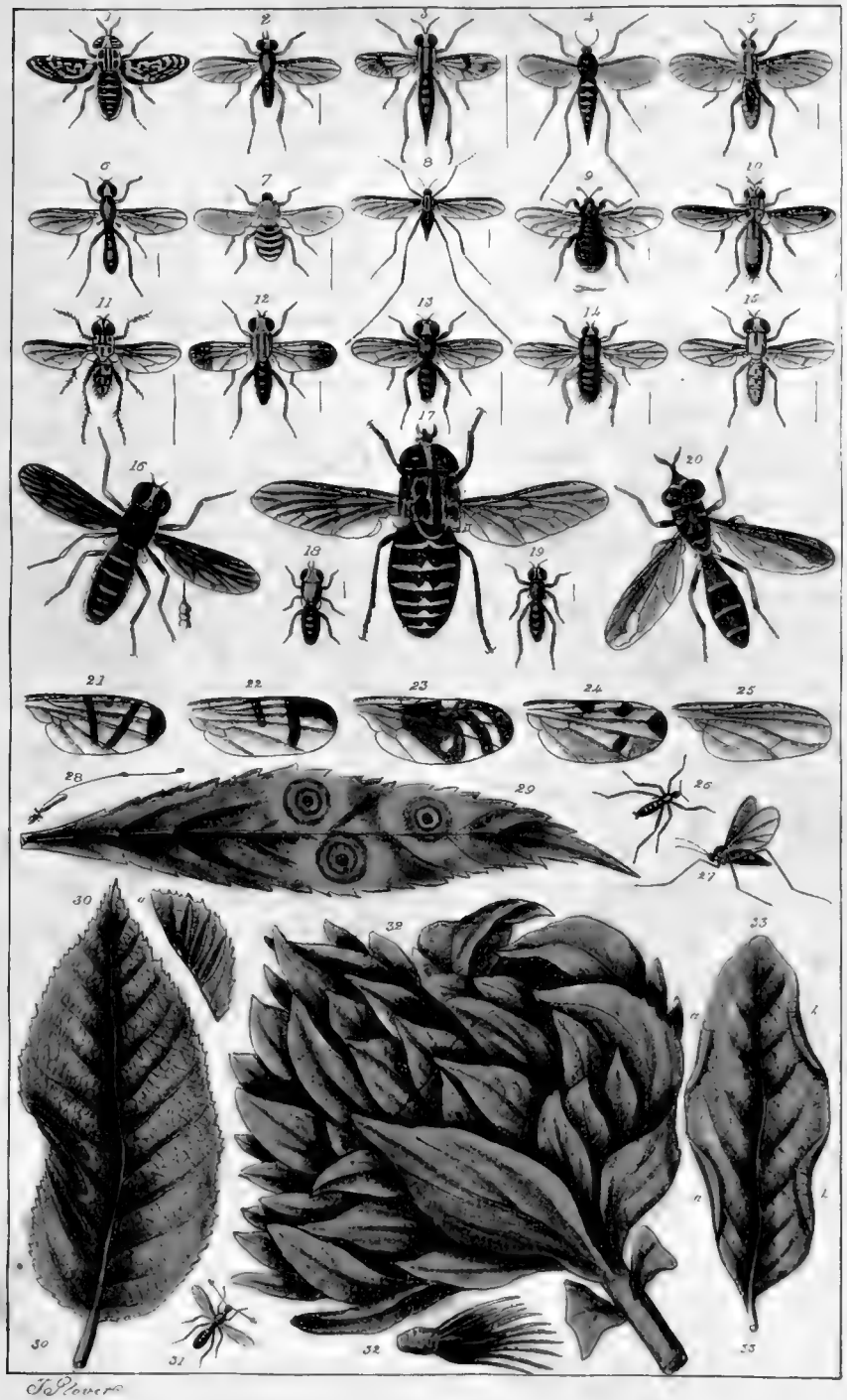
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J. Plover

Supplement A.

	Meigen.	OSacken.	Loew.
1. Culex. Linn	plate 1.	page 1.	page 5.
2. Anopheles. Meig	" "	" 2.	" "
3. Corethra. Latr	" "	" "	" "
4. Tanypus. Meig	" 2.	" 4.	" "
5. Ceratopogon. Meig	" "	" "	" "
6 Chironomus. Fab	" "	" 3.	" "
7. Cecidomyia. Latr	" "	" 4.	" 6.
8. Psychoda. Latr	" 3.	" 5.	" 9.
9. Erioptera. Meig	" 5.	" 4.	" 11.
10. Ctenophora "	" "	" 8.	" "
11. Limnobia. "	" "	" 3.	" "
12. Trichocera. "	" 7.	" 9.	" "
13. Tipula. Linn	" 6.	" 6	" "
14 Ptychoptera. Meig	" 4	" 9	" "
15. Macrocera. "	" 7.	" "	" "
16. Mycetophila. "	" 9.	" 10	" 13
17. Sciara. Fab	" 4.	" 11	" "
18. Simulium. Latr	" 10.	" "	" 14
19. Dilophus. Meig	" 11.	" 12	" "
20. Bibio. Geoff	" 11	" 13	" "
21. Rhyphus. Latr	" "	" "	" 16.
22. Asilus. Linn	" 21.	" 35.	" 24.
23. Dioctria. Meig	" 19.	" 28.	" "
24. Dasypogon. "	" 20.	" "	" "
25. Laphria. Fab	" "	" 30.	" 4
26. Leptogaster. Meig	" 21.	" 36.	" "
27. Leptis. Linn	" 15.	" "	" 20.
28. Tabanus. Linn	" 13.	" 19.	" 19.
29. Haematopota. Meig	" 14	" 25.	" "
30. Chrysops. Meig	" "	" 24.	" "
31. Empis. Linn	" 22	" 45.	" 30.
32. Rhamphomyia. Hgg	" 23	" "	" "
33. Hilara. Meig	" 22	" "	" "
34. Hemerodromia. Hal	" 23	" 46.	" 31.
35. Tachydromia. Fal	" "	" "	" "
36. Bombylius. Linn	" 18	" 42.	" 25.
37. Anthrax. Scop	" 17	" 38.	" "
38. Dolichopus. Latr	" 35	" 59.	" 32.
39. Medeterus. Fisch	" "	" 58	" "
40. Porphyrops. Meig	" "	" "	" "
41. Chrysotus. "	" "	" "	" "
42. Beris. Latr	" 12	" 14	" 17.
43. Exomyia. Latr	" "	" 18.	" 16

	Meigen	OSacken.	Loew
44. Xylophagus Meig	plate 12.	page 18.	page. 16.
45. Stratiomys. Geoff	" 26.	" 14.	" 18.
46. Oxycera. Meig	" 25.	" 16	" "
47. Nemotelus. Fab	" 24	" "	" "
48. Pachygaster. Meig	" "	" 0	" "
49. Borborus "	" 62.	" 85.	" 47.
50. Gymnosoma Fall.	" 38.	" 63.	" 34.
51. Ocyptera. Latr	" "	" "	" "
52. Tachina Meig	" 41.	" 64.	" "
53. Sarcophaga Meig	" 48.	" 63.	" "
54 Musca. Linn	" 43.	" 70.	" 35.
55. Anthomyia Meig	" 44.	" 72	" 36.
56. Sepsis Fallen	" 47.	" 78	" 43.
57. Scatophaga. Latr	" 46.	" 68.	" 36.
58. Trophila. Fall	" 54	" 82.	" 44.
59. Sapromyza. Fall.	" 46.	" 0.	" 41.
60. Ortalis. Fall.	" "	" 77.	" 43.
61. Dryptes. Meig	" 48.	" 78.	" 40.
62. Drosophila Fall.	" 59.	" 84.	" 45.
63. Psila. Meig	" 51.	" 0	" 38.
64. Agromyza. Fall.	" 61.	" 85.	" 46.
65. Chlorops. Meig	" "	" "	" "
66. Micropeza. "	" 53.	" 81.	" 38.
67. Ceria. Fab	" 26.	" 46.	" 26.
68. Microdon. Illig.	" 26.	" 47	" "
69. Chrysotoxum. Meig.	" 27.	" "	" "
70. Xylota. Meig	" 28.	" 49.	" 26.
71. Rhingia. Fab.	" 29.	" 50.	" "
72. Helophilus. Meig.	" 32.	" 54.	" "
73. Merodon. Latr.	" 31.	" 53.	" "
74. Eristalis "	" 32.	" 54.	" "
75. Syrphus. Fab.	" 30.	" 50.	" "
76. Volucella. Geoff.	" 32.	" 56.	" "
77. Conops. Linn	" 36.	" 60	" 27.
78. Myopa. Fab.	" 37.	" 61	" "
79. Stomoxys. Geoff.	" 38.	" "	" 35.
80. Oestrus. Linn	" 38.	" 62.	" 33.
81. Gastrus. Meig	" "	" "	" "
82. Acrocera. "	" 24.	" 25	" 21
83. Thereva Latr	" 15.	" 38.	" 24
84. Longchoptera Latr	" 36	" 0	" 29.
85. Pipunculus. "	" 33.	" 57.	" 28.
86. Platypeza. 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 Leunes "Synopsis der drei Naturreiche" 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. H. Meigens systematic description of known European two winged insects. Halle. 1851. & published in seven parts or volumes.

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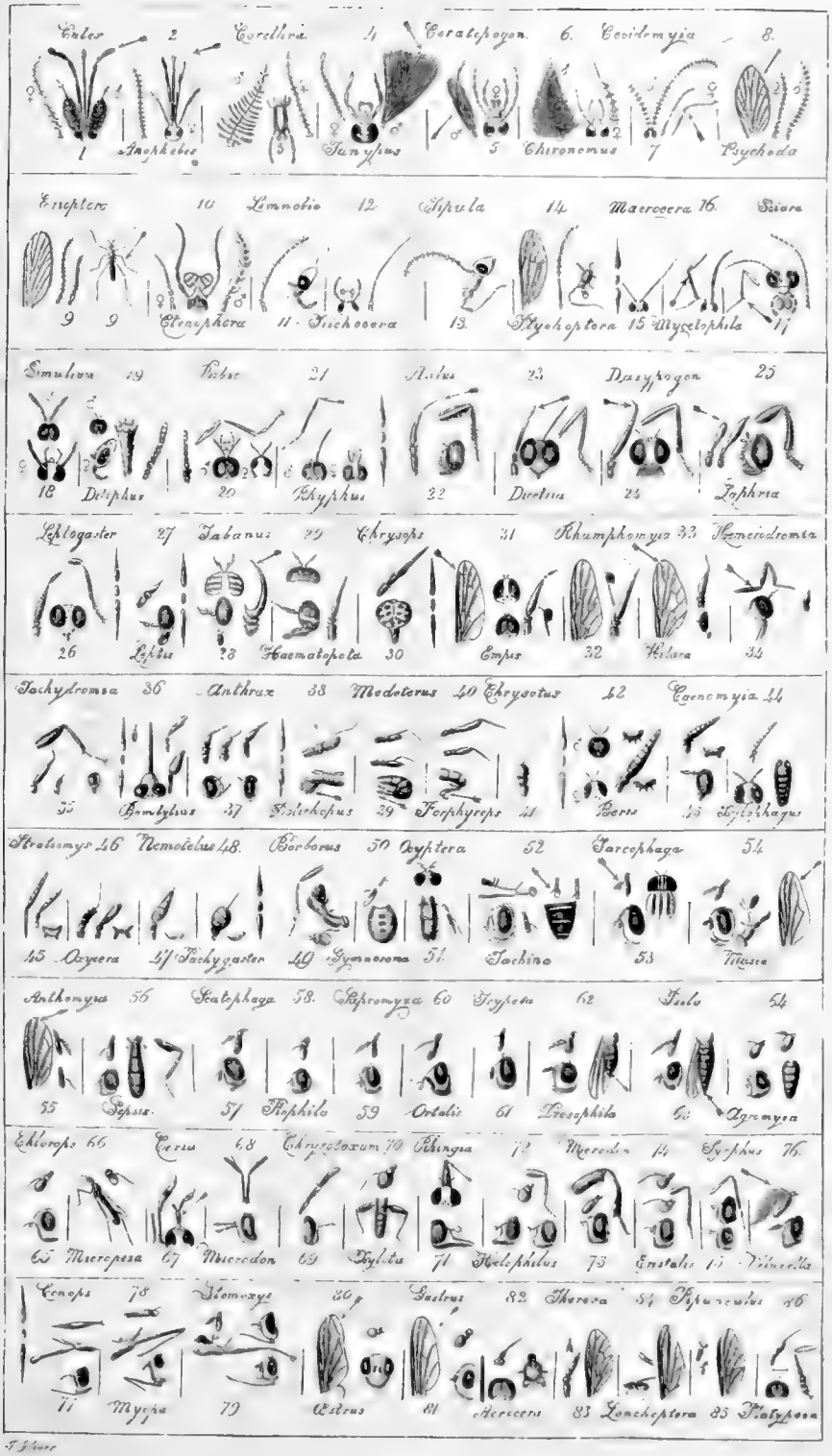
Culex 2 Corethra 4 Ceratopogon 6 Cecidomyia 8
1 Anopheles 3 Tanypus 5 Chironomus 7 Psychoda
Eriopter 10 Limnobia 12 Tipula 14 Macrocera 16 Sciara
9 9 Elenophora 11 Trichocera 13 Ptychoptera 15 Mycetophila 17
Simulium 19 Culex 21 Anthus 23 Dasypogon 25
18 Dolichus 20 Rhyphus 22 Dioctria 24 Laphria
Leptogaster 27 Tabanus 29 Chrysops 31 Rhamphomyia 33 Hemerodromia
26 Leptis 28 Haematopota 30 Empis 32 Hilara 34
Tachydromia 36 Anthrax 38 Mesoleucus 40 Chrysotus 42 Coenomyia 44
35 Bombylius 37 Dolichopus 39 Porphyrops 41 Beris 43 Stylothagus
Stratiomys 46 Nemotelus 48 Borborus 50 Oxyptera 52 Sarcophaga 54
45 Oxycera 47 Tachygaster 49 Gymnocoma 51 Tachina 53 Musca
Anthomyza 56 Scatophaga 58 Sapromyza 60 Trypeta 62 Tetanocera 64
55 Sepsis 57 Piophila 59 Ortalis 61 Drosophila 63 Agromyza
Chlorops 66 Cerina 68 Chrysotoxum 70 Rhingia 72 Merodon 74 Syrphus 76
65 Micropeza 67 Microdon 69 Xylota 71 Helophilus 73 Eristalis 75 Volucella
Conops 78 Stomoxys 80 Gastrus 82 Thereva 84 Pipunculus 86
77 Myopa 79 Oestrus 81 Acroceras 83 Lonchoptera 85 Platypeza
T. Schaer

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.

Division 2. Brachycera.

Division 2. Brachycera. continued.

Division 3 Coriacea.

* The Flea. (Pulex.) although not placed amongst the Diptera in Osten. Sackens catalogue or in Loew's Monograph. is classed by Dr. Packard (p. 389) in the diptera between Mycetobia and Simulium, and by Leunis (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. Habitat. 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 19. none in the U.S.

Acinia (R. Desv.) see Trypeta.

Acrocera Meig 3.95. pl. 1. 24. Anat A.82. Ins. found on plants and among flowers.

Acroceridae. Fam 5. OS. cat. p 26. but placed by Law in Fam 16. Cyrtidae.

Agromyza. Fall. (?) Insect from Md. Aug. I. IV. 37.

" . . " . . " . denticornis. Fallen. (Eu) Meig 6. 175. pl. 61. I X. 17.

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

" . . " . . " . nigripennis. Leunis 624. (Eu) " " " " " Lucern.

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

" . . " . . " . Tritici Fitch 2d Rep 303. & 1855. p. 523. (US) OS. 85. I. IX. 3. Larvae injure grains of Wheat by sucking out juices when immature. Yes destroyed by a parasitic Hymenopterous fly. Diapria. agromyzae.

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

Anaclera (Meig.) pallida Meig. 6. 235. pl. 64. I. VII. 44. Insect parasitic on Swallows.

Anopheles. Meig 1. 9. Westw. Syn. 125. &c. Anatomy A2. see Meig pl 1. Lar said to be aquatic

" . . " hyemalis. Fitch. (US) I. I. 12. from Maryland. March. Winter gnat.

" . . " quadrimaculatus. Say. in Longs. Exp. App. p. 356. Pack. 370. OS. 2. Mid. 1. 569. Ins. abundant in spring before the musquito & said to bite severely.

Anthomyia. Meig Anat. A. 55. Meig 581. pl. 44. Larvae live in Manure. rots. rotten vegetable matter. or in the pulpy parts of plants where they occasionally do much injury. the perfect flies frequent flowers.

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

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

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

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

" . . " . . . brassicae. Bouché (Eu & US). Am Ent. 2. 79. Fitch 1866. 496. Miller 159. Leunis 622. Pack. 411. Westw. 2. 570. Larva injures roots & stems of Cabbage. Ruta baga. and Turnips. They are themselves destroyed by a rove beetle. Aleochara anthomyiae. in the U.S. & in Europe. probably by a parasite (Hym) Alysia manducator.

" . . " . . . canicularis. Meig 5. 143. (Eu) Harr. 616. & US 73. 433. 2d Pack 411. Westw 2. 571. Larva destroys roots of Cabbage & Turnips. It is said also to have been discharged from the human stomach.

" . . " . . . cepetorum Hoff. (US & Eu) Am Ent 2. 110. Fitch 1866. 487. & 10th Rep. 36. Harr 616. Leun 622. OS. 0. Pack 411. Prac Ent 2. 64. Westw 2. 570. LP VII. 33. LS. VIII. 16. — Onion fly. Lar. injures roots of Onions (for Black Onion fly see Ortalis flexa.)

Anthomyia (Meig) conformis. Fall. (Eu) Leun. 621. Meig 5. 180 Lar mine in leaves 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
" " lactucarum. Bouché (Eu) Köllar. Leunis 621. Westw 3570. 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 J 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 ⅓
" " {(Homolomyia) scularis. Fab. (Eu) Harr 616. Meig 5. 141. Westw 2. 571. Larvae
{live in excrements. - & 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 J. 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)

Anthomyidae. Fam 37. Leew.

Anthracinae in Fam 21 Bombylidae Leew 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? J III. 11. Insect bred from the pupa of a moth. June (Md)
" " cypris. sa fulvohirta.
" " fasciata. Macq. (Md. US.) OS. 40. Weid 1. 321. J V. 19. Ins. taken on flowers. July.
" " fulvohirta Weid 1. 308. (US) OS. 40. Meig 2. 158. (as Acypris Verroneously as Eu.)
" " {virorata Say 161. vol 2. OS. 40. } (Md. US. West Ind. &c) J. III. 12. Ins Md. July.
" {aedipus. Fab. Weid 1. 262. OS 41. }
" " {morio. Fab. (Eu) Leunis 615. Pack 397. Westw 2. 544. Lar. parasitic in nest of a bee.
{(Anthophora.)
" " ornata. (Eu) Westw 2. 546. L VII. 17 Lar parasitic in nest of bee (Megachile)
" " simpson. Fab. (Md US. S. Am.) US. 41, Say 2. 60. Weid 2. 259. J III. 15. Md. Aug.
" " {sinuosa. Wied: (Md US.) Am Nat. 1. 157. OS. 42. Pack 132 &c Weid 1. 301.
{J. III. 13. The larva is parasitic in the nest of the carpenter bee Xylocopa.

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

Asilidae. Fam 19. Leew. 1. 22.

Asilus. Linn. Anat: A 22. meig pl 21. Larvae live in earth on roots &c others. said to live in old wood. Insects predatory. seizing other insects — when on the wing or stationary. with their anterior legs. & then sucking out their juices. Macquart accuses some of them of stinging cattle. Westw 2. 549.

Asilus. Linn ? J. II. 22. Ins. predatory. ♀ 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.

" . . . ? Neuration of wing. IX. 35. fm. Riley 2d Rep. 122 (US)

" . . . aestuans. Harr. 17. pl 1. fig 4. (US)

" . . . crabriformis. (Eu) K.v.S. 477.

" . . . (Dasypogon) diadema. Fab. (Ea) Mortons. Cyc Ag. 2. 117. Ins. kills bees & buries them as food for its larvae. (D. punctatus Fab. is the female.

" . . . missauriensis. Riley. 2d Rep. 1869. 121. J. 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 2d Rep. 123. Say 2. 63. Thed 429. vol 2. J. III. 6. Larvae devour and destroy roots of Rhubarb. (vul pie plant) the fly destroys other insects

Asphondylia. Loew. 7. & 176. see also Cecidomyia grossulariae.

" monacha. OS. (US) Tr. Am. Ent. Soc. 2. 299. & 3. 347. L. form a gall or accumulation of leaves, on stunted stem of Golden rod. (Solidago) in Sep.

Aspistes. . Meig (Loew Hagg. (Meig) Loew 1. 14. Meig 1. 248 & Westw 2. 529. in Fam 9 Bibionidae

" . . . berolinensis (Eu) Meig 1. 208. pl 11. J. XII. 9. Habits unknown.

Asteiidae. . Fam 59. Loew. 1. 47. no species as yet found in the US (Loew)

Atomosia. Macq. (Md. US) Loew. 1. 23. Os. 31. Ins. V. 24 Md. July. Ins. prob. predatory

Baccha. Fab. (Ea. US.) Loew 1. 26. Meig 3. 197. OS. 48. Rept. Dep. Ag. 1866. p 46. Westw Syn. 186. Thed 2. 92. L.P.J. III. 25 Larva destroys Aphides on the Orange. Aug & Sep.

Batrachomyia (Kreffft?) (Australia) Pack. 406. Günthers Zoological record. 1864. Larvae parasitic in frogs. between skin and flesh. generally killing the frog

Belvosia. Rob Desv. see Sachsia bifasciata.

Beris. Latr. (Eu) Meig 2. 3. pl 12. Anat. A. 42 Larvae live probably in wood mould.

" . . (Metaponia. Macq) dorsalis. (Md 218) Say 1. 257. OS. 14. Thed 1. 540. J. II. 10. May.

" . . viridis. Say 1. 257. (Md US.) OS. 14. Thed 1. 88. J. VI. 12. Md. Aug.

Berna fly. Pack. 412. see Trypeta.

Bibionidae. Fam 9. Loew 1. 28. Anat. A. 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. 18 Thed 1. 80. Prac Ent. 2. 46. & 83. Say 2. 69. Lar feed generally on damp leaves. J. II. 7. Md. a specimen was found feeding in an Oak gall. The flies frequent fruit tree blossoms. but are not considered as injurious. & form a favorite food for Robins

" " femorata. Thed (Md US) OS. 13. Thed 1. 79. J. II. 8 Md. Apl & May

" " hortulanus Linn (Eu) Meig 1. 241. K.v.S. 108. Ins. accused but probably falsely of injuring blossoms in the spring.

Bittacomorpha (Westw) (Psychoptera. Meig) clavipes Fab. (Nova Scotia. Pa. NY) Harr 600. Loew 1. 10. OS. 8. Pack 384. Thed 1. 59. J. I. 16. NY. June. Larva probably lives in marshes. "Star crane fly." Josse. Can Nat. p 196.

Blepharocera. Macq. (Vib) Loew. 1.8 Ins. VI.5. Ins. remarkable for transparency. & peculiar venation of wings.

Blepharoceridae. Fam 4. Loew. 1. p 8.

Boletophila. Meig. of Loew. 1. 13. Meig. 1. 174. Hgg of Westw. 1. 27. & Syn 2. 523. in Fam 7. → Mycetophilidae. Loew.

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

Bombylidae. Fam 24. Loew. 1. 25. Pack 395. Westw. 2. 542. Ins. resemble humble bees. fly swiftly with a humming sound. & hover over flowers.

Bombylius. Linn. (Eu) Anat. A 36. Meig. 2. 142. pl 18. Harr 604. Pack 164. 397. &c. Weid 1. 381. &c. &c. Larvae supposed to be parasitic on bees. (Antrena Pack 397.) but said also to live in the earth, and feed on roots. The insect is destroyed by a parasitic (Hym.) insect. Bembex tarsata. as food for its young. (Pack)

" . . . . aequalis. Harr. 604. fig 263. (Mass. US)

" . . . . Sp ? (Md US.) I. III. 17. Md. Aug - Specimen damaged.

" . . . . fulvus. Weid. (Md US.) I. III. 16. Md. aug Weid 1. 347. OS. 42.

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

" . . . . mexicanus. Weid. I. III. 18. Md. Aug. (Mex. US.) Weid. 1. 388. OS. 43.

Borboridae. Fam 60. Loew 1. 49.

Borborus. Meig. (Eu.) Anat. A. 49. Meig. pl 62. Loew. 1. 47. OS. 85. Westw. Syn. 144. & 2. 574. Weid. 2. 598. 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. US)

Brachypalpus. (Macq. Loew. 1. 13. & 26.) frontosus. Say. I V. 13. Md. July. (US) in Fam 32 Syrph.

Braula. (Nitz.) caeca. Nitz. (Eu.) K. & S. 88. Pack 127. & 418. Westw 2. 585. Bee Louse. Insect. blind, wingless & parasitic on body of Bees. Kollar found as many as 11. on a single queen. I VIII. 4 Pack

Calliphora Macq. (Musca) vomitoria. Linn. (US. Eu) Harr. 614. Lewis 620. Loew. 1. 35. OS. 78 Pack. 64. & 408. Westw Syn. 141. & 2 p. 569. Blue meat fly. I. IV. 21. Insect deposits eggs commonly known as "Fly blows" on fresh meat. carrion. & 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. Loew. (Platystoma. Macq. Loew. 1. 39. 78.) 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. Loew.)

Calobata. Meig 1. 379. Loew. 1. 39. in fam 42. Loew. Micropezidae.

" (albimana. Macq.) antennipes Say 2. 83. (Md. US.) Weid 2. 546. OS. 80. → Ins. V. 10. Insect frequents felled trees. in marshy situations.

Camptoneura. (Macq.) (Trypeta & Ortalis) picta. Fab. (Md US.) Loew. 1. 50. No. 77. Meig 5. 276. Ins. V. 5. Md. Aug. & Sep. common on Ragweed. habits probably same as Trypeta.

Carnus (Nitz.) hemipterus. Nitz. Pack. 418. (Eu) Westw 2.561. Leunis. 637 (after Stomoxys)
Ins. like sore of a flea. with rudimentary wings parasitic on Starlings
This insect was formerly placed by Nitzsch in Conopidae but is just
by Packard after Melophagus. in fam 62. Leow. Hippoboscidae

Cassidomyia (Macq) (Eu.) (Tachina) Pack. 408. Westw Syn. 137. destroys a Tortoise
beetle. (Cassida)

Cecidomyidae. Fam 5 Leow. 1. p 6. Meig 1.73. OS. 6. Pack 373. Westw. 2. 508. Gall gnats.
Insects inhabit various plants & deposit their eggs in sprigs, leaves.
flowers &c. the Larvae when hatched produce swellings called Galls.
or distortions of the parts inhabited by them. These insects are de-
stroyed by Hymenopterous parasites. Chalcis. (Pack 202) Diaprea.
Macroglenes. Pteromalus. Proctotrupes. Platygaster. (Am nat 5.43)
Semiotellus. &c

" : . . . ". Galls made by Cecidomyidae. are inhabited by the Larva of
Scatopse. (Dip) Drosophila. (Dip) & Pristiphora. as inquilinous or
"guest gall flies.

Cecidomyia. (Latr.) ? (Eu) Anatomy. A7. Meig pl 2.
" . . . " . . . " ? (Eu) L.P. VII. 6. Westw 2. 518.
" . . . " . . " " (US). neuration 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. 379. 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 Jr N.Y.S Ag.soc. Vol 6. p 38. 2d Ed. Leow 1. 207.
Larvae form imbricated galls resembling fertile aments of hop on culm of
Dogs grass (US)
" . . . " acrophila. Pack 373. Larva lives socially with C. pavida. in deformed
buds of Ash. (US)
" . . . " albovitta Walsh. Am Ent. 1. 105. This insect is a guest gall fly. in
the pine cone Willow gall. where it extracts the sap from the leaves.
but does no injury to the rightful inhabitant.
" . . . " ananassa Riley. Am Ent 2. 246. (U.S.) Gall. XI. 18. Am Ent.
Larva forms a gall like a pineapple on twigs of Cypress containing
several cells.
" . . . " anthophila. OS. (US) Fr 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.
" . . . " artemesiae. Bouché. (Eu) Leunis 606. Pack 199. Larva forms a gall.
which is a monstrous accumulation of leaf like structure. & is destroyed
by a parasite (Hym) Diaprea. cecidomyiarum. Bouché.

Cecidomyia (Latr) bicolor. Westw. 2. 379 (Eu) Larva encloses itself in a case on leaf of Motherwort.

" " brachyptera. Schwarz. (Eu) Leunis. 606. Larvae live in sheath of leaves of pine, the base of which they destroy.

" " brachypteroides. OS. (U.S.) Loew. 189. Larvae form galls, or swellings at the base of leaves of Scrub. pine.

" " brassicoides. see C. salicis brassicoides.

" " calyptera. Fitch. (US) Am. quarterly review. Ag. & Sci. Vol 2. Fitch 1847. 1660. 832. Loew 1. 187. OS. 4. Larva supposed to injure wheat.

" " carbonifera. OS (Md. U.S.) Loew. 1. 196. Gall XII. 29. Larva forms pale circular spots, surrounded by a purplish black ring, on leaf of Solidago.

" " caryae. see Diplosis.

" " caryaecola. 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) Leunis. 606. Larva found in crisped up leading shoots of Cherry).

" " cerasus serotina. OS. Ir Am. Ent. Soc. 3. 346. (US) Larva found in terminal young shoots of Wild Cherry. malformations sometimes size of a cherry. Dk red.

" " cerealis. Köllar. (Europe) Kollar 124. K&S. 95. Leunis 606. Mort Cyc Ag. The Larva is vermillion red in color & said to injure Barley (Leunis) Spelt & wheat they live in families between the stem & sheath leaf of the plant.

" " cerealis. of Fitch. see C. graminis.

" " chrysopsicis. OS. (U.S.) Loew. 1. 190. & 203. Gall XI. 31. Jns. XII. (Loew) The larva forms a round woollen knot like gall, the size of a small walnut, on Golden aster.

" " coryloides. see C. vitis coryloides.

" " culmicola. (Morris. (US.) Harr. 582. Loew 1. 189. Miss Morris in Pr Acad Nat Science. Phil. 4. 194. 1849. Os. 5. Larvae feed above the top joint & injure stalks of Wheat.

" cynipsea. OS. (US) Larva forms a gall, or irregular hard swelling, on underside of leaves of Hickory, in July, containing several cells.

" " destructor. Say. (Eu. US.) Am Ent. 1. 40. 171. & S. Fitch. 1861. 819 & Köllar 118. K&S. 193. Loew. 189. Curtis in Mortons Cyclop. Ag. OS. 5. Prac. Ent. 1. 117. Riley rep^t 1869. Say Jour. Acad Sc. Phil & Ent 1. 4. Thea. 1. 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 Heister. 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 1838." Loew says "they do occur in Germany but are rare or scarce" The larvae 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 chesnut color, & resembles a flax seed, is formed in the Larva skin, & developed in the same place. The flies appear in April. 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. (Packe 203) Macroglenes. Plutygaster. (Pack 374) Pteromalus. Semiotellus (Ceraphron.) destructor destroys the pupae. (see Fitch. 1861. 819. Pack. 207. 374 & &c.)

Cecidomyia Latr. erubescens. OS. (U.S.) Loew. 1. 200. Larvae cause a gall or distortion of the leaf of Oak in Spring. the margin being folded, & tinged with red.

. . . " . . fagi. Htg. (Eu) Leunis. 606. Larva forms pear or cone shaped. smooth galls on leaves of Beech.

. . . " . . farinosa OS. (U.S.) Loew. 1. 204. Larva forms a gall or woody swelling at the base of the leaflets or on midrib of leaf of Blackberry.

. . . " . . fusicolli. Meig. (Eu) Meig. 1. 77. Pack. 372. Insect reared by Bouché from decaying roots of Hyacinths. & Tulips.

. . . " . . glutinosa. OS. (US) Loew 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.) (olim cerealis.) (US.) Fitch. 1 & 2d Ed. 1857. 1854 p. 880. 1856 p. 473. 1860. p. 832. Leun. 1. 189. OS. 5. Prac. Ent. 1. 33. Larva supposed to injure Wheat.

Cecidomyia (Asphondylia. Ens.) grossulariae. Fitch. (Md. US.) Fitch. 1st Rep. 176. 1854 p. 880. 1856 p. 45. & &c. Loew 1. 189. Pack. 376. Prac. Ent. 1. 33. & *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. (US) Loew. 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. US.) Am Ent. 2. 63. Loew. 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

. . . " . . impatientis OS. (US) Am Ent 2. 63. Loew. 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.

. . . " . . (Lasioptera) juniperana. Degeer. (Eu) Leunis 606. Larva forms a gall or three pointed malformation on leaf of Juniper.

. . . " . . liriodendri. OS. (US) Loew 1. 202. Larvae mine inside leaf of Tulip tree. & form a gall or brown spot. with a brown or yellowish aureole.

. . . " . . litues. see C. vitis litues.

. . . " . . loti. de Geer. Leunis 606. Larva causes onion shaped malformations on Lotus corniculatus. (Eu)

* Fruit XI. 28

Cecidomyia (Lato) nigra. Meig. (Eu) Leunis 606. Meig. 1.75. KbS III. Larvae destroy blossoms & young fruit of pear: pupa formed in the earth.

" " nivicipila. OS. (US) Loew. 1.199. Larvae form galls or deformations of the leaves of Oaks, early in spring, which consist of a large fold, with a white pubescence inside.

" " ocellaris. OS. (US. Md.) Loew. 1.199. Gall XI. 29. Md. May Larvae 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 2.50. Gall XI. 20. Am. Ent. Larva is a guest (or inquilinous) in the Willow bud gall, made by Euura gemma (Hym)

" " pavida. : (Eu) Pack 372. Larva lives socially together with C. acrophila. in deformed buds of the Ash.

" " pellex. OS. (US) Loew. 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) Loew. 1. 193. Larva forms a gall. 0.1. to 0.2. in diameter without a nipple, & resembling a miniature yellow or red peach covered with down. on Hickory leaves.

" " piligera Loew. (Eu) Leunis 606. Larva forms an obtuse soft hairy brown gall on the Beech.

" " pini inopis. OS. (US) Loew 1. 296. Pack 376. Larva fastens itself to a pine leaf. where it remains motionless until the resinous exudation hardens, & forms a resinous cocoon, on leaves of scrub pine

" " pisi. Loew. (Eu) Leunis. 606. Larva lives in hulls of peas —) It is able to make a considerable spring or jump.

" " poculum. Fitch. (Md. US.) Fitch 2d Rep. Loew 1.201. Gall. XI. 27. md. Larvae form the so called Oak Spangles, or Galls, resembling small fungi. or saucer like scales, on a short pedicel, on leaves of Oak.

" " pomum see C. ortis pomum.

" " pudibunda. OS. (Md. US.) Loew 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 obliquely 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. 838. Loew 1. 198. Gall XII. 33 a. 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. Bouché. (Eu) Leunis 606. Larvae live in dead & rolled up leaves of the leading shoot of the Pear.

" " racemicola. OS. (US) Loew 1. 196. Larvae form bud shaped green galls among racemes of Solidago. & distinguished from buds only by their stout rounded form.

Cecidomyia Latr. rigidae. OS. (salicis. of Harris. 566) (US.) Law. 1. 189. Pack 376. Larva forms an oval woody gall, terminated by a brittle conical beak, at the end of slender twigs of basket willow.

(Diplosis) robiniae. Hald. (Md. US.) Fitch 1858. 833. Harr 567. Law 1. 184. Pack. 449. Gall XII. 33 b. Md. 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. Law. (Eu.) Leun. 606. Larvae form a gall or rosette of leaves on the willow.

. . " . . . salicina. Schk. (Eu) Leunis. 606. Meig 1. 79. Larvae live in the dried ends of Willow twigs.

. . " . . . salicis. of Harris. & Fitch. see C. rigida.

. . " . . . salicis. Schk. (Eu) Leunis. 606. Larvae form elongated wood stalk galls on willow.

. . " . . . (salicis) brassicoides. Walsh. (Md. US) Am Ent 1. 105. Pack. 377. Prac. Ent. 2. 100. 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 gnat. 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. (US) Am Ent 1. 149. Pr Ent soc Phil. 3. 599. Larva forms a gall like an ear of Barley on Willow. (Salix humulis)

. . " . . . (salicis) silicua Walsh. (US) Gall XI. 19. Am. Ent. 1. 250 & 2. 114. Pr 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. OS. (US) Tr Am. Ent. Soc. 3. 52. & 347. Larvae. form Galls. or enlarged buds of the Elder.

. . " . . . sanguinolenta. OS. (US) Loew 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.

. . " . . . septemmaculata. see Diplosis

. . " . . . serrulatae. OS. (US.) Law. 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. (US) Pack 372. Larva inhabits socially the gall made by Lasioptera rubi on the brambles.

. . " . . . solidaginis Loew. (Ma US.) Loew 1. 190. 194. & Am Ent 2. 29. Ins. XII. 32. Md. Aug. Larvae forms a gall globular head, or bushy bunch of leaves on top of twigs of Solidago in July. it contains only one gall. Ins. escape in the autumn.

Cecidomyia (Latr.) strobiloides. OS. (Md US) Am Ent 1. 105. Loew 1. 203. Pack. 377.
Ins. IX. 18. Gall XI. 15. Ma. 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. Lar hybernates 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 gnat. C. albovitta
. . . " . . . symmetrica. OS. (US) 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.
. . . " . . . triticoides (solicis) Walsh. (US) Am Ent 1. 169. Pr Ent. Soc. Phil. 3. 598. Larvae form galls like ears of wheat. on tip of twigs of willow.
. . . " . . . tubicola. OS. (Md. US) Loew 1. 192. Am Ent 2. 307. Gall XI. 25. Md. Aug. Larva forms a small tube like gall. about 0.15 in length. which is set in a socket. & found on leaves of Hickory.
. . . " . . . tulipifera. OS. (US) Loew 1. 202. Larva forms galls or swellings on the midrib of leaf of Tulip. poplar.
. . . " . . . vaccinei. OS. (US) Loew 1. 196. Larva forms cockscomb like galls on leaves of Whortleberries, the gall somewhat resembles an oyster. fastened on its hinges. & is 0.15 in height by 0.2. in breadth.
. . . " . . . viticola. OS. (US) Loew. 1. 202. Larva forms elongated conical red galls on the upper side of Grape leaves.
. . . " . . . (vitis) coryloides. Walsh. (Md. US) 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) vitus. Riley (Md. US) 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 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) vitus. 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. (US. Md) Walsh Am Ent 1. 106. Pack 377. Riley 5th Rep 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.

Cecidomyia (Latr). ? . . . (U.S) Trac. Ent 2.35. Cranberry gall gnat.
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 (Hym). Chalcis.

" ? (U.S.) Pack. 217. a species inhabiting the willow has a guest saw fly. (Hym.) Prestiphora sycophanta.

Cephalomyia (Latr.) (Astrus) (Eu) Loew. 1.33. OS. 62. Westw Syn 164. (Cephalemyia) various species live in the European Buffalo. in Goat &c. Verril. 96.

" maculata. Mica (Africa) Verril. 1st Rep. 96. The Larva lives in the frontal sinus of camels, the same as C. ovis in sheep.

" (Astrus) ovis. Linn. (Eu. US.) Am Ent 1.58. Curtis in Mr Yates cyclop Ag. Harris 624. Kollar 64. KBS. 85. Leun 627. Meig 166. vol 4. Pack 405. Verrib 1st Rep. 92 Westw 2.579. Lar. VII. 26. Ins X. 28. Sheep Bot, or Head Maggot. Egg, or young larva deposited in the nostrils 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 nostrils 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 larvae 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 Hypoderma bovis or Dermatobia noxialis ?)

Cephenemyia Latr. (Eu. US.) Loew 1. 33. Verril 1st Rep 96. KBS. 86. Westw 2.575. see also Astrus trompé. Larvae live in the throat, or at the root of tongue of Deer.

Ceratitis. McLeay Loew 1. 49. 50. Westw 2.573. (Dacus. Meig) see also Pistalophora.

Ceratopogon. Meig. (Eu) Loew 1.5. Meig 1.70. OS. 4. Pack 371. Westw. Syn. 125. Leunis. 605. Anat A. 5. Meig pl 2. Larvae live under barks 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) ? (Md. U.S.) L.P.P. I .5.6.7. Md. Jan.. L.P.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. Loew. Chironomidae.)

. . " . . {flavifrons. Guerin. (Eu.) K&S. 124. Larva found in liquid oozing from Elm.

. . " . . {lateralis. (Eu) Westw. 2. 518. Larva found in manure. it posesses 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.

Cerria. (Fab.) {Loew. 1.26. OS.46. Meig 3.159. Wied 2.81 Leunis 624 Stalk horned flies. Anat A 67. Meig pl 26. in Fam 22 Loew. Syrphidae

.. " . . subsessilis. Illig. Ins. XII .20 (Eu) Meig 3. 159. Habits unknown

Chartophila . . {floralis (affinis Tachina.) Pack. 408. Larva feeds on the food of the young grubs, or on the larvae themselves of Anorena (Hym)

Chionea (Malonan) Loew. 1. 9. & 11. Westw Syn (in note) p 126. (in Fam. 6. Tipulidae)

. . " . . {araneoides. Dalm. (Eu.) K.&S. 523. Meig 7. 37. Pack 383. Westw 2. 525. L. VIII. 10. Pack. I XII. 26 Meig pl 67. Eggs deposited in the ground. Lar. live under the earth apparently on vegetable matter. Insect frequently found on snow in winter.

. . " . . {valga. Harris. (aspera. Walker) (Mass. US.) 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 Loew 1. p. 5.

Chironomus. Fab. (Eu) Loew 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.

. . " . . glaucurus. see C. stigmaterus.

. . " . . {oceanicus. Pack. (US. Mass.) Am nat 2, 278. Pack 370. L. VIII. 5 (Pack) Larva live in Salt (sea) water, two broods annually. in Ap. & 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 Dez. (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 putrescent stalk of Angelica. they reside also in dung.

. . " . . stigmaterus. Say

over.

Chironomus. (Fab.) stigmaterus. Say. (glaucurus? Ward. 1. 5) (US) Say 2. 42. 054. Prac. Ent. 2. 10. Larvae ("Blood worms".) worm like in form & blood red in color. Insects sometimes appear in dense clouds.

. . . " . . . (?) Ins. I. 4. common in Md.

Chlorops. Meig. (Eu. US.) Loew 1. 46. Meig 6. 138 Ward 2. 595. Westw Syn 147. anal. 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 2d Rep. p 300. (US) Insect found in Wheat fields

. . . " . . . (?) . . . . Ins. IV. 43. Md. June.

. . . " . . . brevijennis. Meig. 6. 159. (Eu) Ins XII. 18. Meig pl 61. Ins. almost apterous } Ins. XII. 18 Meig }

. . . " . . . coxendix. Fitch (US). O.S. 85. Fitch 2d Rept. 301. & 1855. 533. This insect frequents Wheat fields in June. and is suspected of injuring wheat when in the larva state.

. . . " . . . crassipennis. Fitch (US) references & habits same as above.

. . . " . . . (Oscinis) frit. Linn (Eu) Harr. 621. K.V.S. 94. Leun. 624. Pack 416. Westw. 2. 574. Larvae live in the husk of grains of Barley, causing the grain to shrivel and become comparatively worthless. Linneus 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. Lewis 624. Meig. 6. 149. Morton. Cyc. agr. 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) humilionis Bjerkander Jr Stockh. 1877. Linn. Jr. vol 2. (Eu) Harr 621. Westw 2. 574. K.V.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) Caelinus 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) vulgaris. Fitch. (US.) Fitch. 2d Rep. 350. 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. Loew. 1. 20. See Leptis ornata. . . . . (in Fam 15. Leptidae)

Chrysops. (Meig) (U.S. Eu.) Loew 1. 20. Meig. 2. 50. OS 24. Wied 1. 195. Westw Syn. 131.
Anat A. 30. Meig pl 14. Golden eyed forest fly of Lewis 614. The Insects annoy horses &c. very much, by inflicting painful stings, and by sucking their blood. (in Fam. 19. Loew Tabanidae)

. . . " . . . ? (Md. US) Ins. VI. 27. Taken in Maryland. Augt.

. . . " . . . caecutiens. Linn. (Eu) Villar 39. Lewis 614. Meig 2. 52. Ins annoys horses

. . . " . . . vittatus. Wied. (Md. US.) Harr 603. OS. 25 Pack. Riley 1869. 129. Prac Ent. 2. 10. Ins 11. 18. Md. 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. (Har.) (US. Mass) Harris 603. see Tabanus. habits same as C vittatus.

. . . " . . . niger. Macq. (US.) Harr 603. OS. 25. Pack 393. habits same as C vittatus) V. a common species in the United States.

Chrysotoxum (Meig (Eu) Loew 1. 26. Meig 3. 167. Wied 2. 87. Westw Syn 135. Anat A. 29. Meig pl 27. Lewis 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) Loew 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. Wied Zool. Mag. 1. 74. 22. Ins VI. 11 Meig pl 35. not uncommon in hedges in Summer. (Meig.)

Clinocera. (Meig) Loew 1. 31. (Eu) Meig 2. 86. Westw 2. 552. . . . (in Fam 30. Tachydromidae)

. . . " . . . maculata. OS. (US Md.) Ins VI. 3. fr Md.

Coelopa. (Meig). Loew 1. 42. Westw Syn. 144. Meig 6. 8. (in Fam 47 Loew Phycodromidae)

. . . " . . . frigida. Meig. (Eu) Meig 6. 8. Ins. XII. 14. Meig pl 36. Insect from the cold northern parts of Europe.

Coenomyia. (Latr) (Eu) Loew. 1. 16. Meig 2. 12. Westw syn. 130 & vol 2. 535. Anat A. 48. Meig pl 12. Goat fly in german (Lewis 616) from its smell. (in fam 11 Loew. Xylophagidae.)

. . " . . . pallida. Say. (Md. US. West Ind. &c.) 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.

Coenosia. (Meig) (Anthomyia) (Eu) Loew. 1. 36. Meig 5. 211. OS. 75. Westw 2. 571. Wied 2. 437.

. . . " . . . vaccarum "Bouché" Westw. 2. 571. Larva lives in Cowdung. (in fam 37 Anthomy.

Compsilura. see Sarcina inflexa.

Conopidae in Fam 23 Loew. Myopidae.

Conops. (Linn)(Eu) Loew. 1.27. Westw. Syn. 138. Meig 4.119. Wied 2.236.

Anat A 77. Meig pl.36. Leunis 626. Larvae are generally parasitic in humble bees. & feed in the bodies of Bombus. Pompilus. Sphex. Odynerus. &c. (Pack 401.) one species is said to dart on the drones of Honey bees. & to lay its eggs upon their bodies. the larvae when hatched enter the bodies. & feed upon the interior. (Morton's Cyc. Ag. 542.)

" ? (Md. U.S.) Ins. IV. 9. Maryland. July.

" flavipes. Linn (Eu) Leunis 626 Meig 4.122. Pack. 401. Larva parasitic in the body of a bee. (Osmia) (Hym.)

" 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. Ill.) Say 2.73. Harr 611. OS. 60. Ins. IV. 8. Md. July Larvæ parasitic in bees. Insect taken in Md. in June on flowers.

Cordyluridae. Fam 28. Loew. 1.23.

Cordylura. Fall. Loew 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. Loew 1.4.& 48. so called from the leathery consistence of their bodies. (corium being the latin for leather)

Corethra Latr (Eu) Loew 1.5. Meig 1.12. OS.2 Pack 65.& 370. Westw Syn. 125. Larvae said to be aquatic. (in Fam 1. Loew. 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) K.& S. 438 Larva remains in a horizontal position. in the middle of the water. & moves by jumps or jerks.

Craterina. hirundinis. K.& S. 58. see Stenopteryx.

Ctenophora Meig (of Loew) (Eu) Loew 1.10 Meig 1.124. O.S. (Fab) p 6. Pack 381. Westw Syn. 128. Wied 1.37. Anat A. 10. Meig pl 5. Leunis 607. Larvae live in wood mould. (in Fam 4 Loew Sepsidae)

" elegans. Meig 1.30. (Eu) Ins VI. 21. Meig. pl 5.

Culex. Linn. (Eu) Loew 1.5. Leunis 604. K.& S. 62. Meig 1.1. Wied 1.1. Westw Syn 2. 125. & 2. 508. Anat. A 1. 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) ciliatus. Fab. (Md. US.) Macq. 1.36. 15. Wied 1.3. Westw. 2.512
03.1. Walk. 1.2. Ins. I. 2. Md Sep.
" " pipiens. Linn. (Eu) Leunis 1.604. KVS 59. 438. Meig 1.6. Pack 369.
Culicidae. Fam 1. Loew 1.5. Pack 368. &c
Cuterebra, (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. Rathvon. pa) & probably is very closely allied to the following (if not identical)
" " emasculator. (Fitch 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 Trypoderma cuniculi) (in Fam 32. Loew. Oestridae).
" " cuniculi. Pack. 306. see Trypoderma.
" " horridulum. Clark. (US) Ins. found in the US. Pack. 406
Cynomyia. Meig. (Eu) Loew. (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 Loew. Muscidae)
Cyrtidae. Fam 16. Loew 1. p 21 This family contains Oncodes. XII. 1 &c
Cyrtus. Latr (Eu) Loew. 1. 21. Meig 3.92. OS. 26. Wied 1. 13.
Dacus. Meig. (Eu) Loew 1.49 Meig 6.21. Wied 2.513. in Fam 44. Loew Trypetidae.
" (Trypeta) oleae. Fab. (Eu) Tigurier 88. Leunis 628. Meig 6.21. Westw 2.573. I X. 19. Meig pl 56. Olive fly. Chiron of Provence. France. Larva feeds on fruit of Olive, pupa formed in the same tumors & fly emerges in about 28 days after the egg has been laid
Dasypogonidae. in Fam 21. Asilidae. Loew 1. 22.
Dasypogon. Meig. (Eu) Loew 1.22. Meig 2. 194. OS. 28. Pack 361. 395. Wied 1. 643. Westw syn. 133. Annat A 24. Meig pl. 20. Habits of Larvae unknown. Insects predatory, feeding on other insects (in Fam 21. Asilidae Loew)
" (Discocephala) abdominalis. Say. (Md US) Say 2.24 Wied 1. 412. OS. 28. Ins V. 30. Md. July. Insect predatory.
" diadema. see Asilus.
" discolor Loew. (Md US) Ins. 11. 21. Insect taken in Md July in the act of catching flies.
" punctatus. Fab. female of Asilus (deidema) diadema.
" trifasciatus. — Say (Md US.) Say 2. 64. OS. 28 Wied 1. 405. Ins II 23. Md. Sept.
"
Dermatobia. — noxialis. Goudot. (S Am.) Pack 406. Verril. 1870. 95. & 342. I VIII. 1. Pack. Human bot fly. Moyocuil. of Mex. & new Granada (Bates) Larvae attack mankind, monkeys, & dogs, in south America.

over.

and form tumors under the skin like Hypoderma. (see also Verril in Counᵗ Rep 1870. 95. & 342 for a somewhat similar insect.)

Dexidae. Fam 33 Loew 1. p. 33. see. Dinera.

Dexia Latr. (Eu) Meig. 5. 35. OS. 69. Pack 407. Wied 2. 372. Westw Syn. 139.
{ Ins. said by Dufour to be viviparous.

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

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

Dilophus. (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. (vulgaris Linn) (Eu) Leunis 609. Ins found in spring especially on umbelliferous plants. The Larva is said to infest the tubers of potatoes under ground.

. . " . . . { serotinus Loew. (Md US.) Ins. II. 5 & 6. Ap. May. in Md very common on flowers of Fruit trees

Dinera. Macq. of Westw Syn. 140. (Eu) R.D. of Loew 1. 34. Meig 7. 269. pl 73. OS. 70 & p 30. Ins XII. 11. Meig. in Fam 33. Dexidae Loew.

Dioctria 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

. . " . . . atlantica. Linn. R.D.S. 158. Ins preys upon Hymenoptera. R.D.S.

Dromyza. see Lasioptera.

Diopsis. Linn. see Sphyrocephala brevicornis Say.

. . " . . . { Meigenii Westw 2 575 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. Neuration 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. on small limbs of young scrub pine in may. pupae also formed in the resin. Ins appeared June 11th"

. . . " . . . { caryae. OS. (US) Loew 1. 169. 191. Larva forms a subglobular smooth seed like yellowish green gall on leaves of hickory the gall having a nipple at one end – 4 being 005 to 01. in diameter. it is destroyed by a Chalcid parasite Callimone dura (Hym) OS. Tr Am Ent Soc. 3. 58

Diplosis Loew. (Cecidomyia) pini. de Geer (Eu) Loew. 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) Prac Ent 1. 50. Larva is inquilinous, or a guest gall gnat. in Willow gall, & was also bred from the "black Knot (Sphaeria morbosa) a fungoid growth on the Plum tree.

. . " . . socialis. see Cecidomyia. Pack. 372.

. . . " . . (Cecidomyia) tritici Kirby (Ma. US. Eu) Fitch N.Y. St. Rep 3. 60. 1860. 745. Harr. 453. 566 Vs. Kirby 93. Ol. 5. Pack 199. 375. Prac Ent 1. 101. 118. & 2. 27. 50. Smith Rep Conn.s Bd Ag 1871. 305 Vs. 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 orenge colored larvae, which live in the chaffy scales of Barley, grass. Oats. Rye. and Wheat. feeding on the pollen. & milky juices of the grains. 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' Rep. fruit growers Ass.n Ontario 1871. p 46.) The Wheat midge in Europe is said to be destroyed by the following parasitic or predaceous Hymen-opterous. insects. Larva. of Macroglenes penetrans. (Curtis 283). Platygaster (Inostemma) inserens (Curtis 281. & Pack 201) Platygaster tipulae, and Teleas (Pack. 201. & 376.) Callimone dura. (OS N. 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 (Orthop) which frequents the ears of wheat in Europe, (Westw. 1. 403.) & the Thrips (Orthop) itself is said by Walsh. (Prac. Ent 2. 50.) to feed on the eggs or larvae of the wheat midge in the United States.

over.

& the only Hymenopterous parasite in this country (US) 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 Ass. Ontario for 1871. expressly says "there is no parasite found in Canada." Lady birds Coccinellidae. (Coleop) feed upon the larvae of the wheat midge. & the common Yellow bird. (Cardoelis tristis.) in this country "is very useful by destroying the larvae" Fitch 1860. 821.

Discocephala. Macq. Loew. 1. 23. See Dasypogon, in Fam 19. Asilidae.

Dolichopodidae. Fam 31. Loew 1. 32 Pack. 402 Leunis 615.

Dolichopus. Meig (Eu) Loew 1. 32. Meig 4. 74. Wied 2. 230. Westw Syn. 135. & 2. 562. 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 US) Ins. IV. 7. taken in Md. Aug.

. . " . . . longipennis. Say. (US. Md.) Loew 2. 57. Ins VI. 30. Md. Aug.

. . " . . . ungulatus Linn (Eu) Leunis 615. Meig 4. 80. Westw 2. 558. L. VII. 23. Westw. Larvae reside in the earth. pupa & Ins. in June.

Drosophila. Fallen (Eu) Loew. 1. 46. Meig 6. 81. Say 84. Pack 377. 444. Westw syn. 152. & 574. Leunis 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. US.) Ins IV. 36. taken in Md. June.

. . " . . . ? (US) Pack 415. L.J. VIII. 19. Pack. "Apple fly" Larvae bore into and injure apples. generally) commencing through a hole commenced by the curculio or Apple codling moth sometimes however they commence themselves at the calyx.

. . " . . . acuti Wollar (Eu) Leunis 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. (Fallen.) (Eu) Curtis. Mortons 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 nigor. & 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.

" funebris. Meig. (Eu N Am (Macq) Leunis 623. Meig 6.82. OS 84 Westw 2.574. "Vinegar fly" of Leunis Larva & Ins. found near Beer. Wine, vinegar and other fermented liquors. The larva is said also to feed on Boleti

" funebris (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. Loew. 1.45.

Elephantomyia. (OS.) Westwoodii. OS. (US) Loew 1.10. Pack 383. Ins. found in the northern states & Canada. (in Fam 6 Loew. Tipulidae)

Empidae Fam 29. Loew 1. p 30 Pack. 402. 361.

Empis. Meig (Eu) K&S 158. Loew 1. 30. Meig 3. 15. Pack 402 Westw syn 131 & 2. 546. Leunis 644. 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.

". {chiroptera Fallen. (Eu) Meig 3.27. J X I. 6. Meig pl 22. Ins probably predatory.

" opaca. Fab. Meig 3.17. Ins. XI. Y. Meig pl 22. Ins. prob. predatory. (Eu)

" spectabilis Loew. (Ma US) Ins III. 22. Ma June " " "

Ephydra. Fall. {(Eu. US) Loew (Fall) 1.45. 159. 169. Meig 6.. 113. Wied 2. 593. Westw syn. (Meig.) 153 & 2. 574. Larvae found in salt works or brine others in sea weed in Narragansett bay. (Pack)

" halophilus. Pack (US) Am nat 2. 278. Pack 414 L J VIII. 17. Pack. Lar & pupae live in the salt works in Gallatin Co. Ill. others in Mono lake. Calif. & Capt. Fremont in his explorations in the Rky Mtns. Calif. & Oregon. (p 303.) mentions "a bank 10 to 20 feet in breadth & from 9 to 12 inches in depth comprised entirely of the skins of larvae or worms about the size of a grain of oat which had been washed up by the waves 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

Ephydrinidae Fam 53 Loew 1. 44 & 129.

Proboscidea. Div 2. of Low. Diptera. 1 p 4. see Coriacea & Pupipara.

Erax. Macq. U.S. Law (Macq) 23. OS (Scop) 38. Neuration of wing IX.36 Riley 2d Rep.
in fam. 19. Asilidae. Law. (Md. US)

" . . . . aestuans. Linn. (Md. US.) OS. 33. Weid 1. 467. Ins III. 3. 4 Md. July.
Ins. predatory & kills other insects.

" . . . . bastardi Macq. (US) Riley 2d Rept. Missio. 1869. 124. Ins IX. 27. Riley.
Ins. habits predatory).

Eriopiera. Meig. (Eu) Low 1. 10 Westw Syn. 129 Meig 1.65 Anat Ag. Meig pl 5.
Larvae probably aquatic. veins of wing hairy. in fam 6. Law. Tipulidae.

" . . . . atra. Fab. (Eu) Westw 2. 525. Meig 1.89. wings of ♂ short.

" . . . . calyptera. (Md. US.) Say 2 44. OS. 5. Weid 1. 28. Ins. 1. 13. Md. June.

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

Eristalis. Latr (Eu) KVS 486. Law (Low) 1. 26. Meig 3. 381. Pack. 386. Weid 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. & hence therefore obtained the name of Rat tailed flies"
(see also Helophilus &c) The fly frequents flowers. & is destroyed by a
predatory Hymenopterous insect. in Europe (Bembex. rostrata.) which
collects them as food for its larvae. in Fam 22. Law Syrphidae.

. " . . . . ? . . (Ill US) Pack 399. PVIII. 25. Pack. Larvae & pupae inhabit the
salt vats in Illinois

. . " . . . . aeneus. Linn (sinceras Harr.) Harr 609. (US. 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!

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

. . " . . . . tenax. (Eu) KVS. 147. & 487. (see Helophilus. Westw) eats pollen of flowers.
Am nat. V. 290. & VII. 339.

" . . . . transversus. Weid. (US. Nova scotia. Md.) Weid 2. 188. OS. 56.
Ins IV. 4. found in Md. July. frequenting flowers.

Eulalia. Walk. Law. 1. 50 see Sephritis anoporinus. (in Fam 64 Trypetidae)

Exorista. Meig (US) Meig 7. 255. Le Baron 2d Rept 124. Westw Syn 189. (see also
Tachina) Ins differs from Masicera. 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)

. . " . . . . flavicauda Riley. (Tachina f.) (Md US) Riley 2d Miss Rep. 51.
Ins. IX. 28. Riley. Larvae destroy caterpillars in same manner as
Tachina.

. . " . . . . (Tachina) leucaniae. (Md. US). Riley 2d Miss Rep 51. & 3d Rep 116.
Ins IX. 23 (Riley) Saunders Can. Rep. 1870. 99. Larvae parasitic in
the caterpillars of Lepidoptera. (Leucania. Proteania. Euxoas &c.)

Exorista (Meig) (Senometopia) militaris. (Tachina cecropiae. Syn) Walsh.
(Md. US) 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) cecropia. Agrotis. (cut worm) &c for habits &c see Tachina.

... " ... (Tachina) phycitae. Le Baron. (US) Le Baron 2d Rept. Illin. 123. The larva of this fly is mentioned by Dr Le Baron as destroying caterpillars of Phycita nebulo. (Lepid)

Gallicoles. Latr. see Cecidomyidae.

Gasterophilus. (Leach.) (Gastrus. Meig) (Oestrus. Linn). (US. Eu) Westw Syn. 151. & 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 tenaceously 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. Low. Oestridae)

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

... " ... (Gastrus) equi. Fab. (Eu US.) Carr 623. Koller. K & S. 145. 193. Leunis 628. Meig 4. 175. OS. 62. Pack 404. Verril Rept Conn. 1869. 96. Westw 2. 596. L.S. VII. 34. (Westw). J IV. 11 (Md. July) J 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. &c 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.

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

Gasterophilus (Leach.) (Gastrus.) haemorrhoidalis. Fab (Eu. US) Harr 623. Leunis 628.
Meig 4.177. Curtis in Mortons Cyclop. Ag. OS 62. Verril Rep. Connt 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.

. . . " . . . (Gastrus) inermis (Eu) Verril. Rept Connt. 1869. 101. Larvae live in stomach of Horses.

. . " . . . . Gastrus) nasalis Linn (Eu. N.Y. Fitch) Fitch Survey. 799. Leunis 628. Meig 4.174 OS. 62. Verril Rept Connt 1869. 98. Nose bot fly. Larvae found in the throat of Horses. Asses. Mules & Goats.

. . . " . . . Gastrus) pecorum. Fab. (Eu. Jamaica) Meig 4.176. OS 62. Verril Rept Connt 1869. 100. Larvae found in stomach of Horses.

. . . " . . . . Gastrus) veterinus. Green. New Eng. Farmer 4.345. Harr 623. OS. 62. "Brown Farriers Bot Fly" egg said to be deposited under the throat of Horses. (Dr. Le Baron in his mss. notes. on this subject timly remarks, "that a horse cannot reach eggs deposited under his throat. & 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".

Gastrus. Meig Westw Syn. 154 Anat. A 81. Meig pl 38. see Gasterophilus.
Geomyzidae. Fam 54 Loew. 1. p 45. example see Diastata.
Geranomyia. Hal. (US) Loew 1. 10. Westw Syn 129. Head & I 14 a (in Fam Tipulidae)
Geron. Meig (Md US.) Loew (Meig) 1.25. Wied 357. OS (Hgg) 43. (in Fam 21 Bombylidae)
Ins. III. 19. Md. Aug.
Glossina. (Wied) morsitans (Tsetse fly of Africa.) Um Ent. & Bot. 2.281. Livingstons 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 Manitimd wild animals (Antelopes Buffaloes. Zebras &c) or to mules asses. or goats. (Wood.) (in Fam 37. Muscidae)
Gonipes. Latr. of Westw Syn 133. Loew. 1. 23. see also Leptogaster. (in Fam 19. Asilidae)
Gymnosoma. (Fallen) Loew 1. 35. (Eu.) OS. 63. Meig 4.203. Westw Syn. 140. Leunis. 619.
Anat A 50. Meig pl 38. Ins. found on Umbelliferous plants (in Fam 34 Tachinidae.)

. . . . rotundata. Linn. (Md. US. Eu) Leunis 609. Meig 4.204. OS. 63.
Ins. IV. 13. Md. Aug.

Hadrus. Perty. (Loew 1.20) lepidotus (South Am) Bates Naturalist on the Amazon p 181. a dipterous insect allied to Haematopota. which attacks Indians on the Amazon. (Bates) in fam 14 Tabanidae (?).

Haematobra. Curtis. see Ornithomyia.

Haematopota. Meig. (Eu US.) Loew 1. 20. Meig 2.58. OS 25. Wied 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. Linn. (Eu). KDS. 57. Kollar 39. Leunis 614. Meig 2.59. Ins XII. 1. Meig pl 14. Ins. sucks the blood of Mankind. Horses. & cattle
. . . . " . . . ? Ins. VI. 26. Md.
Halteriptera. (Clairville) see Diptera Westw 2.496.
Helomyzidae. Fam 39 Loew. 1. p 37. Larvae feed on Fungi.
Helomyza. Fall. (Eu) Meig 6. 48. OS 83. Westw syn. 145.
. . . " . . . tuberivora. (Eu.) Frigivier 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) (US. Eu) Loew 1. 26. Meig 3. 368. OS. 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 Syrphiaro)
. . . " . . . ? (Md. US.) Ins IV. 2. Ins taken in Md on flowers. July.
. . . " . . . latifrons. Loew. (US) Ins. IX. 21. Am Ent 2. 42.
. . . " . . . pendulus. (Eu) KDS. 75. Larva has been found in the stomach of a woman.
. . . " . . . (Eristalis) tenax. (Eu) Westw 2. 551. L VII. 28. Westw.
Hemerodromia. (Hal) (Eu) Anat. A 34. Meig pl 23. Loew 1. 21. Meig 3. 61. OS. 46. Leunis 614. Wied 2. 11. Westw syn. 132 & 2. 547. Ins. probably raptorial & predatory. judging from form of anterior legs.
. . . " . . . monostigma. Hgg. (Eu) Ins. VI. 7. Meig 3. 62 pl. 23.
Henops. (Illig) Westw syn 131. Loew 1. 21. (in fam 14. Loew. Cyrtidae.
. . " . . . dispar (Baltimore) OS. 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.
Hervina. (Macq) (Loew 1. 59) rufitarsus. see Trypeta quadrifasciata & Rivellia
. . " . . . viridulans (in Fam 43. Loew. Ortalidae.

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

Heteroneura. Fall. Loew 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. Loew. 1.42.

Hilara. Meig. (Eu) Loew. 1. 30. Meig 3.1. Westw Syn. 132. Leunis 614. Anat A 33. { Meig pl 22. Ins predatory. Heads on other insects (in fam 39. Empidae)

. . . " . . . cilipes. Meig 3. 3. (Eu) Ins. VI. 6. Meig pl 22.

Hippobosca. Linn Loew 1. 4. 48. Leunis (Louse fly) 629. Pack. 417. OS. 76. Wied 2. 602. { Westw. Syn. 154. & 2. 581. Insect parasitic on horses. &c.

" { bubonis 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.) Harr 624. Leunis 629. KBS. 90. Meig 6. 227. Mortons Cyclop. Ag. Pack 417. OS. 86. Verril Rept. Comm. 1869. 88. Ins. VII. 40. Meig pl 63. Ins parasitic on horses. & occasionally on Cattle. (for Sheep. see Melophagus.)

Hippoboscidae. fam 62 Loew 1. 48.

Hirmoneura. Meig (Eu.) Meig 2. 100. OS. 38. Wied 1. 245.

. . . " . . . obscura. Wied (Eu) Meig. 2. 100. Ins. XII. 16. Meig pl 16.

Hirmoneuridae. (or Nemestrinidae) Fam 17. Loew 1. p 21.

Homalomyia Bouché Loew 1. 36. Westw Syn 143. (in fam 37 Anthomyidae)

" (Anthomyia) scalaris. (Eu) Am Ent 2. 138. Zett. IX 38. Am Ent.

Hyalomyia. Macq. Loew (Macq) 1. 35. Westw (A.D) syn. 140 Pack. 408. Ins. preys on { Brachyderus. (Col. curculio.) & is allied to Sachina. (in fam Sachinidae

Hybos. Fal. (Suneches Walk.) Loew 1. 30. Meig 2. 262. Pack 408. Wied 2 647. { Westw syn 143. & 2. 548. Ins. predatory. Heads on other insects

" { thoracicus. Say (Ma US.) Say 2. 68. OS. 44 Wied 1. 538. Ins III. 21. Md. Aug.

Hybotidae. Fam 22. Loew. 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.

Hydrotaea. Desv. Westw Syn. 142. Meig 7. 324. These insects generally frequent damp places. (in Fam 37. Loew Anthomyidae.)

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

Hyorophorus. Fall. Westw Syn. 134. & 2. 553. (Prodeteronus) Ins. runs with agility on the surface of the water. Subsists on other insects (in Fam 31. Loew. Dolichopodidae)

Hylemyia. (Macq.) (US. Eu) Meig 7. 317. Westw Syn 142. Ins. XI. 9. Meig pl 74 (Fam 37.)

" " (Anthomyia) deceptiva Fitch (US) Fitch. 2d Rep 301. & 1856. 535 OS. 74. Ins. X. 11. Fitch pl 1. fig 3. Insect suspected of being injurious to wheat when in the larva state.

" similis (US) Fitch. 2d Rep. 301. & 1855. 538. Habits same as above. & differs from it merely in its smaller size paler ash gray shade &c

Hypoderma (Clark) (Œstrus (Linn) Leow (Clark) 1.88. Meig 4.165. Pack 405.

Westw Syn (Late) 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. Œstroidae)

" (Œstrus) bovis Fab (US & Eu) Am Ent. 1.86. Fitch Survey. Washington. Co. NY. 799. Harr. 624. Kollar 61. Leun 627. Meig 4.167 OS. 62. Pack. 405. Mortons Cyclop. Ag. Verrill Rep. Conn.to 1869. 91. Westw 2. 577. LI. VIII. 21. (poor fig) The larvae causing the tumors under the skin of cattle (see above) are generally called "Warbles." or "Wormals" (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 Œstrus 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.)

" (Œstrus) lineata. Brauer. (Ky. US.) Verril Report. Conn.t 1869. 93. Lar cause tumors under the skin of Cattle & Sheep.

" (Œstrus) tarandi Linn (Eu US.?) Leunis 628. Hd VS. 87. Meig 4. 164. Pack 405. Ins X 22. Meig pl 38. Larvae live in tumors under the skin of Reindeer

? (US) Verril Rep. Conn.t 1869. 96. Larvae form tumors under the skin of Elk. Deer. Goats & Moose.

Laphria. Fal. (US & Eu) Loew. 1.23. OS. 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 14 Loew. Asilidae.)

Laphria (Fab) dorsata Say (Md. US) Say 1.13. Nicd 1.506. OS.30. Ins III.1.2. Md. July. IX.16. Say. Ins. pursue & serve 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 US.) Say 1.255. OS.30. Nicd 1.519. Ins V.21. Md. July Ins. habits predatory not uncommon in Md.

... " .... fulvicauda. Say. (pyrrhacra. Nicd 1.15) (US S.Am.) Say 1.12. OS.30. Nicd 1.15. Ins. IX.13. Say. pl. 6.

... " .... sanicsa. Say. (Md US) OS.31. Say 2.355. Ins. V.20. Md. July.

... " .... sericea Say (Md US) OS.31. Say 1.12. Nicd 1.508. Ins. IX.15. Say pl 6. —

... " .... tergissa. Say (Md US) Harr 604. OS 31. Say 1.67. Nicd 1.502 (see also Laphria flavibarbis.)

... " .... thoracica Fab. (Md. US. Nova Scotia West Ind.) Harr. 604. OS. 31. Pack 396. Nicd 1. 511 Ins II.24 Md. & VI.25 Md July & Aug. habits predatory

Laphrinae. in Fam 19. Asilidae. Loew 1. 23.

Lasioptera. Meig. (US. Eu) Harr. 370. Loew 1. 1.7.174. OS. 4. Pack 378. Westw Syn 126. & 2.519. Meig 1.70. Nicd 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. Loew. Cecidomyidae.)

... " ... (Cecidomyia) juniperana Peq. (juniperi Westw) Leunis 606. Meig 1.78 Westw 2.519. The larva causes three pronged or toothed malformations on shoots of Juniper (Eu)

... " ... rubi Pack. 372. (US) The larva forms a gall on the bramble. which is also socially inhabited by another gall gnat. Diplosis socialis.

... " ... solidaginis. OS. (US) Tr 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. (US). Am Ent 1. 247. Loew. 1.202. Riley 5th Rep. 1873.117. (Gall "vitis tomatos". 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 rosy cheek. The insect is destroyed by Hymenopterous parasites. Callimome ebria. OS. & Am Ent. Soc. 3. 58. & a Proctotrupes. an orthopterous insect. Thrips is said also to destroy it. (Am Ent 1.247 & Riley 5th Rep. 117.)

Lauxania. Latr (Eu US) Loew 1.41. Weid 2 471. Westw Syn 150. in Fam 46 Sapromyzidae

... " ... lupulina. Fab. (Md US. Eu Nova scotia) Meig 5.301. Ins. IV.28 Md. Aug.

Leia (Meig) (Lejia) (US.) Loew. 1.13. OS. 10. Westw Syn. 127. Wied 1. 65. (in Fam 7. Mycetophilidae)

... " ... winthemi. Meig. (US). Meig 6.296. Ins. I.17. OS. coll. Larvae probably live in fungi like Sciophila. &c.

Leptidae. Fam 15. Loew. 1.20.

Leptis. Fab. (US. Eu) Law (Fab) 1.20. Meig 2.65 Westw Syn (Meig) 134 & 2.551. Wied 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. (US) OS.36. Say 1.27. Wied 1.223. Ins IX. 6. Say pl 13.

... " ... bosci. Macq. (Md US.) OS.36. Ins. V.31. Md July.

... " ... (Chrysopila) fasciata Say. OS. 37. Say 1.28. Wied 1.225. Ins IX. 4 Say pl 13 (US)

... " ... ornata Say (Md US.) Say 1.26. & OS.37. Wied 1.221. Ins V. 32.

... " ... thoracica Fab. (Md US.) OS.37 Wied 1.222. Ins III. 9. Md July Aug.

... " ... vermileo Linn. (bermilio Degeerii Macq.) Eu. KbS. 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 (Myrmeleon. Neurop.) 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 (US) OS. 37. Say 1.27. Wied 1.224 Ins IX. 7. Say. pl 13.

Leptogaster. (Meig) (Gonipes Latr of Loew 1.23. & West syn 123) (Eu. US) Meig 2.260. Leun 613. Loew. 1.23. OS. 36. Westw Syn 133. Anat. A 26. Meig pl 21. (in fam 19. Asilidae)

... " ... ? Md. US. Ins III. 8. Md July & Aug.

Leria (R Desv) melina R Desv. (Eu). KbS. 147. Larvae feed on dung of the Badger

" mustelina R Desv. (Eu) KbS 147. Larvae feed on dung of Weasel

Leucopis. Meig (Iowa US) 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. Thomp) it was taken in Iowa in 1855. 6. & bred from galls of the wild grape (Leucopis is not mentioned in Loew. but is placed by Meigen (6 p 133) between Ephydra & Chlorops)

... " ... griseola Fallen. (Eu) Meig 6. 133. Ins X. 16. Meig pl 60. Larva probably destroys other insects.

Liancalus (Hal Loew 1.32) genualis Loew (Md US.) Loew 2.199 Ins VI. 29. Md July Ins probably predaceous like Dolichopus. (in Fam 31. Loew Dolichopodidae)

Limnobia (Meig) (Pedicia Latr) (Eu.) Loew 1. 10. Meig 1.92. Pack 381. Westw Syn 129 & 2.536. Wied 1.244 & Anat. A 11. Meig pl 5. Larvae mostly aquatic Westwood 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 fam 6 Loew Tipulidae.

" (Pedicia) alboviitta Walk. (US Nova Scotia) OS. 5. Ins V. 14. OS coll.

Limnobia. (Meig) annulus. (Ew) 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. cinctipes. of Say.

.... " .... "fimbriata. Meig. (Ew) Meig 1.104. Wing I. 14c. Meig.

.... " .... humidicola OS. (US). . . Ins I. 14. OS coll.

(Limnophila. Macq) macrocera. Say. (US. Nova Scotia) Macq. 1.108. 2. OS. 6. Say 2.46. Walk 1.40. Wied 1.34. Ins V. 13. OS coll.

Limnobiorhynchus. Westw. (US) Loew. 1.10 OS. 6. Head &c. I. 14b. OS coll. Ins frequents marshes. (in fam 6. Tipulidae. Loew.)

... " .... see also Toxorhina Loew

Limosina ... geniculata. (Ew) Insect bred from rotten potatoes by Curtis (p 472.) (in fam. 60 Loew. Borboridae).

Lipoptena ... cervi. (Ew) 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. 585. Ins. parasitic on Bats.

Lonchaea, (Fall.) (Ew) Loew 1. 41. Westw Syn 150. Wied 2.475. (in Fam 25 Lonchaeidae)

" ? 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.

Lonchaeidae. Fam 25. Loew. 1.41. & 56.

Lonchoptera Meig (Ew) Loew. 1.29. Meig 4.105. Westw Syn 135. Anat. A 84 Meig pl. 36.

... " ... tristis. Meig. (Ew) Meig 4.110. Ins XII. 2. Meig pl 36. Ins. frequents damp & marshy places.

Lonchopteridae. Fam 27. Loew 1.29.

Loxocera (Lat. OS) (Ew) Loew. 1. 38. Meig 5.368. Westw Syn 146. Leunis 624. (in Fam 41. Bilidae)

" 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. Ew.) Loew 1. 35. Westw Syn 141. (in Fam 35 Loew Muscidae)

" (Musca.) Caesar. Linn. (US. Ew) Harr 614 Leunis 620 Pack 408 OS 71 - "Green Bottle-fly" Ins. golden green or blue with a metallic lustre. - F. differs from Calliphora 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 some - times 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 (?) Figuier 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. Pr Ent. 2. 8. Larvae parasitic in nest of Swallows Dufour Ann Soc Ent France 1845. p 205.

Lydella. (Macq.) (Sachina) doryphorae. Riley (US.) Am Ent. 1. 46. Le Baron Rept. Illi 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 Sachinidae)

Macrocera. Meig (US. Eu) Loew 1. 18. 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. US.) Loew. 1. 6. Meig 1. 69. Meid 1. 20. (in fam 2. Chironomidae)

" albitarsus Meig (Eu) Meig 1. 69 Ins XII. 8. Meig pl 3.

Masicera (Macq) (Eu. US.) Loew 1. 35. Meig 7. 241. Westw Syn 139. Ins X. 53. Meig pl 71 Ins. with 3d joint of antennae very long without having the front very prominent. (In fam 34 Sachinidae)

" (Sachina) archippivora (US) Riley 3d Rep. 116. & 150, Larva destroys caterpillars of Lepidoptera. Paphia glycerium. Danais archippus. and Prodenia autumnalis. by feeding inside their bodies.

Medeterus. (Fischer) (Eu US.) Leunis 615. Loew (Fischer) 1. 32 & 2. 218. Meig 4. 59. Pack. 403. Meid 2. 229. 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 Podura. (Orthop) on the surface of the water Westw 2 553. (in fam 31 Loew Dolichopodidae)

" loripes (Eu) Westw 2. 553. Ins captures & feeds on Podura. (Orthop)

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

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

" diabroticae Shimer (US) (Melanosphora error) Shimer Am nat V. 219. Larva destroys the insect of Diabrotica vittata (Coleop) 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 (Latr) Loew 1.48. OS.86. Westw. Syn. 154. (in fam 62. Loew. Hippoboscidae)

. . . . " . . . { ovinus. Linn. (Eu. US.) Harr. 625. Leunis 629. KbS. 85. Meig 6.236. Packt 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. Latr. (US. & Eu) Loew (Latr) 1.26. Meig 3.349. Wied 2. 148 Westw Syn (Tab) 137.

{ Anal 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 (US) Say 2.356. OS. 54. Packt 399. Ins VIII. 30 Packt. Larva aquatic.

" { clavipes. Fab. (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. Fab. Ins VI. 31. Meig pl 31. (Eu) Meig 3.352.

" { narcissi. Fab. (US. Eu.) KbS. 108. Leunis 625 Meig 3.354. Packt 399. Westw. 2. 559. The larvae live in the earth near decayed bulbs of Narcissus & 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) O.S. 84. Loew 1. 46. Westw syn 147. (in fam 56 Oscinidae. Loew.)

" { americana Fitch (US) Am Ent 2.248. Fitch 2d rept. 294. & 1855. 551. Riley 1st Rept. No. 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)

" praatorum. Meig (Eu) Ins X. 20 Meig 6. 165. pl. 61.

Metaponia. Macq. Loew 1.17 see Beris dorsalis.

Microdon (Meig) Loew (Meig) 1.26. Meig 3.162. Westw Syn (Illig) 135. Anal 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. Fab. (US) OS. 47. Packt 398. Wied 2.86. Ins VIII. 20 (Packt) Ins. found by Mr Sanborn under sticks in company with shells.

" { mutabilis. Linn. (Eu) Leunis 625. Meig 3.164. Larva found in old trunkes of trees (see vegetable mould.)

Microjeza { Meig (Eu) Loew 1.39. Meig 5.382. OS. 81 Wied 2.547. Westw Syn. 149. Anal 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 Fab. Loew 1.22. Westw 2 549. Syn. 134.

" { clavatus. (Drury) (filatus Harr & Wied) (US. South Am) Harr 606. Meig 5. 382. OS 27. Packt 395. Wied 1.240. Ins. II. 20 Md Aug. Larvae live in wood mould & in rotten wood. pupa formed in rotten stumps — Ins appears in July & Aug.t in Mass.tts (in Fam 19. Midasidae. Loew.)

Midas. Fab. filatus. see M. clavatus.

. . . " . . { fulvipes. Walsh. (US) Pack 396. The larvae are said to be insectivorous.

. . . " . . { tibialis. Wied (Ma. US.) Wied 2.627. OS.27. LI 11.19. DC. July. The larva was found in wood mould.

. . . " . . { tricolor. (Cuba.) Westw 2. 550. The larva is said to destroy a Prionus. (Coleop.) in the Island of Cuba. on authority of Mac Leay.

Midasidae. Fam 18. of Loew. 1.22.

Milesia. Latr. (Eu) Loew. (Latr) 1.26. Westw Syn (Fab) 136 & 2.559 (in Fam 22. Syrph)

. . . " . . bardus. see Merodon.

. . . " . . { 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. 60. Wied 2. 106. (US)

. . . " . . vespiformis. Linn (Eu) Harr in note p. 610.

Miltogramma (Meig) (Eu) Loew. 1.25. Meig 4.226. OS. 63. Wied 2.278. Westw Syn 130. { (in fam 34 Loew. Sachinidae)

. . . " . . { (Sachina) punctata. Meig (Eu) Meig 4.238. Pack. 147. Westw 2.568. The larvae are parasitic in a wild bee (Colletes. Hym) and other Andrenidae "have been raised from their cocoons." Pack.

Molobrus. Latr. Westw Syn. 126. & 2. 533. see Sciara. (in Fam 7. Loew. Mycetophilidae)

Musca. Linn. (Eu US) Loew 1.35. OS. 70. Westw Syn. 141. &c. see also Calliphora. { Lucilia. &c. (in fam 36. Muscidae) Anat A. 54.

. . " . . { azurea. Fall. (Eu) Meig 5. 63. Prac Ent. 1.102 & 2.8. Larvae found in Birds nests.

. . " . . { cadaverina. Linn. (Eu US.) Leunis 620. Meig 5.59. OS. 71. The larvae infest wounds, & sores of mankind & animals.

. . " . . { corvina. Fab. (Eu & Nova scotia) Meig 5.69. Leun. 620. OS. 71. Larva infests rotten cheese.

. . " . . { domestica. Linn (harpyia. Harr.) (Eu. U.S.) Leunis 620. Harr 614. Meig 5.67. Pack. 409. Westw 2.570. LP. VIII 2. Pack. Ins. IV. 30. Mā. Domestic or "Common House fly." Ins. very troublesome by getting into liquids. victuals. &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 furnished 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 mischeif 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. (Packe) by this means the fly is also enabled to eat grains of pollen. (Harpers 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 metamorphoses from the egg to the fully developed fly. the larvae live in dung & filth Shimer 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. (Packe 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 (Astoma. arachnidae. Am Ent. I. 249) which are found attached to their bodies, under the wings. & likewise said by some to be infested with another mite Uroposda (?) — 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) (Packe 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 (Linn) harpyia. see M. domestica.

. . " . . . { erythrocephala. Meig (Eu Greenland) OS. 71. Pt. Ent I. 102 & 2.8. Meig 5. 62. Wied 2. 395. Ins. parasitic & found in Birds nests.

. . " . . . { stabulans. Fal. (Eu & Nova Scotia) Leunis 620. Meig 5. 76. OS. 73. wing XII. 25 Meig pl 43. The larvae feed in the bodies of caterpillars the same as Tachina. they also breed in dung & "in diseased potatoes." (Morton cyclop Agre 2. 440.

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

. . " . . . see Morenga fly. Packe 409.

Muscidae. Fam. 26. Loew 1. 35.

Musquito. see culex.

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

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

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

Mycetobia (Meig) sordida. Pack. 387. L.P.J. VIII. 11. (U.S.) Larvae live in the putrescent sap. under bark of Elm. in June, Fly appears June 27. Mass.

.... " .... (Mycetophila. Riley.) persicae. Riley. Md. U.S.) Am Ent 1. 223 (Riley.) Ag.l Rept. 1872. L.P.J. XI. 13. Md May. Sep. The larva lives in the gum, & refuse castings made by the Peach tree borer. Aegeria — (Trochilium) 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. US). Loew 1. 13. Leunis 608. Meig 1. 202. O.S. 10. Westw. Syn 127. Wied 1. 66. Anat A. 16. Meig pl. 9. Larvae found in boleti. fungi &c. Ins. small. and active. "have no probascis" (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 Ichneumon fly. Telcas. (Hym.) (Pack 199) The larva of a Mycetophila. was found by Bosc, 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. US) Ins. I. 18. Md July taken on dung.

..... " .... persicae. see Mycetobia.

Mycetophilidae. Fam 7. Loew. 1. 13. Pack 385.

Myobia (Macq.) (Eu) Meig 7. 287. said by St. Fargeau. to destroy) Curculionidae. Westw 2. 569. (in fam 34 Tachinidae.)

Myopa. Latr. (Eu. US.) Loew (Latr) 1. 27. Westw Syn. (Fab) 138. Meig 4. 140. Wied 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. Wied. (Eu) Meig 4. 153. Ins. VI. 18. Meig pl 37. Ins frequents flowers.

..... " (Oxycephala OS. 83) nigripennis. Gray. (US.) 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 Setaniocera which belongs to fam 40 Sciomyzidae & is no where near fam 23 Loew. Myopidae.)

Myopidae. Fam 23 Læw. 1.27.
Nematocera. Leunis &c see Nemocera.
Nemestrinidae. Fam 17. Læw 1.21. see also Hirmoneuridae.
Nemestrina. Wied. Læw. 1.22. Meig 6. 24.
" { " longirostris. Wied. (Eu) Westw 2.545. Wied 1.245 This insect posesses 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. 2&5. Flies having antennae of more than 6 joints
Nemotelus Geoff. (Eu) Læw (Geoff) 1.18. Meig 3. 313. OS. 16. Westw. Syn Fab. 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 VI. 13. Meig. pl 35.
Notacantha Stirps 2 of Westw 2.505. "Thorn" or "Weapon flies." Leun. 615. (Ex Stratiomys
Nycteribia. Latr Westw Syn 154 & 2. 586. "Bat ticks."
" { (Strebla) vespertilionis Meig (?) Ew. 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 635 Pack 418. Læw states "that one Strebla only and a species belonging to a new genus are as yet found in the United States." Læw.
Achthera (Eu) Latr. Læw 1.46. 149. 159. Meig 6. 77. OS. 84. Westw Syn 133. Wied 2.446 { in fam 53. Ephydrinidae. Læw.
" { mantis Degeer (Mid St. Md. US. Eu) Læw 1. 161. Meig 6. 78. Ins IV. 34. (Md. 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 Acanthosoma (Pentatoma) grisea. (Hetrop.)
" { 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 viridis)
(?) (Md. US.) Ins. IV. 15. Ins taken in Md. Aug.

Odontomyia Meig (Eu) Lœw.(Meig) 118. Westw Syn 130. (in fam 12. Stratiomidae, Lœw)

" cincta. see Stratiomys.

" crassirostris. Lœw.(U S) Ins II.11. from collection of O.S.

Oestridae. Fam 32. Lœw. 1.32 Pack 403.

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

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

" buccatus. "Squirrel bot" see Cuterebra.

" equi. "Horse stomach bot" see Gastrus. & Gasterophilus.

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

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

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

" stimulator. Clark. (Cephenemyia Westw 2.576) (Œstrus trompé Faz) (Œ. auribarbis. M. only a var Meig 4.171.) (Eu) Leun 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. Lœw. 1.121. Pack 395. (See also Henops) in fam 14 Cyrtidae Lœw.

" (Henops) dispar. Macq. (Md. US.) OS (Henops) 26. Ins V.4. Md June.

" (") gibbosus Linn Ins XII.7. Meig pl 24.

Opomyza. Fallen no sp as yet known in the US. (in fam 49. Opomyzidae. Lœw 1.43.

Ornithobia. Meig. (Haematobora Curtis) Westw Syn 154 Meig 6.229. "Bird louse fly" in fam 62 Lœw. Hippoboscidae.

" (Ornithomyia) pallida. Meig 6.229 (Eu) Ins VII.4. Meig pl 68. Insect parasitic on birds eating the feathers &c. (See also Ornithomyia pallida Say. O.S. 86.

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

" ? (Md. US) Insect taken from a large horned Owl in Md. Sept (see also Hippobosca Pack 146. on Owl likewise) Ins. IV.42.

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

" pallida Say (US) Say J Acad Phil 3.103. Harris 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.

Ortalidae. Fam 43. Loew. 1. 39. Harr 497. Many of the larvae of this family produce Galls on the leaves, stems & heads 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 Ortalis, 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.

Ortalis. (Talin.) (Eu) Meig. 5.272. OS.77. Westw. Syn 149. Wied 2. 466. Cuvier A 60 Meig pl 46.

" cerasi. Linn. (Eu. Mass. US.) Leunis 623. OS.77. Westw 2.573. see Trypeta.

" colon. Loew. (US. Md.) Ins. V. 7. Md Agt. see also O. vibrans (Eu) which resembles it.

" flexa. Wied. (Trypeta arcuata Walker) (US) OS. (Trypeta) 79 Peck 412 Prac. Ent. 1.4 & 2.62. Riley 2d Rept. 1869. Shimer in Prairie Farmer. Sep 2. 1866. Wied (Trypeta) 2.483. Am Ent 2.266. LI. VIII. 28. Peck. — "Black or Western Onion fly." The larva in June feeds in the bulb &c of Onions, & thus destroys the plant. The pupa is formed in the earth & remains as pupa about 2 weeks. (see also for eastern Onion fly. Anthomyia cepaeum.)

" fulminans. Meig. (Eu) Leun. 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. colon (US.)

Oscinis (Rob. Des) Meig 0. Law 1.46. Wied 2. 579. see Chlorops. (Oscinis is said by Fitch (2d 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.

" coxendix. A. crassiseta. O. frit. O. lineata. O. pumilionis. see Chlorops

" granaria. Curtis (Eu) Mortons Cyclop. Agr 2. 519. Peck 415. Ins. X. 3. (Curtis.) Larvae live in stems of early wheat & supposed to injure early ears.

" pumilionis. See Chlorops.

" tibialis. Fitch (US) Fitch 2d 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. Peck 415. Ins X. 5. (Curtis) The larva lives near the base of a stem & eats out the plume of Wheat, Barley &c thus destroying the future ear. & is itself destroyed by Hymenopterous parasites. Sigalphus caudatus. Pteromalus micans. & Coelinus niger.

Oscinidae Fam 56. Loew. 1. p 46.

Oxycephala. Macq. see Myopa nigripennis. (in Fam. 23 Loew. Myopidae)

Oxycera. Meig. (Eu) Loew. 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. Loew. Stratiomyidae.)

. . . . " . . . maculata. Oliv. (Md. US.) Ins V. 2 Maryland. June.

Oxyptera. see Ocyptera.

Oxypterum. Leach see Ancipera.

Pachygaster. Meig (Eu) Loew. 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. Loew. Stratiomyidae.

. . . . . " . . . pulcher. Loew. (Md. US.) L.P.S. V. 33. found in Md. June under bark

Palloptera. Fall. (Eu US) Loew 1.41. Westw. syn 150. (in fam 45 Lonchaeidae Loew)

. . . . . " . . . superba (Md US) Ins. VI. 28 Md Aug.t

Pangonia. Latr. (U.S. Eu) Loew 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 Loew Tabanidae)

. . . . . " . . . . . incisuralis Say. (US) Say 1.75. O.S. 19. Wied (incisa) 1.90. Ins IX. 12 Say.

Panopea carnea. Fack. 164. said to be parasitic in a Bembex (Hym) (not in Loew. O.S. or Meigen)

Parzora. Stenh Loew 1.45. 159. 164. (in fam 53. Loew. Ephydrinidae.)

" bituberculata. Ins V. 35 from collection of O.S.

Pedicia. Latr. Loew 1.10. Westw syn. 129. see also Limnobia

Petalophora. Macq (Ceratitis Mac Leay) capitata. (see Westw 2.573. for C. citriperda) This insect is said to be found on Lemon trees & is probably the same as C. citriperda. (in fam 44. Loew Trypetidae.)

Phora. Latr. (Eu US.) Loew 1.1.47. 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. Phorid)

. . . " . . . . ? (Ky US) 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 Lady birds (Coccinellidae (Coleop) as their larvae were found "hanging to the pupae of coccinella & soon afterwards underwent their trans=formations. Westw.

. . . " " . . . . dauci. Bouché. (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.

Phora. Latr; incrassata. Meig. (Eu) Am Ent. 2. - 242. Meig 6. 212. Pack 416. "Bee-fly." Ins. VI. 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.)

. . . . . " . . . . Sphingidis. (Eu) Westw 2. 575. Larvae parasitic in bodies of "Hawk moths. (Sphingidae)

Phoridae. Fam 61. Loew. 1. 4. 47.

Phthiria. Meig. (Eu.) Loew. (Meig) 1. 25. Meig 2. 166. OS. 43. Westw Syn (Latr) 131. Wied 1. 353. Ins. frequent flowers. (in Fam 21. Loew. Bombylidae.)

. . . " . . . . sulphurea. Loew. (US. Md.) Ins. V. 1. Md. June.

Phycodromidae. Fam 47. Loew. 1. 42. (Ex. see Caelopa)

Phytomyza. Fallen. (Eu US) Loew. 1. 47. Meig 6. 108. Westw Syn. 152.

. . . . . " . . . . apii see Piophila.

. . . . . " . . . . flava. Meig. (Eu) Meig 6. 196. Westw 2. 573. Larva subcutaneous, & feeds in leaf of Harts tongue - 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. (Centaurea.)

. . . . . " . . . . nigricornis Macq. (Eu) Curtis in Mortons Cyclop. Agre Meig 7. 304. 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 leafs of Holly & Honeysuckle. The pupa is formed in the earth.

Phytomyzidae. Fam 58 Law. 1. 47.

Piophila. Fallen (Eu. US.) Loew. 1. 44. Meig 5. 394. Westw Syn. 147. Anat A 58 (Meig pl 54)

. . . " . . . . apii. Westw. (Eu) Leun. 622. Larva lives in the flesh, or substance of Celery.

. . . " . . . . casei Linn (Eu US.) Harr. 621. Am Ent 2. 79. Lewis 622. Meig 5. 395. Morton Cyclop Ag. 2. 611. OS. 82. Pack 413. Westw 2. 573. (Tyrophagus casei. Nat. 176. 437.) L.P.S. V. 34. (Md. 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. Germar is said to have bred this insect from Salt. alone.

Piophilidae. Fam 52. Loew. 1. 44.

Pipiza. Fallen. (Eu. US.) Loew. (Fallen) 1.26. Meig 3. 242. OS. 50. Westw Syn. (Meig) 136.
{ Wied. 2. 110. (in fam 22 Syrphidae. Loew.)

..... " ... radicum. Walsh. (US) 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)

..... " ... { n.sp.(?) LeBaron Am Ent. 1.110. Larvae destroy the plant lice in the Sumach gall. (Pemphigus rhois Homop.)

Pipunculus. Latr. (Eu) Loew. 1. 27. Meig. 4.19. Pack. 401. Westw Syn 135.
{ Wied 2.650. Anat A 85. (Meig) Ins. found in hedges on Grass &c.
Ins. VI. 17. from OS. coll.

Pipunculidae. Fam 24 Loew. 1. 28.

Platypeza. Meig. (US Eu.) Loew 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

Platypezidae. Fam 26. Loew. 1.28.

Platyspyllus. { 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 Dr Le Conte gives good reasons for placing it with the Coleoptera" (Riley 5th Rep. 1873. p 16.)

Platystoma. Latr. Loew. 1. 59. 78. Meig 5. 390. OS (Latr) 81. Westw Syn. (Meig) 148.
{ Wied 2.568. (in fam 44 Loew Scypetidae.)

..... " ... annulipes. Macq. see Calliopistria.

..... " ... latipennis. Macq. see Scypeta sparsa.

Plecia. Wied. (US) Loew (Wied) 1. 15. OS. (Hoffgg) 12. Packs 80. Wied 1.73. &c
{ (in fam 9. Bibionidae)

..... " ... longipes. Loew. (Md. US.) Ins. II. 4 (Md. april.)

Porphyrops. (Meig.) (Eu. US) Loew 1. 32. & 2.142. 340. OS. 58. Meig 4. 45. Westw Syn. 134.
{ Anat A. 40. (Meig pl 35.) (in fam 31. Loew. Dolichopodidae.)

..... " ... diaphanus. Say. (Eu) Meig. 4. 46. Ins VI. 10. (Meig pl 35.)

Proboscidea. Division 1. Diptera Loew. 1. 4.

Proctacanthus. Macq. Loew 1. 23 (in fam 19. Loew. Asilidae.

Proctacanthus. Macq. milberti. Macq. (Ma. US) OS. 34. Pack rep. Mass Ag. 1869. 254 Ins III. 7. Ma. July. Ins predatory feeds on juices of other insects

.... " .... philadelphicus Macq. (Ma NS) Ann nat. 4. 686. OS. 35. Pack Ag Rep Mass 4 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 Loew (US.) Loew 123. (in fam 19. Loew Asilidae)

.... " .... bastardi Loew. (US) Am Ent 1. 244 Pack 390. Riley 1st Rep. 1868. 186. & 2d Rep. 1869. 122. Papivorus Le Baron 1871. 63. (Snuppoena apivora Fitch) Ins. IX 22 (Riley) Bee Killer Ins. predatory & kills other insects. it also captures Honey bees when flying & sucks their juices. Has been known to kill 140 bees in one day Riley. it is also said to destroy the western or Colorado potato bug (Doryphora decemlineata.)

Psila. Meig. (Eu US.) Loew 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

...4 .... bicolor Meig (Eu) Meig 5. 358 Ins VI. 16. Meig pl 51.

... " .... rosae. Fab. (Eu) Curtis in Mortons Cyclop Ag. Leunis 624. Meig 5. 358. Westw 2. 573. 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. Agre)

Psilidae. Fam 41 Loew 1. 38.

Psilopus. Meig (Eu US.) Loew 1. 32 & 2. 229. Meig 4. 36. Westw Syn. 134 (in fam 31. Dolichop.)

.... " ... Sipho Say (Md. US. Cuba Brazil) OS. 58. Say 2. 75. Wied 2. 218. Ins V. 6. (Ma June.) Ins. frequents bushes. & is named sipho from the siphon like brown marks on its wings.

Psychoda Latr. (Eu US Ma.) Loew (Latr) 1. 9. Meigen 1. 81. OS. (Meig) 5. Pack. 380 Westw syn 126 & 2. 520. Anat A 8. (Meig pl 3.) Ins IV. 5. 6. (Ma. mus.) 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. 84. Curtis 459. Ins bred from rotten potatoes. Curtis.

... " .... phalaenoides Linn (Eu) Leunis 606. Meig 1. 82. Westw 2. 520. Larva resides in dung.

Psychodidae. Fam 5 Loew. 1. 9.

Ptychoptera Meig (Ew) Loew (Meig) 1.10. Meig 1.161. OS(Sub) 9. Pack. Lar. 382 & Ins 384. Westw Syn 128. (see also Bittacomorpha) Anat A 14 (Meig pl. 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 6. 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 (Ew) 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 Loews Monograph It was placed by Westwood (2. p 489.) in a separate order Aphaniptera (Kirby) by Packard (p 389.) it is put in Diptera between Mycetobia & Simulium. & by Leunis (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 &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) (Guyon in Am Nat. 2.104)

. . . . " . . . irritans Linn (Eu. U.S.) Am Ent 1. 86. Leunis 610. Westw 2.489. Verril Rept Count. Bd. Ag. 1869. 86. L.P.S. VII. 47. Flea on Mankind (Westw) Ins sucks blood.

. . . . " . . . canis Curtis (Eu US) Verril Rept Count Bd Ag. 1869. 86. Dog flea.

. . . . " . . . columba. Gervais. " . . " . . . " . . . " . . . " . . " Pigeon flea

. . . . " . . . felis. Bouché . . . " . . . " . . . " . . . " . . . " . . . " 84. Cat flea
See Science Gossip. 1865 p 278.

" gallinae Schrank (Eu US.) Verril 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 "Chigoe" "Jigger &c." see Sarcopsylla & Rhynchoprion.

Pupipara. Louse flies see Eproboscidea

Pyrgota. Wied Loew 1. 40. OS. (Wied) 62. (in Fam 43. Trew Ortalidae)

. . . . " . . . unidata. Wied (Sphecomyia volida. Harr) (Ma US) Harr 610. Wied 2.581. Ins. IV. 21. (Ma July Sep.) This insect frequents wet and damp bushes. It is not uncommon in Md.

Pyropa. (Illig) furcata see Scatophaga.

Rhagio (Illig) Prae. Ent. 1.269. see Simulium columbaschensis (in fam. 8 Simulidae)

Rhamphomyia Hoff 33. (Eu. U.S.) Læw. (Meig) 1.30. OS. 45. Meig. (Hoff 33) 3.42. Westw Syn (1699) 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. (Packt. 383) These insects are very rapaceous and are frequently taken coupled, with the female sucking the juices out of another small insect, which it has captured. (in fam 29. Empidae. Læw)

" longipes. Meig. (Eu) Meig. 3.55. Ins. XI. 3. (Meig pl 23) Ins predatory.

" longicauda. Læw. (US.) 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)

Rhynchoprion. (Oken) penetrans. see Sarcopsylla. Jigger. or Chigoe.

Rhyngia / Fab. (Eu. US) Læw (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. Læw. Syrphidae.)

" nasica. Say. (US. Md. Nova Scotia.) OS. 50. Say 2. 81. Wied 2. 115. Ins III. 28. Md on flowers. Aug. but not common.

Rhyphidae. Fam 10. Læw 1. 15.

Rhyphus. Meig. (Eu. US.) Læw (Meig) 1.15. Meig 1.249. OS. 13. Westw Syn (Latr.) 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. 251. Ins. II. 9. from OS. coll.

Rivellia. (Rob Des.). viridulans. Rob. Desv.. (Trypeta quadrifasciatus. Walk Læw 1.60) (Tephritis or Trypeta melliginis. Fitch 1st Rep. 64 & 1857. 769. OS 78.) (Ortalis melliginis. OS. Læw 1. 59) (Herina rufitarsus.) Macq.) (Md US) Ins IV. 26. Md. July. Ins. feeds on nectar of flowers or honey dew from plant lice. (Aphides.) habits same as Trypeta. (in fam 43. Ortalidae)

Sapromyza. Fall. (Eu. US.) Leunis 623. Læw 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 Carrion.) (in fam. 46. Sapromyzidae)

" compedita. Læw. (Md. US.) Ins V. 3. Md. July.

" decempunctata. 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. Loew. 1. 41.

Sarcophaga. Meig. (Eu. US.) Loew 1. 35. Meig 5. 14. Westw Syn. 140. Anat A. 53. Meig. pl 43. "Viviparous 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. Figites (Pack 213.) (in fam 35 Sarcophagidae. Loew.)

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

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

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

. . . . " . . . carnaria. Linn. (Eu US.) Am Nat. VII. 196. KBS. 147. Leunis 620. Meig 5. 18. OS. 68. Morton Cyclop Ag. 2. 120. Pack 409. Verril. Conn. 3d Ag. 1869. 102. Westw 2. 568. Ins. IV. 22. Ma. July to Sep. This insect is viviparous. 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." (Leunis.). 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. (Ma. US. Newfoundland. Hudsons bay.). Harr 618. OS 69. Wied 2. 357. Ins appears from end of June to mid Aug.t 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. (US) Pack 170. 408. This insect was reared from the mud nest of "Pelopaeus 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 Pelopaeus.

Sarcophagidae. Fam 35 Loew 1. 35

Sarcopsylla. (Westw) penetrans. Linn. (Rhynchopnion. Oken. & Am Nat 2. 104.) (Pulex. Linn & westw.) (US. South.n States. West Ind. So Am.) Am nat 2. 104 & 3. 386. Leun. (Westw) 611. KBS 25. & 53. Pack 390. Westw 2. 493. & fig 489. Ins VII. 48. Westw. "Sand flea" "Jigger" (US) "Chigoe" (US) Tunga. of Brazil. & "nigua" of the Peruvians.

(Over)

Sarcopsylla 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 ticks with this dissimilarity, that with the tick the feet are pushed apart. in the progress of distension. whilst in the "Jigger" they remain close together. This insect however must not be confounded with the harvest or "red bug" of the southern states. which is an acarus or mite (or "Leptis") & burrows under the skin of the body & limbs producing an intolerable, itching, & small water blisters. This insect belongs to the Arachnidae or spiders. & is also known in the south as the "seed tick". & erroneously as the Jigger in Md. La. & Ha &c The true chigoe is said to be destroyed by Periplaneta (Blatta) americana. a cockroach. (Guyon Am nat 2. 104.)

Sargus. Fab. (Eu. US.) Loew (Fab) 1. 18. Harr 608. Pack 392. Westw Syn. 130 (Fabr) & 2. 533. Hviid 2. 27. Ins VII. 39. Westw, Lewis 616. Larvae found in cow-dung. garden mould. &c (in fam 12 Stratiomyidae Loew)

.... " .... decorus. Say. (Md. US.) Say 1. 357. OS. 17. Hviid 2. 38. Ins II. 12. taken on flowers in Md. June. to Aug.

Scaeva.. Fab. Westw Syn. 137. Loew 1. 26. see Syrphus.

Scatomyzidae. Dung flies of Harr 619.

Scatopse. Geoff. (Eu. US) Loew 1. 14. OS. 12. Pack 377. Westw Syn. 129. Hviid 1. 71.
The larvae live probably in dung. one species according to Packard (p 377) is a guest gall gnat. or inquilinous in the gall of a Cecidomyia. (in fam 9 Loew. Bibionidae.)

" notata. Say. (US.) Ins II. 3. OS coll.

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

Scatophaga (Latr) (Eu. US) Lewis 622. OS. (Latr) 76. Meig 5. 252. Westw Syn 1164 & 2. 572. Hviid 2. 447. Anat A 57. Meig pl. 45. some of the insects eat pollen of flowers. (Am nat 5. 291.) (in fam 38 Loew. Cordyluridae.)

" furcata. Fab. (Md. US. Ew.) Harr 618. Lewis 622. OS. 76. Meig 5. 253. Say (Pyropa) 2. 85. Ins IV. 24. (Md May to Nov.) "Forked 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.) Leunis. 622 Meig 5.248.
03.77. Ins resembles S.furcata . & has similar habits frequenting manure, &c. but also according to Kby & S. it Kills small flies.

Scenopinidae. Fam. 25 Leew . 1. 28. (Scenopinus Latr. Leew 1.28. Meig 4.111. OS38. Westw syn.)
. . . . " . . . fenestralis . Linn. (Eu: US Ma.) Meig 4. 113. Westw 2. 553. Ins III. 10. Ma. 135. 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. J. Acad. Phil 3. 100. Weid 3. 238.
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.)

Sciara . (Fab) (Eu. US) Leew (Fab) 1.14. Meig 1.216. OS. 11 Pack 374 Westw syn (Meig) 126.
Weid. 1. 67. Anat A 17. (Meig pl 4.) Larvae found under bark of felled trees. in rotten wood. Fungi. &c. (see also Molobrus) (in Fam 7. Mycetophilidae.)
. . . . " . . . ? . . . (Md US.) . . . Ins II. 1. Ma. 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)
. . . . " . . . furcata. 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 2d Rep. N.Y 255. & 1855. p 487. OS. 11.
Ins probably hatched from a flower pot in a dwelling room.
. . . . " . . . (Molobrus) fuliginosus. (US) Fitch 2d Rept. 258 &. OS. 11 The eggs are deposited in a continuous string. The insect appears June to Aug.
. . . . " . . . (Molobrus) mali. Fitch. (US) Fitch 2d Rept. 252. 1855. 495. & 1856. 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) Leunis 608. KBS. III. The larvae injure the blossoms & fruit of the pear, & cause them to fall off.
. . . . " quinquelineata. (Eu. US?) Curtis in Mortons Cyclop ag. Prac Ent 1. 71 (?) The larvae breed in diseased potatoes. & are supposed to cause the disease called the "scab" & probably that mentioned in the Prac. Entomologest. (1.71) is closely allied to S. quinquelineata. if not the same.
. . . . " . . . thomae. Linn. Eu Leunis 608. Figuier 51. Meig 1. 217. (Mycetophila) KBS. 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. (Hymen).

Sciara. Tal. Thomae (affinis) (Md. US.) Monthly Rept. Dept. Agre Oct 1872 p 438.
habits &c same as S. thomae. Ins I. 19. Md & Va.

Sciomyza. Fall (Eu US) Loew. (Fall) 1.103. OS. 82. Westw Syn (Meig.) 145. Meig 6.9.

Sciomyzidae. Fam 40. Loew 1.37. & 103. (Examples. Sepedon. Tetanocera. &c.)

Sciophila. Meig (Eu. US.) Loew (Meig) 1.13. Meig 1.191. OS. 10 Pack 365 Westw Syn (1839) 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. Loew. Mycetophilidae.

. . . . " . . . striata. Meig. (Eu) Meig 1.192. Ins XI. 1. Meig pl. 9.

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

. . . . " . . . atropivora. Kirby 155. a Tachina which destroys Acherontia atropos. or the Deaths head Sphynx. in Europe.

Sepedon. Latr (Eu. US.) Loew. 1.37. 104. 124. OS. 82. Westw Syn 146 Wied 2. 577. The insects frequent putrifying substances. (in Fam 40. Loew. Sciomyzidae)

. . . . " . . . Jemsillus Loew (Md. US.) Loew. 1.127. Ins V. 9. Md July.

Sepsidae. Fam 50 Loew 1.43.

Sepsis. Fallen. (Eu, US) Leunis 622, Loew 1.43. OS. 78. Meig 5. 285. Westw Syn 147 & 2. 571. Wied 2.467. Anat A 56. Meig 47. pl. Larvae feed on excrements.

. . . " . . . ? (Md US.) Ins IV. 27. Md July. Sep.

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

Sericomyia. Meig (Eu. US) Loew (Meig) 1. 26. Westw syn (Latr) 137. (in fam 22. Syrphidae.

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

Simulidae Fam 8 Loew 1. 14.

Simulium (Latr) (Eu. US.) Loew 1. 14, Kirby 57. Meig 1. 290. Westw Syn 129 & 2. 529. (Similia. Meig 1. 290. & Wied 1.71.) (US. 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 US. (see Seth Green in Amn Ext & Bot. 2 p 1748, 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 oblconical 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". OS.

Simulium. (Latr.) (Rhagio.) columbaschensis. Fab. (Eu.) Leunis 609. HS. 62. & 81.

Muq. (S. maculata) 1.229. Mortons Cyclop Ag. 2.862. Kollar 69. Pack 391. Westw 2.528. L.P. X.36 (Morton) Ins. XII.5 (Leunis) 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.

" molestum. 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-ation. & swelling. which lasts several weeks. (Harr.) wings black. & transparent.

" noctivum. 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. HS. P. 68 OS 12 → Leunis 609. Ins very abundant. & annoying in the woods in spring.

" sericeum. Linn. (Eu) Meig 1.230. Mortons 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) Leu 1.46. OS. 84. Westw syn. 147.

" obesa. Fitch. (US) Fitch 2d 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) Leu 1.26. OS. 47. Ins. VI.32. OS. coll (in Fam 22 Syrph.)

Sphecomyia Latr. Leew 1.26. see Pyrgota. (Ins. fam 43 Ortalidae Leew)

Sphyracephala. (Say.) (Diopsis.) brevicornis. Say. (Md US) Harr 621. Leu 1.44. Fitch 1st Rep. NY. 69. 1854 773. Pack. 413. OS. 81. Prac Ent 2.108. Say 1.116. Ins IV.31. (OS coll) "Hammer headed fly". or "Stem Eye". This insect was found between the leaves of Skunk Cabbage (Symplocarpa fœtida) & 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. Leew. Diopsidae.)

" subbifasciata. (US) Fitch 1st Rep. NY. 70. Prac Ent 2.103. var or Syn of S. brevicornis. (above.)

Stenopteryx. (Meig. 6.238) hirundinis. Leach. (Stenopteryx. Leach. Westw. Syn. 154. & 2.578 (Craterina K&S) 58) (Eu) Leunis 629. Ins VII. 43. Meig pl 64. Swallow louse fly. Ins parasitic on Swallows. (& Mankind. K&S.) (in fam 62 Hippobos -cidae. Leew)

Stomoxys (Geoff) (Eu. US) Leew (Geoff) 1.35. Westw Syn (Fab) 160. Wied 2.248 Leunis 627. Anat A 79 (Meig pl 33.) (in Fam 36. Leew. Muscidae)

..... " ..... calcitrans Linn (Md US. Eu) Harr 613. Leunis 627. Meig 4.160. Pack 407. OS. 61. Westw 2. 569. "Stable fly" of. Harris. Ins. IV. 111. (Aug Sep. Md.) The larvae reside in horse dung. manure. &. They were said by Heeger "to mine in leaves of Burdock. Coltsfoot & nightshade." (Köllar 39.) but this fact is very doubtful. The fly itself is exceedingly annoying to mankind. Horses. &c by its painful stinging or biting propensities. & 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 pronounces its nest with flies. (K&S 152.)

..... " ..... irritans. Linn (Eu) Meig 4.162. Mottles Cyclop. Ag^re. habits same as S. calcitrans. (but size smaller.)

..... " ..... stimulans. Fab. (Eu) Meig 4.161. " " " "

Stratiomyidae. Fam 12. Leew 1. 4.17.

Stratiomys. Geoff. (Eu. US.) Harr 608. Leun. 616. Pack 392. Westw Syn. 130. & 2. 532. Wied 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) cincta. Olw. (US) Ins V. 23. From coll of OS.

..... " ..... Chameleon. Linn. (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. Leew. (Zanzibar. Africa) Pack 383. Ins. found in gum copal brought from Zanzibar. the wing is figured in Packard.

Strebla. Wied. (Eu US) Leew 1.48. OS. 87. Wied 2.612. see Nycteribia. (in fam 63. Leew.)

Subula. Meig. (Eu) Leew (Meig) 1.15. Westw Syn. 134. (in fam 11 Leew. Xylophagidae)

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

Suneches (Walker.) see Hybos. OS 37.

Sybistroma. Meig. (Eu) Leew. 1.32. & 2. 116. Meig 4.71. Westw Syn. 135. Antennae XII. 28 (Meig pl 34) Ins. remarkable for the form of its antennae (in fam 31. Dolichop.)

Syritta. St Fargeau Leew 1.56. (in Fam 32 Leew Syrphidae)

Syritta (St Fargeau) (*Xylota*) *pipiens* Macq (Md US) OS. 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 KbS. 151. Meig 3. 274. Westw Syn. 137.
& 2. 556 Pack 164. & 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. (Eristalis &c) The insect, 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 blunt 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 KbS. 151. Meig 3. 274. Westw. Syn 137. & 2. 556. Pack 164 & 377.

" *arbustorum* (Eu) Ins said to eat grains of pollen of some compositae plant Am Nat VII. 238

" *cylindricus* Say (Md. US.) Say 1. 22. OS. 51. Wied 2. 138 Ins Md July V. 28. & var. IX. 11. Say.

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

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

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

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

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

" *pyrastri* Linn (Eu) KbS 226. Lewis 626. Meig 3. 303. Westw 2. 556. L.P. VII. 24. Westw

" (*Scaeva*) *ribesii* Fab. (Eu Md. US Novascotia. Hudsons bay) Lewis 626. Morton Cyclop. Ag. OS. 52. according to Degeer this species eats no other aphis but that of the Rose. KbS 219. (?) Ins IV. 1 Md. June to Sep. & X. 21 (Morton)

" *scutellatus* Fall. Eu. Meig 3. 284. Westw 2. 559 The larvae of this species are said by Van Rosen to feed on rotten fungi (Westw)

" ? (Iowa US) L.P.S. X 25. & 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 vitifolius* Fitch) (the map) on wild grape vines in the woods.

Syrphus Fab ? (US.) Fitch 158 four larvae supposed to be Syrphus were found by Fitch in the gall of the Hickory gall louse (Pemphigus caryaecaulis) Homop.

destroyed by Ceraphron syrphici (Hym) Ratz. & by a Bembex (Hym) which carries off the flies to its burrows as food for its young. Pack 164.

Systropus Wied (US) Loew 1.25. OS.44. Wied 1.860 & 2.641. (in fam 21. Loew Bombylidae.)

" macer. Loew. (US) Ins III.20. O.S. coll.

Tabanidae Fam 14 Loew 1.4.19. K&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. US.) 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. US. Mex.) Am Nat. 4.686 Harr 603. O.S. 19. Pack. 394. Pack Rep. Mass. Ag Soc. 1869. 256. Riley 2d Rep 1869. 128. Wied 1.114. "Black breeze fly" LP. IX 40. Riley Pupa 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. Linn. (Eu) Leun 613. Meig 2.33. Mortons Cyclopedia of Ag. Larva said to live in the earth.

" cinctus. Fab (Md. US. Mex.) Ins VIII.32. Harr 603. (Meig 2 32 erroneously as European O.S. 20 Wied 1.119.

" costalis. Wied (US.) 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)

" fernugatus Fas. (US.) Harr 603. O.S. 21. Wied 1.186. Insect-mentioned by Harris as Chrysops

" fasciopthalmus Macq. (Md. US) O.S. 21. Ins V.26. Md. Aug & Sep.

" lineola Fab. (Md. US. Fla) Harr 602. Pack 394. O.S. 21. Prac Ent. 118 Riley 2d 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 Zimb.

Tabanus. Linn. tarandinus. K & S. 87. injures horns of the Reindeer. when tender.

" { trimaculatus Pal. (Md Car. S Am) OS. 24. Wied 1.137. (No 132 Wied is a different species) Ins II.17. Md. Aug.

Tachinidae Fam 34. Lacw. Packs. 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. She 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 pupas 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 "Proctotrupas) Prac. Ent 1.46

Tachina. Meig (Eu US) Lacw 1.36 Westw syn. 139. & 2.551. Wied 2.280 Le Baron 2d Rep Illin 124. Prac Ent. 1.44 Harr. 471 Packs 326 OS. 64 LP. 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 Seville from a single specimen. Westw 2.567. (see also Senometopia atropivora.)

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

" ? " " " Anisopteryx vernata " " " "

" { (Chaetophila) floralis (Eu) Larva destroys a wild bee. (Andrena) (Hym) Packs 408.

" ? (Eu) Larva destroys eggs of Spiders (Arachnidas) 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.

" (Hyalomyia) ? (Eu) " " " " Beetle Brachycleres. 408

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

" anonyma. (US) " " Anisota rubicunda " " 5th Rep 1873. 188.

" " " " " Hemileuca maia " " " " " "

" (Masicera) archippivora (US) parasitic in Danais archippus (Lep) Riley 3d Rep

" " " " " " Rodenia autumnalis " " " "

" " " " " " Raphia glycerium " " 5th " 145.

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 decemlineata Am Ent 1.46. & Pack 408.

" (Exorista) leucaniae (US) Ins IX.23. Lar parasitic in Leucania unipuncta (Lep) b^s see Exorista.

" ? (US) Larva parasitic in Limenitis disippus (Lep) Riley 3^d Rep^t 168.

" ? " " " " Mantis carolina (Orth) auth. 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 Pieris rapae (Lep) Pack 76. 249. 2^d Rp. Am Nat 7. 242.

" ? (US) Larva parasitic in Platysamia cecropia (Lep) b^s see Exorista.

" (Exorista) flavicauda (US) Ins IX.28. Lar. parasitic in caterpillars. Riley 2^d Rp 51.

" ? (US) Ins V.18. Md. Aug.

" (Belvoisia) 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^t 1873. p.140.

" (Compsilura) inflexa (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)

" septemmis (Eu) Lar said to be parasitic in an Earwig (Orth) (Forficula)

" vivida Harr. (Md US) Harr 612. Ins IV.6. Md. May. Larva is parasitic in caterpillar of Eacles (Dryocampa) imperialis (Lep)

Tachinidae. Fam 34. Loew 1. p 34.

Tachydromia. Fab. (Eu US.) Loew (Fab) 1 31. Pack. 402. OS. 46. Westw Syn 132. & 2. 547. Wied. 2.12. Leun. 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.

Tachydromidae. Fam 30 Loew 1. p. 31.

Tanypus. Meig. (Eu. US.) Loew 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. Loew. Chironomidae.

Tanypus. Meig. varius. Leunis 605 (Eu) Meig 1. 45 Pack 371. Westw 2. 516.
{ Ins VI.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) KbS. 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 Divis Brachocera. Westw 2. 502. & 536. (Ex Tabanus)
Teichomyza. fusca Macq. (Eu) Pack 366. Larva lives in human urine.
{ (probably in fam 36 Muscidae or 37. Anthomyidae. ?)
Tephritis. Latr. (Eu. US). Læw. 1. 49. OS. (Trypeta) 79. Westw Syn. Latr. 148.
{ see Trypeta also (in fam 44. Læw. Trypetidae.)
" arctii. Degeer (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 Fal. (Eu) Westw 2. 573. Meig 5. 316. see Trypeta.
Tetanocera Dum (US) Læw 1. 108. Westw Syn. 146. Wied 2. 329. (in fam 40 Sciomyzidae)
{ arcuata Læw. (Md. US.) Fitch 1st Rep 68. 1854. 772. Læw 1. 115.
{ Ins V. 11. Md. Aug: Insect marked with a network of brown on its wings & feeds on honey dew.
" { canadensis. Macq. (Can. Fla Md) Fitch 1st Rept 68. 1854.. 772.
{ Ins feeds on Honey dew.
gutturalis. Wied probably a variety of Canadensis. Fitch 1854.
" { plumosa Læw. T. vicina Macq. & T. struthio Walk syn) Læw 1. 21.
{ OS. 83. Ins IV. 40 fm coll of OS.
" { saratogensis. Fitch (Md. NY. US.) Fitch 1st Rep 68. & 1854. 772.
{ Læw. 1. 119. OS. 83. Ins IV. 33. Md. Aug.
Thelida (Rob Desv) vespertilionea: (KbS 147.) (Eu) Larvae live on dung of Bats.
Thereva Latr (Hereua Lat) Læw 1. 24. (Eu) Meig. 2. 90. OS. 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. ?, OS says this fig is doubtful although it is copied from Meigen Vol 2 pl 15. page 86. (OS. mss. note)
" ? (Eu) Ins XI. 14. Meig pl 15. (see OS note above)
Therevidae (Thereuidae.) Fam 20 Læw 1. 24.
Tipula Linn (Eu. US.) Læw. 1. 10. Meig 1. 133. OS. 8 Pack 360. 381. Westw Syn. 128.
{ & 2. 525. KbS 29. Anat. A 18. Meig pl. 6. "Crane 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 exserted 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 Arctia, in Md. This insect in Europe is much infested with a red mite. Ocypete rubrox.

" ferruginea Fab. (Nova Scotia Md. US) O.S.7. Wied 1.53. Walk. 1.73. Ins V.16. Md. Aug. Larva destructive to roots of grass, grain, vegetables &c

" flavicans (Fab) (Nova Scotia Md. US.) Walk 166. Wied 1.48. Ins I.15. Md. Aug & Sep. habits same as T. ferruginea.

" fuliginosa. Say? (Md. U.S.) Ins. V.15. Md Sep.

" oleracea Linn (Eu) Leun 607. KBS. 145. 180. 527. &c Meig 1.150. Mortons Cyclop Ag. Westw 2.525. L P. VII.10. Westw. LPJ. 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. (KBS 527.)

" tricolor. Fab. (Md Nova Scotia Geo. US.) O.S.8 Wied 1.44 Ins. V.12. Md. Sep.

" trivittata Say (US) 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. Loew. 1.9. (Eu. US) Some of them are destroyed by a hymenopterous parasite. Diapria, others are infested with red mites. Ocypete rubra. (Arach) see also Astoma. &c

Toxophora. Meig, (Md. U.S.) Loew 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 fraterna. (Hymen) 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. Loew Bombyliidae.)

" fasciata (Eu) Pack 388 The larva is said by Dufour to be parasitic in a Bembex. (Hym)

Toxorhina. Loew (Limnobiorhynchus. Westw.) (North & South Am.) Pack 383 O.S.6. in fam 4 Loew. Tipulidae.

Trichocera. Meig (Eu Us.) Loew. 1.10 Meig 1.166. O.S.9. Pack 381. & 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 Loew Tipulidae.

Trichocera hyemalis Degeer (Eu) K&S 528 Leun 607. Meig 1.168 Mortons Cyclop ag.ⁿ Ins V1.3. OS. coll & X.31. Morton. "Winter turnip gnat." The larvae live in decaying or diseased turnips & have been falsely accused of causing the disease in turnips commonly known as "Anbury". or "Fingers & toes". (see Anbury in list of vegetable substances. - figure X.32. fm 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 Loew 1.26. OS. 53. Meig 3.346 Westw syn 137 see Xylota. in fam 22 Syrphidae

Trupanea. Macq OS.32. apivora Fitch (US) Pack 396. & Rept Ag Mass 1869. p 225. see Promachus bastardi (note Trupanea of Shrank is a Trypeta Loew 1. p 49.(?)

Trypeta Meig (Eu US) Loew 1.41. Meig 5.310 Pack 412 Westw syn 149. Wied 2.276.

" Anat. A 61. Meig pl 38 (see also Sephritis Ortalis Acinia &c)

" (Sephritis) arctii. De Geer. (Eu) Meig 5.317. Westw 2.273 Wing X1.24. Meig pl 48. Larva forms a gall in the calyx of the blue bottle flower. (Centaurea cyanea) Dandelion (Taraxicum) & Burdock (Lappa)

" arcuata. Walk see Ortalis flexa Loew 1.57. 60. OS. 79. in fam 44 Tryptetidae

" asteris Harr. (US) see Trypeta solidaginis.

" (Sephritis) artemesiae (Eu) Leunis 623. Westw 2.273. Larva mines in the leaf of the artemesia (Chrysanthemum)

" (Acinia Fitch) bella Loew (US) Loew. 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. 111. Larvae feed in fruit of cherry.

" comma Wied (Md US) Loew 1.58.93. OS.79. Wied 2.278. Ins V.6. Md. Aug.

" continua Meig (Eu) Meig 5. 312. Westw 2. 273. Wing XII.21. Meig pl 48. Larvae live in the berries of wild rose. Bouché

" fleca. see Ortalis fleca

" melliginis see Rivellia viridulans.

" novaeboracensis Fitch 1st Rep Loew 1. 59. 60. 78. OS. 70. see T. sparsa

" (Sephritis) onopordinus Fab (Eu) Meig 5. 316. Westw 2. 273. 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) Loew. 1. 61. OS. 79. Wied 2.289. see Camptoneura.

" polita Loew. (Md US) Loew. 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 (US.) Am Ent 1. 59. & 2 273. Riley m R. N.Y. 1871. 10. Walsh. 1st Rep Illin 29. fig 2. Ins IX. 14 Walsh. 104 The larva injures stored apples by eating long winding passages through them destroying the pulp.

" quadrifasciata Fitch (US) Fitch 1st Rep. . Macq Exotic Dip. 2. 226 see Rivellia viridulans

" (Acinia) solidaginis Fitch (Md US.) Fitch 1st Rep 67. 1854. 771. OS. 80 Loew 50 & 82. Trac. 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 (US.) (T. calyptera. Say.) (Acinia novaeboracensis Fitch) Fitch 1st Rept 67. OS. 69. (Platystoma latipennis Macq.) Loew 1. 60. 78. Ins found in brakes upon meadows (Fitch)

" speciosa (Ew) Larva said to live in fruit of Honeysuckle (Lonicera)

" stylata (Tephritis) Fal. (Ew) Leun 623. Meig 5. 327 Wing XII. 22 Meig pl 49. Larva lives in the blossom buds of Thistles which are thereby hardened into galls.

" suavis. Loew (Ill. US.) Loew 1. 75 Ins XI. 12. from Dr. LeBaron who states that the larvae reside & feed in the old black pulp & 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. OS. 80. This insect is not among the Trypetidae known to Loew. & is probably an Ortalis (Loew 1. 60)

Trypetidae. Fam 44 Loew. 1. 10.

Tryphoderma. Wied (Cuterebra) cuniculi Clark. (Md. US.) Harr (Astrus buccatus?) 624. OS. 62. Am Ent. 1. 86. Rathvon in Am Ent. 1. 116. Wied 2. 256. L.P.J. 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 Cuterebra buccata. an allied insect) in fam. 32 Loew Oestridae.

" buccata. see Cuterebra Wied 2. 259.

Tsaltsalya fly. (Apuca) Westw 2. 539. see Limb. Tabanus moroccensis.

Tsetse fly. (Apuca) Pack. 607. see Glossina morsitans.

Typophaga. casei. MS. see picophila.

{Unknown. Larva somewhat resembling Sipila found in water in Virginia
L. IX 39. Va.

Vermileo.– Degeerii. see Leptis vermileo.

Volucella. (Geoff.) (Eu. US.) K.VS. 407. Loew 1.33. Meig 3.406. OS. 56. Pack 131. 149. 400.
{Wied 2.196. Anat A 76. Meig pl 32. Lunis 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.)

. . . . " . . . . {inanis. Linn (Eu) Meig 3. 409 Lunis 626. Larvae live in wasps nests.
Move into the cocoons to feed on the pupae.

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

. . . . . " . . . . {Zonaria Schr (Eu) K.VS. 158. Lunis 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.

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

Xylophagus. Meig (Eu. US.) Lunis 616. Law 1. 15. Meig 2. 7. OS. 18. Westw Syn 130 & 2. 535.
{Wied 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 US) LPS. V. 36. were all found in rotten wood. in Md. Ap & may.

. . . . " . . . . ater. Fal. (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.

. . . . " . . . . nuppes. Loew (Md US) Ins 11. 18. Md. July.

Xylota. Meig (US. Eu) Lunis 625. Meig 3. 211. OS. 49. Trac Ent 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 Syritta pipiens.

. . . . " . . . . ejuncida Say (US) OS. 49. Say 1. 15. Wied 2. 100. Ins. IX. 9 Say pl 8.

. . . . " . . . . {florum. Fal. (Eu) Meig. 3. 217. Westw. 2. 559. Pupa VII. 26. Westw. Ins frequents
flowers.

. . . . " . . . . haematodes. Fal. (US. Nova Scotia) OS. 49. Wied 2. 99. LPS V. 32. Md. may. under bark.

. . . . " . . . . (Tropidea) quadrata. (US) OS. 49. Say 1. 15. Wied 2. 101. Ins. IX. 8. Say pl. 8.

Xylotomae. Fam 9. of Osten sackens catalogue. it contains Scenopinus Thereva &c.

Zimb of Bruce. Tabanus moroccanus.. (Africa) (Tsaltsalya fly) K & S. 82. 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. US. 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 (US) Ins. kills honey bees & other insects.

" sericeus. US) Ins kills flies & other insects

Atamosia. (US) Ins. probably predatory

Baccha. (US) 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

Chartophila. (Tachina) floralis (Eu) Larv. feed either on the food of larvae or on the young grubs themselves. of a wild bee. (Andrena)

Conops. (Eu US.) 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. vulpipes (Eu) destroys the humble bee.

" sagittarius (US) Larva parasitic in body of bees.

Dasypogon. (Eu US) ♀ Ins predatory. ♂ destroy other insects.

Dioctria. " " " " " " "

" oelandica (Eu) Ins. destroys Hymenoptera.

Diplosis. (Cecidomyia) the larvae of some species are parasitic & destroy plant lice Pack 372 (Eu)

Dolichopus. (Eu US) ♀ predatory ♂ destroy other insects.

Empis. (Eu. US) ♀ predatory. ♂ amongst other insects is said to destroy the Wheat midge (Diplosis tritici) in Europe

Erax. (Eu US) ♀ 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

" (Exomatopia) militaris (US) Larvae destroy caterpillars of Platysamia (Attacus)

" (Tachina) cecropiae cecropia. Agrotis. & other Lepidoptera.

" (Tachina) phycitae. Lar. destroy caterpillars of Phycita nebulo (Lep) (US)

Hemerodromia (US) Ins. probably predaceous

Hilara. (US) Ins predaceous & feeds on other insects.

Hybos. " " " " " " "

Parasitic or Predaceous - Diptera.

Hyalomyia (Sachina) (Eu) said to destroy Brachyderus (Coleop. Curculio)
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 gall louse. (Pemphigus vitipliae)
Liancolus. (US) Insect probably predaceous.
Lydella. (Sachina) doryphorae. (US) Larva destroy the larvae of the colorado. or western potato beetle. Doryphora decimlineata.
Masicera. (Sachina) archippivora (US) Larvae. destroy Caterpillars of. Danais. archippus. Prodenia autumnalis. &c. (Lepid.)
Medeterus. Coripes. (Eu) Ins. capture & destroy Podura. (Orth) on surface of water.
Melanophora. (Sachina) 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
... " .... tricolor. (Cuba) Larva said by Mac Leay to destroy a species of Prionus. (Coleop.)
Miltogramma (Sachina) 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 Sachina.
Myopa. (Eu) Larvae said to be parasitic in bees.
Ocyptera bicolor (Eu) Larva parasitic in a plant bug. Acanthosoma (Pentatoma) grisea.
..... " .... cassidae. (Eu) " " " a beetle. Cassida viridis. (Coleop.)
Panopea carnea. (Eu) said to be parasitic in a Bembex. (Hym.)
Phora atricapella. (Eu) Larva probably parasitic in Coccinella. (Coleop.)
.... " .... flavea. (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.)
Pipiza. (US) Larva destroys plant lice. (Pemphigus rhois) (Homop.) in Sumach gall.
... " .... radicum " " " " (Pemphigus pyri) " on roots of pear.
Proctacanthus milberti. (US) ♀ predatory & destroys other insects.
..... " ..... Philadelphicus. (US) ♀ " " " " "
Promachus bastardi. } (US.) { Ins. injurious as killing honey bees. but also
→ Trapanea 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 Sachina.
.... " { - nidipennis (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.

Parasitic or Predaceous Diptera.

Scaeva. see Syrphus. Larvae feed on plant lice. (Aphides.)
Scatophaga furcata, said by Kirby & Spence to feed on small flies. (Eu.)
Senometopia. see Exorista.
Stratiomys chameleon. (Eu) Larvae feed on small aquatic animalcules
Syrphus. (Eu. US) Larvae destroy plant lice. Aphides. Pemphigus (Homop.) & other insects
Tabanus atratus. (US.) Larvae said to feed on fresh water mollusks. (Planorbis)
.. " ..... costalis. (US) Larvae " " " " subterranean root eating larvae.
..... " ..... lineola. US. " said by Walsh to feed on Snails. & insects.
Tachina. (US) Larvae feed in the bodies of caterpillars of Lepidoptera in general
{Acherontia. Acronycta. Anisoptery x Deilephila. Limenitis. Orgyia. Pieris. &c. &c. also destroy Spiders eggs. (Eu) Mantis carolina. & one species (probably a Phora) is stated by Walsh to destroy bees.
..... " inflexa. (Eu) Larvae parasitic in Larvae of Xanthredo grossulariata. (Hym.)
..... " ... pacta. (Eu) .... " ..... " ..... " Carabus gemmatus. & C. violaceus. (Coleop.)
..... " .... septennis (Eu) ... " ..... " ..... " Earwigs (Forficula &c. Orthop.)
..... " .... vivida. (US) ..... " ..... " ..... " Caterpillars of Eucles (Dryocampa) imperialis.
Tachina. see also Cassidomyia. Exorista. Hyalomyia. Lydella. Masicera. Melanophora. Miltogramma. Senometopia. &c.
Tachydromia. (US) Insects probably predaceous & destroy other insects.
Thereva ..... (Eu) ... " ..... " ..... " ..... " ..... " ... & pupae of moths.
Toxophora. (US) Larva parasitic in flask shaped mud nest of Eumenes fraterna. (Hym.) a small mud wasp.
.... " .... fasciata. (Eu) Larva parasitic on a Bembex. (Hym.)
Toupanea. see Promachus. & Trs. predaceous.
Volucella inanis. (Eu) Larvae parasitic in Wasps. nests.
.. " ..... zonaria (Eu) .... " ..... " ..... " nests of Humble bees.
Xylophagus. (Eu. US.) 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 muscarius. a poisonous fungus used in Europe to kill flies

Amanthium muscaetoxicum. " " " . The Southern states, to kill flies (Dr Porcher)

Ambrosia. see Ragweed

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

Anbury. 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. NS)

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

" in Eu & US. annoyed & injured by Musca cadaverina. Sarcophaga. Oestrus. Trypoderma &c. see also Cattle Horses Sheep &c.

Animal substances, in a state of decomposition eaten by Lar of Calliphora vomitoria Lucilia Caesar. Musca. Sapromyza. &c. see also Carrion.

Apium. see Celery.

Apples. (Pyrus malus) infested by Lar. of Drosophila aceti &c. (Eu US) Sciara (Molobrus) mali & Trypeta pomonella. (US)

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

Apterous, or wingless diptera. Borborus pedestris (Eu) Chionea. Chlorops brevipennis (Eu) & nearly apterous. Eriopiera atra (wings very short.) &c

Aquatic. Larvae of Chironomus (some) Corethra. Culex. Eristalis. Helophilus. Limnobia (some) Merodon bardus. Ptychoptera (some) Simulium (mostly) Tabanus abactus (semiaquatic) Tanypus. Tipula (some) &c & &c

Artemesia. 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 fulminans, 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 Piophila casei. (US. Eu.)
Badger. dung is fed upon by Lar of Leria melina (K&S) Eu.
Bark of trees. The larvae of Ceratopogon. Sciara. &c. &c. &c. are found under bark.. see Apple. Oak &c
Barley. (Hordeum) injured by Cecidomyia cerealis. (Eu) C. destructor (between stalk & sheath leaf) (US) Chlorops frit. & herpini. (in grain (Eu). Chlorops. lineola. C pumilionis C. taeniopus. (in stalk) (Eu) & Cecidomyia (Diplosis) tritici (in heads) (Eu US) &c
Bats. infested by Fleas. (Pulex) Nycteribia vespertilionis. (Eu) N. westwoodii (East Ind.) Liptotena phyllostomatis (Eu) parasites in fur. & their dung is fed upon by Larva of Thelida vespertilionea. (Eu) (K&S. 147.)
Beavers. are infested by a parasite allied to the Diptera. Platypsyllus 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 Sepula oleracea &c. (Eu)
Betula. see Birch.
Birch. trees frequented by Ins of Rhamphomyia.
Camels. injured by Tabanus moroccanus. Tsaltsalya fly. or Zimb. of Africa.
Carpinus. see Hornbeam.
Carpets. Larvae of Scenopinus fallipes found under Carpets & probably only accidentally there
Carrion. devoured by Larvae of Calliphora. vomitoria. Lucilia Caesar. (Blow flies) Sarcophaga carnaria. Sapromyza. &c. & probably thereby useful in removing noxious decaying animal substances. (Eu US.)
Carrot. (Daucus carota) roots injured by Lar of Phora dauci. (Eu) & Bibio hortae (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. (authors Mocg.) Chrysops. (US) Glossina morsitans (Tsetze fly of Africa) Haematopota. Hyprotaea. Hippobosca. (horse louse fly) Pangonia inciscuralis (prob) Simulium columbaschensis. (Eu) S. molestum &c. (US) Stomoxys calcitrans. — Tabanus atratus &c. & (US) 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.
Celandine. (Chelidonium.) (Eu) the mites on this plant are said to be destroyed by the Lar of a Cecidomyia.
Celery. (Apium graveolens.) injured by Lar of Phytomyza apii. (feeds in stalk) & Trypeta onopordinis (which feeds in pulp of leaf. the last named insect is also sometimes found in Rhubarb.) (Eu)
Cellars. of wine. & other fermented liquors. are infested by L P & I of Drosophila cellaris &c. (Eu US)

Animal and Vegetable Substances injured &c

Centaurea. (Blue bottle) Leaf mined by Lar of Trypeta . arctii. (Eu.)

Cheese. injured & eaten by Lar of Musca corvina. (Eu) & by "skippers" the larva of Piophila casei.

Chelidonium. see Celandine.

Cherry. (Cerasus) fruit eaten into & injured by Lar of Trypeta cerasi. (Eu.) & leading shoot crisped up, & injured by Lar of Cecidomyia cerasi. (Eu)

Chrysanthemum. see Artemesia.

Chrysopsis mariana. see Golden aster. or Aster.

Cicier. infested by Drosophila funebris. D. cellaris. &c

Cirsium. see Thistle.

Citrus. see Orange. Lemon &c

Coltsfoot. (Tussilago) leaf said to be mined by Larva of Stomaxys calcitrans. Eu (Doubtful)

Copal. see gum copal.

Corn. see Maize.

Corn feverfew. gall see gall.

Cotton thistle. see Onopordon.

Cow dung. see Dung, Manure. &c

Cranberry. (vaccineum) See Gall

Cress-water. (Nasturtium officinale) see Water cress.

Cypress. (Cupressus) gall. see galls.

Dahlia. roots. are injured by Larvae of Tipula oleracea. &c (Eu)

Dandelion. (Taraxacum) gall formed in Calyx by Trypeta arctii. (Eu) see also galls.

Daucus. see Carrot.

Deer. injured by Hypoderma (Astrus) the larvae of which form tumors under the skin also by a species of Astrus (Cephalomyia) the larva of which lives in the throat (Fallow Deer) by Astrus 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.) Lipoptena cervi is also parasitic when wingless on deer. but when winged is infests Grouse. Reindeer are injured by Tabanus tarandinus. (KBS. 87) which makes an incision in the horns 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 Tsetze 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. Syrritta pipiens. (horse dung) &c &c see also Manure. &c

" (of the Cow.) is inhabited by larvae of Caenosia vaccarum. Rhingia rostrata. Rhyphus punctatus. Sargus &c &c see also Manure. Excrement &c

Animal & Vegetable substances injured &c.

Earth. The larvae of the following insects are found in or under the earth. Bibio Chionea valga. Coenomyia pallida. Ctenophora. Dolichopus. Empis. Leptis. Sargus Tabanus. &c & probably by (some) Bombylius. &c.

" wood. see Wood earth or mould.

Elder. Sambucus. see Galls

Elephants. are injured & annoyed by the Limb of Africa (Tabanus 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. & Ceratopogon flavipons.

Empusa. (Sporendonema) muscae. a fungus destroying flies Musca domestica &c in Science Gossip 1866. p. 134. this fungus is said to be the terrestrial state of an aquatic species "Saprolegnia 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 US.)

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. Camptoneura. Conops. Dilophus. Eristalis. Pymnosoma. Helophilus. Lonocera. Merodon. Milesia. Myopa. Oxycera. Phthiria. Callopistria Rhingia. Rivellia. Sericomyia. Stratiomys. Syrphus. Trypeta Xylophagus. Xylota &c. &c

Fossil. Bibio is one of the oldest forms of Diptera amongst the fossils.

Fowls. are infested with bird lice flies Ornithomyia avicularia &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. Eristalis. Rivellia. &c see also Apple. cherry. Plum &c

" blossoms. in spring infested but not injured by the Ins of Bibio albipennis (US)

Animal and Vegetable Substances injured &c

Fungi. are inhabited. Feed upon by Larvae of Boletophila. Borborus. Ceratopogon. Dios ophila. Hedomyza. Leja. Mycetobia. Mycetophila. Platypora. Scenopinus. Sciophila. Sciara. Trichocera. &c. & see also Boleti &c.

" are said to form food of Syrphus scutellatus. (Ew)

" Empusa aulica. & Sporendonema (Empusa) muscae. are Fungi which destroy flies by growing in their bodies, the mycelium completely fills their bodies. & then forms filaments outside like a white mould. The Annual of scientific discovery for 1871. p 261 states that "in autumn it is not uncommon to see flies upon a windowpane, - surrounded with a sort of magic circle, in white, drawn around them. On microscopic investigation. this circle is found to consist of innumerable spores, which have been thrown off in all directions by a minute fungus called 'Empusa muscae.' the spore forming filaments of which, with others. fill the interior of the flies body. like so much fine wool. having eaten away & destroyed the creatures viscera,. In diseased but apparently healthy flies. it is found to exist in the form of minute corpuscles. which float in the blood of the fly, these multiply & lengthen into filaments. at the expense of the flies substance. & when at last they have killed the fly. they grow out of the body. & give out spores. and when one of these spores. falls upon the body of a fly, it begins to germinate, & sends out a process which bores its way through the flies skin, & having reached the interior cavities of the body. gives out or off the minute floating corpuscles, which are the earliest stage of the Empusa. The disease is contagious & infectious. and can be transmitted to a healthy fly coming in contact with a diseased one. or infectious because the spores become scattered about" Flies destroyed by a similar fungus are very numerous in some seasons in early summer. in the neighborhood of Washington. DC. See also Isaria. which may be the same or a nearly allied fungus.

" See also Coniomita. Amanthium. Boletus. &c. &c.

Galls. on Alder are formed by Larva of Cecidomyia serrulata. US. (Enlarged buds)

.... " .... " Artemesia. " .... " .... " .... " .... " .... " artemisiae. (Ew)

.... " .... " Ash. .... " .... " .... " .... " .... " .... " pellex. & C. acrophila. & C. pavida (US)

.... " .... " Aster golden .... " .... " .... " .... " .... " chrysopsidis. (US)

.... " .... " Beech .... " .... " .... " .... " .... " fagi. & Epilegera (Ew)

.... " .... " Blackberry .... " .... " .... " .... " .... { Lasioptera rubi & guest gall gnat. Cecidomyia socialis. (US.)

.... " .... " .... " .... " .... " .... " .... " .... " .... " Cecidomyia farinosa. US.

.... " .... " Bramble see Blackberry.

.... " .... " Cherry are formed by Larva of Cecidomyia cerasi. (Ew) & C. cerasus serotina. (US)

.... " .... " Corn fever few .... " .... " .... " .... " Phytomyza tetrodis. (Ew)

.... " .... " Cranberry .... " .... " .... " .... " .... " Cecidomyia (US)

.... " .... " Cypress .... " .... " .... " .... " .... " .... " ananassa. (US)

Animal & Vegetable Substances injured. &c.

Galls on Elder. are formed by the larvae of Cecidomyia (Sambuci) umbellicola (US)
" " Golden rod see Solidago.
" " Grape. (Vitis) are formed by the Larvae of Cecidomyia (vitis) coryloides. (US)
Cecidomyia (vitis) litsus (& affinis) C (vitis) pomum. Cecidomyia (?) (US)
C. viticola. & Lasioptera (vitis) tomatos. (US)
" " Grass. are formed by the larvae of Cecidomyia agrostis. (Dogs grass) (US)
" " " " " " " " " Lonchaea " " "
" " Hickory " " " " " Cecidomyia caryaecola. & C. cryptea (US)
C. glutinosa. C. holotricha. C. persicoides. C. tubicola. Diplosis caryae (US)
Cecidomyia ? (affinis pudibunda.) (US)
" " Hornbeam. (Carpinus) are formed by the larvae of Cecidomyia pudibunda (US)
" " Touch me not. (Impatiens fulva) are formed by the larvae of Cecidomyia impatientis.
" " Juniper. are formed by the Larvae of Lasioptera (Cecidomyia) juniperana (Eu)
" " Locust. " " " " " " Cecidomyia pseudacacia & C. robiniae (US)
" " Lotus. " " " " " " " lotí. (Eu)
" " Maple. " " " " " " " ocellaris. (U.
" " Motherwort. " " " " " " " bicolor (Eu)
" " Oak. " " " " " " Cecidomyia (?) C erubescens.
Cecidomyia. niveipila. C. poculum. C. symmetrica. &c (US)
" " Oak are sometimes fed upon by the larvae of Bibio albipennis (US.)
" " Pine. are formed by Cecidomyia brachynteroides (US) & C. brachyntera. (Eu)
Cecidomyia. (pini) inopis (US) Diplosis (Cecidomyia) pini (Eu) & Diplosis
resinicola. (US)
" " Sambucus. (Elder) are formed by the larvae of Cecidomyia (Sambuci)
umbellicola. (US)
" " Golden rod. (Solidago) are formed by the larvae of Asphondilia monacha.
Cecidomyia anthophila. C. carbonifera. C. hirtipes. C. racemicola. C. solidaginis
Lasioptera solidaginis. Isrypeta polita. & I. solidaginis (US)
" " Speedwell. (Veronica) are formed by the larvae of Lasioptera solidaginis (US)
" " Spelt. (Triticum spelta) " " " " " " Cecidomyia cerealis (Eu)
" " Thistle. (Cirsuim) " " " " " " Isrypeta stylata (Eu)
" " Tulip tree. (Liriodendron) " " " " " " Cecidomyia liriodendri. (US)
" " " " " " " " " " " " tulipifera (US)
" " Walnut. (Juglans) see Hickory. as many of the galls are almost the same.
" " Wheat. (Triticum) are formed by the larvae of Cecidomyia cerealis (Eu)
" " Whortleberry. " " " " " " " " vaccinei (US)
" " Willow (Salix) " " " " " " " (salicis) brassicoides (US)
C (salicis) hordeoides. C. triticoides. C. orbitalis (a guest gall gnat) C. rigidae (US)
C. rosaria (Eu) C. salicis (Eu) C salicina (Eu) C (s) siliqua (US) C. strobiloides. (US)
C. alboviitta (a guest gall gnat) Pristiphora sycophanta. (US)

over.

Animal and Vegetable Substances injured &c.

Galls on Willow. are inhabited by the larvae of Diplosis. (Cecidomyia) septem = = maculata. a guest gall gnat. (US)

...." ..." ..Willow. are inhabited by a Scatopse as a guest gall fly.

.." .." ..." " " " " Drosophila " " " "

Gaylussacia. Whortleberry.

Gladiolus flowers are frequented by the fly of Nemestrina longirostris. (Eu)

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

Golden aster. see Aster.

" rod. see Solidago.

Gooseberry. (Grossularia) Fruit injured or destroyed by larva of Cecidomyia grossu = = lariae. (US)

Grain. roots injured by the larvae of Tipula oleracea. &c. (Eu) see also Wheat &c.

Grass. frequented by Platypeza. Sapromyza. &c & roots injured by larvae of Tipula. Bibio. &c. (Eu. US)

Gregarious. Larvae of Sciara Homeo. in Europe & an allied species in the US. 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. Liptotena cervi. when winged. but when wingless it is found on deer.

Gum copal. A fly (Styringomyia pi) found in Gum copal from Zanzibar. (Africa)

Habits unknown. see Unknown.

Hare American. see Rabbit.

Harts tongue. (Scolopendrium) a fern. the leaf of which is mined by Lar of Phytomyza flava. (Eu)

Hedges. are frequented by insects of Loxocera cylindrica. Sapromyza compedita. &c. (Eu)

Hedgehogs. are infested with fleas. (Pulex erinacea Eu)

Herbaceous roots. are injured by the larva of Tipula &c. (Eu US) see also Cabbage Grass &c.

Hickory (Carya) leaf infested by Cecidomyia glutinosa &c. (for thickory galls see Galls.)

Hogs. see swine.

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

Honey bee. see Bee.

Honey. or the nectar of flowers. see Nectar

Honey dew. (the sweet substance exuded by plant lice (Aphides) is fed upon by the flies of Rivellia viridulans. Tryfeta. Ortalacera. &c. (US.)

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 caecutiens. (Eu.) C. ferrugatus. nigor. &c (US.) Chrysops vittatus. (Western car fly.) Glossina morsitans. Tsetse fly (Africa) Haematopota. (US.) Simulium Columbaschensis. (Eu) Stomaxys calcitrans. Tabanus atratus. T. cinctus. &c. (US) T. bovinus. (Eu) &c. &c. Hydrotaea meteorica (Eu) & Musca domestica. (US. & Eu.) torment them by crawling in their eyes, ears, & noses. Whilst the larvae of Bot flies. Gasterophilus (Gastrus) equi. G. inermis. haemorrhoidalis. &c. live in the stomach or rectum In Europe, the larvae of Gasterophilus 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 (US)

Huckleberry. see Whortleberry

Human body. The larvae of Homalomyia. scalaris. Musca domestica. &c. & are said to live occasionally in the human stomach. (Eu. US) see also Mankind.

Humble bee. see Bee.

Hybernate. The Ixs of Sphyrocephala brevirnis. are said by Walsh to hybernate.

Hyacinths. injured by larvae of Cecidomyia fusciceps. (Eu.)

Ilex. see Holly.

Impatiens fulva. (Touch me not.) see gall.

Iris pseudacorus. The leaf is mined by the larva of Agromyza nana. (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. Sporendonema &c.

Juglans. see Walnut.

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

Kohl rabi. (Brassica oleracea var.) injured by larva of Oxyptera brassicae. (Eu.) in root.

Lactuca. see Lettuce.

Lappa. see Burdock.

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

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

Lettuce (Lactuca.) Seed is injured or destroyed by the larvae of Anthomyia lactucarium. (Eu.)

Locust. (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)

Maize (Zea mays) injured by larva of Anthomyia zeae. which feeds in 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. (US.) Ceratopogon pulicarius (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) KbS. 75.

" The larva of Homalomyia 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 hominivorax (?) infest gums. frontal sinus &c of mankind in Cayenne & sometimes cause death (Figuier. 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. (KbS. 72) prob. Dermatobia.

" annoyed by the flea (Pulex) which bites & sucks blood.

" " " Ornithomyia avicularia &c or bird louse flies (KbS 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 caesar &c lays eggs.

" injured by the Chigoe (Sarcopsylla penetrans) a kind of flea which burias 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. US.

annoyed by Ins. of Stenopteryx hirundinis. or the Swallow fly louse (Eu) which crawls over the body &c KbS. 58.

Animal and Vegetable Substances injured &c

Mankind injured by the larva of a species of Trypeta. (Berna fly of Brazil)
" " " " " " " Musca. (Warenga " " ")
see also Dermatobia nocialis which perhaps may be the same insect.

Maple (Acer.) see gall.

Mangel. Wurzel. (Beta) Leaves mined by larvae of Anthomyia betae (Eu)
" roots injured by the larvae of Sepula oleracea &c (Eu)

Manure, is inhabited by the larvae of some species of anthomyia. Borborus. Coratopogon. lateralis. Chironomus stercorarius. Musca Psychoda. Scatophaga. stercoraria. Scatopse notata. Sepsis &c. (see also Dung. Excrements. &c.

Martens. are infested with fleas. (Pulex martis) (Eu)

Marshes. are inhabited by the larvae of Bittacomorpha clavipes (probably) by Ler of Psychoda. Henops &c. Us. & are frequented by Lar & Insects of Bittacomorpha clavipes. Culex. Eriopiera calyptera Limnobiorhynchus. Limnobia. Lonchaea tristis. Ptychoptera 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 viviparous flesh fly" (Eu & Us.)

Mice. are infested with fleas. (Pulex musculi.) (Eu)

Moles. " " " " (Pulex talpae) (Eu)

Molluskrs. Fresh water (Planorbis) are said to form food of Tabanus atratus. (Us)

Monkeys. are infested & injured by Dermatobia nocialis. the Lar of which form ulcers.

Moose. " " " " a species of Hypoderma. " " " "

Moths. The larva of one sp of Thereva. is said to feed on pupae of moths (Eu)

Mothwort. is frequented by Cecidomyia bicolor. (Eu)

Mould garden. is inhabited by Larvae of Empis. Thereva &c see also earth.

" Vegetable. " " " Beris. Microdon. Midas. Milesia Rhamphomyia. Thereva Trichocera &c (see also Wood earth.)

Muck heaps. see Manure &c

Mules. are injured by Gasterophilus. (Gastrus) 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 testina (Eu). & Sciophila striata. (Eu) see also Boleti. Fungi &c

Narcissus Roots are injured by the larvae of Merodon clavipes. or M. narcissi (Eu)

Nectar of flowers. is fed upon by Ins of Bombylius. conops. Empis. & Myopa. Stratiomys. Syrphus. &c (Eu. Us.)

Nasturtium. see Water cress.

Neuration of wings see Supplement A Anatomical plate.
" " " of Asilus. Cecidomyia Chironomus. Culex. Diplosis. Erax. Lasioptera. & Promachus. See pl IX.

Animal and Vegetable substances injured &c.

Nightshade. (Solanum) The leaf is said by Heeger to be mined by Stomoxys calcitrans. in Europe (but doubtful)

Oak. (Quercus) galls see galls. The insect of Subula varia (Eu) is found on Oak. & the larvae of Lonchaea nigra is found under oak bark. (Eu)

Oats. (Avena) are injured by the larvae of Diplosis (Cecidomyia) tritici (Eu. US) the roots are injured by Lar of Tipula 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 aurantiaca) 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 citriperda (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. se: also cattle &c

Parsley. (Apium petroselenum) is injured by Trypeta. (Tephritis) onopordinis (Euleia of Mortons Cyclop (Ag) the larva of which feeds on the pulp & blisters the leaves

Parsnip. Water. Swim see Water parsnip

Parsnip. (Pastinacea) the leaves are injured by the larvae of Trypeta onopordinis. (Eu.

Pea. (Pisum sativum). leaves are mined by the larvae of Phytomyza nigricornis. (Eu) & the hulls are inhabited by the larvae of Cecidomyia pisi. (Eu)

Peach. (Persica) The exuding gum &c. from the tree when injured by the Peach worm. Aegeria (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) & Cecidomyia nigra (Eu) The ends of the leading shoots are rolled up. & injured by the larvae of Cecidomyia pyri. (Eu)

Persica. see peach.

Pie plant. see Rhubarb.

Pigeons. are infested & annoyed by fleas Pulex. columba. (Eu US)

Pine (Pinus) see Galls. on

" The larva of Diplosis pinicola inhabit Scrub pine & may be found in May in semiliquid lumps of resin. (US) Pines in Europe are likewise infested by Cecidomyia brachyntera (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 Eristalis tenax. Musca domestica. Rhingia. 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 punctata. (Eu) Sciara fucata (Eu) & Sciara quinquemaculata 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 (Pr Ent. s. 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 hares) injured by Hypoderma (Cuterebra) buccatus. & cuniculi the larvae of which form tumors under the skin. (US) They are also infested with flees (Pulex) which suck their blood.

Radish. (Raphanus.) The roots are injured by larvae of Anthomyia radicum. (Eu) Anthomyia raphani. (US) & Phora dauci. (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 Ortalis. Trypeta (US)

Reindeer. are injured & annoyed by the larvae of Hypoderma tarandi. (Eu. US.) &. by Oestrus stimulator. & auribarbis. (see also Deer.)

Rheum. see Rhubarb.

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

Rhubarb. or Pie plant. the roots are injured by the larvae of Asilus sericeus. (US)

Rhus. see Sumach.

Robinia. pseudacacia. &c. see Locust.

Roots. are injured by the larvae of Bibio. Ocyptera. (some) Ortalis. Phora. (some) Tipula. 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 pyrastri &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.

Ruta baga, or Swedish Turnip. (Brassica campestris) roots & stems eaten into. by Larva of Anthomyia brassica. (Eu.)

Rye. (Secale cereale) is injured by Cecidomyia destructor. Larva lives between stem & leaf sheath. (Eu. US.) Chlorops glabra. Lar lives in stem. (Eu.) Chlorops (Oscinis) lineata. C. pumilionis. Larvae in stalk or stem (Eu.) & Diplosis (Cecidomyia) tritici. Larvae in chaffy scales of head. (Eu. & US.)

Salix. see Willow.

Salt. German is said to have lived the insect of Piophila casei. or cheese fly. from salt alone. (Lewis 622.)

Salt water. The larvae of Chironomus oceanus. live in Sea water. US.

.....is inhabited by Larvae of Ephydra salinaria. (Silesia) by Lar of Ephydra halophilus (US.). & the larvae of (some) Eristalis. (US.)

Sambucus. see Elder.

Sand on the sea shore. holes are dug in the sand by Proctracanthus philadelphicus. as burrows in which to deposit its eggs.

Scab. a disease in potatoes. attributed to the Larvae of Sciara lineata. & quinquemaculata (Eu.)

Scolopendrium vulgare. see Harts tongue. a fern.

Sea water. see Salt.

Secale cereale see Rye.

Seed. (not specified) destroyed by some species of Callopistria. (Eu.)

Semiaquatic. Larva of Sabanus atratus. is said by some to be semiaquatic. (US.)

Shallot. (Allium ascalonicum.) roots destroyed by Larvae of Anthomyia platyura. (Eu.)

Sheep. are injured, and annoyed by Cephalomyia ovis. the larvae of which live in the forehead or frontal sinus. (Eu. US.) by Larvae of Hypoderma ovis, which live in tumors under the skin (Eu.). a parasitic louse fly. Melophagus ovinus. lives amongst the wool. (Eu.) & the insect of Simulium colum. baschensis. in Hungary frequently kills them. (Eu.)

Sium. see Water parsley.

Skunk cabbage. see Symplocarpus fetida.

Solanum. see Potato & Night Shade.

Solidago. see Golden rod. & galls.

Snow. The insects of Chionea valga. (US.) & Chionea araneoides. (Eu.) are frequently found upon the snow in winter.

Speedwell. see Veronica.

Spelt (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 Dyplosis Prac Ent 1. 50.) & a species of Ceratopogon has also been bred from the black knot together with the plum Curculio Conotrachelus. nenuphar (Coleop.) & several other insects (Prac Ent. 1. 50.)

Squirrels. are injured by Cuterebra Emasculator of Fitch the larvae of which live in the scrotum. Trypoderma (Cuterebra) buccata in the larva-state is said to form tumors under the skin & to be found in the regions of the kidneys (US) (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 hemipterus (Eu)

Sticks. The larva of Merodon globosus. (US) 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. US.)

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.

Swine. are injured by the fly of Simulium Columbaschensis (Europe)

Sylvia scalis. see blue bird. (US)

Symplocarpa foetida. (Skunk cabbage) The insects of Sphyracephala brevicornis. were found in may between the leaves of this plant. (US)

Taraxacum. see Dandelion

Thistle. (Cnicum) blossom buds hardened. & galls inhabited by larvae of Trypeta stylata. (Eu)

Thistle. cotton. (Onopordon.) The larvae of Trypeta onopordinis mines in leaves. (Eu)

Toadstools. (Fungi) are inhabited & fed upon by the larvae of Mycetophila (US) see Fungi.

Touch me not. see Impatiens fulva.

Triticum see Wheat. Triticum spelta see Spelt.

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 Helomyza tuberivora (Eu)

Animal and Vegetable Substances injured &c.

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

Tulip tree (Liriodendron) see Galls.

Turnip (Brassica rapa) attacked by diseases. called "Anbury" & "fingers & toes"
{ (see Trichocera and Anbury) 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 & Tipula 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.
{ Geron. Heteromyia Himimoneura. Lauxania. Macrocera. Octhora. Palleptera
{ Parydra. Plecia Porphyrops. Somula. Systropus. Trichopoda. &c

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

Vaccineum see Whortleberry & Cranberry

Vegetables see Cabbage Carrot Bot &c

Vegetable mould see mould.

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

Veronica speedwell see Galls.

Vinegar { is infested by & probably fed upon by the Larvae & Ins. of Drosophila acuti
{ D. cellaris. D. funebris. &c (Eu. US)

Vitis see Grape

Viviparous Sarcophaga carnaria. The ovaries of this fly are arranged in a spiral
{ manner, & are said to contain sometimes 20000 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. Hydroporus. 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 Leria mustelina (Eu) Mus. 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 stalk to become distorted. C. culmicola (Eu) feeds above top 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 cerealis Fitch) is supposed to injure Wheat. (US)

" is probably injured by the larvae of Chlorops. (Oscinis) coxendix. (US) C. crassifemoris. (US). C. vastator & C. pumilionis. (Eu) in stem & causes the disease called "Joint"

" 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 Hylemyia 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 plume.

(Oscinis. see also Chlorops.)

" Fields are frequented by Irs of Siphonella obesa. in N.Y. the larvae of which are suspected of injuring the crop. (US)

" roots, are injured by Larvae of Tipula oleracea &c. (Eu)

Whortleberry. (Vaccineum. or Gaylussacia) fruit when overripe is fed upon by the larva of an Ortalis. (US) for whortleberry gall. see Galls.

Willow, (Salix.) is injured. by a species of Cecidomyia. in Europe. which is itself destroyed by a Pteromalus (Hym. Eu)

" A species of Lonchaea. 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. Cenomyia. Ctenophora. Dolichopus. Metaponia. Merodon. Milesia. Midas. Oxycera. Pachygaster. Scenopinus. Sphaerophoria. Xylota. &c &c (US. Eu)

Zea mays. see Maize

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

Acanthosoma. (Curtis) (Pentatoma) grisea. (Hbt) is destroyed by Cryptera bicolor. (Eu)

Acari. (mites) On the underside of leaves of Celandine, are destroyed by the larva of a Cecidomyia. (Eu

Acherontia. (Ochs) atropos or Deaths head Moth. (Lep) is destroyed by the larva of a Tachina (Senometopia. atropivora. (Eu)

Acronycta. (Ochs) populi. (Lep) the caterpillar is destroyed by the Larva of a Tachina (US)

Agrotis. inermis. &c. Cut worms. " " " " " " " " " " (US)

Aleochara. (Gravenhorst) anthomyiae. a rove beetle. (Col) destroys the larvae of Anthomyia (brassicae. (Sprague. Am Ent. 3. 370. US)

Alysia (Latr) apii. (Hym) Larva destroys Trypeta (Sphenella) onopordini &c. (Curtis 621 Eu)

" manducator. (Hym) Larva destroys Anthomyia brassicae (Curtis 163. Eu)

" nigra see Cochinis.

Andrena. (Fab) Hym. is destroyed by the larva of Chartophila. (Tachina) floralis. (Eu)

Animalculas. 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 Formicia also) The nests are frequented by Microdon apiformis (Eu) & they destroy (the larvae of Sciara Thomae. (Eu)

Anthophora. (Latr) destroyed by the larva of Anthrax incisa. which is said to be parasitic (in the bees nest. (Ew)

Aphides. (or plant lice. Homop) on Grasses. are destroyed by the larvae of Baccha. (US) (by the larvae of Diplosis (some) Pipiza. Syrphus. Sciara &c & several other Diptera.

Aphidius. (Nees) flavipes. (Hym) is a parasite in Phora rufipes. (Eu)

Apis. see Bee.

Arachnida. Spiders. destroy an immense number of Diptera & are themselves destroyed (by a Sarcophaga.

Atoma gryllarum Le Baron 2d Ill rep. p. 157. (Astoma Latr) Arach. a small red mite which is parasitic in flies (Musca domestica) & Grasshoppers &c. Am Ent. 1. 269. (see also Unopoda.) Astoma Locustarum of Hubbard. is very common on grasshoppers & when young some of the mites are apparently only 6 legged. For remarks on name Atoma. & for diversity of description &c see Am. Ent. 2. 50. & 2d Ill State Rep. p. 157.

Attacus. Hub see Platysamia.

Bee. wild. (Apis. Hym) see also Anthophora. Bombus. Megachile. Odynerus. Pompilus. Sphex &c.

Bees wild & humble. are destroyed by the larvae of Anthrax. Bombylius. Conops. Myopa. Phora. Tachina. & volucella. Their nests are infested by larvae of Anthomyia. & the bees themselves are killed by the perfect flies of Asilus leiderma (Eu) A. missourensis. (US) Proctacanthus philadelphicus (US) They are likewise infested

over.

Insects of other Orders destroying Diptera or destroyed by them.

Hy a parasitic Bee louse. Braula caeca. (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 insect of a large rapacious fly. Promachus bastardi. (Trupanea apivora. Fitch.) which catches them on the wing & sucks out their jiuices.

Bees. Bombus. Odynerus. Sphex & Pompilus (wild bees) are destroyed by the larva of a Conops which lives in their bodies (Eu)

Bembex (Fab) Hym. is said to be infested by a dipterous parasite Panopea curvinea (Eu)

The nest of Bembex is infested by a parasitic fly Sarcophora fasciata. the larvae of which destroys either the food stored up for the young Bembex. or the young insect itself. (Eu) Another Bembex. destroys the flies of Syrphus in a similar manner. (Eu)

Bembex. fasciata. (Hym) Ins. carries of the fly of Lucilia caesar as food for its young (Eu)
.... " ..... rostrata .. " .... " ..... " ..... ". " .... Eristalis & other diptera " " " (Eu)
.... " ..... tarsata .... " ... " ..... " ..... " ..... " .... Bombylius " " " " Eu

Blatta. (Periplaneta) americana. The Cockroach. is said by Guyon to destroy the Chegoe.

Sarcophylla penetrans. (Am Nat 2. 104)

Bombus. The Bumble or Humble bee. is destroyed by the larva of Conops ruficeps. (Eu)

Brachycleres (a Curculio) is destroyed by a Tachina. (Eu) Packs 408.

Bumble bee. Bombus.

Callimone. (Ichn) dura. (Hym) a chalcid parasite which destroys Diplosis tritici in Europe.
..... " ... . ebria .... " .... " ..... " ..... " ... " .... Lasioptera vitis (US)

Canker worms. (Anisopteryx vernata. Lepid) The caterpillars are destroyed by a Tachina. (US)

Carabus. gemmatus. & C. violaceus. (Col) are destroyed by the larvae of Tachina pacta.

(Eu.) Mettr 2. 567.

Carpenter bee. see Xylocopa.

Cassida, (Col) a Tortoise 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 Exorista. Masicera Musca Stabulans (Eu) Sarcophaga & Tachina which feed in their bodies

Ceraphron (Jur) destructor (Hym) (See also Semiotellus Larva destroys the Hessian fly Cecidomyia destructor when in the pupa or flaxseed state. (Eu)

" niger (Hym) Larva destroys Drosophila flava (Eu)

" syphi " .... " .... " ..... Syrphus (Eu)

Chalcis (Fab). Hym. Larva destroys Cecidomyia destructor (Hessian fly). C. vaccinei & (US)

Chelifer Geoff. cancroides. (Arach) a book scorpion which is said by Guyon to destroy the flea. (Pulex)

Coccinella. (Lady bird) (Col) is probably destroyed by Phora atricapilla. (Eu) &

the larvae of Coccinella. is said to destroy the larvae &c of the wheat midge. Diplosis tritici. (US)

Insects of other Orders destroying Diptera or destroyed by them

Cælinus (Nees) niger Alysia nigra (Oliv) a parasitic hymenopterous insect which destroys Chlorops taeniopus. Oscinis vastator. &c and is itself said to be destroyed by another hymenopterous insect Pteromalus micans which also destroys other diptera. (Eu) see also Pteromalus.

Colletes (Latr) a wild bee which is destroyed by a parasitic fly Miltogramma (Sachina) punctata (Eu)

Crabro (Fal) (Hym) This insect carries off the flies of Henops (Orcodes) gibbosus. & other diptera as food for its young.

Curculionidae (Coleop) 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 Sachina.

Danais (Latr) archippus (Lepid) Caterpillar is destroyed by the larva of a Sachina (Masicera archippivora) which feeds in its body (US)

Melephila (Ochs) lineata (Lepid) Caterpillars destroyed by the larva of a Sachina (US)

Diabrotica vittata (Col) Striped cucumber beetle. Ins. destroyed by the larvae of Melanospora (Sachina) diabroticae. which feeds in body of the female (US)

Diapria (Latr) (Hym) The larvae destroy some of the Sipulidae. (Eu)

" agromyzae. Larva destroys Agromyza tritici a fly injuring Wheat

" cecidomyiarum the larva destroys larvae of Cecidomyia antemosiae (Eu)

Doryphora decemlineata. (Col) The colorado potato beetle is destroyed by the larvae of Lydella (Sachina) doryphorae. which lives in the body of the larva (US)

Dryocampa (Harr) imperialis see Eacles.

Drones 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 Sachina vivida. (US)

Earwig see Forficula (Orth)

Ericosoma pyri (Kom) "Pear tree woolly root louse" is said to be destroyed by the larva of Pipiza radicum. (US)

Eudryas (Boisd.) grata (Lepid) The caterpillars are destroyed by the larvae of Exorista (Sachina) leucaniae. (US)

Eumenes (Lat. fraterna. (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.

Euura (Newm) gemma. (Hym) The larva makes a gall on Willows which is inhabited by Cecidomyia orbitalis a guest gall gnat. (US)

Figites (Latr) (Hym) a parasite destroying Sarcophaga (Eu)

Forficula (Linn. auriculatia (Orth) The earwig is said by Westw to destroy the wheat midge. (Miplosis tritici) in Eu. but Curtis appears to feed on Thips infesting wheat. Earwigs are said to be destroyed by the larvae of Sachina 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. (US)

Helix see Snail.

Hemilauca maia (Lep) destroyed by Tachina anonyma. (US.)

Hymenoptera are destroyed by Dioctria atlantica. (Kby. 152. US.)

Humble bee see Bee & Bombus.

Inostemma (Hal) see Platygaster.

Insects wood boring are destroyed by the larva of Xylota.

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 (US)

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

Leucania unipuncta (Lep) the caterpillars are destroyed by the larva of Exorista (Tachina) leucaniae. (US)

Limenitis (Fab.) disippus (Lep.) Larva destroyed by the larva of a Tachina. (US)

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 (US.) (auth. C. R. Dodge)

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

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

Mellinus (Fab) (Hym) destroys Stomoxys calcitrans. (Eu Kby. 151)

" arvensis. provisions its nest with flies. (Eu Kby 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 (US) 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 2. 568.)

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

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

Orgyia. (Ochs) leucostigma (Lep) caterpillars are destroyed by the larva of Tachina orgyiae. Le Baron 1st Ill. Rep p. 16. (US)

Osmia. (Panz) a bee which is destroyed by the larvae of Conops ruficipes. (Eu)

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

Pachylarthrus. (Westw) smaragdinus (Hym) Larva parasitic in either Ocypeta onopordinis or in its parasite Alysia (Hym) (Eu)

Paphia. (Fab) 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 Sarcophaga 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 sorno dipterous parasite supposed to be a Syrphus (US)

" vitifoliae. is destroyed by the larvae of Leucopis & Syrphus (US. Iowa)

Pentatoma (Latr) (Acanthosoma) grisea (Heter) is destroyed by the larva of Ocyptera bicolor (Eu) Westw 2. 567.

Periplaneta (Burm) americana, see Blatta.

Phycita (Curtis) nebulo (Walsh) (Lep) caterpillar is destroyed by the larva of Exorista (Tachina) phycitae. Le Baron 2d Rept. & Pack. 331. (US)

Pieris (Schrank) rapae. The white cabbage butterfly. Caterpillar is destroyed by a Tachina. Pack 76 & 249. Am nat VII. 242. (US)

Planorbis. a fresh water mollusk. said to form food of the larva of Tabanus atratus (US)

Plant lice. see Aphides

Platygaster. (Latr) (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 US. 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." (US)

" (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 Macroglenes.

" 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)

Plutyxamia (Attacus) cecropia (Lep) Caterpillars destroyed by the larva of Exorista (Tachina) cecropiae. or militaris US.

Insects of other Orders destroying Diptera or destroyed by them

Podura (Linn) (Orthop) is destroyed by the insect of Medeterus 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.

Pristiphora (Latr) sycophanta (Hym) is inquilinous or a guest gall fly in the gall of a Cecidomyia on the willow. US.

Proctotrupes (Latr) (Hym) The larvae destroy the larvae of a Cecidomyia & of Lasioptera vitis. (US)

Prodenia (Guen) autumnalis. (Lepid.) The caterpillar is destroyed by the larva of a Tachina (Mesicera arctiphivora (US.)

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 Calinus 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 Semiotellus.

Semiotellus. (Ceraphron & Raphitelus) destructor (Hym) a parasite the larva of which destroys the Hessian fly (Cecidomyia destructor) when in the flax 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 Sabanus lineola & which is said to feed on snails. & insects. (US)

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. Isaria farinosa attains the height of 1-2" on Spiders nests. Mic Dic p 368.

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

Ichneumon (Latr.) (Hymen) a parasite that destroys some of the Mycetophilidae. the larva is said to destroy the wheat midge (Diplosis tritici) in Europe.

Tenthredo (Linn.) grossulariae (Hym) the larva is destroyed by the larva of Tachina {insidiosa. (Ew) Westw. 2. 568.

Thrips. (Linn.) (Orth) This insect is said by Walsh to destroy the eggs of the Wheat {midge. (Diplosis tritici.) (US) Trac. Ent. 2. 50.

" destroys Lasioptera vitis (US) Riley 5th Rep.t.

" in the wheat fields of Europe is thought to be destroyed by an Earwig {Forficula (Orth) Thrips cerealium 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 &c 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". US.

Vespa. see Wasp.

Wasps. (Hymen) nests. are infested with the larva of a fly. Anthomyia incana. (Ew)

" {Polistes. 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 (Ew)

" Eumenes) the nest is inhabited by a parasitic fly. Sarcophaga.

" {are destroyed by a Phora. the larvae of some of these insects being parasitic in wasps. (US)

" {are probably destroyed by Volucella zonaria. 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.

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Acad. sc. Chicago. " Science, Chicago

Agass. { Agassiz Louis. "nomina systematica generorum dipterorum &c by L Agassiz Hist nat. in Acad. Necom. Professore.

Am. Acad. Arts & Sci. Bost. American Academy of Arts & Sciences, Boston.

Am. Ass. Adv. Sci. American Association for the Advancement of Science

Am. Ent. American Entomologist Walsh & Riley 2 vol. St. Louis, Missouri. 1868.

Am. Nat. American Naturalist. Packard & Putnam. Essex Inst. Salem Mass. 7 vol.

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Burm. { Burmeister Dr Herrman. "Handbuch der Entomologie," &c. &c. &c. Halle from 1832 to 1858. Published Berlin. &c.

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* Can. Ent. Josse. Canadian Entomologist, by PH Josse. London 1840.

Can. Ent. Canadian Entomologist. London, Ontario Co. Canada (incorporated in 1871.) { edited by Rev. C J S. Bethune.

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Fitch. { Asa. Dr. Stat. Entomologist of New York. in Annual Reports of the New York State agricultural Society. from 1853.

* (error) Canadian naturalist.

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Illig. Illiger Dr. Joh. C.W. "Magazin für insectenkunde." Braunsweig 1822 8vo. & in Wiedemann

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Lyc. Nat Hist. NY. Lyceum of Natural history. New York.

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

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Abbreviations used in this work.

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

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

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

Acalyptera. Gr. a without. kalupter. a covering. page 1.

Acanthomera. Gr. akantha. a spine, & meros. " 2 the thigh.

Acinia. Gr. akinos. a grape.

Acrocera. Gr. akros high. & Keras horn

Agromyza. Gr agros. a field. & muia. a fly.

Anapera. Gr. anaperos mutilated

Anopheles. " anopheles troublesome

Anthomyia. " anthos a flower. & muia a fly. 3.

Anthrax. " anthrax. charcoal.

Aphaniptera. " aphanes hidden. pteron. wing

Asilus. Lat. Asilus. a horse fly " 4.

Aspistes. Gr. aspistes. armed with a shield

Asteia. " asteios. belonging to a city.

Atomosia. " a-tomos. unclivided uncut.

Athericera. " a. without. ther. a wild beast. & Keras. a horn.

Bacchæ. Myth name.

Batrachomyia. Gr. batrachos a frog & muia a fly.

Beris. " beros. a garment.

Bibio Lat. bibio a small insect of the ancients bred in wine. from bibo. I drink

Bittacomorpha from Bittacus. an insect. morphe form.

Blepharocera. Gr. blepharos. an eyelash. & Keras horn. 5

Boletophila. " bolites. a fungus. & philos to love

Bombylius " bombulios. a buzzing insect.

Borborus. " borboros. dung.

Brachycera " brachus short. keras horn.

Brachypalpus " " " palpus.

Braula. " braula. a louse.

Calliphora. " Kalos beautiful. & phoros. bearing

Callopistria. " " " ?

Calobata. " Kalon a stilt & baino to walk on account of its long legs.

Camptoneura. " Kamptos. curved. neuron nerve

Carus " kurnos. a louse. 6

Cassidomyia. Cassida a beetle. muia. a fly. 7

Cecidomyia. Gr Kekis a gall apple " " "

Cephalomyia. " Kephalè head " " " 12

Cephenemyia. " Kephen. a drone bee " "

Ceratitis. " Keratistos horned

Ceratopogon. " keras horn & pogon beard. 13

Ceria. " " "

Chartophila. " chartos doubtful. philo friend

Chionea. " chion. snow.

Chironomus. " cheir. nomos moving the hands 14 from the motions of its fore feet.

Chlorops " chloros green. ops eye. 15

Chrysopila. " chrusos. golden. pilum. hair.

Chrysops. Gr chrusos. golden. ops eye page 15.

Chrysotoxum. " chruso-toxos. golden bow

Chrysotus. " chrusotus. gilt.

Clinocera. " Klino. to incline. keras the horn.

Coelopa. " koilos. hollow. ops. face.

Coenomyia. " Koinos. common. muia fly.

Conosia. ?

Conops. " Konops a kind of fly 16

Cordylura. " Kordule a club & oura tail

Coriacea. Lat. corium. leather.

Corethra. Gr. Korethron a brorm or bunch of hair from their tufted antennæ

Culex. Lat Culex. a gnat 17

Cuterebra. " cutis skin & terebra a borer

Cynomyia. Gr. Kuon. a dog & muia a fly.

Cyrtus. " kurtos. a curve

Dacus. " dakos. gnawing. or biting

Dasypogon. " dasus. thick pogon beard.

Dermatobia. " derma skin & bios to live.

Dexia. " dexia. the right hand 18

Diastata. " diastatos standing far apart. in allusion to the two cross veins of the wings.

Dilophos " di-lophos double crest.

Dineura " dineuros. two. hollow.

Dioctria " diocter. a chaser. or follower.

Diopsis " dia. apart. opsis. eye.

Diplosis " diploos. double. or twofold. 19

Discocephala " discos. a disk. Kephalè. head. 20

Dolichopus. " dolichos. long. pous foot.

Drosophila " drosos. dew. & phila. friend. 21

Elephantomyia " Elephas an elephant & muia a fly.

Empis. " Empis a gnat.

Ephydra. " Ephudros. wet or moist.

Erax Gr. araxo to assail or strike 22 Eraxa is the first aoriste (Le B)

Erioptera. " Erion wool. & pteron wing

Eristalis. " Eristalis a precious stone.

Exorista. " exoristos cap pelled 23

Gasterophilus. " gaster belly & phile friend 24

Geomyzidae " ge earth. & muia a fly

Geranomyia. " geranos a crane "

Geron. " geros old age. in allusion to the hoary appearance of the fly

Glossina. " glossa the tongue.

Gonipes. " gonu the knee.

Gymnosoma. " gumnos naked. soma body.

Haematobia " aima blood. & bios. voraccous.

Haematopota " aima blood & potes a drinker. 25

Helomyza " Elos a marsh & muia, a fly.

Helophilus " " " " & phile. friend

Alphabetical list of some of the principal Genera &c. of Diptera.

with derivation of names.

Hemerodromia Gr. emera day dromios page 25
a runner
Henops. Gr. eis one ops eye the two eyes being very close together
Hovina Gr. era. Juno.
Heteromyia " eteros dissimilar muia fly 26
Hosteroneura " " neuron. a nerve.
Hilara " ilaros. lively
Hippobosca " ippos. a horse. & bosko to feed.
Hirmoneura " irmos. a retinue." neuron nerve
Homalomyia " omalos equal, or smooth muia fly
Hybos. " ubos. hump backed.
Hydrotaea " udor. water.
Hydrophorus " " " phoros bearing
Hylemyia " ule. wood. & muia. a fly. 27
Hypoderma " upo. under. derma skin
Laphria " prob lapheuron or laphria. 28
Diana or a forager
Lasioptera " lasios hairy pteron wing.
Lauxania " lauxo. to feast.
Leia. or Lya. " leios light or swift.
Leptis " leptos, slender (from form) 29
Leptogaster " " & gaster. belly.
Loria " leros Loria. (Agass)
Leucopis " leukos. white. ops eye or appearance.?
Liancalus " leios smooth & ankale arm, the anterior femora having no bristles.
Limnobia " limne a marsh, & bioo to live. 30
Limnobiorhynchus " " " " " "
& rugchos. a snout.
Limosina " limosus. muddy or slimey.
Lipotena ?
Lonchaea Gr. logche a lance. from the shape of the third joint of Antennae.
Lonchoptera " logche a lance. & pteron wing.
Loxocera " loxos. oblique. " "
Lucilia Lat. lux. light. 31
Lydella. Gr Lydus. ? Agass v.
Macrocera " makros. long. Keras horn.
Macropera " " pera. pous. foot.
Masicera " mastix a flail & Keras horn
Medeterus " medeterus. neither as belonging neither to Dolichopus, or yet to another family.
Melanophora " melas, dark, somber & phoros. bearing.
Melophagus " melon a sheep & phagein to eat. 32
Merodon " meros the thigh & odon, tooth.
Meromyza " " " " & muzo to inflate from its thickened hind thighs (Le Baron)
Microdon Gr mikros small. odon tooth.
Micropera Gr. mikros small & pera foot. page 32
Midas. proper name 33
Milesia. Milesius.
Milliogramma Gr. Millos. ochre, or red earth. & gramma. a line.
Molobrus " molobros. a glutton.
Musca Lat. musca. a fly. 34
Mycetobia Gr. mukes. fungus bioo. to live, 35
Mycetophila " " " & phile friend.
Nemotelus " nema a thread teleo. to end. 36
Notacantha " notos back & akantha. a thorn.
Nycteribia " nucteris. a bat. & bioo to live
Ochthera " ochtheros, rough.
Oecyptera " okus swift & pteron. wing.
Odontomyia " odon tooth & muia a fly. 37
Oestrus " oistros. rage or fury prob. ably alluding to their effects on cattle.
Oncodes. " ogkodes. inflated.
Ornithobia " ornis a bird & bioo to live.
Ornithomyia " " " & muia a fly. 38
Ortalis " ortalizo to shake or flap the wings, from its habit
Oscinis Os canens." (agassiz)
Oxycephala. Gr. Oxus acute & kephale. head. 39
Oxycera " " " & Keras horn
Pachygaster " pachus. thick. gaster belly.
Palloptera " pallos agitation. pteron wing
Pangonia " pas. all. gonia angle.
Panopea " " " ops. face. or eye.
Parydra " para. near. & udor water.
Pedicia pedica a fetter or snare.
Petalophora Gr. petalon a leaf & phoros. bearing.
Phora " phora. rapidity. from its motions.
Phthiria " phtheir a louse. 40
Phycodromia " phukos. a sea weed. & dromios, a runner.?
Phytomyza " phuton a plant. & muzo. to suck, or muia a fly. ?
Piophila " pios. fat. & phile friend.
Pipiza pipizo to chirp. 41
Pipunculus Lat. pupulus an outcry or a piping noise.
Platypeza Gr platus. broad. pous. foot.
Platyspyllus " " " (?)
Platystoma " " " stoma face.
Plecia. " pleko to twist or twine
Porphyrops " porphureos purple. ops: eye or appearance.
Proctacanthus Gr. proktos. anus or tail & akantha. thorn. 42
Promachus. Gr promachos a champion.

Alphabetical list of some of the principal Genera &c of Diptera.

with derivation of names.

Psila.	Gr. psilos slender	page 42
Pselopus.	" " " & pous. foot.	
Psychoda.	" psyche. a butterfly.	
Ptychoptera.	" ptuche a fold & pteron a wing	43
Ptychopteryx	" " " "	
Pulex.	Lat. pulex a flea.	
Pyrgota.	Gr pur-gatos. turreted from the form of head.	
Rhagio	" rax. a berry or regnumi to tear (Leunis)	44
Rhamphomyia	Gr ramphos a bill or beak & muia. a fly.	
Rhynchoprion	Gr. Rugkos. a snout. & prion a saw.	
Rhingia.	" " "	
Rhyphus.	" ruphos a curve.	
Rivellia.	Lat. rivus a brook.	
Sapromyza.	Gr sapros putrid. & muia a fly	45
Sarcophaga.	" sarco.-phagos. flesh eating.	
Sarcopsylla.	" " & psulla. a flea.	46
Sargus.	a proper name. or a kind of fish.?	
Scaeva.	Lat. scaeva. the left hand.	
Scatomyza	" skatos filth or excrement & muia. a fly.	
Scatopsis.	" skatos. filth or excrement & opsis. face. or appearance.	
Scatophaga.	" skatos filth. & phagein to eat.	47
Scenopinus.	Gr. skenopoios. tent meeking.	
Sciara.	" skiaros shady. on account of its sooty wings	48
Sciomyza.	" skia shade & muia a fly.	
Sciophila.	" " " & phile friend	
Senometopia.	" stenos narrow. metopon front.	
Sepedon.	" sepedon putrifaction.	
Sepsis.	" sepsis "	
Sericomyia	" serikos. silky. muia fly.	
Simulium	perhaps a contraction of stimulus to prick or goad. Leunis says. simulo. to resemble.	49
Siphonella.	Siphon. a siphon.	
Somula.	?	
Sphecomyia	Gr. Sphex a kind of wasp & muia. fly	
Sphyracephala.	" Sphaira a globe. kephale head	
Stenopteryx.	" stenos narrow & pterux. wing.	
Stomoxys.	" stoma mouth & oxus point	50
Stratiomys.	" stratiotes a soldier & muia. fly.	
Styringomyia.	" styrax a gum & muia a fly.	
Strobla.	" Strobilos twisted from its wing veins.	
Subula.	Lat. Subula. an awl or bodkin	
Sybistroma	Gr. subine a dart. & Stroma. bed?	
Syritta.	Syrissa proper name	Page 51
Syrphus.	Gr. surphos a fly	52
Tabanus.	Tabanus. proper name	53
Tachina.	Tachus. swift. Gr.	54
Tachydromia	" " dromios. runner.	
Tanypus	Gr. tanuo to extend pous foot	55
Tanystoma.	" " " " stoma the mouth	
Teichomyza.	" teichos a wall & muia a fly	
Tephritis	" taphros ashes.	
Tetanocera	" tetanos extended. keras. horn.	
Thelida	" thele a nipple & eidos aspect.	
Thereva	" thereuo to hunt.	
Tipula	proper name.	56
Toxophora	Gr. toxos. an arch & phoros bearing	
Toxorhina	" toxos an arch & rugchos. a hill or snout.	
Trichocera.	Gr. thrix a hair & keras horn.	
Trichopoda	" " " & pous foot	57
Toupanea.	" toupane. a borer.	
Trypeta.	" trupetes " "	58
Typoderma.	" toupa a hole & derma skin.	
Volucella.	Lat. volucer winged. ?	59
Xylophagus	Gr. xulon wood. & phagein to eat.	
Xylota	Gr. xulon wood.	
Xylotomae.	" " " tomeus. 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.

Alphabetical list of the species of Diptera and other Orders. Fungi &c.
with derivation of names.

When Fungi or Insects of other orders are mentioned they are distinguished by being in Italics.

L or Lat. Latin — G. or Gr. Greek.

abdominalis. Musyphogon. L. abdomen the hind body
" Dicocephala " "
" Tabanus. "
aceti. Drosophila Lat. aceti of vinegar
aeneus. Eristalis " aeneus brassy
aequalis. Bombylius " aequalis equal. alike.
agarici. Mycetophila " agaricus an agaric. fungus
agromyzae. Drapria (Hym) L. of the fly Agromyza.
agrostis. Cecidomyia Lat. agrostis. dogs grass.
allicornis. Leptis Lat. albus white. & cornu horn.
albimana. Calobata " " & manus. hand.
albipennis. Bibio. " " & penna a wing
albitarsus. Micropeza " " & tarsus. a foot joint
albovitta. Cecidomyia. " " & vitta a stripe.
americana. Meromyza. L. americanus. american.
ananassa. Cecidomyia Lat. ananas. a pine apple.
annulipes. Callopistria " annulus a small ring & pes foot
" Platypera " " " " "
anulus. Leimnobuis " " " "
antennalis. Chlorops. Lat. antenna.
anthinus. Murodon. Gr. anthos. a flower.
anthomyiae Aleochara (Col) Anthomyia. a fly.
anthophila Cecidomyia Gr. anthos a flower. & phile a friend.
anus. Diastata Lat. anus the tail. or anus.
apii Aleysia (Hym) Lat. apium. celery.
" Phytomyza. " " "
" Piophila " " "
apivora. Promachus. Lat. apis. a bee & voro to devour.
" Trupanea. " " " " "
aranecides. Chionea " aranea. a spider
arbustorum. Syrphus. " arbustum an orchard or grove.
archippivora Masicera Archippus a butterfly. & voro. to devour.
" Sachina " " "
arctii. Tephritis Lat. arctium. burdock.
" Trypeta. " " "
arcuata. Setanocera. " arcuatus arched curved
" Trypeta " " " "
arcuatum. Chrysotoxum. " " "
artemesiae. Cecidomyia artemesia a plant.
" Trypeta. " "
arvensis. Mellinus (Hym) Lat arvum a field
aspera. Chionea. Lat. asper. rough.
ater. Erioptera. " ater. black.
atra Myopa. " "
atratus Tabanus. " "
atricapella. Phora. Lat. ater black. capella kid.
atropivora Senometopia. atropos a deaths head sphinx moth & voro to devour
Atropos. Acherontia (Sphinx) Myth name.
aulicus. Empusa a fungus. Lat. aulicus the court.
aurifrons Astrus. Lat. aurum gold & barba a beard
auriculania Forficula (Orth) auricula. the ear.
autumnalis. Prodenia (Lep.). autumnalis. autumnal
aviculusia Ornithomyia Lat. aviculanius belonging to birds
azurea. Musca. Lat. azureus. azure.
bardus. Merodon " bardus. dull. stupid.
" Milesia " " " "
bastardi. Erax. of Bastard.
" Promachus "
bella, Acinia Lat bellus beautiful.
" Trypeta.
berolinensis Aspistes Berolinensis of Berlin
betae. Anthomyia. Lat. beta a beet.
bicolor Cecidomyia. Lat bicolor of two colors.
" Ocyptera. " " " "
" Psila " " " "
bifasciata Belvosia. " bifasciatus two banded.
" Sachina " " " "
bituberculata Parydra. Lat. bituberculatus having two tubercles.
boletina. Platypera. boletus a fungus.
boscii. Leptis of Bosc.
bovinus. Tabanus. Lat bos bovis of the ox.
bovis. Hypoderma. " "
" Oestrus " "
brachyntera. Cecidomyia. Gr. brachyntera a shortening from injury to the leaves
brachyntoroides. Cecidomyia " " "
brassicae. Anthomyia. Lat brassica. a cabbage
" Cecidomyia " " "
brevicornis Diopsis. Lat brevis short. cornu. horn.
" Sphyracephala. " " "
brevipennis Chlorops. Lat brevis short penna. wing.
buccata. Cuterebra. Lat. buccatus. with inflated cheeks.
" Hypoderma " " "
cadaverina. Musca. " cadaver a corps. or carcass.
caeca. Braula. Lat. caecus. blind.
caecutiens Chrysops " " "
caesar. Lucilia. Caesar
" Musca. "
calcitrans. Stomoxys. Lat. calcitrare. kicking.

List of Species.

calyptera . Cecidomyia . Gr. Kalos. beautiful. &
" Eriopteria . " Pteron. wing .
" Trypeta . " " "
canadensis . Tetanocera . Lat. canadian .
cancroides . Chelifer (Arach) Lat. cancer. a crab.
canicularis . Anthomyia Lat. canicula. a little dog.
canis . Pulex . Lat canis . a dog
capitata . Ceratitis . Lat. capitatus having a head.
" Petalophora " " "
carboniféra . Cecidomyia . Lat. carbon. charcoal & ferens. bearing
carnaria . Sarcophaga . Lat carnarius a lover of flesh.
carnea . Panopaea . Lat. caro. carnis, flesh.
carolina Mantis. (Orthop) Carolina.
" Xylocopa (Hym) "
caryae . Cecidomyia . Lat. carya . the walnut.
" Diplosis " " "
caryaecaulis . Remphigus (Hom) " caulis . stalk.
casei . Piophila Lat. caseus. cheese.
" Tyrophaga . " " "
cassidae Ocyptera . Cassida a tortoise beetle.
castoris . Platypsyllus . Lat castoris of the beaver
caudatus . Sigalphus (Hym) Lat. caudatus having a tail
cecidomyiarium . Diapria (Hym) of the fly Cecidomyia
cecropia . Athens (Lep) Athens. from Cecrops. king
" Platysamia (Lep) of Athens
coryloides . Cecidomyia . Lat corylus . a hazle nut.
costalis . Sabanus . 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
" Oscinis. " " " "
crassirostris . Odontomyia " rostrum beak.
culiciformis . Corethra . Lat culex . a gnat. & forma form.
culmicola . Cecidomyia Lat culmen the top. cola to inhabit
cuniculavis . error for canicularis (Anthomyia)
cuniculi . Cuterebra . Lat cuniculus . a rabbit .
" Oxyporderma . " " "
cylindrica . Loxocera . Lat. cylindricus . cylindrical
cylindricus Syrphus " " "
cynipsea Cecidomyia . Cynips a hymenopterous insect . .
daucei Phora . Lat. daucus carota . the carrot
deceptiva . Anthomyia Lat deceptivus . deceiving .
decemlineata . Doryphora Lat . decem . ten. (Col) lineatus . lined . . .
decempunctata . Sapromyza . decem . ten. & punctatus . dotted
cerasi . Ortalis . Lat . of the cherry
comma . " " having a comma like mark on wing
decora . Somula . Lat . decorus . handsome .
decorus . Largus .
degeerii Leptis . of Degeer .
deidoma . see diadema . Asilus .
denticornis . Agromyza Lat dens dentis a tooth & cornu horn.
destructor . Cecidomyia . Lat destructor . a destroyer .
" Cerophron (Hym .)
" Raphitelus (Hym)
" Semiotellus (Hym)
diabroticae . Melanophora . Diabrotica . a beetle .
" Tachina
diadema . Asilus . Lat . diadema a diadem
" Dasypogon " " "
diaphanus . Porphyrops . Gr . dia through & phanein to show . diaphanous
disippus Limenitis (Lep) disippus name of a butterfly .
dispar . Henops . Lat . dispar unlike .
" Lucilia " " "
" Oncodes " " "
domestica, Musca . " domesticus domestic .
dorsalis . Beris " dorsum the back .
dorsata . Laphria " " " "
doryphorae Lydella . of the beetle Doryphora
" Tachina " " "
dura Callimone (Hym) Lat . durus . hard . rough
ebria " " Lat . Ebrius plentiful (?)
ejuncida Xylota Lat . ejuncidus slender . thin .
elegans . Ctenophora Lat . elegans . elegant .
equestris . Merodon . Lat . equestris . of a horse .
equina . Hippobosca Lat . equus . a horse .
equi . Gasterophilus " " "
" Gastrus . " " "
" Oestrus . " " "
erinacei . Pulex . Lat . erinacei of the hedgehog
erythrocephala . Musca . Gr erythros . red & kephale head .
erubescens . Cecidomyia . Lat erubesco . to blush or grow red .
excentrica . Milesia . Gr . exkentricos . abnormal .
fagi . Cecidomyia . Lat . fagi . of the beech .
farinosa . " Lat farinosus . covered with powder .
fasciata . Anthrax . Lat fasciatus . banded .
" Bombex . (Hym) " "
" Chrysopila " "
" Heteromyia . " "
" Leptis . " "
" Tachydromia " "
" Toxophora " "
febrilis . Dilophus . Lat . febris . fever . (?) "

List of Species.

felis. Pulex. Lat. felis. a cat.
femorata. Bibio. " femur the thigh.
fenestralis. Scenopinus. 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. Laphria. " barba a beard
flavicans Tipula "
flavicauda Exoristа. " cauda. tail.
" Tachina. " "
flaviceps. Phytomyza. "
flavifrons. Ceratopogon " frons. 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 Calopa. Lat. frigidus. frigid.
frit. Chlorops. frit Swedish name for barley fly. from the small grain at the end of ear.
frontosus. Brachypalpus. Lat. frons. forehead.
fucata. Anthomyia. Lat fucatus painted. stained.
" Sciara " " " "
fuliginosus. Molobrus. Lat. fuliginosus of a sooty
" Sciara. " " " color.
" Tipula. " " "
fulminans Ortalis. Lat fulminans. thundering?
fulvicauda. Laphria " fulvus. yellow. cauda tail.
fulvipes. Midas " " " pes. foot.
fulvohirta. Anthrax " " " yellow hairy.
fulvus. Bombylius " "
funebris. Drosophila Lat. funebris. funereal.
furcata. Scatophaga. " furcatus forked.
" Pyropa. " " "
fusca. Mycetophila Lat. fuscus. tawny yellow.
" Teichomyza. " " " "
fusciollis. Cecidomyia " " collum neck.
fuscipennis. 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. Scancalus. Lat. genualis. of the knee
georgina. Sarcophaga. Georgia.
gibbosus. Henops. Lat. gibbus a hump.
" Microdon " " " "
" Oncodes " " " "
glaucurus. Chironomus. Lat glaucus. bluish gray
glutinosa. Cecidomyia. " glutinosus very or most glutinous
glycerium. Paphia. Lat. glycera a plant.
gnava. Anthomyia Lat. gnavus. quick. active.
graminis. Cecidomyia Lat. graminis of grass.
granarius. Oscinis. Lat. granarium a granery
grata. Eudmyas Lat (Lep) gratus agreeable
grisea Acanthosoma (Het) Lat griseus gray.
" Pentatoma " " " "
gricola Leucopis " " " "
grossulariae Asphondilia Lat grossulariae of the
" Cecidomyia gooseberry.
" Tenthredo (Hym) " "
guttularis. Tetanocera Lat. guttula a little drop.
haematodes. Xylota. Lat. haematodes. of a blood color.
haemorrhoidalis Gasterophilus. stained with blood
" Gastrus " " "
halophilus Ephydra. Gr. als. salt & phile friend
harpyia 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
holotricha. Cecidomyia. Gr. olos all. thrix. hair.
hominis Astrus Lat. hominis of man.
hominivorax. " " " " vorax. voracious.
hordeoides Cecidomyia. Lat hordeum barley.
horripilum Cuterebra. Lat horridus rough or shaggy. pilus hair.
hortulana Bibio Lat hortula. a small garden
humanus. Astrus Lat humanus. human.
humidicola Limnobia. Lat humidus moist & colo to inhabit.
hyemalis Anopheles. Lat. hyemalis belonging to winter
" Trichocera. " " "
impatientis. Cecidomyia. Lat. impatiens. the plant Touch me not
imperialis. Eacles (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. .
" Gastrus. " " "
inimica Cecidomyia Lat. inimica. hurtful, hostile
inserens Insetamma (Hym.) Lat inserro. 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.
lasiopthalmus. Tabanus. Gr. lasios. hairy.
opthalmus. eye. .
lateralis. Ceratopogon. Lat. lateralis lateral or belonging to the side
" Phytomyza. " " " " "
latifrons. Helophilus. Lat. latus. broad. frons. forehead. or front. .
latipennis. Platystoma. Lat. latus. broad. penna wing.
lepidotus. Hadrus. Lat. lepidus. lively. pretty.
leucaniae Exoista. Leucania. a moth (Lep.)
" Tachina
Leucostigma. Orgyia. (Lep.) gr. leukos white stigma a spot.
limbipennis Sericomyia Lat. limbipennis with bordered or edged wings. .
lineata. Chlorops. Lat lineatus. linear or striped.
" Dalephila (Lep.) " " "
" Hypoderma. " " "
" Sciara. " " "
lineola Tabanus. Lat linea. a line.
liriodendri Cecidomyia. Lat. of the Tulip 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. Platia. " & pes. foot.
longirostris. Rhamphomyia. " & rostrum beak or trunk. .
lonipes 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. Gr makros. long. keras. horn.
" Limnobia. " " " " "
maculata. Cephalomyia. Lat maculatus. spotted.
" Clinocera " " "
" Oxycera. " " "
" Simulium " " "
" Vespa Hym " " "
major Bombylius. Lat major. greater.
mandusător. Alysia (Hym.) Lat. manduco to chew or eat.
mantis. Ochthera. Mantis. an Orthropterous insect.
marginata. Rhamphomyia. Lat. margined.
martis. Pulex. Lat. martis of the marton.
meigenii Diopsis. of Meigen.
melliginis Ostalis Lat. melligo. the juice of
" Iphritis. " " (trees or gum
" Irypeta.
meteorica. Anthomyia. meteoricas meteoric.
" Hydrotaea. " "
mexicanus. Bombylius.
micans. Pteromalus (Hym.) Lat micans shining
milberti. Poecilacanthus. of Milbert.
militaris Exoista. Lat. militaris military
" Senometopia " " "
" Tachina " " "
missouriensis. Asilus. of missouri.
molestum. Simulium Lat molestus troublesome.
monacha. Asphondylia. Gr monachos. solitary.
monostigma. Hemerodromia Gr monostigma one spot only -
morbosa. Sphaeria. Lat. morbosus sickly (Fungus)
monilis. Tanypus. 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.) Sollm.
muraria. Megachile (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.
nasica. Rhingia Lat. nasicus. having a nose.
nasalis. Gastrophilus. Lat nasus a nose.
" Gastrus " " "
nebulo. Phycita (Lep.) Lat. nebulo. a rascal.
neglectus. Chrysotus. Lat. neglectus neglected.
nervosa. Psychoda. Lat. nervosus. full of nerves. .
niger Ceraphron. (Hym.) Lat. niger black.

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niger. Caelinus. Hym. Lat. niger. black
" " Chrysops. Dip. " " "
nigra. Alysia. Hym. " " "
" " Lonchaea. " " "
nigricornis. Phytomyza. " " cornu. horn.
" " Psila. " " " "
nigripennis. Agromyza. " " penna. wing.
" " Myopa. " " " "
" " Oxycephala. " " " "
nigripes. Rhamphomyia " " pes. foot.
nivosipila. Cecidomyia Lat. niveus. white. pilus. hair.
nocivum. Simulium. Lat. nocivus. hurtful.
notata. Scatopse. Lat. notatus. marked.
novaeboracensis. Trypeta. of New York.
noxiolis. Germatobia. Lat. noxius. hurtful.
nubila. Heteroneura. Lat nubilus. cloudy. dusky
nudipennis. Sarcophaga. Lat. nudus. naked. bare. & penna. a wing.
obesa. Siphonella. Lat obesus. obese. stout.
obscura. Hirmoneura. Lat. obscurus. obscure.
obscurella. Phytomyza. " " "
obscurus. Sypphus. " " "
obsoleta. Sapromyza. Lat. obsoletus. obsolete.
obliquus. Syrphus. Lat. obliquus. oblique.
oceanicus. Chironomus. Lat. oceanicus. of or belonging to the Ocean.
ocellaris. Cecidomyia. Lat. ocellus. a small eye.
oedipus. Anthrax. Trop. name.
oelandica. Dioctria. Oland an island in the Baltic sea.
oleae. Dacus. Lat. oleae of the olive.
" " Trypeta. " " " "
onopordinis. Tephritis. Lat Onopordon the cotton thistle.
oleracea. Tipula. Lat. oleracea. pot herb or cabbage
opaca. Empis. Lat. opacus. opake. dusky.
orbitalis. Cecidomyia. Lat. orbis. an orb. circle.
ornata. Anthrax. Lat. ornatus. adorned.
" " Leptis. " " "
" " Milesia. " " "
ovinus. Melophagus. Lat. ovis. a sheep.
ovis. Cephalomyia. " " "
" Oestrus. " " "
pacta. Tachina. Lat. pactus. agreed. or espoused.?
pallida. Anapera. pallidus. pale.
" " Coenomyia. " "
" " Conetira. " "
" " Ornithobia. " "
" " Ornithomyia. " "
" " Stenopteryx. " "
pallipes. Mycetobia. " " pes. foot.
" " Scenopinus. " " "
paludosa. Ptychoptera. Lat. paludosus. marshy
pavida. Cecidomyia. Lat. pavidus. timorous.
pecorum. Gasterophilus. Lat. pecorum. of cattle.
" " Gastrus. " " "
pedestris. Bombylius. Lat. pedester. on foot.
pellex. Cecidomyia Lat. pellex a mistress or harlot
pellucens. Volucella. Lat. pellucens. pellucent
pendulus. Helophilus Lat. pendulus. hanging down
penetrans. Macroglenes (Hym). Lat. penetrating
" Platygaster (Hym) " "
pennipes. Trichopeda 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. Ortalis. Lat. pictus. painted.
" " Trypeta. " " "
piligera. Cecidomyia. Lat. pilus. hair. gero. to carry.
pini. Cecidomyia Lat. pini. of the pine
pini. inopis. " " " " pinus inops. scrub pine
pipiens. Culex. Lat. pipiens. piping.
" " Syritta. " " "
" " Xylota. " " "
pisi. Cecidomyia. Latin pisum. a pea.
platyura. Arthromyia. Gr. platus. broad. oura. tail.
plebeia. Thereva. Lat. plebeius. common.
plumosa. Chironomus. Lat. pluma. a plume. feather.
pluvialis. Haematopota. Lat. pluvialis. of rain.
poculum. Cecidomyia. Lat. poculum. a drinking cup.
polita. Syrphus. Lat. politus. polished.
pomonella. Trypeta. Lat pomum. apple.
pomum. (mitis) Cecidomyia " "
populi. Acronycta (Lep). populus. the poplar.
pratorum. Meromyza. Lat. pratorum of meadows
pseudacaciae. Cecidomyia Lat pseudacacia the locust
pubera. Cordylura. Lat. puberes. full grown. adult.
pudibunda. Cecidomyia. Lat pudibundus. modest.
pulchor. Pachygaster. Lat pulcher beautiful.
pulicarius. Ceratopogon. Lat. pulex. flea. (like)
punctipennis. Coretura. Lat punctum a point or spot. penna wing.
pumilionis. Chlorops. Lat. pumilio. dwarf.
punctata. Miltogramma. punctatus. pointed. or dotted.
" " Scatopse. " " "
" " Tachina. " " "
punctatus. Dasypogon. " " "
" " Nemotelus. " "
pusilla. Agromyza. pusillus. very small.

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pyrastri. Syrphus. Lat. pyrus. the pear.
pyri. Cecidomyia. " " " "
" Eriosoma. (Homop.) " " "
" Pemphigus. " " " "
" Sciara. " " "
pyrrhacra. Lasphria. Gr pur. fire. akra. end or point.
quadrata. Tropidea. Lat. quadratus. quadrate.
" Xylota. " " "
quadrimaculatus. Anopheles. Lat. quatuor. four. maculatus. spotted.
quadrimaculata. Sciara.
quatuor fasciata. Trypeta. see quadrifasciata.
quadrifasciata. " Lat. quatuor. four. fasciata. banded or striped.
racemicola. Cecidomyia. Lat. racemus. a raceme. & colo. to inhabit.
radicum. Anthomyia. Lat. radix a root or radish.
" Pegoa. " " "
rapae. Pieris. (Lep.) Lat. rapae. of the cabbage. or rape.
regius. Medetorus. Lat. regius. royal.
reptans. Simulium. Lat. reptans. creeping.
resinicola. Diplosis. Lat. resina. resin & colo. to inhabit.
rhois Pemphigus. Homop. rhus. sumach.
ribesii Scaeva. Lat. Ribes. the currant.
" Syrphus. " " "
robiniae. Cecidomyia. Lat. Robinia pseudacacia. the Locust tree.
" Diplosis. " " "
rosae. Psila. Lat rosae of the rose.
rosaria Cecidomyia. Lat. rosa. the rose.
rostrata. Bembex. (Hym) Lat. rostratus having a beak or rostrum.
rotundata. Gymnosoma. Lat. rotundus. round.
rubi. Lasioptera. Lat. rubus. the blackberry. or bramble.
rubicunda. Anisota. (Lep.) rubicundus. ruddy.
" Dryocampa. "
rubra. Ocypete. (Arach.) a mite. ruber. red.
rufipes Conops. Lat. rufus. reddish. pes. foot.
" Xylophagus. " " " "
rufitarsus Herina. " " tarsus. foot joint
sagittarius Conops. Lat. sagittarius. an archer.
salicina Cecidomyia. Lat. salix a willow.
salicis. " " " " "
" brassicoides see. brassicoides.
" hordeoides " hordeoides.
" siliqua " siliqua.
" triticoides. " triticoides.
salinaria Ephydra. Lat. salina. a salt pit.
(sambuci) umbellicola. Cecidomyia. Lat. sambuci. of the elder. umbellicola dwelling in the umbel.
sanguinolenta. Cecidomyia. Lat. sanguinolentus. full of blood. or bloody.
saniosa. Lasphria. Lat. saniosus "
saratogensis. Tetanocera. of Saratoga.
scalaris. Anthomyia. Lat. scala. a ladder.
" Homolomyia " " " "
scatophora. Mycetophila. Gr skatos filth. & phoras. bearing.
scutellatus. Syrphus. Lat. scutellum. the scutel.
septennis. Tachina. Lat. septennis. of seven years.
sericea Lasphria. Lat. sericeus. silky.
sericeum. Simulium " " "
serotinus. Dilophus. Lat serotinus. late. or backward.
serrulata. Cecidomyia. from the tree. Alnus. serrulata on which the gall grows.
siliqua Cecidomyia. Lat. siliqua. a pod.
similis Anthomyia. Lat similis. similar. alike
" Hylemyia " " " "
Simpson. Anthrax. Simpson.
sinceras Eristalis. Lat. sincerus. whole. entire.
sinuosus Anthrax. Lat sinuosus. full of curves.
Sipho. Psilopus. " Sipho a siphon.
smaragdinus. Poeciloneurus (Hym) Lat. smaragdus. an emerald.
socialis. Cecidomyia. Lat. socialis. social.
solidaginis. Acinia. Lat. solidago. golden rod.
" Cecidomyia. " "
" Lasioptera " "
" Trypeta. " "
sordida. Mycetobia. Lat sordidus. sordid. filthy.
sparsa Trypeta. Lat. sparsus. scattered. speckled.
speciosa " " speciosus. showy. beautiful.
spectabilis. Empis. " spectabilis. remarkable.
Sphingidis. Phora. Sphinx. a moth.
spinipes Rhamphomyia. Lat. spinus a spine. & pes foot.
stabulans. Musca Lat. stabulo to stable. cattle &c.
stercoraria Scatophaga. Lat. stercorarius of or belonging to dung &c.
stercorarius. Chironomus. " " "
stimulans. Stomoxys. Lat. stimulo to prick. or stimulate.
striata Sciophila. Lat. striatus striped. striated.
stigmaterus. Chironomus. Lat stigmaterus marked.
strobiloides. Cecidomyia from Pinus strobus. the tree on which the gall grows.
struthio. Tetanocera. Lat. struthio. an ostrich.
stylata. Trypeta. Lat. stylatus having a style.

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stylata. Tephritis. Lat. stylatus. having a style.
suavis. Trypeta. Lat. suavis. pleasant.
subsessilis. Cerea. Lat. subsessilis. somewhat sessile.
sulphurea. Phthiria. Lat. sulphurea. sulphur color.
superba. Palloptera. Lat. superbus. superb.
sycophanta. Pristiphora (Hymen) sycophant.
symmetrica. Cecidomyia. Lat. symmetrical.
syrphi. Ceraphron. (Hym.) Lat. syrphi of the Syrphus.
tabellaria. Trypeta. Lat. Tabella. a Tablet.
taeniopus. Chlorops. Gr. taenia. a ribbon. & pous foot
talpae. Pulex. Lat. talpa. a mole.
tarandi. Hypoderma. Lat tarandi of the reindeer.
" " Oestrus. " " "
tarandinus Tabanus. " " "
tarsata. Bembex. (Hym.) tarsus. foot joint.
tauscheri. Nemestrina. " of Tauscher.
tenax. Eristalis. Lat. tenax. from tenacious.
" " Helophilus. " " " "
tergissa. Lappula. probably from its tergum. or upper side of abdomen.
thomae. Sciara. Thomas.
thoracicus. Hylos. Lat. Thorax.
thoracica. Laphria. " "
" " Leptis. " "
tibialis. Oscinis. Lat. tibia. shank.
tipulae. Platygaster (Hym.) of the Tipula.
transversus. Eristalis. Lat. transversus. crosswise
tricolor. Midas. Lat. three colors
" " Tipula. " " "
trifasciatus. Dasypogon. Lat. trifasciatus. three banded.
trimaculatus. Tabanus. Lat. three spotted.
tristis. Lonchoptera. Lat. tristis. sad.
tritici. Agromyza. Lat. tritici. of wheat.
" " Cecidomyia. " " " "
" " Diplosis. " " " "
triticoides. Ceadomyia. resembling wheat.
trisvittata. Tipula. Lat. three banded. or. filletted.
trompé. Oestrus.
tubervora. Helomyza. Lat tuber. & vorare to devour.
tuberosa. Anthomyia. Lat. tuberous. but probably refers to the potato.
tubicola. Cecidomyia. Lat. tubus. a tube. colo. to inhabit.
tulipifera. " Lat. refers to the tree. Liriodendron tulipifera
undata. Pyrgota. Lat. undatus. wavey.
" Sphecomyia. " " "
ungulatus. Dolichopus. Lat. ungulatus. having claws.
ustulata. Helomyza. Lat. ustulatus. burnt. scorched
vaccarum. Caenosia. Lat. vaccarum. of cows.
vaccinei. Cecidomyia. Lat. vaccinium. cranberry. or Whortleberry.
valga. Chionea. Lat. valgus. bow legged.
valida. Sphecomyia. Lat. validus. strong. or active
varia. Subula. Lat. varius. various.
vastator. Oscinis. Lat. vastator. a spoiler or waster
venusta. Eriopera. Lat. venustus. beautiful
varcius. Tanypus. Lat. varcius.
vermileo. Leptis. Vermileo ant lion from its habit
vernata. Anisopteryx. Lat. vernus. of the spring time
vertebrata. Leptis. Lat. vertebrate in form.
vespertilionea. Thelida Lat. vespertilio. a bat
vespertilionis Mycteribia. " " "
" " Strebla. " " "
vespiformis. Milesia. Lat wasp shaped.
veterinus. Gasterophilus. Lat veterinus. a farrier
" " Gastrus. " " "
vibrans. Ortalis. Lat. shaking. from motion of wings.
vicina. Tetanocera. Lat. vicinus. near.
violaceus. Carabus. (Col.) Lat. violet.
virginica. Xylocopa (Hym.) Lat. Virginian
virginiensis. Milesia. " "
viridis. Beris. Lat. viridis. green.
" Cassida (Col.) " "
" Ornithomyia. " "
viridulans. Rivellia " "
vitifoliae. Pemphigus (Hom.) Lat. of grape leaves.
vitis. Lasioptera. Lat. vitis the grape vine.
" (a) " corylcides. Cecidomyia. see. corylcides.
" (a) " litseus. " see. litseus.
" (a) " pomum. " see pomum.
vittata. Diabrotica (Col.) vittatus from vitta. a ribbon or fillet (Lat.)
vittatus. Chrysops. " "
vivida. Tachina. Lat. vivid. or of bright colors.
vomitoria. Calliphora. Lat. vomo. to vomit.
" " Musca. " " "
vulgaris. Chlorops. Lat. vulgaris common.
" " Dilophus. " " "
winthemi. Leia. or Lyja. of Winthem
westwoodii. Elephantomyia. of Westwood.
" " Mycteribia. " "
zeae. Anthomyia. Lat. zea mays — Indian corn. maize.
zonaria. Volucella. Lat. zonarius. girdled.

Supplement. 1. Remedies

see Report of the Department of Agriculture. Washington D.C. 1862 p 133.

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 producing 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 Horse, or gadflies the mosquito, & 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 Musquito (Pl. 1 fig 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 hogsheads placed under the mouth of gutters, from the eaves of houses. Here they swarm in the form of young "tadpoles" 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 pitcher 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 Musquitoes. A little sweet oil poured on the water in a cask or reservoir, will destroy these larvae, as they have to come

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to the surface for the purpose of breathing, the oil closing up their organs of respiration. If the water be drawn from below the oil by means of a syphon or spigot, 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 musquitos, are said to be of some utility as forming food for young fishes and as destroying minute confervae 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 on 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 puparium resembling a flax seed. The winged insects appear in April and may & lay their eggs on 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 Herrick 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 rolling it in plaster or lime tends to promote a vigorous growth, and is therefore beneficial. Quicklime 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 Chalcis, Macroglenes, Platygaster (Inostemma) Semiotellus (or Coraphron &c. and which serve very materially to diminish the number of these insect pests, and which might probably be introduced with benefit. —— The larvae of the wheat midge. (Diplosis (Cecidomyia) tritici. 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 opening flowers of the grain, these 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, to deposit its eggs on the grain and grass. Dr. Fitch says that late sowing, is one of the most easy and successful

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expedients to avoid the injury caused by them. Dr Harris states that fumigation, by burning strips of woolen 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 plowing is recommended as soon as the grain is harvested. perhaps thoroughly liming the soil before plowing might aid in the destruction of these insects. A Seive 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, & 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 Fitch 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 saw wheat at all. for some time wherever the insect has been plentiful but Dr Fitch 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 plowed 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; lanterns 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 Lady bird (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 Macroglenes. Platygaster &c The ear wig also destroys either the wheat midge or a thrips that frequents the wheat. The gooseberry midge Cecidomyia grossularia injures gooseberries (pl X1. fig 28) by depositing its egg in the fruit and the larva or grub being hatched. feeds inside and causes the gooseberry to present a prematurely ripe appearance, to turn red, and then to drop from the bush. It is recommended to pick all fallen fruit from the grass and burn them immediately as although this proceeding 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 Lasioptera upon trees or plants on lawns. or planted out for ornamental purposes. they can be materially diminished by cutting off and burning the part affected. as early as possible in spring. or summer. So as to destroy the late generations. this is especially the case with the curled

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leaves of the Locust. which are caused by the locust gall gnats. Cecidomyia robiniae. (pl XII. 33 b.) and Cecidomyia pseudacaciae. (XII. 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 oleracea (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. Oerpete rubra. Some of the Tipulariae 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 (Phalanguim) 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 Anbury (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 semiputrid 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 Similidae are very small blueish 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 web. among the ova 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 annointing the hands and face with essence of penny royal &c. (See Mosquito & Culex p. 101) one species Simulium - columbaschensis (pl X. 36. & pl XII. 5) is extremely numerous in Hungary in certain seasons & actually kills Cattle horses &c. To prevent the attacks of these insects Köllar 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. IX. 40. & II. 14) is especially troublesome in Maryland, from its great size, and the severity of its bite or sting. A smaller species (Chrysops pl II. 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 smart-weed before commencing a journey. it will not be attacked by gad flies as they avoid the odor or taste. Lobelia. Quassia. & Aloes are sometimes added. Petroleum oil. or very dilute carbolic acid would most probably have the same effect. Sheep are sometimes severely injured by the larva of a fly known as "the sheep bot" or "Head maggot (Oestrus (Cephalomyia) ovis. pl VII. 26 & X. 28.) The egg of this fly is deposited in the nostrils of the sheep. the.

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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. Köllar 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 Verrill 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 sneeze and thus expel 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 in 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. (Pl. VI. 8? & VIII. 21.) the larvae of which reside in large open tumors, or abcesses under the skin on the backs of oxen, cows, &c. These in England are known by the name of "Warmals" (probably derived from the words warmholes). 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 kept open by the larva. fall to the ground, change to pupae in the chrunken 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 (Gastrus) equi) (V. II) 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 burst 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 Verrill 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 Harris states that "no sure and safe remedy has yet been found for removing bots from the stomach." Köllar recommends animal oils but Mr 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 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

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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 loose 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 Pride of India or China tree (Melia azedorach) 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 being 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 (grey 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. Papers 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 "fall Poison" (Amianthium muscaetoxicum) which is said to be a narcotic poison used by some families to destroy the common housefly.

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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 (Amanita muscarius) 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. Bembex. Vespa (wasps) &c which eat & carry them off as food for their young. A species of Chalcis also lives in their bodies. a red mite infests them externally, and numbers are destroyed by a parasitic fungus. Empusa (Sporendonema) muscae. 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 and 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 horseflies (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. & VII. 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 turkies and chickens. When wanted for this purpose, a piece of lights. or liver. or a sheeps 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 mocking 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 living 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 on to the meat below, where they hatch and produce the maggots.. in such cases the top should be —

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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 rosa. (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 Harris 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 & watering with soapsuds. 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 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 Ortalis 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 Packards report of 1872. which is to saw 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 Ortalidae feed in the fruit. stems. and leaves. The larva of one species before mentioned Ortalis 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. fuit. 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

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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 flys, 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 Chlorops taeniopus is destroyed by a parasitic four winged fly Coelinus niger. — The larvae of the Agromyzidae are generally leaf miners, one species. Agromyza tritici of Fitch is accused of sucking the grains when immature, and causing them to shrink 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 agromyzae, which prevents its multiplying to any great extent. The Phytomyzidae being leaf miners 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 & lime 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 (Hyppobosca &c) 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 feathers 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 fleas (Pulex) although not mentioned by Loew or Osten Sacken 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 hoosties &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 door mats, or rugs, these should be scalded every week, or two, to destroy the living inmates as well as their eggs and larvae which use in the form of small ivoties.

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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 door 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 Verrill says "to remove fleas from the animals themselves a wash containing 6. to 10 per cent of petroleum naptha 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 flies 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 Jigger or Chigoe (Sarcopsylla penetrans pl VII. fig 48) 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 Mankind &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 burrows 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 Chigoe 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 negress 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 spirits 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 inject 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 rail fences, the weeds should be cut, & burned when dry. if they hybernate under bark of dead stumps, let all such stumps be burned, or cut before planting, for it must be observed. that old rail fences, stone walls.

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 gene=rally 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 winters frost and cold, hybernate in peace and quietness until the warmth of spring thaws 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, Larkspur or Staves acre 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 &c 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 trunks of trees. is said to prevent insects from ascend=ing. this however would not last long. & might probably injure the tree by running down the bank 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 gall louse. so destructive to the vineyards in France, & found in our western states.? it deserves a trial at least. Salt strewed 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 light 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 co=vered with molasses or syrup mixed with some poisonous substance, such as "flystone" 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 plate 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 dawns. All these appa=rently 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 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

Alphabetical List of Insects &c mentioned in Report on Remedies.

Parasitic Insects of other orders than Diptera &c are distinguished by being in Italics

Agromyza tritici p.109
Amanita muscarius (fungus) p.107.
Amcanthus muscaetoxicum (plant) p.107.
Anbury. disease in turnips. p.104.
Anthomyia cepurum. (Eastern Onion fly. p.108.
" radicum. (U.S. Radish fly) p.108
" raphani. (European. ") p.108.
Aphides (plant lice) p.111.
Bembex (Hym) destroys flies. p.107.
Blow flies (Calliphora Lucilia &c.) p.107.
Bot. ox skin. p.105.
" sheep head p.104.
" horse stomach. 105
Callimone. (Hym) in Diplosis tritici. p.103.
Calliphora vomitoria. blue blow, or meat fly. p.107.
Carrot fly. (Eu) Psila rosae. p.108.
Cecidomyia destructor. Hessian fly. p.102.
" grossulariae. Goosberry gall gnat. p.103.
" pseudacaciae. Locust. " " p.104.
" robiniae. " " " p.104.
Cephalomyia ovis. sheep head bot fly. p.104.
Cerapkron (Hym) in Hessian fly. p.102.
Chigoe. Sarcopsylla penetrans. p.110.
Chlorops. fruit. injures grain (Eu) p.108.
" taeniopus " " " p.109.
Chalcis. in Hessian fly (Hym). p.102.
China berry. (tree) Melia azederach. p.106.
Chrysopa (Neur) destroys Onion fly. p.108.
Chrysops. golden eyed forest fly p.104
Coccinella (Col) in Diplosis tritici p.103
Calenis niger (Hym) in chlorops. p.109.
Crane fly. Tipula oleracea p.104
Culex. musquito. p.101.
Diapria agromyzae. (Hym). p.109.
Diplosis tritici. Wheat midge p.102 &c.
Ear fly. Chrysops. p.104.
Earwig. Forficula (Orth) p.103.
Empusa muscae. (Fungus.) p.107.
Flesh flies. Sarcophaga. Lucilia. Calliphora &c. p.107
Flies house. Musca domestica. p.106.
Forficula. Earwig. (orth). p.103.
Gad flies. Tabanidae p.104
Gasterophilus (Oestrus) equi. Horse bot. p.105.
Golden eyed forest fly. Chrysops. p.104.
Gooseberry midge Cecidomyia grossulariae p.103.
Head maggot. of Sheep. Oestrus ovis. p.104
Hessian fly. Cecidomyia destructor. p.102.
Horse fly Tabanus atratus &c. p.104
Hippobosca equina. Horse louse fly. p.109.
Hypoderma (Oestrus) bovis Ox Skin bot. p.105.
Horse stomach. bot. Gasterophilus equi. p.105
Jigger. Sarcopsylla penetrans p.110.
Lasioptera gall gnat. p.103.
Locust gall gnats. Cecidomyia robiniae &c. p.104.
Louse flies. Hippoboscidae p.109
Lucilia Caesar. Green blow or bottle fly. p.107.
Macrogleses (Hym) in Hessian fly p.102.
Meat flies. Calliphora Lucilia &c. p.107.
Melia azederach. China tree. p.106.
Melophagus ovinus. Sheep louse or tick. p.109.
Midge or sand fly. Simulium p.102.104 &c.
Midge Wheat. Diplosis tritici. p.102
Musca domestica. House fly. p.106.
Musquito. Culex. p.101.
Ocypete rubra. (mite) parasitic on Tipula. p.104.
Oestrus bovis. Ox skin bot. Normal. p.105.
" ovis. sheep head maggot or bot. p.109.
Onion fly. black or western. Ortalis flexa. p.108.
" " eastern. Anthomyia cepanum. p.108.
Ortalis flexa. black onion fly. p.108.
Oscinis. injure grain p.109.
Ox. skin bot. Hypoderma bovis. p.105.
Phalangium (spider) Crack p.106.
Phytomyzidae p.109.
Platygaster (Hym) in Hessian fly &c. p.102.103.
Poligonum hydropiper (plant) p.107.
Psila rosae. (Eu) Carrot fly p.108.
Pulex. flea. p.109.
Pyrethrum roseum &c. (plant) p.110.
Reed weevil. Diplosis tritici. p.102.
Sand flies. Simulidae. p.104.
Sarcophaga carnaria. Flesh fly. p.107.
Sarcopsylla penetrans. Chigoe p.110.
Sheep bot or head maggot. Oestrus ovis p.104
Simulidae sandflies or midges. p.104.
Sporendonema muscae. (Fungus) p.107.
Stomoxys calcitrans. p.107
Tabanidae. Horse flies or Gad flies. p.104.107.
Tabanus atratus black horse fly. p.104.
Thrips (Orth) on wheat p.103.
Trichinidae p.106.
Tipula oleracea (Eu) crane fly p.104.
Trichocera hyemalis Turnip gnat p.104.
Turnip gnat. Trichocera. p.104.
Weevil. Diplosis tritici p.102.
Wheat midge " " "
Vespa (Hym) destroys flies. p.107.
Wormaly. ox skin bots. p.105.

* Sheep tick or Louse. 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. Le 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. Le 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.

BB. 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.

AA. Head inserted in the thorax or bowed over the back; antennae very short. apparently by only one or two jointed and concealed in a cavity of the head or under its anterior 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 Kruptos concealed & Keras antenna.) in allusion to the very small and partially concealed antennae This corresponds with the pupipara of Latreille and the Coriacea of Law. but was restricted by him to the family of the Hippobascidae. (W.Le B)

Families of Nemocera of Latreille

A. Proboscis long & slender. composed of seven pieces. veins of wings almost always fringed with scales. Culicidae

AA. Proboscis very rarely elongated and composed of two or four pieces (except Simulidae) 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 male & pilose in female. size small. larvae aquatic Chironomidae

CC. 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 basals. size various. often large. Larvae mostly terrestrial. Tipulidae.

DD. 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.

EE. 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

FF. 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. Cecidomyidae.

GG. 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. ♂ 8 to 12 jointed.

HH. 3 ocelli. prothorax much developed. hind tibiae with short spurs. size moderate. Larvae terrestrial. **Bibionidae.**

HH. 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. **Simulidae.**

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 these are subdivided into Families.
The Brachycera are divisable into the four following stirpes.

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

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 exudations of plants. **Notacantha.**

BB. Proboscis firm & exserted & 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.**

AA. 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.**

CC. 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 cells very short. (3d cell elongated in Syrphidae but not reaching the margin of the wing.) Larvae either carnivorous. (Syrphidae) parasitic. (Tachinidae.) or putrivorous. (Muscidae.) pupa coarctate. perfect insects very rarely carnivorous. **Athericera.**

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* 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 ides constitute 3. grades. all of which are to be printed in capitals but which should be distinguished by type of gradually receding sizes. 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 Italics. not in caps are indicated by a line drawn underneath. as usual. (W. Le B.)
The order Diptera is therefore divided according to Dr Le Baron. as follows.

Primary Divisions.	1. Nemocera long horned gnats &c.		Families	Culicidae &c.
	2. Brachycera short horned flies.	Stirpes	1. Notacantha	Stratiomyidae. &c
			2. Hexachaeta	Tabanidae. &c
			3. Tanystoma	Midasidae. &c
			4. Athericera	Muscidae. &c
	3. Cryptocera. Louse flies with concealed or hidden horns.			Hippoboscidae. &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 ..... Coenomyidae.

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 Hexachaeta. Macquart.

The stirpes of Hexachaeta the characters of which have been given above comprises but one family, that of the well known horse flies. — Tabanidae.

Families of Tanystoma. Latreille.

A Probascis exserted. usually elongated & slender. Style apical or wanting.

B. Body elongated wings incumbent & without spots. Habits predaceous.

C. Antennae 5 jointed & clavate. probascis fleshy. terminal veins parallel with the margin. size large. — Midasidae.

CC. Antennae apparently 3 jointed. 4th & 5th joints rudimental or wanting. probascis horny terminal veins perpendicular to the margin.

D. Vertex concave: face hirsute. legs bristly. 3d 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. Probascis horizontal. thorax globose & much elevated ..... Hybotidae.

EE. Probascis directed downwards. Thorax moderately elevated ..... Empidae.

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. — — Bombyliidae.

AA. Probascis 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

H. Two submarginal cells. five posterior. Style apical.

I. Style short two jointed. palpi clavate. Tarsi with 2 pulvilli. Therevidae.

II. Style simple & setiform. palpi cylindrical. Tarsi with 3 pulvilli. Leptidae.

HH. Two submarginal cells. three posterior. style wanting. Scenopinidae.

HHH. One submarginal cell three posterior.

K. Head large almost wholly occupied by the eyes. Style basal. Pipunculidae.

KK. Head ordinary. Style apical. hind tarsi dilated. — Platypezidae.

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 Athercerous Latreille.

A. Probascis 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 nearly to the hind margin. body usually smooth & shining, and prettily variegated with black and yellow, Larvae of various habit, usually predaceous. **Syrphidae.**

AA. Probascis enclosing two pieces

B. Probascis 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.**

BB. Probascis 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 putrivorous or parasitic. **Muscidae.**

BBB. probascis rudimental or wanting. venation like that of Muscidae. Larvae parasitic in the bodies of quadrupeds. **Estridae.**

The Syrphidae constitute a somewhat numerous, isolated & homogenous family, and the Myopidae and the Estridae 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. Creophilae 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. Sexe 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: (Anthomyzidae of Latr & Macq) eyes approximate in the males. Style usually one jointed. first posterior cell widely open Tegulae moderate or small. Sexe 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. Sexe mostly very small, Larvae subsist upon decaying matters both animal & vegetable, a few inhabit galls.

The Creophilae 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 **Sachinides.**

AA Style plumose body usually clothed with hairs or weak bristles. Larvae parasitic **Muscides.**

The Anthophilae constitute one large subfamily that of the ..... **Anthomyides.**

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* note to printer The subfamilies ending in ides. should be printed in somewhat smaller capitals than the foregoing families in idae. (W de 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 inae to ides.

A. Neuration 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.

BB. 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. — Cordyluvrides.

EE Vibrissae slender. hair like.

F. Thorax and abdomen flat. last joint of all the tarsi enlarged. with stout claws. & long pulvilli. — Phycodromides.

FF. none of the last mentioned characters.

G. Abdomen tapering to the base. head rounded palpi obsolete basal cell rather large. — Sepsides.

GG. Abdomen not tapering. auxiliary veins abbreviated. basal cells small. wings elongated. alulae 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

H. 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.

II. First and sometimes 3d & 5th longitudinal veins bristly auxiliary vein joining the costa at an obtuse angle, Clypeus and proboscis not enlarged. front with bristles at the sides. — Trypetides.

HH. veins not bristly. post basal cell not prolonged to a point

K. Body not remarkably elongated, front bristly at sides, as well as vertex.

L. Auxiliary vein well separated from the 1st longitudinal 2 posterior basal cells rather large, with antiterminal tip bristle. — Sciomyzides.

LL. 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

MM. Tibiae without the antiterminal bristle. ovipositor horny & flattened — Lonchaeides

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.

NN. Wings without a transverse fold. legs short. last segment of abdomen in ♀ prolonged into a cylindrical tube. — Microperides.

over.

Synoptical tables.

Acalyptera continued.

AA. 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. . . . . **Diopsides.**

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 in its whole length. neuration otherwise complete. clypeus rudimentary. **Piophilides.**

TTT. Auxiliary vein rudimentary or wanting.

U. Face excavated. clypeus developed. thorax & abdomen flat. last joint of posterior tarsi abbreviated.

UU. Face with distinct subantennal furrows separated by a carina first longitudinal vein exceedingly abbreviated. **Drosophilides**

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. apparently one jointed. Style long . . . . . **Phorides.**

Families of Cryptocera. Le Baron. (Coriacea 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. . . . **Hippoboscidae.**

AA. 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 . . **Nycteribiidae.**

Definition of some of the terms used in the above tables of Diptera (Wd & B)

Acalyptera. without tegulae.
Annulated. in the form of rings.
Anthophilae. lovers of flowers.
Brachycera. short antennae.
Creophilae. Lovers of flesh.
Cryptocera. antennae concealed.
Divaricate. spread wide apart.
Exserted. projecting not concealed.
Hexachaeta. six bristles or enclosed mouth pieces
Incrassated. thickened
Incumbent lying down or upon.
Lamelliform in the form of a thin plate.
Nemocera. antennae filiform or thread like

Oviparous. bringing forth young in the egg state.
Parturition. the bringing forth of young
Petiolate. attached by a narrow foot stalk.
Pilose. hairy
Pulvilli. little cushions or pads.
Pupiparous. bringing forth young in the pupa state.
Stirpes. a trunk or branch.
Subcoarctate. enclosed loosely in the larval skin.
Sanguistoma. mouth or proboscis extended.
Tegula. the scale above the poisers.
Verticillate. with a whirl or circle of hairs.
Vibrissae. the bristles at the side of the mouth
Viviparous bringing forth young alive.

Addenda.

As part 3. of "Monographs of the Diptera of North America" by H. Loew. of Guben. published by the Smithsonian Institution Dec.r 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 Loew 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 H. Loew. 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.G. refer to the page in the body of this work, and the names in Italics are Synonyms.

●Acidia (Loew) suavis. Loew 3.p. 235 see Trypeta. J.G. p 58.
Acinia. comma. see Trypeta. Loew 3. p. 281. J.G. p 57.
Acinia. novaeboracensis (Fitch) see Trypeta sparsa. Loew 3. p 274 J.G. p 58.
Acinia. solidaginis (Fitch) see ● Eurosta Loew 3. 280. & Trypeta. J.G. p 58.
Callopistria (Loew) annulipes. Ma.g. Loew. 3.62 & 141. see J.G. p 5.
Calobatidae Loew 3. 30. J.G. p 5.
Camptoneura (Macq.) picta (Fab) Loew 3. p 27. 109. 337. J.G. p 5.
Ceroxys. quadrifasciata. of Macq. Loew 3. p 44. belongs to genus Rivellia.
Coelopa. (Meig) Loew 3. p 22. J.G. p. 15.
Dacus. oleae. (Fab) Loew. 3 p 28. J.G. p. 17.
Drosophilidae. Loew. 3. p. 24. J.G. p. 20.
● Eurosta (Loew) comma (Wied.) Loew 3. 280 see Trypeta. J.G. p 57.
● Euaresta (Loew) bella. Loew 3. p 311. see Trypeta J.G. p 57.
● Eurosta (Loew) solidaginis (Fitch) Loew 3. p 279. see Trypeta J.G. p 58.
● Eutreta (Loew) sparsa (Wied.) Loew 3. p 274. see Trypeta. J.G. p 58.
● Eurosta (Loew) (Ortalis) notata (Wied.) Hab. DC. N.Y. Ill. & Cana. Loew 3. 157. Insect bred from the pulp of Osage Orange.
Heteromyzidae Loew 3. p 27. J.G. p 25.
Hecrina. quadrifasciata. (Macq.) Loew 3. 90. J.G. p. 58. see Rivellia viridulans. J.G. 46.
Hecrina. rufitasus. Loew. 3. 90. J.G. p 25.
Lonchaea (Fall) Loew 3. p 228. J.G. p 3. 30.
Myopa. nigripennis. (Say) Loew. 3. p 77. J.G. p. 35.
Ortalis. colon. J.G. p 38. see ● Seioptera Loew. 3. p 152.
Ortalis. flexa. see also ● Tritoxa Loew 3. 349.
Ortalis fulminans. J.G. 38. see also O. poeciloptera Loew 3. p. 3.
Ortalis. notata see Euresta. Loew 3. 157
Ortalis. poeciloptera Loew 3. 3. see O. fulminans. J.G. p 57.
● Adaspis (Loew) pulita Loew 3 p 256 see Trypeta J.G. p 57.
Ortalis. quadrifasciata Loew 3. p 89. see also Hecrina.
Ortalis. vibrans. J.G. p 38. see Seioptera. Loew 3. p 152.
Oscinis (Rob Desv.) Loew. 3. p 16. J.G. p 38.
Platystoma. annulipes (Macq.) Loew 3. 141 J.G. p 41 see also Callopistria
Pallopteridae. Loew 3. 9. 11. 30. J.G. 39.
● Peronyma. quadrifasciata. Loew. (probably identical with Trypeta quadrifasciata of Macquart. Loew. 3. p 337.
Platystoma latipennis is probably Eutreta sparsa. Loew 3. p 337. & see J.G. p. 41.

Addenda.

Pyrgota milnepunctata. Loew 3. 73. {see also Sphecomyia valida Harris. Pyrgota, IG. p 43}

Pyrgota (Wied) undata (Wied) Loew 3. 73. 77. IG. 43.

● Rhagoletis tabellaria Loew 3. p 265. see Trypeta. IG. 58.

Rivellia quadrifasciata. (Macq) Loew 3. p 44. 90. see Trypeta. IG. 58.

Rivellia. viridulans. (R Desv) Loew 3. p 44. 88. IG p 44. } Rivellia probably a dedication name Loew 3. 118.

Sapromyza Loew 3. p 19. IG. 44.

Sepsidae Loew 3. p 7. 30 &c. IG. 48.

● Seioptera (Kirby) (Scoptera Loew) colon. Loew 3. 152. see Ortalis IG p 38.

● Seioptera vibrans Loew 3. 153. see Ortalis IG. 38.

Sphecomyia undata. Loew 3. 73. see Pyrgota. IG. 43.

Tachinidae Loew 3. 27. IG. p 54.

Tephritis asteris. Harr IG p 53 see ● Eurosta solidaginis Loew 3. p 280.

Trypeta arcuata Loew 3. p 336. IG. 57. Syn with ● Tritoxa flexa (Wied) (Ortal) Loew 3. 102.

Trypeta bella. IG 57. see ● Euaresta. Loew. 3 p 311.

Trypeta calyptera. IG. 57. see ● Eutreta sparsa Loew 3. 274.

Trypeta comma. IG. 57. (see also Acinia) see ● Eurosta. Loew 3. p 280.

Trypeta flexa. IG. 57. (see also Ortalis) see ● Tritoxa. Loew 3 p 336.

Trypeta melliginis. IG. 57. see Rivellia viridulans IG 44. & Loew 3. p 337.

Trypeta novaeboracensis. Loew 3. 337. IG. 57. see T. sparsa IG. 58.

Trypeta picta. Loew 3. 337. IG. 57. see Camptoneura IG. p 5.

Trypeta. polita. IG. 57. see ● Adaspis. Loew 3. p 256.

Trypeta pomonella Loew 3. p 265. IG. 58.

Trypeta quadrifasciata (Macq) Loew 3. 337. probably identical with ● Pronyma — surcinata Loew.

Trypeta quadrifasciata. ♀ see Loew 3 p 248. 9. ♂ see Rivellia viridulans Loew 3 p 88.

Trypeta solidaginis. IG p 58. see ● Eurosta Loew 3 p 277. 9.

Trypeta sparsa. IG. 57. 8. see ● Eutreta. Loew. 3. p 274.

Trypeta suavis. IG p 58. see ● Acidia. Loew 3 p 235.

Trypeta tabellaria IG. p 58. see ● Rhagoletis. Loew 3. p 265.

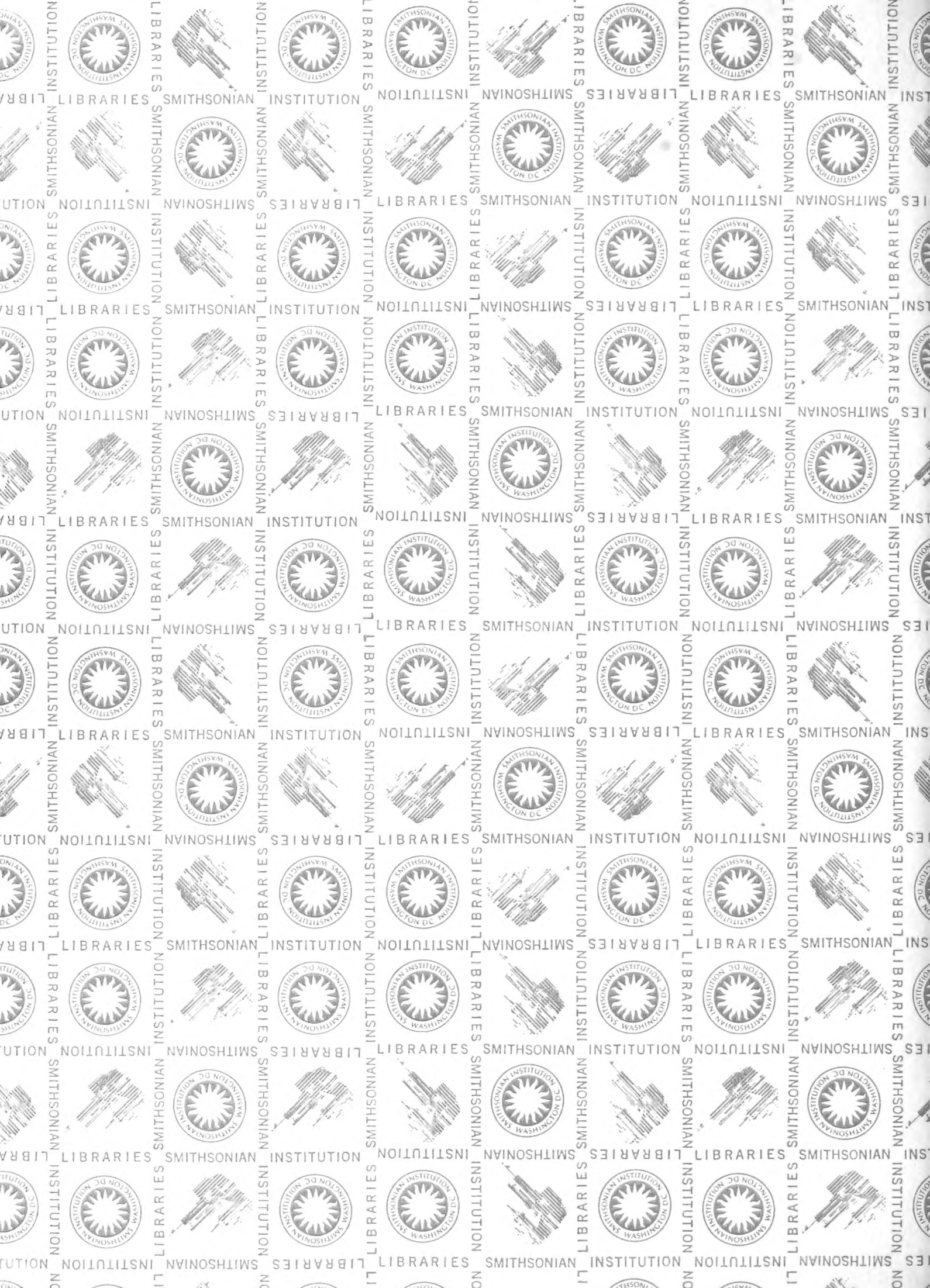
● Tritoxa (Loew) flexa (Wied) Loew 3. p 88. 102. 335. is syn. with Trypeta arcuata. or Ortalis flexa. IG. p 38.

Note. 1. Maclura aurantiaca or Osage orange. The insect of Euxesta (Ortalis) notata. has been bred from the pulp of the fruit of this tree. Loew 3. p 137.

" 2. Honey bees. are destroyed in SC by Mallophora (Macq) orcina (Wied) QS. cat. 32. (CR Dodge)

" 3. Sarracenia variolaris. or Pitcher plant. Mr Riley in the Transactions of the St Louis Acad. of Science. & in Proceedings of the Amr Science Assn held at Hartford Connt. Sep 1874. mentions the Sarracenia flesh fly Sarcophaga sarracenie as frequenting this plant. he says that the larva of this insect feeds on the dead insects which are found in the pitcher shaped leaf of Sarracenia variolaris in South Carolina. The dilated rim of the tube of this singularly formed leaf is dotted with a sweet secretion. which attracts insects inside & lures them to their destruction. whilst the base internally secretes a watery fluid not sweet. but which is fatal to all insects which fall into it. When fully fed the larva bores through the leaf just above the petiole & burrows in the ground where it forms a coarctate pupa. and in a few days appears as a perfect two winged fly. Mr Riley states that the female fly deposits a number of eggs. sometimes to the number of a dozen within the pitcher but that when so numerous. the larvae destroy or feed on each other. until only one remains alive.

IG. Oct. 1874.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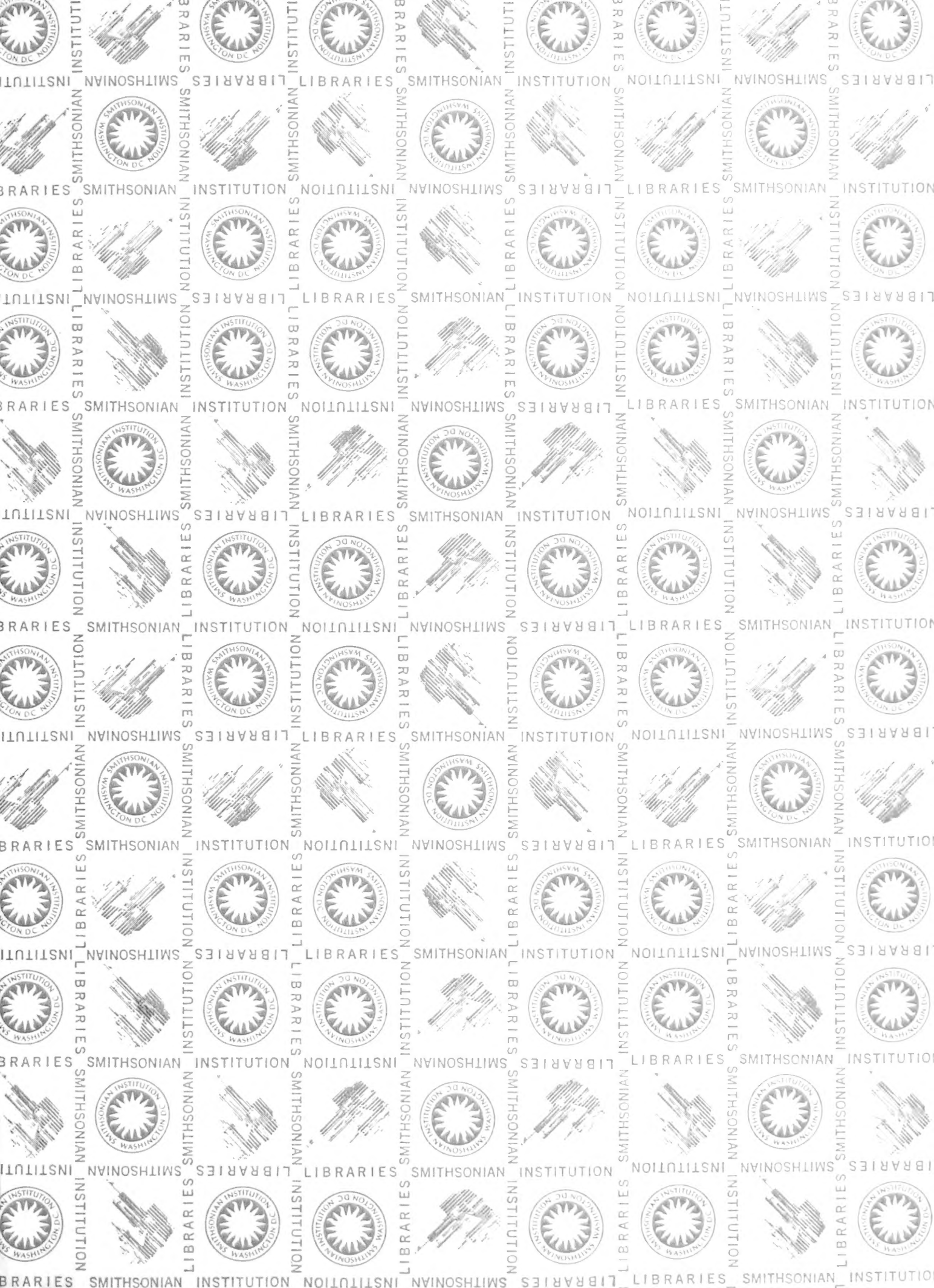
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