

LETTER OF TRANSMITTAL.

UNITED STATES DEPARTMENT OF AGRICULTURE,

DIVISION OF ENTOMOLOGY,

Washington, D. C., October 15, 1896.

SIR: In transmitting for publication the final part of the Bibliography of the More Important Contributions to American Economic Entomology, the first part of which was published in 1890, it seems necessary, in view of certain public claims by Mr. B. Pickman Mann as to the authorship of the bibliography, to make a further statement for the information of those who may be interested in the question.

It became the writer's duty in 1889 to transmit for publication Parts I, II, and III, during the prolonged absence of the chief of the division. Mr. Henshaw's name appeared on the title page of these parts, as well as subsequent parts, as the author, and to this Mr. Mann has taken exception, as well as to the statement made by the writer in his original letter of transmittal, to the effect that the manuscript which he had prepared "was turned over in an incomplete and fragmentary condition" to Mr. Henshaw, who had "added greatly to it and practically rewritten portions already prepared." Subsequent investigation has convinced the writer that in this statement he did not give Mr. Mann sufficient credit, and this omission is hereby publicly acknowledged.

Nevertheless, the claims which Mr. Mann has made can not be reconciled with statements by Mr. Henshaw as to the condition of the manuscript when received by him and the difficulty in reconciliation is indicated by the following statement from Mr. Mann and introductory note from Mr. Henshaw:

MR. MANN'S STATEMENT.

This work was in its original conception modeled upon the bibliographical record of "Psyche," under my editorship, and I was employed in the preparation of it during my six years' connection with the Department of Agriculture. I completed more than five-eighths of the material, except the indexes, composing the first volume, mainly in Part III, and left this, at the time of the severance of my connection with the Division of Entomology, December 31, 1886, in condition for publication as prepared, together with about 5,000 titles of other articles, the latter largely without analytic notes, for the subsequent parts, and an estimated number of more than 18,000 index references to the same.

Of the titles prepared for the parts subsequent to Part III I find only the more important to have been published.

B. PICKMAN MANN.

WASHINGTON, *July 4, 1896.*

MR. HENSHAW'S INTRODUCTORY NOTE.

The publication of the final part of this bibliography renders an acknowledgment of the assistance received desirable.

Messrs. A. J. Cook, C. H. Fernald, S. A. Forbes, L. O. Howard, H. Osborn, F. M. Webster, and C. M. Weed kindly furnished data concerning their several publications, and the printed lists of Messrs. Asa Fitch, Townend Glover, T. W. Harris, William Le Baron, and J. A. Lintner have been freely used. The work of Messrs. A. S. Packard and J. S. Kingsley in the first stages of the bibliography should also be mentioned, and I especially desire to add an explicit recognition of the work of Mr. B. P. Mann.

Though an exact agreement between Mr. Mann and myself does not seem possible, I most willingly acknowledge that his work, especially in Part III, was both extensive and important. The original plan of the bibliography, like the bibliographical record published in "Psyche," was conceived by Mr. Mann, and during his connection with the Division of Entomology, from September 1, 1881, to December 31, 1886, he completed several thousand titles, besides amassing a large amount of miscellaneous data. I supplemented Mr. Mann's work with additional material and rewrote, reviewed, and, when possible, condensed the analytic notes of the parts prepared by Mr. Mann; introduced a uniform nomenclature of the scientific names, made the several indexes wholly anew, and read the proof.

SAMUEL HENSHAW.

CAMBRIDGE, *October 12, 1896.*

By mutual consent of Messrs. Mann and Henshaw the evidence upon which these two notes are based has been submitted to Dr. Theodore N. Gill, as an unprejudiced arbiter of the question as to the true authorship of the volumes. Dr. Gill decided, in a letter to the Assistant Secretary of Agriculture, dated April 20, 1896, "that the credit for the work and right to appear on the title page as editor properly belong to Mr. Henshaw."

The present part completes the work which can be done under the authority of the joint resolution of Congress dated July 6, 1882. It brings the Bibliography of American Economic Entomology down to June 30, 1888.

Efforts will be made to bring the bibliography down to date and to publish thereafter occasional supplements.

Respectfully,

L. O. HOWARD,
Entomologist.

Hon. J. STERLING MORTON,
Secretary of Agriculture.

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BIBLIOGRAPHY OF THE MORE IMPORTANT CONTRIBUTIONS TO AMERICAN ECONOMIC ENTOMOLOGY.

PART V.

1. LACOUR, J. L., DE *Sporendonema*; or the fungus which is now so prevalent among house-flies. <Amer. Mo. Micros. Journ., January, 1883, v. 4, p. 19.
General notice concerning *Empusa musca*.
2. LANDIS, C. K. Insect extermination. <Vineland [N. J.] Weekly, 15 May, 1869. <Amer. Ent., July, 1869, v. 1, p. 219.
Premiums for success against insect enemies; means against borers, curculio, and the apple-tree moth.
3. LANDON, M. D. The cotton caterpillar. (*Noctua* [= *Aletia*] *xylina*). <Rept. [U. S.] Comm. Agric. for 1864, 1865, p. 90.
Natural history; figures larva, pupa, and adult; advocates the hibernation of the adult.
4. LAUGHTON, GEORGE R. The chinch bug. <Prairie Farmer, 17 June, 1865, n. s., v. 15, p. 483.
Effect of salt and quick lime against the ravages of *Blissus leucopterus*.
5. LEBARON, WILLIAM.¹ The chinch bug. <Prairie Farmer, September, 1850, v. 10, p. 280.
Ravages, seasons, and habits of *Blissus leucopterus*; characters of young and adults.
6. LEBARON, W. Observations upon two species of insects injurious to fruit trees. <Prairie Farmer, September, 1853, v. 13, p. 330.
Description and injuries of *Tettigonia mali* [= *Empoa albopicta*]; life history of the leaf crumpler [= *Acrobasis indiginella*].
7. LEBARON, W. The bark lice of the apple tree. <Prairie Farmer, June, 1854, v. 14, pp. 203-205.
Characters and life histories of *Aspidiotus cochiformis* [= *Mytilaspis pomorum*] and *Chionaspis farfurus*; food-plants; remedies; enemies.

¹Dr. LeBaron was born at North Andover, Mass., 17 October, 1814, and died at Elgin, Ill., 14 October, 1876. See Ent. Amer., October, 1885, v. 1, pp. 122-125.

8. LEBARON, W. Observations upon some of the birds of Illinois most interesting to the agriculturist. <Trans. Ill. State Agric. Soc., 1853-54, 1855, v. 1, pp. 559-565.
Insectivorous habits of common land birds.
9. LEBARON, W. Do birds do more good than harm? <Prairie Farmer, 1870, v. 41; 12 March, p. 74; 19 March, p. 82; 2 April, p. 98.
Decides in favor of the birds.
10. LEBARON, W. The apple-tree tent-caterpillar. <Amer. Ent., March 1870, v. 2, pp. 143-146, figs. 97, 98.
Mentions various insects infesting the apple tree; describes the various stages of *Clisiocampa americana*; its life history, habits, enemies, and remedies; instincts of insects.
11. LEBARON, W. Appeal of the State Entomologist. <Prairie Farmer, 2 April, 1870, v. 41, p. 116.
Asks for the cooperation of the farmers and horticulturists.
12. LEBARON, W. Bot flies. <Prairie Farmer, 30 April, 1870, v. 41, p. 130.
Life history and transformations of (Estridæ); remedies.
13. LEBARON, W. Insectivorous habits of the prairie lark (*Alauda alpestris*). <Amer. Ent. and Bot., April, 1870, v. 2, pp. 168-169.
Cutworms and other noxious larvæ eaten by the prairie lark.
14. LEBARON, W. Apple-tree bark louse. <Prairie Farmer, 14 May, 1870, v. 41, p. 146.
Mentions varieties of trees most liable to attacks.
15. LEBARON, W. Paris green for the Colorado potato beetle. <Prairie Farmer, 28 May, 1870, v. 41, p. 161.
Paris green effective against *Doryphora 10-lineata*.
16. LEBARON, W. Insects injurious to the pear tree. <Prairie Farmer, 4 June, 1870, v. 41, p. 170.
Ravages of *Helops aratus* [= *areus*], *Corimelva pulicaria* and *Callimorpha fulvicosta* [= *lecontei*].
17. LEBARON, W. Replies to correspondents upon noxious insects. <Prairie Farmer, 18 June, 1870, v. 41, p. 186.
Deals with *Orygia leucostigma*, the gooseberry worm, Coccinellidæ, etc.
18. LEBARON, W. Answers to correspondents. <Prairie Farmer, 25 June, 1870, v. 41, p. 194.
Characters of *Ellopiæ* [= *Enfitchia*] *ribearia*, remedies; food plants of *Ithycerus noreboracensis*; remedy; characters of the larva of *Ctenucha* sp.
19. LEBARON, W. Grape leaves injured by galls. <Prairie Farmer, 25 June, 1870, v. 41, p. 194.
Refers to an undetermined species.
20. LEBARON, W. Paris green. <Prairie Farmer, 25 June, 1870, v. 41, p. 196.
Care should be observed in using.

21. LEBARON, W. Noxious larvæ. <Amer. Ent. and Bot., June, 1870, v. 2, pp. 232-234.
Discusses the proportions of noxious larvæ among the different orders of insects.
22. LEBARON, W. Answers to correspondents. <Prairie Farmer, 2 July, 1870, v. 41, p. —.
Notes on poisonous applications to currants and gooseberries; injuries of *Haltica chalybea* and of tent caterpillars, *Chisocampa* sp.
23. LEBARON, W. Answers to correspondents. <Prairie Farmer, 9 July, 1870, v. 41, p. 210.
Notes on enemies to insect eggs and on a new curculio.
24. LEBARON, W. Answers to correspondents. <Prairie Farmer, 16 July, 1870, v. 41, p. 218.
Notes on insects affecting the foliage of the elm; books relating to insects.
25. LEBARON, W. Answers to correspondents. <Prairie Farmer, 23 July, 1870, v. 41, p. 226.
Refers to apple-tree bark-lice, the codling moth, etc.
26. LEBARON, W. Benj. D. Walsh and his cabinet. <Prairie Farmer, 30 July, 1870, v. 41, p. 234.
Reminiscences, with a notice of the collection of insects of B. D. Walsh.
27. LEBARON, W. Answers to correspondents. <Prairie Farmer, 13 August, 1870, v. 41, p. 250.
Means against *Aphis mali*; preventive against *Simulium* sp., remedy for *Pemphigus vitifolius* [= *Phylloxera vastatrix*]; note on the eggs of katydids and on *Brochymena* sp.
28. LEBARON, W. Answers to correspondents. <Prairie Farmer, 20 August, 1870, v. 41, p. 258.
Habits and means against *Anasa tristis*; remedy for *Aphis brassicae*; characters and habits of *Conotrachelus nenuphar* and *Anthonomus prunicida* [= *Coccotorus scutellaris*]; means against *Datana ministra*.
29. LEBARON, W. Potato bugs and Paris green. <Prairie Farmer, 10 September, 1870, v. 41, p. 282.
Methods of application.
30. LEBARON, W. Insects for examination. <Prairie Farmer, 17 September, 1870, v. 41, p. 290.
Characters and habits of *Brochymena* sp.; note on structural characters of insects.
31. LEBARON, W. Diamond-back cabbage-moth [and other insects]. <Prairie Farmer, 8 October, 1870, v. 41, p. 314.
Ravages of the larva of *Cerostoma xylostella*; enemy; parasites; remedies; note on *Mantis* [= *Phasmomantis*] *carolina* and on an undetermined larva from wheat.
32. LEBARON, W. [Answers to correspondents.] <Prairie Farmer, 29 October, 1870, v. 41, p. 338.
Habits of *Conotrachelus nenuphar* and *Anthonomus prunicida* [= *Coccotorus scutellaris*.]

33. LEBARON, W. Answers to correspondents. <Prairie Farmer, 12 November, 1870, v. 41, p. 354.
Habits of larva of *Lachnosterna fusca*; enemies; remedy; note on *Doryphora 10-lineata*.
34. LEBARON, W. The chalcideous parasite of the apple-tree bark-louse (*Chalcis* [= *Aphelinus*] *mytilaspidis*). <Amer. Ent. and Bot., December, 1870, v. 2, pp. 360-362.
Characters and natural history.
35. LEBARON, W. Oyster-shell bark-louse—Death-watch; katydid's eggs. Notice to correspondents. Cankerworms. <Prairie Farmer, 8 April, 1871, v. 42.
Distribution of and remedies for *Mytilaspis pomorum*; note on the insects that produce the sound known as that of the death-watch; characters of katydid eggs; remedies for cankerworms.
36. LEBARON, W. Cabinet for insects—Books on insects—Raspberry borers—Scales on the oleander. <Prairie Farmer, 22 April, 1871, v. 42.
Remedy for *Agrilus ruficollis* and for *Aspidiotus nerii*.
37. LEBARON, W. Locust or periodical Cicada. <Prairie Farmer, 29 April, 1871, v. 42.
Natural history of *Cicada* [= *Tibicen*] *septendecim*.
38. [LEBARON, W.] Topics of interest for the coming season: Chinch bugs, potato beetles, and codling moths. <Prairie Farmer, 6 May, 1871.
Asks for reports on noxious insects; habits of *Blissus leucopterus*; *Doryphora 10-lineata* found six feet under ground; it is a question whether *Carpocapsa pomonella* is attracted to light.
39. LEBARON, W. Bark louse of the pear.—Apple-twig borer.—Potato bugs and Paris green. <Prairie Farmer, 20 May, 1871, v. 42.
Note concerning *Lecanium pyri*; habits of and means against *Bostrichus* [= *Amphicernus*] *bicaudatus*; means against *Doryphora 10-lineata*.
40. LEBARON, W. The effects of clean culture in preventing the ravages of noxious insects.—Cankerworms, codling moths, and apple and peach borers. <Prairie Farmer, 27 May, 1871, v. 42.
Clean culture an essential for raising sound and abundant fruit; means against cankerworms; habits of *Carpocapsa pomonella* and of borers in apple and peach trees.
41. LEBARON, W. The plum Curculio and the plum gouger, striped grape-vine caterpillar.—Notes to correspondents. <Prairie Farmer, 3 June, 1871, v. 42.
Habits of *Conotrachelus nenuphar* and of *Anthonomus prunicida* [= *Coccotorus scutellaris*]; means against *Eudryas unio*; occurrence of larvæ of *Cicada* [= *Tibicen*] *septendecim* in southern Illinois.
42. LEBARON, W. Sundry insects from Michigan and Iowa. <Prairie Farmer, 10 June, 1871, v. 42.
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43. LEBARON, W. Shall we kill all kinds of insects? <Western Rural, 10 June, 1871.
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44. LEBARON, W. The lesser apple leaf-roller. <Amer. Nat., June, 1871, v. 5, pp. 209-212.
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45. LEBARON, W. A trip to southern Illinois. The curculio and other matters. <Prairie Farmer, 1 and 8 July, 1871, v. 42.
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46. [LEBARON, W.] Visit to McLean and Tazewell counties. The chinch bugs. <Prairie Farmer, 5 August, 1871.
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47. [LEBARON, W.] The chinch bug. <Prairie Farmer, 12 August, 1871.
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48. [LEBARON, W.] The chinch bug and other insects. <Prairie Farmer, 26 August, 1871.
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49. LEBARON, W. First annual report on the noxious insects of the State of Illinois. <Springfield [August], 1871, 96 pp., 8 figs.

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51. LEBARON, W. Insects injurious to fruits. <Trans. North. Ill. Hortie. Soc., 1871, pp. 85-89.
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52. LEBARON, W. The bean weevil. <Prairie Farmer, 1871, v. 42.
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53. LEBARON, W. Answers to correspondents. <Prairie Farmer, 1871, v. 42.
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54. LEBARON, W. Cankerworms. <Prairie Farmer, 1871, v. 42.
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56. LEBARON, W. Destruction of the Walsh cabinet.—Effect of the timber fires. <Prairie Farmer, 1871, v. 42.
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57. LEBARON, W. Answers to correspondents: The lesser apple leaf-folder.—The death-watch and other insects. <Prairie Farmer, 1871, v. 42.
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58. LEBARON, W. Brief answers to correspondents. <Prairie Farmer, 1871, v. 42.
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59. LEBARON, W. Introductory remarks. <Prairie Farmer, 2 March, 1872, v. 43.
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60. LEBARON, W. Notes in season. The plum gouger.—The camel cricket.—The appletwig-borer.—Hessian fly. <Prairie Farmer, 16 March, 1872, v. 43.
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61. LEBARON, W. The Colorado potato beetle; its destruction by machinery. <Prairie Farmer, 30 March, 1872, v. 43.
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62. LEBARON, W. Reminiscences of Benjamin D. Walsh. <Prairie Farmer, 13 April, 1872, v. 43.

63. LEBARON, W. Questions answered.—Eggs in twigs, bark lice, etc. <Prairie Farmer, 27 April, 1872, v. 43.
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64. LEBARON, W. The white grub; the Colorado potato beetle; the peach root-borer, and the apple curculio. <Prairie Farmer, 11 May, 1872, v. 43.
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65. LEBARON, W. The sap-sucker. <Prairie Farmer, 1 June, 1872, v. 43.
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67. LEBARON, W. The army worm. <Prairie Farmer, 29 June, 1872.
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68. LEBARON, W. Cutworms, and brief notes on insects sent. <Prairie Farmer, 13 July, 1872, v. 43.
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69. LEBARON, W. Transportation of useful parasitic insects. <Prairie Farmer, 27 July, 1872.
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70. LEBARON, W. Wood borers in general and the Pecan hickory borer in particular. <Prairie Farmer, 10 August, 1872.
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71. LEBARON, W. Chinch bug experiences of 1872. <Prairie Farmer, 24 August, 1872.
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72. LEBARON, W. The Chickasaw plum in its relations to the Curculionidæ. <Prairie Farmer, 11 July, 1872.
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75. LEBARON, W. Insects injurious to cucumber, squash, and melon vines. <Prairie Farmer, 1872, v. 43.
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76. LEBARON, W. Official statement of the State Entomologist <Prairie Farmer, 1872, v. 43.
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77. LEBARON, W. Second annual report on the noxious insects of the State of Illinois. <Rept. to General Assembly, 1872, v. 3.
<Trans. Ill. State Hort. Soc. for 1871, 1872, n. s., v. 5, pp. 97-166. Separate: <Springfield, 1872, pp. t-. + 1 + p. 97-166 + 1, 10 figs.

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80. LEBARON, W. Introductory notes.—The cankerworm. <Prairie Farmer, 1 March, 1873, v. 44, p. 65.
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81. LEBARON, W. The cankerworm continued and compared with the codling worm. <Prairie Farmer, 22 March, 1873, v. 44, p. 89.
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84. LEBARON, W. Bark-lice on lemons.—Supposed new carpet moth.—Apple twig pruners. <Prairie Farmer, 26 April, 1873, v. 44, p. 133.
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85. LEBARON, W. Paris green and other remedies for leaf-eating insects. <Prairie Farmer, 10 May, 1873.
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86. LEBARON, W. [Horticulture and insects infesting fruits and crops]. <Proc. Warsaw [Ill.] Hort. Soc., 14 June, 1873.
Uses of insects; notes on *Carpocapsa pomonella*; most insect ravages committed by larvæ; usefulness of birds.
87. LEBARON, W. May beetle, or white grub, and allied species. <Prairie Farmer, 21 June, 1873, v. 44, p. 193.
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89. LEBARON, W. Corn leaf weevil.—Potato beetles of Nebraska. <Prairie Farmer, 19 July, 1873, v. 44, p. 227.
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90. LEBARON, W. Destructive vine caterpillars. <Prairie Farmer, 2 August, 1873, v. 44, p. 245.
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91. [LEBARON, W.] Nebraska grasshopper.—Twig pruners.—Chinch bugs. <Prairie Farmer, 16 August, 1873, v. 44, p. 257.
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92. LEBARON, W. Grape insects. The blue caterpillars, and the leaf and root lice of the vine. <Prairie Farmer, 13 September, 1873, v. 44, p. 290.
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93. [LEBARON, W.] Chinch bugs. <Prairie Farmer, 18 October, 1873, v. 44, p. 331.
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94. LEBARON, W. Report on entomology. <Trans. Ill. State Hort. Soc. for 1872, 1873, n. s., v. 6, pp. 151–159.
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103. LEBARON, W. The bird question. <Trans. Ill. State Hortic. Soc. for 1873, 1874, n. s., v. 7, pp. 311-319. <3d Annual Rept. Pomol. Soc. Mich. for 1873, 1874, pp. 449-456.
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104. LEBARON, W. [Oyster-shell bark louse, strawberry worm.] <Trans. Ill. State Hortic. Soc. for 1873, 1874, n. s., v. 7, p. 319.
Enemies of *Mytilaspis pomorum*: arsenical mixtures not advisable for *Harpiphorus maculatus*.
105. LECONTE, JOHN LAWRENCE. On the preservation of entomological cabinets. <Amer. Nat., August, 1869, v. 3, pp. 307-309.
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106. LECONTE, J. L. Hints for the promotion of economic entomology in the United States. <Amer. Nat., December, 1873, v. 7, pp. 710-722. <Proc. Amer. Assoc. Adv. Science, 1874, v. 22, pp. 10-22. See: <Sci. Am., 1874, v. 30, p. 82.
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107. LECONTE, J. L. An instance of replacement of injurious insects by human agency. Abstract. <Proc. Amer. Assoc. Adv. Science, 1875, v. 23, p. 44. <Pop. Sci. Mo., v. 4, p. 381. <Gardener's Monthly, November, 1874, v. 16, pp. 325-326.
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108. LECONTE, J. L. *Amphicerus bicaudatus*. <Gardener's Monthly, August, 1875, v. 17, pp. 243-244.
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109. LECONTE, J. L. Methods of subduing insects injurious to agriculture. <Can. Ent., September, 1875, v. 7, pp. 167-172. <Ann. Rept. Ent. Soc. Ontario for 1875, 1876, pp. 17-20. <Proc. Amer. Assoc. Adv. Sci., 1876, v. 24, pp. 202-207.
110. LECONTE, J. L. Destructive Coleoptera. <Proc. Acad. Nat. Sci. Phil., 1876, p. 195. See: <Amer. Nat., January, 1877, v. 11, p. 63.
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111. LECONTE, J. L. On Rocky Mountain locusts. <Proc. Acad. Nat. Sci. Phil., 1877, pp. 129-131.
Plans devised for the suppression of *Caloptenus spretus*.
112. LECONTE, J. L. Fungoid diseases of insects: A reclamation. <Can. Ent., July, 1880, v. 12, pp. 126-128.
Use of fungoid diseases as a means of destroying injurious insects.
113. LECONTE, J. L. The coleopterous parasites of the common hickory [*Carya tomentosa*]. <Amer. Ent., October, 1880 [v. 3], n. s., v. 1, pp. 236-237.
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114. LEE, DANIEL. The ravages of insects. <Rept. [U. S.] Comm. Patents for 1849, 1850, pp. 9-10.
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115. LEIDY, JOSEPH. [Entophyta.] <Proc. Acad. Nat. Sci. Phil., 1849, v. 4, p. 225-233.
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116. LEIDY, J. [Entophyta.] <Proc. Acad. Nat. Sci. Phil., 1849, v. 4, p. 249-250.
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117. LEIDY, J. [Entophyta.] <Proc. Acad. Nat. Sci. Phil., 1850, v. 5, pp. 7-8.
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118. LEIDY, J. [Entophyta.] <Proc. Acad. Nat. Sci. Phil., 1850, v. 5, pp. 8-9.
Notes on species of *Enterobrus* sp., etc., in various insects and myriopods.
119. LEIDY, J. [Fungus affecting Gryllotalpa.] <Proc. Acad. Nat. Sci. Phil., 1851, v. 5, p. 204.
Occurrence and characters of fungus found on *Gryllotalpa americana* [= *bo-realis*.]
120. LEIDY, J. [Fungi on insects.] <Proc. Acad. Nat. Sci. Phil., 1851, v. 5, pp. 210-211.
Notes on the occurrence of fungi on insects: mode of development.
121. LEIDY, J. [Fungus affecting Cicada.] <Proc. Acad. Nat. Sci. Phil., 1851, v. 5, p. 235.
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122. LEIDY, J. A flora and fauna within living animals. <Smith. Contrib. Knowl., April, 1853, v. 5, 67 pp., 10 pl.
Treats of fungi found in the alimentary tract of myriopods and insects.
123. LEIDY, J. [Larva of Oestrus.] <Proc. Acad. Nat. Sci. Phil., December, 1857, p. 204.
Characters of œstrid larvæ from body of *Thomomys borealis*.
124. LEIDY, J. [Dipterous larvæ from man.] <Proc. Acad. Nat. Sci. Phil., April, 1859, pp. 7-8, Biological Department.
Characters and habitat of larva of *Anthomyia* sp., *Æstrus* sp., and of an undetermined œstrid.
125. LEIDY, J. Report to the councils of Philadelphia on some of the insects injurious to our shade trees. 1862.
126. LEIDY, J. On a mite in the ear of the ox. <Proc. Acad. Nat. Sci. Phil., April, 1872, pp. 1-2, figs. 1-3.
Describes and figures *Gamasus [auris]*.
127. LEIDY, J. Note on Gamasus of the ox. <Proc. Acad. Nat. Sci. Phil., September, 1872, p. 138.
Proposes *auris* as the specific name for the mite found in the ear of the ox.
128. LEIDY, J. On a parasitic worm of the house fly. <Proc. Acad. Nat. Sci. Phil., 1874. 1874, pp. 139-140.
Occurrence of *Filaria muscæ* in the proboscis of *Musca domestica*.
129. LEIDY, J. Note on Dryocampa. <Proc. Acad. Nat. Sci. Phil. 1874. 1874, p. 160.
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130. LEIDY, J. On *Mermis acuminata*. <Proc. Acad. Nat. Sci. Phil. 1875, p. 400.
Parasitic on the larva of *Carpocapsa pomonella*.
131. LEIDY, J. Parasites of the termites. <Journ. Acad. Nat. Sci. Phil., 1881, ser. 2, v. 8, pp. plates 51-52.
Account of the protozoans parasitic in *Termes flavipes*.
132. LEIDY, J. Ant infested with a fungus. <Proc. Acad. Nat. Sci. Phil., 1884, p. 9.
Notes on undetermined fungus attacking *Camponotus pennsylvanicus* [= *herculeanus*].
133. LEMMON, J. G. The locust scourge. Ravages of the destructive insect in Sierra Valley. Destruction of the alfalfa crop in Truckee meadows. Description of the scourge and its best-known enemies. <[San Francisco] Evening Bulletin, 11 September, 1880, v. 50, No. 134, p. 4, 10 figs.
134. LEMMON, W. C. Hair-worms and red-mites remarkably abundant upon locusts in California. <Amer. Ent., September, 1880, v. 3, n. s., v. 1, p. 227.
Habits.
135. LIDDLE, George. To destroy Colorado potato bugs. <Galena [Ill.] Gazette. <Amer. Ent., July, 1869, v. 1, p. 219.
Advises the use of Paris green to destroy *Doryphora 10-lineata*.
136. LINCECUM, GIDEON. The Texan cabbage-bug. *Strachia histrionica* Hahn. <Pract. Ent., 27 August, 1866, v. 1, p. 110.
<Prairie Farmer, 8 September, 1866, v. 34, n. s., v. 18, p. 152. S.-b., No. 2, pp. 41-42.
Ravages, food habits, and habits of *Strachia* [= *Murgantia*] *histrionica*.
137. LINCECUM, G. The cutting ant of Texas.—*Ecodoma texana* Buckley. <Proc. Acad. Nat. Sci. Phil., February, 1867, pp. 24-31.
Natural history, habits, and injuries of *Ecodoma texana* [= *Atta fervens*].
138. LINCECUM, G. The agricultural ant. <Amer. Nat., September, 1874, v. 8, pp. 513-517.
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139. LINTNER, JOSEPH ALBERT. [First observation of *Pieris rapæ* in New York.] <Sunday Morning Press [Albany], 7 August, 1870, p. 4.
Notice of occurrence in Albany a few days since.
140. LINTNER, J. A. "The poisonous cabbage-worm." <Albany Argus, 20 October, 1870.
Injuries of *Pieris rapæ*; the larva not poisonous.
141. LINTNER, J. A. The recently imported cabbage butterfly.—*Pieris rapæ*. <Albany Argus, 2 November, 1870. <Proc. Albany Institute, 1873, v. 1, pp. 199-201.
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142. [LINTNER, J. A.] Insect on potato. <Cultivator and Country Gentl., 3 August, 1871, v. 36, p. 488.
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143. [LINTNER, J. A.] Potato insect; correction. <Cultivator and Country Gentl., 10 August, 1871, v. 36, p. 505.
Character and food habits of *Cantharis marginata* [= *Epicauta cinerea*].
144. LINTNER, J. A. [*Dryocampa imperialis* Harris]. <Cultivator and Country Gentl., 21 September, 1871, v. 36, p. 600.
Characters, habits, and transformations of *Dryocampa* [= *Eacles*] *imperialis*.
145. LINTNER, J. A. *Pieris rapæ* parasite. <Amer. Nat., November, 1871, v. 5, pp. 724-725. <Can. Ent., November, 1871, v. 3, p. 197.
Pteromalus puparum bred from chrysalis of *Pieris rapæ*.
146. [LINTNER, J. A.] Cabbage butterfly. <Cultivator and Country Gentl., 16 November, 1871, v. 36, p. 728.
Notes on *Pieris rapæ* and its parasite *Pteromalus puparum*.
147. LINTNER, J. A. Cutworms in corn. <Cultivator and Country Gentl., 30 May, 1872, v. 37, p. 339.
Ravages and habits of (?) *Mamestra arctica*.
148. L[INTNER], J. A. Spindle worms. <Cultivator and Country Gentl., 13 June, 1872, v. 37, p. 376.
Ravages of *Gortyna* sp. in cornstalks.
149. L[INTNER], J. A. Hessian fly. <Cultivator and Country Gentl., 13 June, 1872, v. 37, p. 376.
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150. L[INTNER], J. A. "Apple twig-borer" on pear trees. <Cultivator and Country Gentl., 13 June, 1872, v. 37, p. 378.
Habits, distribution, and injuries of *Amphicerus bicaudatus*.
151. L[INTNER], J. A. Bark louse. <Cultivator and Country Gentl., 11 July, 1872, v. 37, p. 440.
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152. LINTNER, J. A. Owl beetle. <Cultivator and Country Gentl., 18 July, 1872, v. 37, p. 456.
Characters, habits, and habitat of *Alaus oculatus*.
153. LINTNER, J. A. Entomological contributions. <23d Ann. Rept. N. Y. State Cabinet Nat. Hist. for 1869, 1873, pp. 137-222. pl. 7-8. Separate: <Albany, 1872, 90 pp., pl. 7-8.

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1878, v. 2, pp. 65–69.

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159. LINTNER, J. A. Entomological Contributions No. III. <26th
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225. LINTNER, J. A. Contribution to the economical entomology of
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251. LINTNER, J. A. The five-spotted Sphinx. <Cultivator and Country Gentl., 30 October, 1879, v. 44, p. 696.
Food plants and transformations of *Sphinx 5-maculata* [= *Protoparce celeus*].
252. LINTNER, J. A. Apple-tree insects. <Cultivator and Country Gentl., 6 November, 1879, v. 44, p. 711.
Note on undetermined larvae.
253. LINTNER, J. A. A grape insect—*Procris americana* Bois. <Cultivator and Country Gentl., 6 November, 1879, v. 44, p. 711.
Description of the larva of *Procris* [= *Harrisina*] *americana*; its habits and means against its injuries; characters of the adult.
254. LINTNER, J. A. Coccus on peach trees—*Lecanium persica*. <Cultivator and Country Gentl., 6 November, 1879, v. 44, p. 711.
Characters and synonymy.
255. LINTNER, J. A. The pickled-fruit fly—*Drosophila ampelophila*. <Cultivator and Country Gentl., 1 January, 1880, v. 45, p. 7.
Habitat and habits.
256. LINTNER, J. A. Report on some injurious insects of the year 1878. <38th Ann. Rept. N. Y. State Agric. Soc. 1878, 1880, pp. 61-72. Separate: <Albany, 14 January, 1880, 14 pp. <Trans. N. Y. State Agric. Soc. for 1877-1882, 1884, v. 33, pp. 97-112.
Deals with *Cecidomyia trifolii* [= *leguminicola*], *Anthrenus scrophularie*, *Pulex irritans*, *Euryomia* [= *Euphoria*] *inda* and *Anarsia lineatella*.
257. LINTNER, J. A. Rat-tail larva of a Syrphus fly. <Cultivator and Country Gentl., 22 January, 1880, v. 45, p. 55.
Characters of an undetermined species.

258. LINTNER, J. A. Poduridae (spring tails) in a well. <Cultivator and Country Gentl., 12 February, 1880, v. 45, p. 103.
Note on *Lipura fimetaria*.
259. LINTNER, J. A. A new wheat pest. <Cultivator and Country Gentl., 19 February, 1880, v. 45, p. 120.
Injuries of *Cicadula cirtiosa*.
260. LINTNER, J. A. The apple Curculio—*Anthonomus quadrigibbus* Say. <Cultivator and Country Gentl., 4 March, 1880, v. 45, pp. 150–151.
Characters, distribution, natural history, and remedies.
261. LINTNER, J. A. Worms in rose pots.—Larvæ of *Bibio albipennis*. <Cultivator and Country Gentl., 11 March, 1880, v. 45, p. 167.
Characters and habits.
262. LINTNER, J. A. The new wheat pest. <Cultivator and Country Gentl., 11 March, 1880, v. 45, p. 167.
Note on *Cicadula cirtiosa*.
263. LINTNER, J. A. The raspberry gouty-gall beetle. <Cultivator and Country Gentl., 1 April, 1880, v. 45, p. 215.
Natural history of *Agrilus ruficollis*; means against its injuries.
264. LINTNER, J. A. Wheat insects. <Cultivator and Country Gentl., 15 April, 1880, v. 45, p. 247.
Ravages of *Siphonophora avenæ* [= *Nectarophora granaria*]; habits and parasites.
265. LINTNER, J. A. The apple-leaf Bucculatrix. *Bucculatrix pomifoliella* Clemens. <Cultivator and Country Gentl., 22 April, 1880, v. 45, p. 263.
Characters of the larva and cocoon, distribution, natural history, and means against.
266. LINTNER, J. A. A poisonous centipede—*Cermatia forceps* Raf. <Cultivator and Country Gentl., 13 May, 1880, v. 45, p. 311.
Characters and northern occurrences; believed to be harmless.
267. LINTNER, J. A. The rose bug—*Macrodactylus subspinosus* Fabr. <Cultivator and Country Gentl., 24 June, 1880, v. 45, p. 407.
Abundance near Albany; characters, ravages, food plants, habits, preventives, and remedies.
268. LINTNER, J. A. Tallow to preserve insect collections. <Amer. Ent., June, 1880, [v. 3], n. s., v. 1, pp. 145–146.
Insects repelled by the odor of tallow; woolen goods and entomological collections protected by tallow candles.
269. LINTNER, J. A. Carpet bug—*Anthrenus scrophulariæ* Linn. <Johnson's Nat. Hist. [July], 1880, v. 2, pp. 651–652, figs.
Ravages, natural history, and remedies.
270. LINTNER, J. A. A potato beetle—*Coptocycla clavata* (Fabr.). <Cultivator and Country Gentl., 1 July, 1880, v. 45, p. 423.
Characters and habits.

271. LINTNER, J. A. Cutworm moth. <Cultivator and Country Gentl., 1 July, 1880, v. 45, p. 424.
Habits of *Agrotis clandestina*.
272. LINTNER, J. A. Eggs of army worm. <Cultivator and Country Gentl., 1 July, 1880, v. 45, p. 424.
Characters of the eggs of *Leucania unipuncta*.
273. LINTNER, J. A. The white grubworm—*Lachnosterna fusca* Fröhl. <Cultivator and Country Gentl., 8 July, 1880, v. 45, p. 439.
Ravages and remedies.
274. LINTNER, J. A. The Hessian fly. <Cultivator and Country Gentl., 8 July, 1880, v. 45, p. 439.
Natural history of *Cecidomyia destructor*: preventives.
275. LINTNER, J. A. A leaf eater. <Cultivator and Country Gentl., 8 July, 1880, v. 45, p. 439.
Ravages of *Phyllophaga pilosicollis* [= *Lachnosterna tristis*].
276. LINTNER, J. A. The squash borer. <Cultivator and Country Gentl., 15 July, 1880, v. 45, p. 455.
Ravages of *Egeria cucurbita* [= *Melittia ceto*]; characters of the moth; oviposition; larval habits; preventives.
277. LINTNER, J. A. The stalk borer—*Gortyna nitela*, Guén. <Cultivator and Country Gentl., 22 July, 1880, v. 45, p. 472.
Ravages of and means against.
278. LINTNER, J. A. The striped blister beetle—*Epicauta vittata*. <Cultivator and Country Gentl., 29 July, 1880, v. 45, p. 488.
Ravages and means against.
279. LINTNER, J. A. The basket-worm—*Thyridopteryx ephemeraformis*. <Cultivator and Country Gentl., 19 August, 1880, v. 45, p. 535.
Habits of larva; characters of the male and female moths; means against ravages.
280. LINTNER, J. A. The basket or bag worm—*Thyridopteryx ephemeraformis*. <Cultivator and Country Gentl., 30 September, 1880, v. 45, p. 631.
Food plants, ravages, and means against.
281. LINTNER, J. A. Caterpillars on the Ampelopsis. <Cultivator and Country Gentl., 7 October, 1880, v. 45, p. 647.
Means against ravages of *Alypia octomaculata* and *Eudryas grata*.
282. LINTNER, J. A. The Harlequin cabbage bug—*Murgantia histrionica* (Hahn). <Cultivator and Country Gentl., 21 October, 1880, v. 45, p. 679.
Characters, distribution, history, and remedies.
283. LINTNER, J. A. The two-spotted tree hopper—*Enchophyllum binotatum*. <Cultivator and Country Gentl., 4 November, 1880, v. 45, p. 711.
Description of the eggs and adult of *Enchophyllum* [= *Enchenopa*] *binotatum*; food plants; preventives.

284. LINTNER, J. A. Flour-paste flies. <Cultivator and Country Gentl., 18 November, 1880, v. 45, p. 743.
Characters of pupa cases and adult of *Drosophila* sp.
285. LINTNER, J. A. Report on some injurious insects of the year 1879. <39th Ann. Rept. N. Y. State Agric. Soc., 1880, pp. 35-55.
<Trans. N. Y. State Agric. Soc. for 1877-1882, 1884, v. 33, pp. 142-164, figs. 4.
Progress of economic entomology; general notice of *Cecidomyia leguminicola*, *Hylesinus trifolii*, *Meromyza americana*, *Sphenophorus zea* [= *sculptilis*], *Gortyna nitela*, *Coleophora malivorella*; entomological work of Asa Fitch.
286. LINTNER, J. A. Address upon economic entomology before the Farmers' Club of Onondago County, N. Y. <Syracuse Morning Standard, 6 December, 1880, p. 4.
Importance and progress of entomological investigations; causes of insect ravages; how best controlled; legislation; what has already been done.
287. LINTNER, J. A. The clover-seed fly—a new insect pest. <Ann. Rept. Ent. Soc. Ontario for 1879, 1880, pp. 28-30.
Practically a reprint of Nos 228 and 241.
288. LINTNER, J. A. The bean weevil—*Bruchus faba*. <Cultivator and Country Gentl., 6 January, 1881, v. 46, p. 7.
Abundance and extending distribution of *Bruchus faba* [= *obtectus*] over the Western States; preventives.
289. LINTNER, J. A. The asparagus beetle—*Crioceris asparagi* Linn. <Cultivator and Country Gentl., 14 April, 1881, v. 46, p. 243.
History, distribution, and transformations; parasite; remedies.
290. LINTNER, J. A. The army worm. The invasion of northern New York by this destructive pest. <Albany Evening Journ., 23 May, 1881, p. 3. <Cultivator and Country Gentl., 2 June, 1881, v. 46, p. 359.
Ravages of and means against [*Crambus vulgiragellus*].
291. LINTNER, J. A. The "army worm" invasion of northern New York. <St. Lawrence Republican, 8 June, 1881, v. 51.
Ravages of *Nephelodes violans*; habits and parasites of *Leucania unipuncta*; ravages and means against.
292. LINTNER, J. A. A new insect—not the army worm. <Cultivator and Country Gentl., 9 June, 1881, v. 46, p. 375.
Ravages of *Nephelodes violans*.
293. LINTNER, J. A. Insects on plum trees. <Cultivator and Country Gentl., 9 June, 1881, v. 46, p. 376.
Mention of various innocuous insects; *Conotrachelus nenuphar* attacks cherry.
294. LINTNER, J. A. Mites in clothing. <Cultivator and Country Gentl., 9 June, 1881, v. 46, p. 376.
Abundance of and means against [*Bryobia pratensis*].
295. LINTNER, J. A. The late insect invaders of northern New York. <Albany Evening Journal, 1 July, 1881.
Notes on *Nephelodes violans* and on *Crambus ersicatus*; remarks on Crambida.

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LETTER OF TRANSMITTAL.

UNITED STATES DEPARTMENT OF AGRICULTURE,
DIVISION OF ENTOMOLOGY,
Washington, D. C., March 15, 1898.

SIR: I transmit herewith for publication Part VI of the Bibliography of the More Important Contributions to American Economic Entomology, bringing the whole bibliography down to the close of the calendar year 1896. This part was promised in the letter of transmittal to Part V.

Respectfully,

L. O. HOWARD,
Entomologist.

Hon. JAMES WILSON,
Secretary of Agriculture.

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296. LINTNER, J. A. The orchard caterpillar. <Cultivator and Country Gentl., 14 July, 1881, v. 46, p. 455.
Habits of *Clisiocampa americana*.
297. LINTNER, J. A. Worms on tomatoes. <Cultivator and Country Gentl., 14 July, 1881, v. 46, p. 456.
Injuries to tomato blossoms by some undetermined insect.
298. LINTNER, J. A. Insects and fungus on quinces. <Cultivator and Country Gentl., 18 August, 1881, v. 46, p. 535.
Ravages of *Cerpoecapsa pomonella*; description of *Conotrachelus cratagi*; its ravages, habits, and remedies.
299. LINTNER, J. A. An insect pest. Preservation of our shade trees from its ravages. <Albany Evening Journ., 31 August, 1881.
Means against *Orygia leucostigma*.
300. LINTNER, J. A. Insects on strawberry roots. <Cultivator and Country Gentl., 8 September, 1881, v. 46, p. 583.
Abundance of an undetermined insect on strawberry roots.
301. LINTNER, J. A. Beetle on the tomato. <Cultivator and Country Gentl., 8 September, 1881, v. 46, p. 584.
Ravages of *Epicauta cinerea*: remedy.
302. LINTNER, J. A. *Crambus vulgiragellus* in northern New York. <St. Lawrence Republican, 14 September, 1881.
Ravages to grass lands: description of cocoons and moths.
303. LINTNER, J. A. Injurious insects, with special notice of some new insect pests. <Husbandman [Elmira], 14 September, 1881, pp. 3, 6. <Cultivator and Country Gentl., 1881, v. 46; 29 September, p. 631; 6 October, p. 647. <41st Ann. Rept. N. Y. State Agric. Soc. for 1881, August, 1882, pp. 40-50. <Trans. N. Y. State Agric. Soc. for 1877, 1884, v. 33, pp. 221-234.
Work of the economic entomologist: recent progress of economic entomology; notices of *Crambus vulgiragellus*, *Phytonomus punctatus*, and *Euryveron rautalis*.
304. LINTNER, J. A. The vagabond *Crambus*. <Ogdensburg Daily Journal, 21 September, 1881.
Ravages of and preventives against *Crambus vulgiragellus*.
305. LINTNER, J. A. Grass-eating grub. <Cultivator and Country Gentl., 22 September, 1881, v. 46, p. 615.
Ravages of *Lachnosterna fusca*: enemies; preventives.
306. LINTNER, J. A. A barn beetle—*Lathridius pulicarius*. <Cultivator and Country Gentl., 29 September, 1881, v. 46, p. 632.
Lathridius pulicarius abundant in Westogue, Conn.: its habits are unknown.
307. LINTNER, J. A. The insects of the clover plant. <40th Ann. Rept. N. Y. State Agric. Soc. for 1880, 1881, pp. 10-26, figs. 1-6. Separate: <..... [6 October], 1881, 17 pp., 6 figs. <Trans. N. Y. State Agric. Soc. for 1877-1882, 1884, v. 33, pp. 187-207.
Importance of the clover crop; increase of insect depredation on clover; insects depredating on the clover; notes on *Hygastes trifolii*, *Languria mozardi*, *Cecidomyia leguminicola*, *C. trifolii*, and *Oscinis trifolii*.

308. LINTNER, J. A. The corn beetle. <Cultivator and Country Gentl., 3 November, 1881, v. 46, p. 711.
Food habits of *Lathridius pulicarius*.
309. LINTNER, J. A. The cabbage Plusia—*Plusia brassicae* Riley. <Cultivator and Country Gentl., 3 November, 1881, v. 46, p. 711.
Ravages and food plants of *Plusia brassicae*: description of the larva, pupa, and adult; remedies.
310. LINTNER, J. A. A peach pest—*Largus succinctus*. <Cultivator and Country Gentl., 13 October, 1881, v. 46, p. 663.
Characters, ravages, and preventives.
311. LINTNER, J. A. Insect enemies of the strawberry. <Cultivator and Country Gentl., 27 October, 1881, v. 46, p. 695.
Ravages of an undetermined strawberry insect; mention of some of the principal strawberry pests.
312. LINTNER, J. A. The corn worm—*Heliothis armiger* Hübn. <Cultivator and Country Gentl., 24 November, 1881, v. 46, p. 759. <Ontario County Times, 24 November, 1881, v. 31, p. 3.
Characters of the larva and adult; ravages and feeding habits.
313. LINTNER, J. A. Habits of Phylloxera. <Cultivator and Country Gentl., 1 December, 1881, v. 46, p. 779.
Describes the eggs and the gall-inhabiting form of *Phylloxera vastatrix*.
314. LINTNER, J. A. The bean weevil—*Bruchus obsoletus* (Say). <Cultivator and Country Gentl., 8 December, 1881, v. 46, p. 55.
Character, increase, and distribution of *Bruchus obsoletus* [= *obtectus*]; preventives.
315. LINTNER, J. A. Insects on sweet potato vines. <Country Gentleman, 23 February, 1882, v. 47, p. 149.
Habits and means against *Coptocycla aurichalcea*.
316. LINTNER, J. A. Millions of grasshoppers in midwinter. <Albany Evening Journ., 25 February, 1882.
Early appearance of *Tragocephala viridifasciata*.
317. LINTNER, J. A. A winter grasshopper—*Tragocephala viridifasciata*. <Country Gentleman, 9 March, 1882, v. 47, p. 189.
History.
318. LINTNER, J. A. The hickory-borer—*Cyllene picta* (Drury). <Country Gentleman, 9 March, 1882, v. 47, p. 189.
Characters; larval habits.
319. LINTNER, J. A. Apple-leaf Bucculatrix. <Country Gentleman, 16 March, 1882, v. 47, p. 207.
Cocoons of *B. pomifoliella* indicate parasites.
320. LINTNER, J. A. A new principle in protection from insect attack. <Proc. Western N. Y. Hort. Soc. for 1882, pp. 52-66. Separate: <Rochester [March, 1882], 15 pp.
The use of counterodorants as a preventive against insect oviposition.

321. LINTNER, J. A. The white grub—*Lachnosteria fusca* Fröhl.
 <Country Gentleman, 27 April, 1882, v. 47, p. 333.
 Ravages and means against.
322. LINTNER, J. A. The spring cankerworm—*Anisopteryx vernata*.
 <Country Gentleman, 18 May, 1882, v. 47, p. 393.
 Distribution of *A.* [= *Palaearita*] *vernata*; ravages and means against.
323. LINTNER, J. A. Mites in Timothy fields. <Country Gentleman,
 18 May, 1882, v. 47, p. 395.
 Characters and food habits of *Trombidium bicolor* [= *Bryobia pratensis*].
324. LINTNER, J. A. Leaf-mining Anthomyiidae. <Can. Ent., May,
 1882, v. 14, pp. 96-97. <Ann. Rept. Ent. Soc. Ontario for 1882,
 1883, p. 31.
 Food habits.
325. LINTNER, J. A. The Grain Aphis—*Siphonophora avenæ* Fabr.
 <Country Gentleman, 22 June, 1882, v. 47, p. 493.
 Natural history and ravages of *Siphonophora avenæ* [= *Nectarophora granaria*].
326. LINTNER, J. A. The apple-tree case-bearer. <Country Gentle-
 man, 6 July, 1882, v. 47, p. 533.
 Natural history of *Colcophora malivorella*; remedies.
327. LINTNER, J. A. The spring cankerworm—*Anisopteryx vernata*
 Peck. <Country Gentleman, 6 July, 1882, v. 47, p. 533.
 Abundance of and preventives against *A.* [= *Palaearita*] *vernata*.
328. LINTNER, J. A. The rose bug. <Country Gentleman, 6 July,
 1882, v. 47, p. 534.
 Ravages and means against *Macroductylus subspinosus*.
329. LINTNER, J. A. The seventeen-year locust. <Ontario County
 Times, 12 July, 1882, v. 28, p. 3.
 Years of appearance during the present half century; broods in New York;
 injuries and preventives.
330. LINTNER, J. A. A new household pest—*Attagenus megaloma*.
 <Country Gentleman, 20 July, 1882, v. 47, p. 567.
 Describes the larvæ and adult of *Attagenus megaloma* [= *piceus*]; habits, rav-
 ages, and remedies.
331. LINTNER, J. A. The Hessian fly in Ohio. <Country Gentleman,
 20 July, 1882, v. 47, p. 567.
 Habits, number of broods, and parasites of *Cecidomyia destructor*.
332. LINTNER, J. A. A bark beetle. <Country Gentleman, 3 August,
 1882, v. 47, p. 605.
Hymenorus obscurus found under bark of apple trees in Virginia; probable
 food habits.
333. LINTNER, J. A. The stalk-borer. <Country Gentleman, 3 August,
 1882, v. 47, p. 605.
 Ravages and means against *Gortyna nitida*.
334. LINTNER, J. A. Wire worms infesting potato vines. <Country
 Gentleman, 10 August, 1882, v. 47, p. 625.
 Habits of Elateridæ.

335. LINTNER, J. A. The horn-tail borer—*Tremex columba* (Linn). <Country Gentleman, 10 August, 1882, v. 47, p. 625.
Life history; food habits; parasites.
336. LINTNER, J. A. The spotted horn-bug. <Country Gentleman, 17 August, 1882, v. 47, p. 645.
Characters of *Dynastes tityus*; food habits of larva and adult; odor of the beetle.
337. LINTNER, J. A. Mites in a poultry house. <Country Gentleman, 17 August, 1882, v. 47, p. 645.
Means against Acarina.
338. LINTNER, J. A. A new worm in apples. <Country Gentleman, 21 September, 1882, v. 47, p. 745.
Ravages of an undetermined dipteron in apples; characters of the larva and adult of *Sciara mali*; its ravages.
339. LINTNER, J. A. The black blister beetle—*Epicauta pennsylvanica* (DeGeer). <Country Gentleman, 21 September, 1882, v. 47, p. 745.
Habits; food plants; remedies.
340. LINTNER, J. A. The hag-moth caterpillar. <Country Gentleman, 21 September, 1882, v. 47, p. 745.
Characters of the larva and cocoon of *Phobetron pithecium*; food habits.
341. LINTNER, J. A. A remarkable invasion of northern New York by a pyralid insect—*Crambus vulgiragellus*. <Proc. Amer. Assoc. Adv. Sci., (September), 1882, v. 30, pp. 267-268. See: <Science, 1 October, 1881, v. 2, p. 467. <Amer. Nat., December, 1881, v. 15, pp. 1008-1009.
Abundance and injuries.
342. LINTNER, J. A. A new apple insect—*Amphidasys cognataria* Guén. <Country Gentleman, 5 October, 1882, v. 47, p. 785.
Characters of larva; food plants; remedies.
343. LINTNER, J. A. Destructive elm-leaf beetle—*Galerucella xanthomelana* Schrank. <Country Gentleman, 12 October, 1882, v. 47, p. 805.
Ravages and means against *Galerucella xanthomelana* [= *luteola*].
344. LINTNER, J. A. A rose-leaf insect. <Cultivator and Country Gentl., 1 March, 1883, v. 48, p. 169.
Characters, habits, and means against the larva of *Penthina nimbata*.
345. LINTNER, J. A. Of interest to flower growers—A new enemy found. <Troy Daily Times, 2 April, 1883.
Characters of larva and cocoon of a species allied to *Plasia dyans*; food plants.
346. LINTNER, J. A. The bean weevil. <Country Gentleman, 19 April, 1883, v. 48, p. 317.
Means against *Bruchus fabae* [= *obtectus*].
347. LINTNER, J. A. Thousand-legged worms in a nursery—*Julus caruleocinctus*, Wood. <Country Gentleman, 24 May, 1883, v. 48, p. 421.
Characters, food habits; means against.

348. LINTNER, J. A. Curious Ichneumon cocoons. <Country Gentleman, 14 June, 1883, v. 48, p. 481.
Description of the cocoons of *Apanteles congregatus*; habits of *Microgaster*.
349. LINTNER, J. A. Codling moth of the apple. <Country Gentleman, 28 June, 1883, v. 48, p. 521.
Ravages of *Carpocapsa pomonella*; means against.
350. LINTNER, J. A. An interesting bug. <Country Gentleman, 28 June, 1883, v. 48, p. 521.
Characters of the eggs and larvæ of an undetermined reduviid; habits.
351. LINTNER, J. A. On an egg-parasite of the currant sawfly, *Nematus ventricosus*. <Psyche, May-June, 1883, v. 4, pp. 48-51.
Notes on the oviposition of *N. ventricosus* [= *ribesii*], and of *Trichogramma pretiosa*.
352. LINTNER, J. A. The maple tree scale insect—*Lecanium innumerabilis* Rathvon. <Country Gentleman, 5 July, 1883, v. 48, p. 541.
History and literature of *Lecanium* [= *Pulvinaria*] *innumerabilis*; food habits; remedies.
353. LINTNER, J. A. The black long-sting. *Rhyssa atrata* (Fabr.). <Country Gentleman, 12 July, 1883, v. 48, p. 561.
Characters and habits of *Rhyssa* [= *Thalassa*] *atrata*; use of the ovipositor.
354. LINTNER, J. A. Hair-worm—*Vanessa*, *Alaus*, *Gordius*, and *Mermis*. <Country Gentleman, 19 July, 1883, v. 48, p. 581.
Characters and modes of occurrence of *Gordius* and *Mermis*; life history of *Gordius*; characters of *Vanessa antiopa*; its injuries to elms; characters and habits of *Alaus oculatus*.
355. LINTNER, J. A. An oak moth—*Anisota senatoria* (Sm.-Abb.). <Country Gentleman, 26 July, 1883, v. 48, p. 601.
Characters and metamorphoses of *Anisota* [= *Dryocampa*] *senatoria*.
356. LINTNER, J. A. A grape pest. *Procris americana*. <Country Gentleman, 2 August, 1883, v. 48, p. 621.
Characters, metamorphoses, and means against *Procris* [= *Harrisiana*] *americana*.
357. LINTNER, J. A. Potter-wasp on grape leaves—*Ennenes fraternus* Say. <Country Gentleman, 9 August, 1883, v. 48, p. 641.
Structure of the cells; larval food habits.
358. LINTNER, J. A. The frenching of corn. <Country Gentleman, 16 August, 1883, v. 48, p. 661.
Characters, habits, distribution, and life history of *Sphenophorus sculptilis*; remedies.
359. LINTNER, J. A. The striped squash beetle. <Country Gentleman, 23 August, 1883, v. 48, p. 681.
Characters and habits of the larvæ of *Diabrotica vittata*; remedies.
360. LINTNER, J. A. The carpet bug—*Anthrenus scrophularia*. <Country Gentleman, 23 August, 1883, v. 48, p. 681.
Ravages and means against.

361. LINTNER, J. A. Platygaster larva destroying galls of *Cecidomyia salicis-batatas*. <Psyche, July–August, 1883, v. 4, p. 79.
Notice of Kellicott's observations.
362. LINTNER, J. A. Collecting cutworms at evening with a light. <Psyche, July–August, 1883, v. 4, p. 86.
Notice of collections made by Mrs. Treat.
363. LINTNER, J. A. The pine emperor moth. <Country Gentleman, 27 September, 1883, v. 48, p. 781.
Characters of *Eacles imperialis*; its food plants, habits, and transformations.
364. LINTNER, J. A. Sawfly larvæ on quince. <Country Gentleman, 4 October, 1883, v. 48, p. 801.
Characters and ravages of the larva of (?) *Eriocampa cerasi*; *Fanessa antiopa* feeding on elm.
365. LINTNER, J. A. Bark louse on willow. <Country Gentleman, 4 October, 1883, v. 48, p. 802. <Albany Argus, 10 October, 1883, p. 4.
Food habits and means against *Mytilaspis pomorum*.
366. LINTNER, J. A. The chinch bug in northern New York. <Albany Argus, 10 October, 1883, p. 3. <Watertown Daily Times, 12 October, 1883. <Country Gentleman, 18 October, 1883, v. 48, p. 841.
Characters and ravages of *Blissus leucopterus*; remedial measures.
367. LINTNER, J. A. The chinch bug in New York. <Science, 19 October, 1883, v. 2, p. 540.
Ravages of and means against *Blissus leucopterus*.
368. LINTNER, J. A. Directions for arresting the chinch-bug invasion of northern New York. <Circular No. 1, N. Y. State Mus. Nat. Hist., Dept. Ent., October, 1883, 3 pp., fig.
369. LINTNER, J. A. The mole-cricket. <Country Gentleman, 25 October, 1883, v. 48, p. 861.
Characters, habits, ravages, and means against *Gryllotalpa borealis*.
370. LINTNER, J. A. First Annual report on the injurious and other insects of the State of New York. <Albany 1882 [October, 1883], 22 + 384 pp., 84 figs.

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371. LINTNER, J. A. New corn pest—*Megilla maculata*. <Country Gentleman, 22 November, 1883, v. 48, p. 941.
Characters and ravages.
372. LINTNER, J. A. The apple-maggot—*Trypeta pomonella*. <Bull. No. 75, N. Y. Agric. Exp. Station, 29 December, 1883.
Characters, habits, life history, and ravages of *Trypeta pomonella*; remedies; note on *Sciara mali*.
373. LINTNER, J. A. Cresson's Urocera—*Urocera cressoni* Norton <Country Gentleman, 3 January, 1884, v. 49, p. 9.
Characters and habits.
374. LINTNER, J. A. Fuller's rose beetle—*Aramigus fulleri* Horn. <Country Gentleman, 17 January, 1884, v. 49, p. 49.
Life history, ravages, and means against.
375. LINTNER, J. A. The lunated long-sting—*Thalassa lunator* (Fabr.). <Country Gentleman, 17 April, 1884, v. 49, p. 331.
Habits and method of oviposition.
376. LINTNER, J. A. An insect attack on an Iulus. <Can. Ent. April, 1884, v. 16, p. 80.
Notes on a drosophilid annoying *Iulus* sp.
377. LINTNER, J. A. Insect injury to grapevines. <Country Gentleman, 8 May, 1884, v. 49, p. 397.
Method of oviposition of *Ceanothus latipennis*.
378. LINTNER, J. A. Squash borers. <Country Gentleman, 8 May, 1884, v. 49, p. 397.
Injuries of *Melittia cucurbita* [= *ceto*].
379. LINTNER, J. A. The punctured clover-leaf weevil. <Country Gentleman, 29 May, 1884, v. 49, p. 457. <Ontario County Times, 1884, 29 May, 4 June.
Life history, ravages, and means against *Phytonomus punctatus*.

380. LINTNER, J. A. A corn entworm. <Bull. No. 86, N. Y. Agric. Exper. Station, 31 May, 1884.
Habits of entworms: means against them.
381. LINTNER, J. A. The white grub of the May beetle—*Lachnosterna fusca*. <43d Ann. Rept. N. Y. State Agric. Soc. for 1883, 1884, pp. 20-87, 5 figs.
Characters, life history, ravages, enemies, preventives, and remedies.
382. LINTNER, J. A. The squash-vine borer, I-III—*Melittia cucurbitæ* <Country Gentleman, 5, 12, 19 June, 1884, v. 49, pp. 477, 497, 517.
Characters, life history, and injuries of *Melittia cucurbitæ* [= *ceto*]; remedies and preventives.
383. LINTNER, J. A. The bacon beetle—*Dermestes lardarius* Linn. <Country Gentleman, 26 June, 1884, v. 49, p. 537.
Characters, food habits, and protective methods.
384. LINTNER, J. A. The maple-tree scale-insect. <Country Gentleman, 3 July, 1884, v. 49, pp. 556-557.
Characters of *Lecanium* [= *Pulvinaria*] *innumerabilis*; means against it.
385. LINTNER, J. A. The spring cankerworm—*Anisopteryx varuata* (Peck). <Country Gentleman, 10 July, 1884, v. 49, p. 557.
Means against *Anisopteryx* [= *Palaecrita*] *varuata*.
386. LINTNER, J. A. The buffalo gnat. <Country Gentleman, 10 July, 1884, v. 49, p. 557.
Habits and transformations of the Simuliidæ.
387. LINTNER, J. A. The carpet bug. <Amsterdam (N. Y.) Daily Democrat, 21 July, 1884, p. 3.
Habits of *Anthrenus scrophulariæ*: means of protection and of destruction.
388. LINTNER, J. A. The elm-tree beetle. <N. Y. Weekly Tribune, 23 July, 1884, p. 10.
Means against *Galerucella xanthomelana* [= *luteola*].
389. LINTNER, J. A. The carpet beetle—*Anthrenus scrophulariæ* Linn. <Country Gentleman, 14 August, 1884, v. 49, pp. 676-677.
Habits, habitat, transformations, injuries, preventives, and remedies.
390. LINTNER, J. A. Insects mining beet leaves. <Country Gentleman, 14 August, 1884, v. 49, p. 677.
Characters and mining habits of Anthomyiidæ.
391. LINTNER, J. A. Peach root Aphid. Gardener's Monthly and Horticulturist, September, 1884, v. 26, pp. 271-272.
Ravages and means against *Myzus persicae*.
392. LINTNER, J. A. A new rose pest—*Homoptera lunata* (Drury). <Country Gentleman, 4 September, 1884, v. 49, p. 737.
Habits, food plant, life history, and preventives of *Homoptera lunata*.
393. LINTNER, J. A. The white grub—*Lachnosterna fusca* (Fröhl). <Country Gentleman, 11 September, 1884, v. 49, p. 757.
Remedies.

394. LINTNER, J. A. An insect attack new to the State—*Isosoma tritici*, on wheat, in Geneva. <Bull. No. 100, N. Y. Agric. Exper. Station, 4 October, 1884.
Characters, life history, and parasites; remedies and preventives.
395. LINTNER, J. A. A stinging bug—*Melanolestes picipes* H.-S. <Country Gentleman, 23 October, 1884, v. 49, p. 877.
Habits; mention of additional species of Reduviidæ having similar stinging habits.
396. LINTNER, J. A. Attack upon the apple-worm—A friend, not a foe. <Country Gentleman, 30 October, 1884, v. 49, p. 897.
Characters and food habits of *Chauliognathus marginatus*; notes on the quince curculio *Conotrachelus cratagi*.
397. LINTNER, J. A. Clover insects. <Trans. N. Y. State Agric. Soc. for 1877-1882, October, 1884, v. 33, pp. 206-207.
A list of twenty-four species, making a total of seventy.
398. LINTNER, J. A. The white grub. <New England Homestead, 8 November, 1884, v. 18, p. 393.
Characters, distribution, food plants, injuries, life history, enemies, preventive, and remedies of *Lachnosterna fusca*.
399. LINTNER, J. A. Report of the State Entomologist. <37th Ann. Rept. State Mus. Nat. Hist. (November), 1884, pp. 45-60.
Contains notes on the collections made during the year and upon other work of the entomologist; remarks on insects of special interest; ravages of *Orygia leucostigma*; the English sparrow as a promoter of insect injury; occurrence of *Blissus leucopterus* in northern New York; means against the same.
400. LINTNER, J. A. The apple-leaf Bucculatrix. <Husbandman (Elmira, N. Y.), 3 December, 1884, v. 11, No. 537, p. 1.
Life history of *Bucculatrix pomifoliella*; remedies.
401. LINTNER, J. A. Scale insect attack upon ivy. <Country Gentleman, 26 February, 1885, v. 50, p. 169.
Food plants of and means against *Aspidiotus nerii*.
402. LINTNER, J. A. The owl beetle. *Alaus oculatus*. <Country Gentleman, 9 April, 1885, v. 50, p. 307.
Characters and habits of *Alaus oculatus* [† = *myops*].
403. LINTNER, J. A. Remedies for the white grub. <New England Homestead, 16 May, 1885, v. 19, p. 205.
Means against larvæ and adults.
404. LINTNER, J. A. Cutworms. <44th Ann. Rept. N. Y. State Agric. Soc. for 1884, May, 1885, pp. 56-80, figs. 1-20. Separate: June, 1885, 25 pp., 20 figs.
Characters, times of appearance, habits, natural history, food plants, enemies, parasites, preventives, and remedies.
405. LINTNER, J. A. A potato-bug parasite. <New England Homestead, 6 June, 1885, v. 19, p. 237.
Characters and habits of *Tropoda americana*.

406. LINTNER, J. A. The visitation of locusts. <Argus [Albany], 7 June, 1885, p. 4.
Notice of the appearances and injuries of cicadas.
407. LINTNER, J. A. The pear-blight beetle. <Country Gentleman, 18 June, 1885, v. 50, p. 517.
Characters and injuries of *Xyleborus pyri* [= *dispar*]; remedy.
408. LINTNER, J. A. The cankerworm. <Country Gentleman, 18 June, 1885, v. 50, p. 519.
Preventives and remedies for *Anisopteryx* [= *Palaecrita*] *vernata*.
409. LINTNER, J. A. Insect eggs on strawberries. <Country Gentleman, 25 June, 1885, v. 50, p. 537.
Characters of an undetermined hemipteron; food habit of *Corimelana pulicaria*.
410. LINTNER, J. A. Plant lice, elm beetles, etc. <New England Homestead, 4 July, 1885, v. 19, p. 269.
Ravages of *Schizoneura americana* and *Galerucella xanthomelana* [= *luteola*].
411. LINTNER, J. A. The apple-tree bark louse. <New England Homestead, 4 July, 1885, v. 19, p. 269.
Means against *Mytilaspis pomorum*.
412. LINTNER, J. A. The cutworm and onion maggot. <Country Gentleman, 9 July, 1885, v. 50, pp. 574-575.
Means against cutworms; remedies and preventives against *Anthomyia brassicae* and *Phorbia ceparum*.
413. LINTNER, J. A. Peach and cherry borer. <Country Gentleman, 9 July, 1885, v. 50, p. 575.
Food habits of *Phaenocarpa liminaris* and of *Scolytus rugulosus*.
414. LINTNER, J. A. The fig-eater—*Allorhina nitida*. <Country Gentleman, 9 July, 1885, v. 50, p. 575.
Characters, food habits, and injuries of *Allorhina nitida*.
415. LINTNER, J. A. The round-headed apple-tree borer—*Saperda candida* (Fabr.). <Country Gentleman, 16 July, 1885, v. 50, p. 590.
Ravages, remedies, and preventives.
416. LINTNER, J. A. Entomological. <Country Gentleman, 16 July, 1885, v. 50, p. 592.
Means against *Doryphora 10-lineata* and *Macroductylus subspinosus*.
417. LINTNER, J. A. The cucumber-moth. <Country Gentleman, 23 July, 1885, v. 50, p. 607.
Characters and habits of *Phakellura* [= *Eudiotis*] *nitidalis*; remedies.
418. LINTNER, J. A. Apple insects and the rhinoceros beetle. <Country Gentleman, 30 July, 1885, v. 50, p. 623.
Note on *Orgyia leucostigma* and *Acronycta* sp.; habits of *Dynastes tityus*.
419. LINTNER, J. A. Another potato pest. <New England Homestead, 8 August, 1885, v. 19, p. 309.
Ravages of and means against *Macrobasis unicolor*.

420. LINTNER, J. A. The false chinch bug. <Country Gentleman, 13 August, 1885, v. 50, p. 661.
Characters, ravages, and food habits of *Nysius augustatus*; means against.
421. LINTNER, J. A. The bagworm—*Thyridopteryx ephemeraformis*. <Country Gentleman, 1 October, 1885, v. 50, p. 801.
Habits and means against.
422. LINTNER, J. A. The red spider—*Tetranychus telarius* (Linn.). <Country Gentleman, 8 October, 1885, v. 50, p. 821.
Habits, injuries, and means against.
423. LINTNER, J. A. The thirteen-year Cicada. <Argus [Albany], 11 October, 1885, p. 4.
Notice of the life history of *Cicada* [= *Tibicen*] *septendecim*.
424. LINTNER, J. A. The elm leaf-beetle. <Country Gentleman, 15 October, 1885, v. 50, p. 841.
Ravages of and means against *Galerucella xanthomelona* [= *luteola*].
425. LINTNER, J. A. Report of the State Entomologist. <38th Annual Rept. State Mus. Nat. Hist., 1885, pp. 67-76.
Contains report on the work of the Entomologist for the year; his special studies and publications; collections made; contributions; notes on *Orygia leucostigma* and *Blissus leucopterus*.
426. LINTNER, J. A. Second report on the injurious and other insects of the State of New York. <Albany, 1885 [February, 1886], 14+265 pp., 66 figs.

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Ravages and means against *Anisopteryx* [= *Palaecrita*] *vernata*.

428. LINTNER, J. A. The clubbed tortoise beetle. <Country Gentleman, 15 October, 1885, v. 50, p. 841.

Habits and food plants of *Coptocycla clarata*.

429. LINTNER, J. A. A leaf-mining insect. <Home Farm, 15 October, 1885, p. 1.

Means against *Chortophila betarum*.

430. LINTNER, J. A. The death-watch, *Clothilla pulsatoria*. <Country Gentleman, 22 October, 1885, v. 50, p. 861.

Habits and habitat.

431. LINTNER, J. A. A new insect foe to the cutworm. <New England Homestead, 31 October, 1885, v. 19, p. 405.

Note concerning the parasitic habits of Tachinidæ.

432. LINTNER, J. A. Sawfly on fruit trees. <Country Gentleman, 12 November, 1885, v. 50, p. 921.

Means against *Eriocampa alumbrata*.

433. LINTNER, J. A. Birch-seed insect. <Country Gentleman, 15 April, 1886, v. 51, p. 287.

Characters and habitat of *Cecidomyia betula*.

434. LINTNER, J. A. *Aphis mali*—The apple plant louse in Ontario orchards. <Ontario County Times, 12 May, 1886, p. 3. <Watkins [N. Y.] Express, 20 May, 1886. <Palmyra [N. Y.] Courier, 28 May, 1886. <Sentinel [Trumansburg], 19 May, 1886.
Life history and ravages of *Aphis mali*; remedies.
435. LINTNER, J. A. The apple-tree *Aphis* infesting our orchards. <New England Homestead, 15 May, 1886, v. 20, p. 189.
Characters, abundance, and prolificacy of Aphididae; habits and development of *Aphis mali*; remedies; enemies.
436. LINTNER, J. A. The cankerworm and codling moth described. <New England Homestead, 15 May, 1886, v. 20, p. 192.
Description of *Anisopteryx* [= *Paleacrita*] *vernata*: means against its ravages; characters of and remedies for *Carpocapsa pomonella*.
437. LINTNER, J. A. Insects and other pests. <New England Homestead, 22 May, 1886, v. 20, p. 189.
Means against *Nematus ventricosus* [= *ribesii*]; note on *Bembecia marginata*.
438. LINTNER, J. A. The elm-leaf beetle. <Country Gentleman, 27 May, 1886, v. 51, p. 409.
Hibernation of *Galericella xanthomelana* [= *luteola*]; reference to the principal publications upon this insect.
439. LINTNER, J. A. A plea for entomological study. <Glens Falls Republican, 1 June, 1886.
Address on the importance of economic entomology.
440. LINTNER, J. A. The apple-tree *Aphis*. <Country Gentleman, 3 June, 1886, v. 51, p. 429.
Abundance of aphids noticed; means against Aphididae.
441. LINTNER, J. A. The asparagus beetle. <Country Gentleman, 3 June, 1886, v. 51, p. 429.
Means against *Crioceris asparagi*; enemies.
442. LINTNER, J. A. A new strawberry insect. <New England Homestead, 5 June, 1886, v. 20, p. 216.
Supposed herbivorous habits of *Bombidium quadrimaculatum*.
443. LINTNER, J. A. The grapevine scale insect. <New England Homestead, 12 June, 1886, v. 20, p. 221.
Means against *Pulvinaria vitis*.
444. LINTNER, J. A. Apple-tree bark-louse. <Country Gentleman, 17 June, 1886, v. 51, p. 469.
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445. LINTNER, J. A. The forest tent caterpillar. <New England Homestead, 19 June, 1886, v. 20, p. 229.
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446. LINTNER, J. A. The squash bug. <New England Homestead, 19 June, 1886, v. 20, p. 229.
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447. LINTNER, J. A. A new attack on wheat. <Country Gentleman, 24 June, 1886, v. 51, p. 487.
Ravages and habits of an undetermined sawfly larva.

448. LINTNER, J. A. An unknown grass insect. <Country Gentleman, 1 July, 1886, v. 51, p. 503.
Injuries of an undetermined insect, probably an oscinid, to stalks of June grass.
449. LINTNER, J. A. [*Gortyna nitela*.] <Orange County Farmer, 1 July, 1886, p. 4.
Ravages, food plants, habits, and characters of *Gortyna nitela*; remedies.
450. LINTNER, J. A. Hop vine insects—Origin of honey dew. <Water-ville [N. Y.] Times, 16 July, 1886, p. 2.
Habits and ravages of *Phorodon humuli*; remedies; the "black fly" possibly a larval coccinellid; honey dew supposed to be a secretion by the aphides and by the leaves.
451. LINTNER, J. A. Honey dew of the hop vine. <Country Gentleman, 22 July, 1886, v. 51, p. 553.
Nature of honey dew; abundance and usefulness of the larva of *Adalia bipunctata*.
452. LINTNER, J. A. A new attack on the potato. <New England Homestead, 24 July, 1886, v. 20, p. 273.
Ravages of an undetermined aphid; remedies and preventives.
453. LINTNER, J. A. Potato-stalk weevil—*Trichobaris trinotata* (Say). <American Rural Home, 24 July, 1886, v. 16, p. 8.
Characters and preventives.
454. LINTNER, J. A. A plant-louse on the potato. <Country Gentleman, 29 July, 1886, v. 51, p. 569.
Ravages of an undetermined aphid; remedies; preventives.
455. LINTNER, J. A. The stalk borer. <New England Homestead, 31 July, 1886, v. 20, p. 277.
Characters and transformations of *Gortyna nitela*; habits, ravages, remedy, and preventive.
456. LINTNER, J. A. A maple-tree pruner—*Elaphidion* sp. <Country Gentleman, 9 September, 1886, v. 51, p. 677.
Injuries of *Elaphidion* sp. [= *villosum*]; characters, habits, remedy.
457. LINTNER, J. A. [Aphids.] <Albany Evening Journal, 9 September, 1886, p. 4.
Occurrence of myriads of *Aphis* [= *Nectarophora*] *granaria*; notes the unusual prevalence and destructiveness of aphids in New York this year.
458. LINTNER, J. A. Apple tree pest and parasite. <Country Gentleman, 16 September, 1886, v. 51, p. 695.
Note concerning *Eidemasia concinna* and *Limneria fugitiva*.
459. LINTNER, J. A. Carrot and parsnip aphides. <Country Gentleman, 16 September, 1886, v. 51, p. 695.
General note on the unusual prevalence of aphids in 1886 and on their attack of crops which had before escaped; occurrence of *Myzus cerasi*.
460. LINTNER, J. A. A ham-infesting mite. <Country Gentleman, 16 September, 1886, v. 51, p. 695.
Occurrence of *Tyroglyphus siro* on smoked ham; remedy.

461. LINTNER, J. A. The cockscomb elm gall. <Country Gentleman, 23 September, 1886, v. 51, p. 713.
Life history of *Glyphina* [= *Colopha*] *ulmicola*; soap suds and quassia or tobacco water effective after the aphid has left the gall.
462. LINTNER, J. A. A new and destructive borer to be conquered. <New England Homestead, 25 September, 1886, v. 20, p. 341.
<Country Gentleman, 11 November, 1886, v. 51, p. 853.
Habits and history in North America of *Scolytus rugulosus*; preventive against attacks.
463. LINTNER, J. A. Honey dew on maple leaves. <New England Homestead, 25 September, 1886, v. 20, p. 344.
Honey dew not usually desirable for honey purposes; this on maple doubtless wholesome.
464. LINTNER, J. A. The muskmelon worm. <Country Gentleman, 30 September, 1886, v. 51, p. 733.
Characters, habits, and transformations of *Phakellura* [= *Endiopsis*] *nitidalis*; its food plants; ravages; enemy.
465. LINTNER, J. A. A queer bug and other insects. <Country Gentleman, 7 October, 1886, v. 51, p. 753.
Occurrence of *Leptoglossus oppositus* upon grape and corn; *Metapodius femoratus* injurious to cherries; characters and distribution of *Euschistus* sp., *Arctia phyllira*, and *Lyggranthecia marginata*.
466. LINTNER, J. A. A severe attack on the potato. <Country Gentleman, 14 October, 1886, v. 51, p. 773.
Julus curuleocinctus, *Polydesmus complanatus*?, *Gamasus* sp., and staphylinid larvæ destroying potato crop; remedies.
467. LINTNER, J. A. The beech-tree blight. <[Elmira, N. Y.] Husbandman, 27 October, 1886, v. 13, p. 1.
Notes on *Pemphigus imbricator*; injuries of aphidids; remedies against woolly species.
468. LINTNER, J. A. The grain Aphis in Maryland. <Country Gentleman, 25 November, 1886, v. 51, p. 803.
Abundance and destructiveness of *Siphonophora avenæ* [= *Nectarophora granaria*]; food plants; preventives.
469. LINTNER, J. A. A sweet potato pest. <Albany Express, 8 December, 1886.
Notes on the natural history and ravages of *Cylas formicarius*.
470. LINTNER, J. A. Some injurious insects of Massachusetts. <33d Ann. Rept. Mass. Board of Agric., 1885, 1886, pp. 165-196.
Separate: <Boston, 1886, 34 pp.
The work of the State of Massachusetts for economic entomology; characters of cutworms, their habits, food plants, natural enemies, parasites, preventives, and remedies; injuries and natural history of *Sphinx quinque-maculata* [= *Protoparce cecus*], remedies; life history of *Trypeta pomonella*, its distribution, food preference, remedial measures, desiderata in its life history; description of *Crioceris asparagi*, related species, its introduction, distribution, natural history, and remedies; habits, injuries, and remedies of *Erythroneura* [= *Typhlocyba*] *ritis*; characters and habits of *Thrips* sp., preventives; means against *Tettigonia* [= *Typhlocyba*] *rosa*.

BIBLIOGRAPHY OF ECONOMIC ENTOMOLOGY.

471. LINTNER, J. A. The praying Mantis and its eggs. <Culti
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Description of the eggs of *Mantis* [= *Phasmomantis*] *carolina*; their mode of
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472. LINTNER, J. A. A bug injurious to shade trees. < Cultivator and
Country Gentl., 27 January, 1887, v. 52, p. 69.
Characters and habits of *Leptocoris trivittatus*.
473. LINTNER, J. A. Fuller's rose beetle—*Aramigus fulleri* Horn.
<Cultivator and Country Gentl., 3 February, 1887, v. 52, p. 89.
Injuries and preventives.
474. LINTNER, J. A. Harmlessness of the ladybird, *Adalia bipunctata*.
<Owl [Glens Falls], February, 1887, v. 2, p. 15.
Its abundance and usefulness as a destroyer of Aphididæ; hibernation.
475. LINTNER, J. A. The Aphididæ or plant lice. <Proc. West. N. Y.
Hortic. Soc. [March], 1887, pp. 85-97.
Treats of the systematic position, characters, distribution, injuries, and prop-
agation of the Aphididæ; our present knowledge; recent discoveries.
476. LINTNER, J. A. A wood-eating insect. <Cultivator and Country
Gentl., 31 March, 1887, v. 52, p. 257.
Food habits of the larva of *Xylotrechus colonus*.
477. LINTNER, J. A. How to prevent the cabbage maggot. <New
England Homestead, 9 April, 1887, v. 21, p. 136.
Preventives and remedies against *Anthomyia brassicæ*.
478. LINTNER, J. A. The apple-tree bark louse. <Cultivator and
Country Gentl., 21 April, 1887, v. 52, p. 321.
Characters of *Mytilaspis pomicorticis* [= *pomorum*]; life history; injuries and
remedies.
479. LINTNER, J. A. Borers in timber. <Cultivator and Country
Gentl., 28 April, 1887, v. 52, p. 341.
Mentions methods used to protect timber from boring insects.
480. LINTNER, J. A. Currant-worm remedy. <Popular Gardening,
April, 1887, v. 2, pp. 120-121.
Means against *Nematus ventricosus* [= *ribesii*].
481. LINTNER, J. A. Life history of *Hemiteuca vaia* Drury. <The
Swiss Cross, April, 1887, v. 1, pp. 135-139, figs. 1-3.
482. LINTNER, J. A. [Hop-vine insect.] <Waterville Times, 6 May,
1887, p. 2.
Characters of an undetermined root aphidid.
483. LINTNER, J. A. Ladybirds, leaf and carpet beetles. <Cultiva-
tor and Country Gentl., 12 May, 1887, v. 52, p. 381.
Characters and habits of Coccinellidæ; note on Chrysomelidæ liable to be
confounded with them; characters of *Anthrenus scrophularia*.
484. LINTNER, J. A. The little winged pest. <Albany Argus, 16 May,
1887, p. 2.
Life history of the Culicidæ; their habits, distribution, and means against
them.

485. LINTNER, J. A. Another apple-tree pest. <Cultivator and Country Gentl., 19 May, 1887, v. 52, p. 398.
Injuries of *Crepidodera rufipes*.
486. LINTNER, J. A. A new (?) Aphis on hop roots. <Cultivator and Country Gentl., 19 May, 1887, v. 52, p. 401.
Characters of an undetermined aphidid.
487. LINTNER, J. A. The currant-worm parasite. <Albany Express, 23 May, 1887, v. 41, p. 2.
Note on *Trichogramma pretiosa*.
488. LINTNER, J. A. The leather beetle. <Boots and Shoes Weekly, 25 May, 1887, v. 11, p. 473.
Ravages of *Dermestes vulpinus*: remedies.
489. LINTNER, J. A. A saw fly on apple-trees. <Cultivator and Country Gentl., 26 May, 1887, v. 52, p. 421.
Injuries to apple trees by *Dolerus sericeus*, and to fruit buds of pear trees by *D. arvensis* are not probable; food plants of *D. arvensis*.
490. LINTNER, J. A. Elm-leaf beetle going northward. <Cultivator and Country Gentl., 26 May, 1887, v. 52, p. 421.
Galerucella xanthomelana [= *luteola*] received from Poughkeepsie; its progress; efforts to arrest its spread.
491. LINTNER, J. A. The seventeen-year locust—*Cicada septendecim*. <The Owl, May, 1887, v. 2, pp. 17-19, figs. 1-5.
Life history of *Cicada* [= *Tibicen*] *septendecim*.
492. LINTNER, J. A. A new cotton pest. <Cultivator and Country Gentl., 2 June, 1887, v. 52, p. 441.
Ravages of *Systema blanda*: food habits: preventives.
493. LINTNER, J. A. Thrips in strawberry blossoms. <Cultivator and Country Gentl., 9 June, 1887, v. 52, p. 459.
Habits and injuries of [*Thrips tritici*].
494. LINTNER, J. A. The leather beetle again. <Boots and Shoes Weekly, 15 June, 1887, v. 11, p. 608.
Ravages of *Sitodrepa panicea*: remedies.
495. LINTNER, J. A. The apple pest. <Oswego Daily Times, 18 June, 1887, p. 4.
Ravages of *Macrodactylus subspinosus*: characters, remedies.
496. LINTNER, J. A. Cockscorn elm-gall. <Cultivator and Country Gentl., 23 June, 1887, v. 53, p. 491.
Description of the gall of *Glyphina* [= *Colopha*] *ulmicola*; remedies.
497. LINTNER, J. A. The ox warble fly. <Cultivator and Country Gentl., 23 June, 1887, v. 52, p. 493.
Description of *Hypoderma lineata*: habits and life history; remedies; preventives.
498. LINTNER, J. A. Grapevine leaf-hopper. <Cultivator and Country Gentl., 23 June, 1887, v. 52, p. 493.
Characters of *Erythroneura* [= *Typhlocyba*] *vitis*; its ravages and means against them.

499. LINTNER, J. A. The rose-bug. <Cultivator and Country Gentl., 30 June, 1887, v. 52, p. 511.
Ravages and food habits of *Macroductylus subspinosus*: remedies and preventives.
500. LINTNER, J. A. The hop-louse. <Cultivator and Country Gentl., 30 June, 1887, v. 52, p. 511.
Remedies for *Phorodon humuli*.
501. LINTNER, J. A. Report of the State Entomologist to the regents of the University of the State of New York for the year 1885. <39th Ann. Rept. State Mus. Nat. Hist. for 1885 [6 July], 1887, pp. 77-125.

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Occurrence of larvæ and adults of *Tenebrio molitor* in a sack of salt.
503. LINTNER, J. A. Four-lined leaf-bug on the currant. <Cultivator
and Country Gentl., 14 July, 1887, v. 52, p. 547.
Description of *Parcilocapsus lineatus*; injuries and remedies.
504. LINTNER, J. A. The elm-leaf beetle. <Cultivator and Country
Gentl., 21 July, 1887, v. 52, p. 565.
Ravages of *Galerucella xanthomelana* [= *luteola*]; remedies.
505. LINTNER, J. A. The Curculio on the apple. <Cultivator and
Country Gentl., 21 July, 1887, v. 52, p. 565.
Injuries to apples probably made by *Conotrachelus nenuphar*; description of
Anthonomus quadrigibbus; means against curculio attack.
506. LINTNER, J. A. An ichneumonized caterpillar. <Cultivator and
Country Gentl., 1 September, 1887, v. 52, p. 673.
History of *Apanteles congregatus*, a parasite of *Darapsa* [= *Ampelophaga*]
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507. LINTNER, J. A. Milkweed beetle with bad habits. <Cultivator
and Country Gentl., 1 September, 1887, v. 52, p. 673.
Food habits of *Chelymorpha argus*; characters; remedies.
508. LINTNER, J. A. Blister beetle attack. <Cultivator and Country
Gentl., 1 September, 1887, v. 52, p. 674.
Epicauta marginata [= *cinerea*] feeding on *Clematis flammula*: remedy.
509. LINTNER, J. A. Mites on arbor vitæ. <Cultivator and Country
Gentl., 1 September, 1887, v. 52, p. 674.
Means against an undetermined acarid abundant on twigs of Siberian arbor
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510. LINTNER, J. A. Harvest-fly. <Cultivator and Country Gentl.,
1 September, 1887, v. 52, p. 674.
Notice of *Cicada tibicen*; its distribution; annual appearance; sound and
how produced; its transformations.
511. LINTNER, J. A. Elm-leaf spraying. <Cultivator and Country
Gentl., 8 September, 1887, v. 52, p. 694.
Advice as to the pump and nozzle desirable for spraying *Galerucella xantho-
melana* [= *luteola*].
512. LINTNER, J. A. Some pests of the pomologist. <Rept. Amer.
Pomol. Soc., 1887. Separate: <March, 1888, 13 pp. <Boston
Herald, 16 September, 1887. <Albany Sunday Express, 2
October, 1887.
Aims and needs of pomology; plant diseases; insect ravages; spread of scale
insects; number of insect pests; an unknown currant insect; how to meet
insect ravages; insecticides; publications relating to fruit insects.

513. LINTNER, J. A. A queer foe to the caterpillar. <New England Homestead, 1 October, 1887, p. 354.
Notice of *Apanteles congregatus* parasitic on the larva of *Darapsa* [= *Impelophaga*] *myron*.
514. LINTNER, J. A. The two-marked tree-hopper. <Cultivator and Country Gentl., 13 October, 1887, v. 52, p. 783.
Description of *Enchenopa binotata*; remedies.
515. LINTNER, J. A. Mites on arbor vitæ. <Cultivator and Country Gentl., 20 October, 1887, v. 52, p. 800.
Tetranychus telarius (?) infesting arbor vitæ.
516. LINTNER, J. A. Asparagus and pear-blight beetles. <Cultivator and Country Gentl., 27 October, 1887, v. 52, p. 817.
Distribution of *Crioceris asparagi*; remedies; enemies. Ravages of *Xyleborus pyri* [= *dispar*]; remedies.
517. LINTNER, J. A. White-grub attack on wheat. <Cultivator and Country Gentl., 27 October, 1887, v. 52, p. 817.
Characters of the larva of *Lachnosterna* sp.; habits; remedies; enemies.
518. LINTNER, J. A. The bagworm. <Cultivator and Country Gentl., 3 November, 1887, v. 52, p. 837.
Habits, life history, and transformations of *Thyridopteryx ephemeraformis*; remedies.
519. LINTNER, J. A. Insects and yellows in the peach. <Cultivator and Country Gentl., 3 November, 1887, v. 52, p. 837.
Notice of habitat of *Phloeotribus liminaris*.
520. LINTNER, J. A. Grape insects in manure. <Amer. Garden, December, 1887, v. 8, p. 396.
Increase of grape insects not due to the use of city stable manure. Note on *Ligyris relictus*.
521. LINTNER, J. A. Report of the State Entomologist to the Regents of the University of the State of New York for the year 1886. <40th Rept. N. Y. State Mus. Nat. Hist., 1887 [20 January, 1888], pp. 79-154.

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523. LINTNER, J. A. Remedies for scale insects. <Cultivator and Country Gentl., 1 March, 1888, v. 53, p. 169.
Coccinellidæ as destroyers of Coccidæ; washes of lye, potash, lime, and gas tar apparently ineffectual against *Chionaspis furfurus*.
524. LINTNER, J. A. [Injurious fruit insects of the vicinity of New York.] <Proc. N. Y. Farmers, 1886-87, March, 1888, pp. 52-59.
Importance of economic entomology; notice of and means against *Trypeta pomonella*, *Carpocapsa pomonella*, *Aphis mali*, *Xyleborus pyri* [= *dispar*], *Scolytus rugulosus*, *X. obesus*, *Conotrachelus nenuphar*, *Sannina exitiosa*, *Alypia octomaculata*, *Nematus* [= *Pteronus*] *ribesii*, *Pieris rapæ*, and *Doryphora 10-lineata*.
525. LINTNER, J. A. Sulphur for the elm beetle. <Cultivator and Country Gentl., 15 March, 1888, v. 53, p. 209.
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526. LINTNER, J. A. The pea weevil. <Cultivator and Country Gentl., 22 March, 1888, v. 53, p. 229.
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527. LINTNER, J. A. The elm-leaf beetle. <Cultivator and Country Gentl., 29 March, 1888, v. 53, p. 249.
Means against *Galerucella xanthomelana* [= *luteola*].
528. LINTNER, J. A. Our worst enemies—the bugs. <Cultivator and Country Gentl., 5 April, 1888, v. 53, p. 269.
Reasons for considering insects as the worst enemies of the agriculturist; ways of meeting them.
529. LINTNER, J. A. The striped flea beetle. <Cultivator and Country Gentl., 12 April, 1888, v. 53, p. 289.
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530. LINTNER, J. A. Unrecognized apple-tree attack. <Cultivator and Country Gentl., 26 April, 1888, v. 53, p. 329.
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534. LINTNER, J. A. The bacon beetle attacks comb. <Bee Keepers' Mag., May, 1888, v. 16, pp. 143-144.
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535. LINTNER, J. A. Elm-leaf beetle. <Cultivator and Country Gentl., 10 May, 1888, v. 53, p. 366.
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536. LINTNER, J. A. Friends, not foes. <Cultivator and Country Gentl., 31 May, 1888, v. 53, p. 430.
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537. LINTNER, J. A. Maple-leaf mite-gall. <Cultivator and Country Gentl., 14 June, 1888, v. 53, p. 460.
Characters of the gall of *Phytoptus quadripes*; methods for destroying the same.
538. LINTNER, J. A. A grapevine pest. <Orange County Farmer, 21 June, 1888, v. 8, p. 5.
Characters of the gall of *Lasioptera vitis*; description of the gall-maker and its larva; transformations; preventive.
539. LINTNER, J. A. Cockscomb elm gall. <Cultivator and Country Gentl., 28 June, 1888, v. 53, p. 496.
Characters of the gall of *Colopha ulmicola*.
540. LIPPINCOTT, W. P. Sulphur for cankerworms a failure. <Prairie Farmer, 9 June, 1866.
The insertion of sulphur in the trunks of trees futile as a means against cankerworms.
541. LOCKWOOD, SAMUEL. The goldsmith beetle and its habits. <Amer. Nat., June, 1868, v. 2, pp. 186-192, figs. 1-3.
Natural history of *Cotalpa lanigera*.
542. LOCKWOOD, S. Hatching the *Cotalpa lanigera*. <Amer. Nat., October, 1868, v. 2, pp. 441-442.
Egg-laying habits; characters of eggs and young larva; food of larva.
543. LOCKWOOD, S. Destructiveness of the larva of the goldsmith beetle. <Amer. Nat., March, 1869, v. 3, pp. 49-50.
Injuries of the larva of *Cotalpa lanigera* to strawberry plants.

544. LOCKWOOD, S. Entomological items. <Amer. Nat., August, 1871, v. 5, pp. 377-378.
Notes occurrence of *Lachnosterna fusca*, *Pieris rapa*, *Colias philodice*, and *Protoparce carolina*.
545. LOCKWOOD, S. Notes on the elm-tree leaf-beetle—*Galeruca xanthomelana*. <Amer. Nat., March, 1881, v. 15, pp. 242-244.
Ravages and hibernation of *Galerucella luteola*.
546. LOCKWOOD, S. Account of the invasion of 1880 in New Jersey. <Rept. [U. S.] Commissioner Agriculture for 1881 and 1882, 1882 [January, 1883], pp. 101-106.
See Part 3, No. 2119, p. 293. (Relates to the army worm.)
547. LOEW, HERMANN. Description of the rye gall-gnat. <3d Rept. U. S. Ent. Comm., 1883 [6 March, 1884], pp. [6]-[8].
See Part 3, No. 2267, p. 321.
548. LOWELL, J[OHN]. Remarks on the cankerworm. <Mass. Agric. Repos. and Journ., January, 1815, v. 3, pp. 316-318. <New England Farmer, 3 April, 1824, v. 2, p. 281. <New England Farmer, 7 July, 1826, v. 4, pp. 398-399.
Ravages of and means against [*Paleacrita vernata*].
549. L[OWELL], J. Some remarks on the destructive powers of the rose bug. <Mass. Agric. Repos. and Journ., July, 1826, v. 9, pp. 143-147. <New England Farmer, 1826, v. 5, p. 52.
Habits and ravages of *Macroductylus subspinosus*.
550. LOWELL, J. One of the diseases of the peach tree. <Mass. Agric. Repos. and Journ., June, 1828, v. 10, pp. 156-159.
Injuries caused by *Thrips* sp.(?)
551. LOWELL, J. Cankerworms and slug worm. <New England Farmer, 25 July, 1828, v. 7, p. 2.
Means against *Anisopteryx* [= *Paleacrita*] *vernata* and *Selandria* [= *Eriocampa*] *cerasi*.
552. LUGGER, OTTO. The corn Sphenophorus—*Sphenophorus zea* Walsh. <Cultivator and Country Gentl., 13 May, 1880, v. 45, p. 311.
Characters, habits, and injuries of *S. zea* [= *sculptilis*].
553. LYON, T. T. Plums and plum culture in Michigan. <4th Ann. Rept. Secy. State Pomol. Soc. Mich. 1874, 1875, pp. 233-249.
Habits and injuries of *Conotrachelus nenuphar* and *Tetranychus telarius*.
554. MCBRIDE, SARA J. The so-called webworm of young trout. <Amer. Ent. and Bot., December, 1870, v. 2, pp. 365-366.
Habits and transformations of *Simulium piscicidium*.
555. MCBRYDE, JOHN M. The army worm. <Exper. Work Agric. Dept. Univ. Tenn., 1879-80, 1881, pp. 76-84.
Account of the invasion of *Leucania unipuncta* in eastern Tennessee in May and June, 1880.
556. MCBRYDE, J. M. The army worm. <Exper. Work Agric. Dept. Univ. Tenn., 1881, pp. 200-203.
Account of an invasion of *Leucania unipuncta* in eastern Tennessee in 1881.

BIBLIOGRAPHY OF ECONOMIC ENTOMOLOGY.

557. McCOOK, HENRY CHRISTOPHER. Ants as beneficial insecticides. <Proc. Acad. Nat. Sci. Phil., 1882, pp. 263-271.
 Abstract from Magowan's "Utilization of ants as grub-destroyers in China;" discusses the domicile habits of ants; their food habits; insectivorous habits and as protectors of crops; domestication of Chinese species in America; benefits derived from ants.
558. McCUTCHEM, A. R. Periodical Cicadas in Georgia. <Amer. Ent. and Bot., December, 1870, v. 2, p. 372.
 Occurrence of *Tibicen septendecim* in Georgia in 1866, 1869, and 1870.
559. McLAIN, M. C. Bad bugs. <Amer. Ent., November, 1869, v. 2, p. 53.
 Ravages of *Carpocapsa pomonella*, *Leucania unipuncta*, *Blissus leucopterus*, etc.
560. McLAUGHLIN, WILLIAM J. Enemy of the potato-bug. <Amer. Nat., August, 1868, v. 2, p. 330.
 Notes a soldier bug devouring *Doryphora 10-lineata*.
561. McMILLAN, CONWAY. Twenty-two common insects of Nebraska. <Bull. Agric. Exper. Station of Nebraska, 6 February, 1888, v. 1, No. 2, pp. 33-133. <Separate:

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562. MANLOVE, J. B. Chinch bugs. <Prairie Farmer, April, 1846, v. 6, p. 128.
 Ravages of *Blissus leucopterus*.
563. MANN, BENJAMIN PICKMAN. *Anisopteryx vernata* distinguished from *A. pometaria*. <Proc. Boston Soc. Nat. Hist., October, 1873, v. 15, pp. 381-384.
 Characters common to *A.* [= *Paleacrita*] *vernata* and *A. pometaria*; comparative statement of the differences.

564. MANN, B. P. Explanation of the Corrigenda to a communication in these proceedings, vol. XV, pp. 381-384, entitled: *Anisopteryx vernata* distinguished from *A. pomataria*. <Proc. Boston Soc. Nat. Hist., March-April, 1874, v. 16, pp. 204-209.
Reverses the names for the two species; notice of several papers.
565. MANN, B. P. A remedy for the currant worm and hop louse. <Massachusetts Ploughman, 1874, v. 33, No. 19.
Deals with *Nematus ventricosus* [= *ribesii*], *Ellopia* [= *Eufitchia*] *ribearia*, and *Aphis* [= *Phorodon*] *humuli*.
566. MANN, B. P. Insect calendars. <Psyche, 14 April, 1876, v. 1, p. 155.
Notes the times of occurrence of *Anisopteryx pomataria* and *A.* [= *Palaeacrita*] *vernata*.
567. MANN, B. P. *Anisopteryx pomataria*. <Amer. Nat., August, 1876, v. 10, p. 508.
Larval variations.
568. MANN, B. P. A synonym of *Anisopteryx pomataria*. <Can. Ent., October, 1876, v. 8, p. 164.
Considers *Anisopteryx autumnata* synonymous with *A. pomataria*.
569. MANN, B. P. Lecture on entomology. <Trans. Mass. Hortie. Soc. for 1877, 1877, pp. 63-66.
Scope and importance of entomology; injurious currant insects; services of entomologists.
570. MANN, B. P. Bibliography on the locusts of America. <1st Ann. Rept. U. S. Ent. Comm. for 1877, Washington, 29 July, 1878, pp. [273]-[279].
See Part 3, No. 1643, p. 230.
571. MANN, B. P. Bibliography of some of the literature concerning destructive locusts. <2d Rept. U. S. Ent. Comm. for 1878 and 1879, 1880, pp. [33]-[50]. Appendix 4.
See Part 3, No. 1959, p. 274.
572. MANN, B. P. Promoting locust ravages. <Psyche, August, 1882 [15 January, 1883], v. 3, pp. 379-380.
The destruction of prairie chickens caused the increase of *Caloptenus spretus*.
573. MANNING, ROBERT, AND OTHERS. Report of the special committee on the destruction of noxious insects. <Trans. Mass. Hortie. Soc. for 1874, 1875, pp. 235-237.
Urges cooperation and legislation against injurious insects.
574. MARLATT, C. L. Notes on a red cedar sawfly. <Kans. Acad. Science, 1886, v. 10, pp. 80-83.
Natural history and descriptions of all stages of *Lophyrus juniperi*: figures of all stages with details.
575. MARLATT, C. L. Notes on the oviposition of the Buffalo tree-hopper. <Kans. Acad. Science, 1886, v. 10, pp. 84-85.
Describes the oviposition of *Ceresa bubalus* in the twigs of the apple and willow; injuries resulting, figures adult insects, egg masses, injured twig; details.

BIBLIOGRAPHY OF ECONOMIC ENTOMOLOGY.

576. MARLATT, C. L. Notes on the sycamore leaf-beetle *plicata*. <The Industrialist, 3 March, 1888.
577. MARLATT, C. L. Notes on the raspberry sawfly (*Selandria* [= *Monophadnus*] *rubi*). <The Industrialist, 10 March, 1888.
578. MARLATT, C. L. The Sycamore leaf-beetle. <The Industrialist, 8 December, 1888, v. 14.
Describes the early stages of *Chlamys plicata*: ravages and means against; figures early stages and adults.
579. MARSH, H. C. Experience with the imported cabbage worm. <Amer. Ent., July, 1880, v. 3, (n. s., v. 1), p. 178.
Cabbage crops benefitted by heavy manuring; means against *Pieris rapa*.
580. MARTEN, JOHN. Report. <2d Rept. U. S. Ent. Comm., 1880 [4 April, 1881], pp. [29]-[32]. Appendix 3.
See Part 3, No. 1959, p. 274.
581. MARTEN, J. Report on the Rocky Mountain locust in 1880. <3d Rept. U. S. Ent. Comm., 1883 [6 March, 1884], pp. [50]-[54].
See Part 3, No. 2267, p. 322.
582. MARX, GEORGE. Spiders found on cotton. <4th Rept. U. S. Ent. Comm., 1885 [3 February, 1886], pp. [106]-[107].
See Part 3, No. 2343, p. 349.
583. MATTHEWS, A. L. Spring wheat and chinch bugs. <Prairie Farmer, 6 November, 1886.
Abundance and ravages of *Blissus leucopterus*.
584. MEAD, P. B. The bean weevil. <Horticulturist, May, 1864, v. 19, p. 141, figs.
Injuries of *Bruchus* sp. to beans.
585. [MEEHAN, THOMAS.] Red spider on pear trees. <Gardeners' Monthly, November, 1860, v. 2, p. 341.
Means against *Tetranychus telarius*.
586. MEEHAN, T. (*Redurius norenarius*.) <Proc. Acad. Nat. Sci., Phil., October, 1870, p. 110. See: <Gardeners' Monthly, January, 1872, v. 14, n. s. v. 5, p. 14.
Notes the habit of collecting and absorbing turpentine as observed in *Redurius norenarius* [= *Prionidus cristatus*.]
587. MEEHAN, T. (*Redurius norenarius*.) <Proc. Acad. Nat. Sci., Phil., 1871, pp. 51-52.
Notes the storing up of turpentine by *Redurius norenarius* [= *Prionidus cristatus*] and its use for holding the eggs together.
588. [MEEHAN, T.] The grape-root insect. <Gardeners' Monthly, May, 1872, v. 14, n. s. v. 5, pp. 146-147.
Notes on *Phylloxera vastatrix*.
589. [MEEHAN, T.] Insects on cherry trees. <Gardeners' Monthly, May, 1872, v. 14, n. s. v. 5, p. 154.
Means against Aphididae and *Conotrachelus nenuphar*.

590. [MEEHAN, T.] The grape-berry moth. <Gardeners' Monthly, April, 1873, v. 15, n. s., v. 6, pp. 121-122.
Natural history of *Endemis botrana*.
591. [MEEHAN, T.] The currant worm. <Gardeners' Monthly, April, 1874, v. 16, n. s., v. 7, p. 117.
Means against *Nematus ribesii* and *Psenocerus supernotatus*.
592. [MEEHAN, T.] The white grub. <Gardeners' Monthly, June, 1874, v. 16, n. s., v. 7, p. 183.
Means against *Lachnosterna fusca*.
593. [MEEHAN, T.] The grape-vine insect. <Gardeners' Monthly, September, 1874, v. 16, n. s., v. 7, pp. 272-273.
Habits and injuries of *Phylloxera vastatrix*.
594. [MEEHAN, T.] Red spider in graperies. <Gardeners' Monthly, September, 1874, v. 16, n. s., v. 7, pp. 275-276.
Means against *Tetranychus telarius*.
595. [MEEHAN, T.] Wheeler's automatic compound liquid distributor. <Gardeners' Monthly, June, 1875, v. 17, n. s., v. 8, p. 175.
Notes its usefulness.
596. [MEEHAN, T.] Seasonable hints. <Gardeners' Monthly, July, 1875, v. 17, n. s., v. 8, p. 204.
Means against various insects.
597. MEEHAN, T. The Colorado potato beetle. <Gardeners' Monthly, July, 1875, v. 17, n. s., v. 8, p. 208.
Means against *Doryphora 10-lineata*.
598. MEEHAN, T. Iron nails in fruit trees. <Gardeners' Monthly, July, 1875, v. 17, n. s., v. 8, p. 208.
Futility of driving nails in fruit trees as a remedy for borers.
599. [MEEHAN, T.] Scale on the pine. <Gardeners' Monthly, August, 1875, v. 17, n. s., v. 8, p. 229.
Advises a solution of soft soap as a remedy.
600. [MEEHAN, T.] Elm slug. <Gardeners' Monthly, October, 1875, v. 17, n. s., v. 8, p. 293.
Ravages of an unnamed beetle.
601. [MEEHAN, T.] Scale on oleanders. <Gardeners' Monthly, May, 1876, v. 18, p. 139.
Advises the use of whale-oil soap.
602. [MEEHAN, T.] Red spider. <Gardeners' Monthly, February, 1877, v. 19, p. 45.
Sulphur the best remedy for *Tetranychus telarius*.
603. MEEHAN, T. Oil for fruit trees. <Gardeners' Monthly, April, 1877, v. 19, p. 115.
Efficacy of linseed oil.
604. MEEHAN, T. Gooseberry worm. <Gardeners' Monthly, July, 1877, v. 19, pp. 208-209.
Injuries of *Dakruma convolutella*.

605. MEEHAN, T. May beetles on the raspberry. <Gardeners' Monthly, July, 1877, v. 19, p. 209.
Injuries of *Lachnosterna fusca*.
606. MEEKER, N. C. The ravages of insects. <N. Y. Tribune, 25 August, 1868. <Amer. Ent., November, 1868, v. 1, p. 53.
Notes the need of a knowledge of entomology to check the injuries of insects.
607. MENDENHALL, R. J. Entomological notes for the season of 1883. <Trans. Minn. State Hort. Soc. for 1884, 1884, pp. 140-148.
Treats of *Micropus* [= *Blissus*] *leucopterus*, *Heliothis armiger*, *Pieris rapa*, *Carpocapsa pomonella*, *Anthonomus quadrigibbus*, *Graptodera* [= *Italica*] *chalybea*, *Eudemis botrana*, *Phoxoptera fragariae*, and *Emphytus* [= *Harpiphorus*] *maculatus*: their characters, food habits, ravages, and remedies.
608. MERCHANT, J. W. Oyster-shell bark-lice in Mississippi; apple-tree root-louse. <Amer. Ent. and Bot., September, 1870, v. 2, pp. 302-303.
Occurrence of *Mytilaspis pomorum* in Mississippi; ravages and means against *Schizoneura lanigera*.
609. MERRIAM, C. HART. Ravages of a rare scolytid beetle in the sugar maples of northeastern New York. <Amer. Nat., January, 1883, v. 17, pp. 84-86, figs.
Habits of *Corthylyus punctatissimus*.
610. MERRICK, E. C. Grasshoppers in the northwest. <Field and Forest, October, 1876, v. 2, pp. 64-65.
List of counties in Nebraska, Kansas, Missouri, Iowa, and Minnesota invaded in 1876 by *Caloptenus spretus*: notes on the number of eggs deposited; usefulness of birds.
611. M[ILLER], S. Lepidium, the bedbug destroyer. <Gardeners' Monthly, January, 1880, v. 22, pp. 13-14.
612. MINOT, CHARLES SEDGWICK. Cabbage butterflies. <Amer. Ent., December, 1869-January, 1870, v. 2, pp. 74-76, figs. 48-52.
History, habits, and characters of *Pieris rapae* and *P. oleracea*; means against their ravages
613. MINOT, C. S. Histology of the locust [*Caloptenus*] and the cricket [*Anabrus*]. <2d Rept. U. S. Ent. Comm., 1880 [4 April, 1881], pp. 183-222.
See Part 3, No. 1959, p. 272.
614. MINOT, C. S. and BURGESS, EDWARD. On the anatomy of Aletia. <4th Rept. U. S. Ent. Comm., 1885 [3 February, 1886], pp. 45-59.
See Part 3, No. 2343, p. 338.
615. MISCHE, WILLIAM. Rare beetle injurious to sweet potato roots in Louisiana. <Amer. Ent., December, 1880 [v. 3], n. s., v. 1, p. 297.
Note on ravages of *Cylas formicarius*.

616. MITCHELL, SAMUEL LATHAM. Observations on cankerworms and the means of preventing their effects. <Trans. Soc. Prom. Agric. in N. Y., 1799, v. 1, pt. 4, pp. 33-41. <Ibid., 2d ed., 1801, v. 1, pp. 314-321. See: <Cultivator, April, 1838, v. 5, pp. 40-41.
Habits, ravages, and means against.
617. MITCHELL, S. L. Views of the process in nature by which, under particular circumstances, vegetables grow on bodies of living animals. <Amer. Journ. Sci. and Arts, June, 1827, v. 12, pp. 21-28.
Notes on *Melolontha* [= *Lachnosterna*] infested with Cordyceps.
618. MILTON, MANSFIELD. Cabbage maggot. <Gardeners' Monthly, September, 1885, v. 27, pp. 270-271.
Injuries of *Anthomyia brassicæ*.
619. MOFFAT, J. ALSTON. Entomological notes. <Ann. Rept. Ent. Soc. Ontario for 1881, 1882, pp. 29-30.
Includes a note on the ravages of *Heliothis armiger*.
620. MOFFAT, J. A. Notes on ant lions. <Can. Ent., July, 1884, v. 16, pp. 121-122. <15th Ann. Rept. Ent. Soc. Ontario, 1885, pp. 36-37.
Characters and habits of Myrmeleons.
621. MOFFAT, J. A. Notes on ant lions. <Can. Ent., April, 1886, v. 17, pp. 76-77. <17th Ann. Rept. Ent. Soc. Ontario, 1887, pp. 19-20.
Habits of Myrmeleons.
622. MOORTONS, C. R. Chinch bugs on wheat and corn. <Prairie Farmer, 15 March, 1860, n. s., v. 5, p. 161.
Preventives against *Blissus leucopterus*.
623. MORRILL, AUGUSTUS. Cotton culture and the cotton worm at Manzanillo, Mexico. <Amer. Ent., June, 1880, v. 3, n. s., v. 1, p. 152.
Occurrence and origin of *Anomis* [= *Aletia*] *xylina*; coincidence of high floods and the appearance of the cotton worm.
624. MORRIS, G. K. A new harvesting ant. <Amer. Nat., September, 1880, v. 14, pp. 669-670.
Characters and habits of *Pheidole pennsylvanica*.
625. MORRIS, G. K. Harvesting ants in New Jersey. <Amer. Ent. September, 1880 [v. 3], n. s., v. 1, pp. 228-229.
Characters and habits of *Pheidole pennsylvanica* and *P. megacephala*.
626. MORRIS, G. K. A new leaf-cutting ant in New Jersey. <Amer. Ent., November, 1880 [v. 3], n. s., v. 1, pp. 264-265.
Characters and habits of an undetermined attid.
627. MORRIS, G. K. A new leaf-cutting ant. <Amer. Nat., February, 1881, v. 15, pp. 100-102.
Habits and characters of *Atta* sp.

BIBLIOGRAPHY OF ECONOMIC ENTOMOLOGY.

628. MORRIS, JOHN G. Seventeen-year locust two years too late.
 <Amer. Ent. and Bot., September, 1870, v. 2, p. 304.
 Occurrence of a retarded *Cicada* [= *Tibicen*] *septendecim* in Maryland in 1870;
 note on the year of the appearance of the Cicada in York County, Pa.
629. MORRIS, MARGARETTA HARE. Observations on the development
 of the Hessian fly. <Proc. Acad. Nat. Sci. Phil., August, 1841,
 v. 1, pp. 66-68.
 Characters and life history of *Cecidomyia destructor*.
630. MORRIS, M. H. On the *Cecidomyia destructor* or Hessian fly.
 <Trans. Amer. Philos. Soc., 1843, n. s. v. 8, pp. 49-51.
 Habits, life history, and remedies.
631. MORRIS, M. H. Insects, No. 1. <Amer. Agric., February, 1846,
 v. 5, pp. 65-66.
 Characters of *Carpocapsa pomonella*; habits and enemies.
632. MORRIS, M. H. Insects, No. 2. <Amer. Agric., March, 1846, v. 5,
 pp. 97-98.
 Means against *Tinea* sp., *Blatta* sp., and *Saperda* sp.
633. MORRIS, M. H. Hints to housekeepers. <Amer. Agric., Novem-
 ber, 1846, v. 5, p. 353.
 Habits and metamorphoses of *Pulex irritans*.
634. MORRIS, M. H. [*Cicada septendecim*.] <Proc. Acad. Nat. Sci.
 Phil., 1846, v. 3, pp. 132-134.
 Ravages, habits, and the times of appearance at various places of *Cicada*
 [= *Tibicen*] *septendecim*.
635. MORRIS, M. H. The cotton moth. <Amer. Agric., January, 1847,
 v. 6, p. 22.
 Effects of weather upon the metamorphoses of insects; notice of *Noctua*
 [= *Aletia*] *rylimna*.
636. MORRIS, M. H. Natural history of the chinche. <Amer. Agric.,
 January, 1847, v. 6, p. 33.
 Habits and metamorphoses of *Cimex lectularius*; remedies.
637. MORRIS, M. H. The army worm. <Amer. Agric., February, 1847,
 v. 6, p. 50. See: <Ibid., July, 1847, v. 6, p. 209.
 Habits and metamorphoses of *Leucania unipuncta*.
638. MORRIS, M. H. Apple and pear trees destroyed by the locust.
 <Amer. Agric., March, 1847, v. 6, pp. 86-87.
 Ravages, habits, and transformations of *Cicada* [= *Tibicen*] *septendecim*.
639. MORRIS, M. H. Controversy respecting the Hessian fly. <Amer.
 Journ. Agric. and Sci., April, 1847, v. 5, pp. 206-208.
 Habits and seasons of *Cecidomyia destructor* in reply to Fitch's criticisms.
640. MORRIS, M. H. Hessian fly. <Amer. Journ. Agric. and Sci.,
 August, 1847, v. 6, pp. 105-106.
 Notes on several Diptera injurious to wheat.
641. MORRIS, M. H. [*Cicada septendecim*.] <Proc. Acad. Nat. Sci.
 Phil., 1847, v. 3, pp. 190-191.
 Ravages of the larva of *Cicada* [= *Tibicen*] *septendecim*; enemies.

642. MORRIS, M. H. [Hessian fly and insect destructive to raspberry plant.] <Proc. Acad. Nat. Sci. Phil., 1847, v. 3, p. 238.
Retardation of the larva of *Cecidomyia destructor*; habits and injuries of an undetermined hymenopteron.
643. MORRIS, M. H. Destruction of fruit trees by the seventeen-year locust. <Amer. Agric., September, 1848, v. 7, p. 279.
Notes injuries to forest and fruit trees by the young of *Cicada* [= *Tibicen septendecim*].
644. MORRIS, M. H. [Cecidomyia in the culm of wheat.] <Proc. Acad. Nat. Sci. Phil., 1849, v. 4, p. 194.
Habits of *Cecidomyia culmicola*; retardation in its development.
645. MORRIS, M. H. The potato Curculio. <Amer. Agric., April, 1850, v. 9, pp. 113-114.
Habits and ravages of *Baridius* [= *Trichobaris*] *trinotata*.
646. MORRIS, M. H. Discovery of the cause of the yellows in the peach tree. <Amer. Agric., May, 1850, v. 9, pp. 144-145. See: <Ibid., July, 1850, v. 9, p. 219.
Ravages and means against *Tomicus* [= *Phlaotribus*] *liminaris*.
647. MORRIS, M. H. The yellows caused by an insect. <Horticulturist, May, 1850, v. 4, pp. 502-503.
Habits and injuries of *Tomicus* [= *Phlaotribus*] *liminaris*; preventives.
648. MORRIS, M. H. Original observations on insects injurious to our fruits.—The Curculio. <Horticulturist, 1859, v. 14, pp. 506-508, plate, and figs. 1-4.
Characters and natural history of *Rhynchænus* [= *Conotrachelus*] *nenuphar*.
649. [MORRIS, M. H.] [Plum and cherry tree insects.] <Horticulturist, 1859, v. 14, pp. 508-509.
Habits and injuries of *Rhynchænus* [= *Conotrachelus*] *nenuphar*, *Carpocapsa pomonella*, and *Egeria* [= *Sannina*] *exitiosa*.
650. MORRIS, M. H. Notes on the peach. <Gardeners' Monthly, May, 1860, v. 2, pp. 130-131.
Injuries of *Tetranychus telarius*, *Egeria* [= *Sannina*] *exitiosa*, and *Tomicus* [= *Phlaotribus*] *liminaris*.
651. MORRIS, M. H. The peach tree and its enemies. <Horticulturist, 1860, v. 15, pp. 118-120, plate.
Habits and injuries of *Egeria* [= *Sannina*] *exitiosa* and *Tomicus* [= *Phlaotribus*] *liminaris*.
652. MORRISON, HERBERT KNOWLES. Is *Aletia argillacea* winter-killed every year? <Psyche, March-April, 1877, v. 2, p. 23.
It is not.
653. MORSE, F. W. Phylloxera. <Science, 7 May, 1886, v. 7, pp. 417-418.
First known in the United States in 1843; date and method of its introduction into Europe; reasons for being more injurious in Europe than in America; natural means against the insect.

654. MORSE, GEORGE W. The cotton caterpillar. <Monthly Rept. U. S. Dept. Agric., 1867, p. 249.
Means against *Aletia argillacea*.
655. MOSELY, HENRY C. War against insects. <Farmers' Review, 21 July, 1881, v. 7, p. 34.
Coal tar in a furrow as a means against *Blissus leucopterus*.
656. MOSELY, H. C. From Central Illinois. <Farmers' Review, 4 August, 1881, v. 7, p. 73.
Ravages of *Blissus leucopterus*.
657. MOTHERAL, W. The cotton worm. <Nashville Rural Sun, 25 February, 1875.
Natural history of *Aletia argillacea*; advocates the introduction of the English sparrow.
658. MUHLEMAN, J. R. Insect life in winter. <Trans. Illinois State Hort. Soc. 1874, 1875, n. s., v. 8, pp. 249-251.
Notes on the stage in which insects pass the winter.
659. MUHLEMAN, J. R. Entomological report. The insects injurious to the honeysuckles and allied plants. <Trans. Ill. State Hort. Soc. for 1874, 1875, n. s., v. 8, pp. 258-259.
Characters and habits of *Sesia* [= *Hemaris*] *diffinis* and of *S.* [= *H.*] *thysbe*; characters of the larva of *S.* [= *H.*] *diffinis* and of the larvæ of two undetermined moths.
660. MUHLENBERG, P. Letter relative to the Hessian fly. * * * <Amer. Museum, September, 1788, v. 4, p. 244.
Questions concerning the habits and ravages of *Cecidomyia destructor*.
661. MULLEN, S. B. "Stink bush" as an insecticide. <Amer. Ent., September, 1880, v. 3, n. s., v. 1, p. 228.
Decoction made from the leaves of an undetermined evergreen effective as a means against *Aletia argillacea*, etc.
662. MUNDT, A. H. [Oak and poplar insects.] <Can. Ent., February, 1880, v. 12, p. 39.
Ravages of *Cossus* sp.
663. MUNDT, A. H. [*Pulvinaria innumerabilis*.] <Can. Ent., December, 1884, v. 16, p. 240.
Abundance and food habits.
664. MUNZ, HERMANN. Destruction of mealy bug. <Gardeners' Monthly, December, 1873, v. 15, n. s., v. 6, p. 358.
Advises the use of a fine stream of water.
665. MURTFELDT, MARY ESTHER. The verbena bud moth (*Penthina fullerea*, Riley) in the West. <Amer. Ent. and Bot., December, 1870, v. 2, p. 371.
Occurrence in Missouri of *Penthina fullerea* [= *hebesana*]; habits.
666. MURTFELDT, M. E. Notes on *Attelabus bipustulatus*, Fabr. <Can. Ent., August, 1872, v. 4, pp. 143-145.
Characters and life history.

667. MURTFELDT, M. E. The rose slug. <Gardeners' Monthly, November, 1879, v. 21, pp. 339-340.
Notes on the oviposition, number of broods, and hibernation of *Selandria* [= *Monostegia*] *roseæ*; remedies.
668. MURTFELDT, M. E. Rose-feeding Tortricidæ. The rose leaf-tyer, *Penthina cyanana* n. sp. <Amer. Ent., January, 1880, v. 3, n. s., v. 1, pp. 14-15.
Lists nine species of Tortricidæ that injure roses; description, habits, and means against *P. cyanana*.
669. MURTFELDT, M. E. Pyrethrum for house plants. <Amer. Ent., April, 1880, v. 3, n. s., v. 1, p. 105.
Effective against Aphididæ and Coccidæ.
670. MURTFELDT, M. E. Noxious butterflies. <Rept. Kans. State Hort. Soc. for 1879, 1880, v. 9, pp. 80-86.
Habits and ravages of *Papilio asterias*, *P. philenor*, *Pieris protodice*, *P. oleracea*, *P. rapæ*, *Fanessa antiopa*, *Grapta interrogationis* and *G. comma*; notes on *Colias philodice*, *Thecla humuli*, *Grapta progne*, and *Fanessa j-album*.
671. MURTFELDT, M. E. Habits of *Hypoprepia packardii* Grote. <Psyche, July-September, 1881 [7 March, 1882], v. 3, pp. 243-246.
Larval characters and food plants.
672. MURTFELDT, M. E. The grapeberry moth [*Eudemis botrana*, S. V.]. <Psyche, October-December, 1881 [7 April, 1882], v. 3, p. 276.
Food habits.
673. MURTFELDT, M. E. Xylocopa and Megachile cutting flowers. <Psyche, May [19 August], 1882, v. 3, p. 343.
674. MURTFELDT, M. E. Notes from Missouri. <Ann. Rept. [U. S.] Comm. Agric. for 1884, 1885, pp. 416-418.
See Part 3, No. 2291, p. 330.
675. MURTFELDT, M. E. Notes from Missouri for the season of 1886. <Bull. No. 13, Div. Ent. U. S. Dept. Agric. [3 June], 1887, pp. 59-65.
See Part 3, No. 2382, p. 361.
676. MUSE, JOSEPH E. Entomology. <Amer. Farmer, 16 July, 1819, v. 1, No. 16, pp. 124-125.
Transformations of corn worm, Elaterid?; *Conotrachelus nenuphar* and *Leucania unipuncta*; means against the same.
677. MUSE, J. E. On the Hessian fly. <Amer. Journ. Sci. and Arts, 1832, v. 22, pp. 71-74.
Injuries to wheat by *Aphis tritici* [= *Cecidomyia destructor*]; its characters and habits.
678. MUSE, J. E. The cutworm. <Farmers' Register. <Cultivator, June, 1837, v. 4, p. 71.
Fall or winter plowing as a means against Elaterid larvæ.

679. MUSE, J. E. Experiments. <Amer. Quart. Journ. Agric. and Sci., July, 1845, v. 2, pp. 119-123.
Seeds soaked in liquors do not protect plants from insects; electric currents not efficacious.
680. MYERS, M. J. Habits of *Xylotrechus convergens*. <Amer. Nat., February, 1881, v. 15, p. 151.
Habitat and life history; injuries to thorn apple.
681. MYGATT, E. G. Oyster-shell bark louse. <Trans. Ill. State Hort. Soc. for 1869, 1870, n. s., v. 3, pp. 257-258.
History of *Aspidiotus conchiformis* [= *Mytilaspis pomorum*]; remedies and distribution.
682. NEAL, J. C. Report of observations and experiments. < Bull. No. 1, Div. Ent. U. S. Dept. Agric. [17 April], 1883, pp. 31-45.
See Part 3, No. 2164, p. 302.
683. NEWBY, T. T. The white grub. <Horticulturist, May, 1873, v. 28, p. 150.
Injuries and preventives.
684. NEWSON, DAVID. The chinch bug. <Prairie Farmer, June, 1846, v. 6, p. 184.
Ravages and habits of *Blissus leucopterus*.
685. NEWTON, R. To prevent the attack of the rose bug. <Horticulturist, June, 1848, v. 2, pp. 570-571. <Amer. Farmer, September, 1848, ser. 4, v. 4, p. 86.
Dry ashes applied when the dew is on effective against *Macrodaetylus sub-spinosus*.
686. NICHOLS, D. A. A. Grasshoppers in the State of New York. <Amer. Ent., January, 1869, v. 1, p. 96.
Abundance and destructiveness of locusts in western New York; brief notes on various injurious insects.
687. NICHOLS, D. A. A. The social wasps. <Amer. Ent., June, 1869, v. 1, pp. 200-201.
Habits of *Vespa crabro*? in New York; yellow hornets nesting in trees.
688. NICHOLS, O. B. Chinch bug; a plan to get rid of them. <Emery's Journ. Agric. and Prairie Farmer, 2 December, 1858, p. 354.
Fall plowing, burning, and sheep and cattle as means against *Blissus leucopterus*.
689. NICKERSON, M. C. "Grasshoppers"—Their devastations in western Iowa and the good that has resulted from them. <Amer. Ent., October, 1868, v. 1, p. 27.
See Part 2, No. 402, p. 54.
690. NORRIS, GEORGE PEPPER. The worm on the grape. <Gardeners' Monthly, August, 1860, v. 2, p. 233.
Habits and injuries of *Haltica chalybea*.
691. NORTON, H. B. Chinch-bug fence. <Prairie Farmer, 29 April, 1865, n. s., v. 15, p. 327. <Valley Farmer, 1 June, 1866. <Pract. Ent., 30 July, 1866, v. 1, p. 95.
Pine boards, coal tar, and deep holes effective against *Blissus leucopterus*.

692. ONDERDONK, G. The insect problem. <Gardeners' Monthly, May, 1885, v. 27, p. 144.
Value of cotton seed as an exterminator of insects in the soil.
693. ORDWAY, HENRY L. [Cankerworms.] <Bull. Essex Inst., 1864, v. 3, pp. 291-294.
Habits of and means against.
694. ORMEROD, ELEANOR A. Effect of frost on grubs. <Amer. Ent., September, 1880, v. 3, n. s., v. 1, p. 222.
Early stages of insects not injured by severe frost.
695. OSBORN, HERBERT. Cold-weather caterpillars. <Iowa Homestead.
Life histories and injuries of *Pyrharctia isabella* and *Ecpanttheria scribonia*.
696. OSBORN, H. Entomological notes.—Queries and answers. <Iowa Homestead. <Western Farm Journal.
Ravages and means against *Lachnosterna pilosicollis* [= *tristis*]; food habits of a frog.
697. OSBORN, H. A new book on insects.—Review. <Iowa Homestead.
Review of William Saunders's *Insects Injurious to Fruits*.
698. OSBORN, H. It pays to fight injurious insects. <Iowa Homestead.
699. OSBORN, H. Some insect pests. <Iowa Homestead.
Distribution of *Diabrotia longicornis*; habits and means against *Hyphantria teritor* [= *cunea*], *Dutana ministra*, and *Pelidnota punctata*.
700. OSBORN, H. The seventeen-year locust. <Western Farm Journal, July, 1878.
Natural history of *Cicada* [= *Tibicen*] *septendecim*.
701. OSBORN, H. Winter work with insects. <Western Stock Journal and Farmer, February, 1879, v. 9, p. 24.
Natural history of *Orgyia leucostigma*, *Clisiocampa americana*, and *Phycita nebulo* [= *Acrobasis indiginella*]; means against them during the winter.
702. OSBORN, H. The cankerworm—*Anisopteryx vernata*. <College Quarterly, May, 1879, v. 2, p. 8. <Western Stock Journ. and Farmer.
Habits and means against *Anisopteryx* [= *Paleacrita*] *vernata*.
703. OSBORN, H. Borers. <College Quarterly, May, 1879, v. 2, p. 8. <Western Stock Journ. and Farmer, July, 1879, v. 9, p. 142.
Natural history of *Saperda bivittata* [= *candida*] and of *Chrysobothris femorata*; means against them.
704. OSBORN, H. The tent caterpillar. <College Quarterly, May, 1879, v. 2, p. 9. <Western Stock Journ. and Farmer, July, 1879, v. 9, p. 142.
Habits of and means against *Clisiocampa americana*.
705. OSBORN, H. The leaf crumpler. <College Quarterly, May, 1879, v. 2, p. 9. <Western Stock Journ. and Farmer, July, 1879, v. 9, p. 142.
Habits of and means against *Phycita nebulo* [= *Acrobasis indiginella*].

706. OSBORN, H. A woolly louse on Scotch pines. <College Quarterly, May, 1879, v. 2, p. 10.
Occurrence and life history of *Chermes pinicorticis*.
707. OSBORN, H. The oyster-shell bark louse. <College Quarterly, May, 1879, v. 2, p. 10.
Abundance of *Mytilaspis pomicorticis* [= *pomorum*]; attacks of mites.
708. OSBORN, H. A grub with legs on its back. <Aurora, May, 1879, v. 7, p. 5.
Describes a larva from the pith of ash twigs; its method of progression.
709. OSBORN, H. Ash-tree borer. <College Quarterly, May, 1879, v. 2, p. 10.
Occurrence of *Trochilium denudatum* [† = *Podosesia syringæ*]; notice of its parasite.
710. OSBORN, H. The grain weevil. <Western Stock Journ. and Farmer, June, 1879, v. 9, p. 117.
Introduction of *Sitophilus* [= *Calandra*] *granaria*; its ravages and remedies.
711. OSBORN, H. The May beetle or June bug—*Lachnosterna fusca*. <Western Stock Journ. and Farmer, June, 1879, v. 9, p. 118.
Life history; remedies.
712. OSBORN, H. An entomological ramble. <College Quarterly, July, 1879, v. 2, p. 32.
Notes on *Aphis* [= *Myzus*] *cerasi* and its parasites and on phytoptid galls on maple; a tortricid and its parasites; *Dryocampa rubicunda*, and *Chermes pinicorticis*; remedies.
713. OSBORN, H. Insects working on cabbage. <College Quarterly, July, 1879, v. 2, p. 33.
Habits and life histories of *Pieris protodice* and *P. rapæ*; remedies.
714. OSBORN, H. Insects of importance to the engineer. <Aurora [Ames, Iowa], July, 1879, v. 7, p. 6.
Notes the relations of insects to buildings, bridges, etc.
715. OSBORN, H. Insects injurious to soft maples. <Western Stock Journ. and Farmer, July, 1879, v. 9, p. 142.
Notes on *Dryocampa rubicunda*, *Tortrix* sp.? and *Phytoptus quadripes*.
716. OSBORN, H. The fall webworm. <Western Stock Journ. and Farmer, August, 1879, v. 9, p. 165.
Habits and life history of *Hyphantria textor* [= *cunea*]; means against.
717. OSBORN, H. The fall webworm. <College Quarterly, September, 1879, v. 2, p. 57.
Abundance of *Hyphantria textor* [= *cunea*]; life history; preventives.
718. OSBORN, H. The white-marked tussock-moth. <College Quarterly, September, 1879, v. 2, p. 57.
Habits of and means against *Orgyia leucostigma*.
719. OSBORN, H. Insect items. <College Quarterly, September, 1879, v. 2, p. 58.
Notes on *Brachyepelus magnus*; means against *Pempelia hammondi*; *Gryllotalpa borealis* damaging potatoes.

720. OSBORN, H. Seventeen-year locusts. <College Quarterly, September, 1879, v. 2, p. 58.
Occurrence of *Cicada* [= *Tibicen*] *septendecim* in southwestern Iowa in 1879.
721. OSBORN, H. Bot flies of ox and horse. <Western Stock Journ. and Farmer, September, 1879, v. 9, p. 189.
Habits and life histories of *Gastrophilus equi* and of *Hypoderma bovis*; remedies.
722. OSBORN, H. Blister beetles. <Western Stock Journ. and Farmer, September, 1879, v. 9, p. 189.
Notes on *Lytta atrata* [= *Epicauta pennsylvanica*], *L.* [= *E.*] *cinerea*, and *L.* [= *E.*] *rititata* injurious to potatoes; remedies.
723. OSBORN, H. Insects related to stock growing. <Western Stock Journ. and Farmer, October, 1879, v. 9, p. 213.
General discussion.
724. OSBORN, H. Cutworms. <Western Stock Journ. and Farmer, November, 1879, v. 9, p. 236.
Habits, life histories, and remedies.
725. OSBORN, H. On the winter forms of insects. <Western Stock Journ. and Farmer, December, 1879, v. 9, p. 261.
Practical importance of knowledge of the state in which insects winter; mention of insects hibernating in the egg state, as larvæ, pupæ, and as adults.
726. OSBORN, H. Report on noxious insects. <Trans. Iowa State Hortie. Soc. for 1878, 1879, v. 13, pp. 368-402, 19 figs.
Habits and natural history of *Hyphantria textor* [= *cunea*], *Orygia leucostigma*, *Telea polyphemus*, *Platysamia* [= *Attacus*] *cecropia*, *Clisiocampa americana*, *Noctua* [= *Agrotis*] *clandestina*, *Agrotis subgothica*, *Palaearcta vernata*, *Phycita nebulo* [= *Acrobasis indiginella*], *Carpocapsa pomonella*, *Bucculatrix pomifoliella*, *Egeria denudata* [= *Podosesia syringæ*], *Chrysobothris femorata*, *Anthrenus quadrigibbus*, *A. prunicida* [= *Coccotorus scutellaris*], *Conotracheus nenuphar*, *Saperda bivittata* [= *candida*], *Aphis mali*, *Myzus cerasi*, *Schizoneura lanigera*, *Mytilaspis pomiceorticis* [= *pomorum*], *Diaspis harrisii* [= *Chionaspis furfurus*], *Cicada* [= *Tibicen*] *septendecim*, *Chermes pinicorticis* and *Ecanthus nireus*.
727. OSBORN, H. Butterfly, chinch bugs, etc. <Western Stock Journ. and Farmer, January, 1880, v. 10, p. 2.
Notes on *Pieris rapæ* and *Blissus leucopterus*; importance of economic entomology.
728. OSBORN, H. What can be expected of economic entomology. <Western Stock Journ. and Farmer, January, 1880, v. 10, p. 2.
Benefits liable to be overestimated; examples of actual benefits; systems of distributing knowledge.
729. OSBORN, H. The rape butterfly. <Western Stock Journ. and Farmer, January, 1880, v. 10, p. 2.
Introduction of *Pieris rapæ*; its first appearance at Ames, Iowa; characters compared with those of *P. protodice*.
730. OSBORN, H. The northern brentthian. <Western Stock Journ. and Farmer, February, 1880, v. 10, p. 28.
Life history of *Eupsalis minuta*.

731. OSBORN, H. Some beneficial insects. <Western Stock Journ. and Farmer, March, 1880, v. 10, p. 52.
Notes on the habits of *Ichneumonidae*, *Cicindelidae*, and *Carabidae*.
732. OSBORN, H. The tarnished plant-bug. <Western Stock Journ. and Farmer, April, 1880, v. 10, p. 76.
Habits, ravages, and food plants of *Capsus oblineatus* [= *Lygus pratensis*]; notes on *Blissus leucopterus*, *Anthrenus scrophulariæ*; on the neglect of entomology by Iowa; london purple as an insecticide.
733. OSBORN, H. A destructive borer. <College Quarterly, May, 1880, v. 3, p. 12. <Western Stock Journ. and Farmer, June, 1880, v. 10, p. 125.
Characters of larva, ? = *Cossus robinivæ*.
734. OSBORN, H. [May beetle.] <College Quarterly, May, 1880, v. 3, p. 13. <Western Stock Journ. and Farmer, June, 1880, v. 10, p. 125.
Abundance of *Lachnosterna fusca*: its injuries as larvæ.
735. OSBORN, H. Note. <College Quarterly, May, 1880, v. 3, p. 13.
Relates to *Amphicercus bicaudatus*.
736. OSBORN, H. Note. <College Quarterly, May, 1880, v. 3, p. 14.
Trochilium denudatum [= *Podosesia syringæ*]; destructive to ash trees.
737. OSBORN, H. Aphis lion *alias* lace-wing fly. <Western Stock Journ. and Farmer, May, 1880, v. 10, pp. 100-101.
Characters and habits of *Chrysopa* sp.
738. OSBORN, H. Answers to inquiries. <Western Stock Journ. and Farmer, May, 1880, v. 10, p. 101.
Tettigidea lateralis and *Listroderes* [= *Macrops*] *lineatulus* in excrement of bird; the latter alive when found illustrates the vitality possessed by some beetles.
739. OSBORN, H. Ash-tree borer. <College Quarterly, July, 1880, v. 3, p. 33. <Western Stock Journ. and Farmer, August, 1880, v. 10.
Characters and life history of *Trochilium denudatum* [= *Podosesia syringæ*]; parasites; figures larva, pupa, and adult.
740. OSBORN, H. Clover-hay moth. <College Quarterly, July, 1880, v. 3, p. 34.
Abundance and ravages of *Asopia costalis*; remedies.
741. OSBORN, H. Fall webworm. <College Quarterly, July, 1880, v. 3, p. 34.
Ravages of *Hyphantria textor* [= *cunea*].
742. OSBORN, H. The clover-hay worm. <Western Stock Journ. and Farmer, July, 1880, v. 10, p. 153.
Life history of *Asopia costalis*; remedies.
743. OSBORN, H. Answers to inquiries. <Western Stock Journ. and Farmer, July, 1880, v. 10, p. 153.
Habits of *Saperda birtata* [= *candida*]; life history of *Allypia octomaculata*: means against its ravages.

744. OSBORN, H. The banded hickory borer. <College Quarterly, September, 1880, v. 3, p. 51. <Western Stock Journ. and Farmer, November, 1880, v. 10, p. 250.
 Characters, habits, and means against *Cerasphorus* [= *Chion*] *cinctus*.
745. OSBORN, H. Note on Hessian fly. <College Quarterly, September, 1880, v. 3, p. 51.
 Ravages of *Cecidomyia destructor*.
746. OSBORN, H. The white-willow worm. <Western Stock Journ. and Farmer, September, 1880, v. 10, p. 202.
 Life history, habits, and means against *Cimex americana*.
747. OSBORN, H. Cabbage insects. <Western Stock Journ. and Farmer, September, 1880, v. 10, p. 202.
 Notes on *Pieris rapae*, *Plusia brassicae*, *Plutella cruciferarum*, and *Aphis brassicae*.
748. OSBORN, H. Note on insect parasitism. <Western Stock Journ. and Farmer, October, 1880, v. 10, p. 226.
749. OSBORN, H. Note on the scarcity of insect pests in Iowa during 1880. <Western Stock Journ. and Farmer, October, 1880, v. 10, pp. 226-227.
750. OSBORN, H. Indian cetonian. <Western Stock Journ. and Farmer, October, 1880, v. 10, pp. 226-227.
 Notes on *Euryomia* [= *Euphoria*] *inda*.
751. OSBORN, H. A borer of the hickory. <Western Stock Journ. and Farmer, October, 1880, v. 10, pp. 226-227.
 Life history and means against *Dicerca lurida*.
752. OSBORN, H. Entomology in Iowa. <College Quarterly, November, 1880, v. 3, p. 71.
 List of contributions to economic entomology in Iowa.
753. OSBORN, H. A new enemy to apple trees. <Western Stock Journ. and Farmer, December, 1880, v. 10, pp. 273-274.
 Characters, habits, and means against *Saperda cretata*.
754. OSBORN, H. Entomological report. <Trans. Iowa State Hortic. Soc. for 1879, 1880, v. 14, pp. 85-107.
 Key to 37 injurious apple insects, based on their habits and ravages; life histories and habits of *Papilio turnus*, *Smerinthus excaecatus*, *Datana ministra*, *Notodonta* [= *Edemasia*] *concinna*, *N.* [*Calodasys*] *unicornis*, *Gastropacha* [= *Tolyte*] *relledda*, *Tortrix* [= *Teras*] *malivorana*, *T.* [= *T.*] *cinderella*, *Macrodactylus subspinosus*, *Euryomia* [= *Euphoria*] *inda*, *Bostrichus* [= *Amphicerus*] *bicaudatus*, *Ithycerus noveboracensis*, and *Capsus oblineatus* [= *Lygus pratensis*]; characters, life history, and habits of *Chermes pinicorticis*; parasites of and means against the same.
755. OSBORN, H. Insects injurious to the strawberry. <Trans. Iowa State Hortic. Soc. for 1879, 1880, v. 14, pp. 496-499.
 Key to injurious strawberry insects, based on their habits and ravages; characters of and means against *Lachmosterna fusca*, *Colaspis flavida*, *Analcis* [= *Tyloderma*] *fragariae*, *Emphytus* [= *Harpiphorus*] *maculatus*, and *Anchylopera* [= *Phoxopteris*] *fragariae*.
756. OSBORN, H. [Economic entomology.] <[Des Moines] Iowa Homestead, 1880.

757. OSBORN, H. The cabbage butterfly. <Western Stock Journ. and Farmer, January, 1881, v. 11.
Comparative characters of *Pieris rapæ* and *P. protodice*; life history of *P. rapæ*; remedies and parasites.
758. OSBORN, H. Some simple observations.—To observers of insects. <Western Stock Journ. and Farmer, February, 1881, v. 11, pp. 33-34.
Notes for conducting experiments.
759. OSBORN, H. Food habits of *Saperda cretata*. <Amer. Nat., March, 1881, v. 15, p. 244.
Method of oviposition; habits of larva.
760. OSBORN, H. Sawflies. <Western Stock Journ. and Farmer, March, 1881, v. 11, p. 58.
Habits of Tenthredinidæ.
761. OSBORN, H. Occurrence of a bacterial disease in the bronze-colored cutworm (*Nephelodes violans* Guénée). <Iowa Homestead, 17 June, 1881.
762. OSBORN, H. Plant lice. <Western Stock Journ. and Farmer, June, 1881, v. 11, pp. 129-130.
Notes on *Aphis mali*, *A. maidis*, *A. brassicæ*, *A.* [= *Myzus*] *cerasi*, and *Siphonophora arenæ* [= *Nectarophora granaria*].
763. OSBORN, H. The white grub. <Iowa Homestead, 28 July, 1881.
Life history of *Lachnosterna quercina* [= *fusca*]; remedies.
764. OSBORN, H. The fall webworm. <Western Stock Journ. and Farmer, July, 1881, v. 11, p. 153.
Life history of *Hyphantria textor* [= *cuneæ*]; remedies.
765. OSBORN, H. Entomological notes. <Western Stock Journ. and Farmer, July, 1881, v. 11, p. 153.
Occurrence in Cass County, Iowa, of *Chatochilus pometellus*.
766. OSBORN, H. Patent insect destroyers. <Iowa Homestead, 22 August, 1881.
Efficacy of the Pugh insect destroyer limited to nocturnal species.
767. OSBORN, H. Book lice. <Iowa Homestead, 29 September, 1881.
Means against Psocidæ; enemies of the same.
768. OSBORN, H. The white-marked tussock moth. <Western Stock Journ. and Farmer, September, 1881, v. 11, pp. 201-207.
Life history of and remedies for *Orgyia leucostigma*.
769. OSBORN, H. The white-lined morning Sphinx—*Deilephila lineata*. <Western Stock Journ. and Farmer, October, 1881, v. 11, p. 225.
Characters and habits of *Deilephila lineata*.
770. OSBORN, H. Grasshoppers. <Western Stock Journ. and Farmer, November, 1881, v. 11, p. 250.
Life histories and habits of *Caloptenus femur-rubrum*, *C. differentialis*, *C. bivittatus*, *Aceridium americanum*, *A. emarginatum*, *Edipoda* [= *Dissosteira*] *carolina*, *Hippiscus phœnicopterus*, and *Tomonotus* [= *Arphia*] *sulphurea*.

771. OSBORN, H. The ash-tree borer. <Trans. Iowa State Hort. Soc. for 1880, 1881, v. 15, pp. 107-113.
Life history and habits of *Egeria* [= *Podosesia*] *springu*; injuries; parasite; life history, food plant, and habits of *Saperda cretata*.
772. OSBORN, H. Insects injurious to trees. <Iowa Homestead, 4 April, 1882. <Western Farm Journal, 15 May, 1882, v. 12, p. 88.
Review of Packard's Insects Injurious to Forest and Shade Trees.
773. OSBORN, H. Some old customers. <Western Farm Journal, 15 April, 1882, v. 12, p. 55. <Iowa Homestead, 21 April, 1882.
Means against cutworms, *Anisopteryx* [= *Paleucrita*] *vernata* and *Carpocapsa pomonella*.
774. OSBORN, H. Notes on *Pemphigus tessellata* Fitch. <Can. Ent., April, 1882, v. 14, pp. 61-65.
Characters and life habits.
775. OSBORN, H. Thrips as destroyers of fruit bloom. <Iowa Homestead, 26 May, 1882. <Western Farm Journal, 15 July, 1882, v. 12, p. 148.
Ravages of Thripidae; remedies.
776. OSBORN, H. Answers to inquiries about insects. <Iowa Homestead, 26 May, 1882.
Life history of and remedies against *Phycita nebulo* [= *Acrobasis indigineella*]; occurrence of *Meloe angusticollis*; life history of *Telea polyphemus*.
777. OSBORN, H. Answers to queries. <Iowa Homestead, 16 June, 1882.
Means against Agrotidae; habits of *Euryomia* [= *Euphoria*] *inda*; beneficial habits of several Carabidae.
778. OSBORN, H. The wool sower.—Answer to inquiries. <Iowa Homestead, 28 July, 1882. <Western Farm Journal, 15 August, 1882, v. 12, p. 181.
Life history of *Cynips* [= *Andricus*] *seminator*.
779. OSBORN, H. The maple bark louse. <Iowa Homestead, 25 August, 1882.
Parasites of and means against *Pulvinaria innumerabilis*.
780. OSBORN, H. Insects of the forest. <Iowa State Leader, 23 September, 1882.
Characters of and means against *Chion cinctus*.
781. OSBORN, H. Insects of the forest—*Dicerca lurida*.—Hickory. <Iowa State Leader, 30 September, 1882.
Life history; means against the deposition of the eggs.
782. OSBORN, H. Cherry slugs. <Iowa Homestead, 6 October, 1882. <Western Farm Journal, 15 October, 1882, v. 12, p. 252.
Life history of *Myzus cerasi*; remedies.
783. OSBORN, H. Insects of the forest—*Diapheromera femorata*.—Hickory. <Iowa State Leader, October, 1882.
Life history; remedies.

784. OSBORN, H. Insect parasitism. <Iowa Homestead, 13 October, 1882. <Western Farm Journal, 15 November, 1882, v. 12, p. 280.
Economic interest.
785. OSBORN, H. Insects of the forest—*Hyphantria textor*.—Hickory.—<Iowa State Leader, 14 October, 1882.
Food plants, life history, and means against *Hyphantria textor* [= *cauca*].
786. OSBORN, H. Birds and insects. <Germantown Telegraph, 18 October, 1882. <Iowa Homestead, 10 November, 1882. <Western Farm Journal, 15 December, 1882, v. 12, p. 302.
Notes the value, from an economic standpoint, of a knowledge of the inter-relations of insects and birds.
787. OSBORN, H. Queries and answers about insects. <Iowa Homestead, 20 October, 1882.
Abundance of *Chionaspis furfurus* in Iowa; characters and remedies.
788. OSBORN, H. Insects of the forest—*Tremex columba*.—Maple. <Iowa State Leader, 21 October, 1882.
Food and life habits of *Tremex columba*; parasites.
789. OSBORN, H. Insects of the forest—*Anisota rubicunda*.—Maple. <Iowa State Leader, 28 October, 1882.
Life history of *Anisota* [= *Dryocampa*] *rubicunda*; parasites and remedies.
790. OSBORN, H. Insects of the forest—*Pulvinaria innumerabilis*.—Maple. <Iowa State Leader, 4 November, 1882.
Deals with parasites of and means against *Pulvinaria innumerabilis*.
791. OSBORN, H. Insects of the forest—*Egeria syringa*.—Ash borer. <Iowa State Leader, 11 November, 1882.
Ravages and life history of *Egeria* [= *Podosesia*] *syringa*; its life history; parasites.
792. OSBORN, H. Insects of the forest—*Xyleutes robinia*.—Oak and locust. <Iowa State Leader, 25 November, 1882.
Ravages, life history, and enemies of *Xyleutes* [= *Cossus*] *robinia*.
793. OSBORN, H. Fall webworm again. <Iowa Homestead, 2 December, 1882.
794. OSBORN, H. Insects of the forest—*Cicada septendecim*. <Iowa State Leader, 2 December, 1882.
Food habits of *Cicada* [= *Tibicen*] *septendecim*; life history.
795. OSBORN, H. Insects of the forest—*Elaphidion villosum*.—Oak. <Iowa State Leader, 9 December, 1882.
Life history, habits, and means against *Elaphidion villosum*.
796. OSBORN, H. Habits of Thrips. <Psyche, July, 1882 [16 December, 1882], v. 3, p. 369.
Notes damage to fruit blossoms by *Phloothrips* sp.
797. OSBORN, H. Insects of the forest—*Cynips spongifica*.—Oak. <Iowa State Leader, 23 December, 1882.
Characters of the gall and gall maker, *Cynips* [= *Amphibolips*] *q-spongifica*.

798. OSBORN, H. Insect remedies. <Trans. Iowa State Hort. Soc. for 1881, 1882, v. 16, pp. 320-324.
Means against insects; application of insecticides; the use of arsenic, london purple, paris green, and pyrethrum; insecticide machinery, traps, hand picking, preventives.
799. OSBORN, H. Mr. Dixon's orchard insects. <Iowa Homestead, 13 April, 1883.
800. OSBORN, H. "Orchards and insects."—Review. <Iowa Homestead, 9 May, 1883.
Review of Dixon's article.
801. OSBORN, H. May beetles and blackbirds. <Iowa Homestead, 18 May, 1883.
Ravages of *Lachnosterna quercina* [= *fusca*]; blackbirds as an enemy to the same.
802. OSBORN, H. Entomological notes.—Answers to queries. <Iowa Homestead, 30 June, 1883.
Notes on *Eustrotia carneola*, *Agotis saucia*, *Parallelia bistriaria*, and an undetermined deltoïd.
803. OSBORN, H. Dangerous poisons as insecticides. <Iowa Homestead, 3 August, 1883.
804. OSBORN, H. An epidemic disease of *Caloptenus differentialis*. <Amer. Nat., December, 1883, v. 17, pp. 1286-1287.
Notice of *Entomophthora calopteni* parasitic in *Caloptenus differentialis*.
805. OSBORN, H. Life histories of internal parasites of domestic animals. <Proc. 9th Ann. Meeting Iowa State Improved Stock Breeders' Assoc. for 1882, 1883.
Notes on the life habits of *Gastrophilus equi* and *Æstrus ovis*.
806. OSBORN, H. Entomological notes for the year 1882. <Trans. Iowa State Hort. Soc. for 1882, 1883, v. 17, pp. 205-218.
Food habits of Thripidæ; notes on *Pulvinaria innumerabilis*, *Chionaspis furfurus*, *C. salicis*, *Mytilaspis pomorum*, *M. citricola*, *Aspidiotus nerii*, *Lecanium hesperidum*, *L. sp.*, and *Diaspis sp.*; means against Coccidæ; habits of and means against *Mamestra picta*, *Emphytus* [= *Harpiphorus*] *maculatus*, and *Selandria* [= *Eriocampa*] *cerasi*.
807. OSBORN, H. Entomology.—Coal tar and borers. <Iowa Homestead, 4 April, 1884.
Notes on the prevention of the oviposition of borers.
808. OSBORN, H. Questions and answers. <Iowa Homestead, June, 1884.
Means against insects.
809. OSBORN, H. Gall and blister mites. <Bull. Iowa Agric. College, August, 1884, No. 2, pp. 54-61, pl. 1.
Life history and habits of Phytoptidæ, and of *Phytoptus pyri*, *P. quadripes*, *Phytoptus sp.*, on ash, elm, and box elder; remedies.
810. OSBORN, H. The corn root-worm—[*Diabrotica longicornis*]. <Bull. Iowa Agric. College, August, 1884, No. 2, pp. 61-69, pl. 2.
Life history and ravages of *Diabrotica longicornis*.

BIBLIOGRAPHY OF ECONOMIC ENTOMOLOGY.

811. OSBORN, H. External parasites of domestic animals. Iowa Agric. College, August, 1884, No. 2, pp. 67-79.
 Characters and habits of various Pediculidæ, Mallophaga, Sarcoptidæ, H., poboosidæ, and Ixodidæ; remedies.
812. OSBORN, H. The ash sawfly. *Selandria barda* (Say). <Bull. Iowa Agric. College, August, 1884, No. 2, pp. 80-83, pl. 3, fig. 9. <Can. Ent., August, 1884, v. 16, pp. 148-162, fig. 6. <15th Ann. Rept. Ent. Soc. Ontario. 1885, pp. 32-34, fig. 5.
 Characters, habits, and ravages of *Selandria* [= *Monophadnus*] *bardus*: parasites; means against.
813. OSBORN, H. Notes on locust parasite. <Bull. Iowa Agric. College, August, 1884, No. 2, pp. 83-86.
Entomophthora calopteni, a true parasite of *Caloptenus*.
814. OSBORN, H. Insects of the orchard. <Bull. Iowa Agric. College, August, 1884, No. 2, pp. 87-97. <Trans. Iowa State Hortie. Soc. for 1883, 1884, v. 18, pp. 510-521.
 Habits and ravages of *Nysius destructor* [= *augustatus*], *Lygus lincolaris* [= *pratensis*], *Metapodius femoratus*, *Cicada tibicen*, *C.* [= *Tibicen*] *septendecim*, *Ceresa bubalus*, *C. taurina*, *Thelia cratugi*, *Jassus* [= *Thamnotettix*] *clitellaria*, *J.* [= *Phlepsius*] *irroratus*, *Psylla pyri*, *Aphis mali*, *A. malifolia* [= *mali*], *A. prunifolia*, *Myzus cerasi*, *Schizoneura lanigera*, *Callipterus mucidus*, *Alcurodes* sp., *Chionaspis furfurus*, *Mytilaspis pomorum*, *Aspidiotus perniciosus*, *Lecanium oleæ*, *L. pyri*, *Phytothrips mali*, *Thrips tritici*, and *Heliethrips hæmorrhoidalis*.
815. OSBORN, H. The pine louse. <Bull. Iowa Agric. College, August, 1884, No. 2, pp. 97-105, pl. 3, fig. 10.
 Characters, life history, and enemies of *Chermes pinicorticis*.
816. OSBORN, H. Insecticides and their application. <Bull. Iowa Agric. College, August, 1884, No. 2, pp. 105-107.
 Synopsis of the more commonly used insecticides and the most feasible methods of applying them.
817. OSBORN, H. Notes on Mallophaga and Pediculidæ. <Can. Ent., October, 1884, v. 16, pp. 197-199.
 Relates chiefly to the habitat of species found at Ames, Iowa.
818. OSBORN, H. External parasites. <Proc. 10th Annual Meeting Iowa State Improved Stock Breeders' Assoc. for 1883, 1884, pp. 126-127.
 A reprint of No. 811.
819. OSBORN, H. Leaf and gall mites. <Trans. Iowa State Hortie. Soc. for 1883, 1884, v. 18, pp. 127-135.
 Characters of *Phytoptus pyri*, *P. quadripes*, *P.* spp. from ash, elm, and box elder; remedies for mites.
820. OSBORN, H. Report of experiments at Ames, Iowa. <Bull. No. 11, Div. Ent. U. S. Dept. Agric. [26 February], 1886, p. 23-26.
 See Part 3, No. 2344, p. 351.

821. OSBORN, H. Economic utility of the diseases of insects. <Trans. Iowa State Hortic. Soc. 1886, 1887, v. 21, pp. 400-405.
Summary notice of the practical uses of insect diseases.
822. OSBORN, H. The chinch bug in Iowa. <Bull. Iowa Agric. Coll. Dept. Ent., January, 1888.
Life history, habits, and means against *Blissus leucopterus*; detailed account of observations at Ames, Iowa.
823. OSBORN, H. Report upon the insects of the season in Iowa. <Ann. Rept. [U. S.] Comm. Agric. for 1887, 1888, pp. 154-164.
See Part 3, No. 2418, p. 370.
824. OSTEN SACKEN, CHARLES ROBERT. On the transformations of *Simulium*. <Amer. Ent. and Bot., June, 1870, v. 2, pp. 229-231, figs. 145-147.
Habitat, characters, and habits of the larva of the Simuliidæ; transformations; characters of pupa; ravages of the imago; authorities.
825. OSTEN SACKEN, C. R. About *Phora* being merely a scavenger and not a true parasite. <Amer. Ent., November, 1880 [v. 3], n. s., v. 1, p. 277.
Notes on the recorded larval habits of various species of *Phora*.
826. OWEN, RICHARD. Remarks on the grain moth, usually termed the flying weevil of the Middle and Western States. <Cultivator, July, 1846, n. s., v. 3, pp. 208-212.
Characters of *Sitotroga cerealella*; injuries and remedies.
827. OWEN, R. Flying weevil. <Cultivator, November, 1846, n. s., v. 3, pp. 344-345, figs.
Injuries of *Sitotroga cerealella*.
828. PAAREN, N. H. Scab in sheep. <Prairie Farmer, 5 June, 1880, v. 51, p. 181.
Means against.
829. PACKARD, ALPHEUS SPRING. Entomological report on the army worm and grain *Aphis*. <6th Ann. Rept. Maine Bd. Agric., 1861, pp. 130-145.
830. PACKARD, A. S. Notice of an egg-parasite upon the American tent caterpillar—*Clisiocampa americana* Harris. <Pract. Ent., November, 1865, v. 1, pp. 14-15.
Characters and life history [*Telenomus clisiocampae*.]
831. PACKARD, A. S. The red-legged grasshopper. <Amer. Nat., July, 1867, v. 1, pp. 271-272.
Ravages of *Calopteni*; means against them.
832. PACKARD, A. S. The clothes-moth. <Amer. Nat., October, 1867, v. 1, pp. 423-427, figs. 1-4. Abstract. <Canada Farmer, 15 October, 1867, v. 4.—S.-b. No. 2, p. 98.
Natural history, transformations, habits, and injuries of *Tinea flavifrontella*; remedies.

833. PACKARD, A. S. A chapter on flies. <Amer. Nat., 1869, v. 2: January. pp. 587-596, pl. 12, figs. 1-4; February. pp. 638-644, pl. 13, figs. 1-2.

The habits and natural history of some of the commoner species of Diptera.

834. PACKARD, A. S. A chapter on mites. <Amer. Nat., September, 1869, v. 3, pp. 364-373, pl. 6, figs. 61-64.

Habits and history of several of the commoner mites and ticks.

835. PACKARD, A. S. Certain parasitic insects. <Amer. Nat., April, 1870, v. 4, pp. 83-99, pl. 1, figs. 13-29.

Habits and natural history of various lice; figures.

836. PACKARD, A. S. The borers of certain shade trees. <Amer. Nat., December, 1870, v. 4, pp. 588-594, figs. 115-123.

Characters, habits, and injuries of *Saperda tridentata*, *S. vestita*, *S. calcarata*, *S. inornata*, and *Prionus laticollis*; figures.

837. PACKARD, A. S. [The currant sawfly.] <Bull. Essex Inst., 1870, v. 2, pp. 93-95, figs.

Characters and injuries of *Nematus ventricosus* [= *ribesii*]; enemies and remedies.

838. PACKARD, A. S. New or little-known injurious insects. <17th Ann. Rept. Sec. Mass. Bd. Agric., 1870, pp. 235-263, pl. 1, figs. 1-11. Separate: <1870, pp. 31, pl. 1, figs. See: <Amer. Nat., January, 1871, v. 4, pp. 684-688, pl. 6, figs. 154-156.

The following species are discussed: *Grapholitha oculana* [= *Tmetocera oculana*], *Micropteryx pomivorella*, *Tortrix r-signatana* [= *Cacoccia argyrosipila*], *Colcophora cerasirotella*, *Tortrix* [= *Teras*] *oxycoecana*, *T. incertana* [= *Lophoderus trifurcatus*], *T.* [= *Teras*] *vacciniivora*, *Anthonomus suturalis*, *Chorodes transversata*, *Halia* [= *Thamnomoma*] *wacaria*, *Byturus unicolor*, *Prioclyta* [= *Endropia*] *bilinearia*, *Paraphia piniata*, [= *subatomaria*], *Zerene piniaria* [= *Cleora pulchriaria*], *Parennomos piniaria* [= *Caripeta angustiorata*], *Lyda* sp., *Abia caprifolii* [= *Zaraca inflata*], *Egeria* [= *Podosesia*] *syringæ*, *Bruchus granarius* [= *obtectus*], *Sphenophorus zœa* [= *sculptilis*], *Proctacanthus philadelphicus* [= *Promachus bastardi*], *Tabanus atratus*, *Aspidiotus* [= *Diaspis*] *bromeliæ*, *A.* [= *Mytilaspis*] *gloverii*, *Leccanium filicum*, *L. platycerii*, *Coccus* [= *Dactylopius*] *aloniidum*, *Aleurodes vaporarium*?, and *Heliothrips hamorrhoidalis*.

839. PACKARD, A. S. First annual report on the injurious and beneficial insects of Massachusetts. <18th Ann. Rept. Sec. Mass. Bd. Agric., 1871, pp. 351-379, pl. 1, figs. Separate: <Boston, 1871, pp. 31, pl. 1, figs. See: <Amer. Nat., September, 1871, v. 5, pp. 423-427, figs.

Discusses the importance of entomology to farmers; notice of *Nematus ribesii*, *Pristiphora grossularia*, *Abraxas* [= *Eufitchia*] *ribearia*, *Leiopus* [= *Lepturges*] *facetus*, *L. xanthoryli* [= *fascicularis*], *Callidium* [= *Phymatodes*] *amœnus*, *Pieris rapæ*, *Bruchus varicornis* [= *obtectus*], *Drepanodes juniperaria* [= *olyconaria*], *Bucculatrix thuiella*, and *Telephorus bilincutus*; habits and characters of the larva of *Galerita janus*; usefulness of dragon flies; description of the pupa of *Cordulia lateralis*.

840. PACKARD, A. S. Injurious insects in Essex County. <Bull. Essex Inst., 1872, v. 4, pp. 5-9, figs.

Injuries of *Limothrips tritici* and of *Anthomyia ceparum*; notes on *Pieris rapæ*, *Pteropsis* [= *Pteromalus*] *puparum*, and on *Tachina* sp.

841. PACKARD, A. S. Second annual report on the injurious and beneficial insects of Massachusetts. <19th Ann. Rept. Sec. Mass. Bd. Agric., 1872, pp. 331-347, figs. Separate: <Boston, 1872, pp. 19, figs. See: <Amer. Nat., April, 1873, v. 7, pp. 241-244, figs.
- Injuries caused by insects; notes concerning *Limothrips tritici*; *Anthomyia ceparum*, *Pieris rapae*, *Pteromalus puparum*, *Tachina* sp., *Cerostoma brassicella* [= *Plutella cruciferarum*], *Ceutorhynchus assimilis*, *Otiiorhynchus picipes*, *Selandria* [= *Monophadnus*] *rubi*, *Balaninus rectus*, *Arhopalus fulminans*, *Callidium* [= *Phymatodes*] *variabilis*, and *Physocnenum brevilineum*.
842. PACKARD, A. S. Third annual report on the injurious and beneficial effects of insects of Massachusetts. <20th Ann. Rept. Sec. Mass. Bd. Agric., 1873, pp. 237-265, figs. 1-18. <Amer. Nat., September, 1873, v. 7, pp. 524-548, figs. 138-152.
- Habits, characters, and injuries of *Lachnosterna fusca*, *Cotalpa lanigera*, *Bruchus fabae* [= *obtectus*] and *Cicada* [= *Tibicen*] *septendecim*; characters and larval habits of *Brachys aruginosa* and *Metonius lavigatus*; describes and figures the larva and pupa of *Languria puncticollis*; characters and figures of the early stages of *Dacne* [= *Megalodacne*] *heros*; describes the early stages of *Psyllobora 20-maculata*; characters and habits of *Trombidium? bulbipes*.
843. PACKARD, A. S. The "hateful" grasshopper in New England. <Amer. Nat., August, 1874, v. 8, p. 502.
- Occurrence of *Caloptenus spretus* [‡= *atlantis*] in Maine and Massachusetts; its characters and variations.
844. PACKARD, A. S. *Caloptenus spretus* in Massachusetts. <Amer. Nat., October, 1875, v. 9, p. 573.
- Occurrence of *C. spretus* [‡= *atlantis*] at Amherst, Mass.
845. PACKARD, A. S. Insect injurious to the elm. <Gardeners' Monthly, May, 1878, v. 18, p. 133.
- Notes injuries similar to those of *Saperda tridentata*.
846. PACKARD, A. S. Report on the Rocky Mountain locust and other insects now injuring or likely to injure field and garden crops in the Western States and Territories. <Rept. U. S. Geol. Surv. for 1875, 1877, pp. 589-810, pls. 62-70, maps 1-5, figs. See: <Amer. Nat., January, 1877, v. 11, pp. 22-29.

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847. PACKARD, A. S. U. S. Entomological Commission—Circular No. 1. <Washington, 1877.

See Part 3, No. 1575, p. 212.

848. PACKARD, A. S. Bulletin of the United States Entomological Commission, No. 1. <Washington, 1877.

See Part 3, No. 1577, p. 212.

849. PACKARD, A. S. Bulletin of the United States Entomological Commission, No. 2. <Washington, 1877.

See Part 3, No. 1578, p. 212.

850. PACKARD, A. S. First annual report of the United States Entomological Commission. * * * <Washington, 29 July, 1878.

See Part 3, No. 1643, pp. 222-230.

851. PACKARD, A. S. Insects injurious to the maple. <Sci. Farmer, 1878.

852. PACKARD, A. S. Insects affecting the cranberry, with remarks on other injurious insects. <Rept. U. S. Geol. Surv. for 1876, 1878, pp. 521-531, figs.

Characters and injuries of *Cidaria* sp.; describes *Tortrix* [= *Texas*] *oxycocana*; characters of *T.* [= *T.*] *vacciniivorana*; figures larva and pupa; larval habits; describes the pupa and adult of *Tortrix incertana* [= *Lophoderus trifurcatus*]; larval habits of undetermined "red-striped cranberry worm"; describes and figures the larva; figures larva, pupa, and adult *Anchylopera* [= *Rhopobota*] *vacciniana*; its characters and habits; figure of *Cecidomyia* sp.; characters and injuries of *Anthonomus suturalis* and of an undetermined "fruit worm"; characters and habits of *Diplosis pini-rigida*; habits and transformations of *Monohammus titillator*; figures its early stages; describes and figures the larva of *Tremex columba*.

853. PACKARD, A. S. The Rocky Mountain locust in New Mexico. <Amer. Nat., September, 1879, v. 13, p. 586.
Dates of several invasions of *Caloptenus spretus* in New Mexico.
854. PACKARD, A. S. The cotton worm moth [*Aletia argillacea*] in Rhode Island. <Amer. Nat., January, 1880, v. 14, p. 53.
Notes its occurrence in Providence, R. I., and Salem Harbor, Mass.
855. PACKARD, A. S. The Hessian fly, its ravages, habits, enemies, and means of preventing its increase. <Bull. U. S. Ent. Comm., No. 4, 20 May, 1880, pp. 43, pls. 1-2, map, fig. See: <Amer. Ent., 1880, v. 3, n. s., v. 1; May, pp. 118-121; June, pp. 140-141, fig. 46. <Amer. Nat., August, 1880, v. 14, pp. 586-587.
856. PACKARD, A. S. *Cetonia inda*. <Amer. Nat., November, 1880, v. 14, p. 806.
Food habits and injuries of *Cetonia* [= *Euphoria*] *inda*.
857. PACKARD, A. S. Insects injurious to the cranberry. <Trans. Wis. State Hortic. Soc., 1880, v. 10, pp. 313-322, figs. 17-20.
The natural history and injuries of *Cidaria* sp., *Tortrix* [= *Teras*] *oxycoccana*, *T.* [= *T.*] *vacciniivirorana*, *T. incertana* [= *Lophoderus triferana*], *Anchylopera* [= *Ihopobota*] *vacciniana*, *Cecidomyia* sp., and *Anthonomus suturalis*; mention of several undetermined species.
858. PACKARD, A. S. Second report of the United States Entomological Commission. * * * <Washington, 1880 [4 April, 1881].
See Part 3, No. 1959, pp. 269-275.
859. PACKARD, A. S. Insects injurious to forest and shade trees. <Bull. U. S. Ent. Comm., No. 7, 1881, pp. 275, figs.
Treats of the habits, injuries, and remedies of insects affecting the oak, elm, hickory, black walnut, butternut, chestnut, locust, maple, cottonwood, poplar, linden, birch, beech, tulip tree, magnolia, papaw, prickly ash, ailanthus, horsechestnut, box elder, mesquite, honey locust, wild cherry, choke cherry, red wild plum, juneberry, mountain ash, *Crataegus* sp., sweet gum, gum tree, persimmon, laurel, ash, sassafras, sycamore, hazel, hornbeam, water beech, alder, willow, pine, spruce, fir, hemlock, Rocky Mountain spruce, junipers, larch, cedar, sequoia, and cypress.
860. PACKARD, A. S. Notes on lepidopterous larvæ. <Papilio. November-December, 1882, v. 2, pp. 180-183.
Habits and descriptive notes on the early stages of *Lycomorpha pholus*, *Acronycta occidentalis*, *Hyppena baltimoralis*, *Dichelia sulphureana*, *Teras ferrugana*, *Cacrecia rosaceana*, and *Thera contracta*.
861. PACKARD, A. S. Causes of destruction of evergreen forests in New England and New York. <Ann. Rept. [U. S.] Comm. Agric. for 1883, pp. 138-151.
See Part 3, No. 2232, p. 310.
862. PACKARD, A. S. Notes on forest-tree insects. <Bull. No. 3, Div. Ent. U. S. Dept. Agric. [8 December], 1883, pp. 24-30.
See Part 3, No. 2253, p. 315.

863. PACKARD, A. S. Decay of the spruce in the Adirondaeks and northern New England. <Nation, 1893, v. 37, p. 525.
864. PACKARD, A. S. Third report of the United States Entomological Commission. * * * <Washington 1883 [6 March, 1884]. See Part 3, No. 2267, p. 316.
865. PACKARD, A. S. Egg-laying habits of the egg parasite of the cankerworm. <Amer. Nat., March, 1884, v. 18, pp. 292-293. Deals with *Platygaster* sp.
866. PACKARD, A. S. The larch-worm. <Amer. Nat., March, 1884, v. 18, pp. 293-296, figs. Ravages, habits, and life history of *Nematus erichsonii*.
867. PACKARD, A. S. The hemlock Gelechia. <Amer. Nat., March, 1884, v. 18, p. 296. Characters of *Gelechia abietisella* and of its larva; injuries and metamorphoses.
868. PACKARD, A. S. The spruce-bud Tortrix. <Amer. Nat., April, 1884, v. 18, pp. 424-426, figs. Habits and injuries of *Tortrix fumiferana*: life history; characters of the eggs.
869. PACKARD, A. S. Life histories of some geometrid moths. <Amer. Nat., September, 1884, v. 18, pp. 933-936. Transformations of *Aplodes coniferaria*, *Endropia textrinaria*, *Paraphia deplanaria*, *Tetracis lorata*, and *Metanema quercivoraria*.
870. PACKARD, A. S. Transformations of *Caripeta angustiorata*. <Amer. Nat., October, 1884, v. 18, pp. 1045-1046. Characters of the larva and pupa.
871. PACKARD, A. S. Mode of oviposition of the common Longicorn pine borer [*Monohammus confusor*]. <Amer. Nat., November, 1884, v. 18, pp. 1149-1151.
872. PACKARD, A. S. Egg-laying habits of the maple-tree borer. <Amer. Nat., November, 1884, v. 18, pp. 1151-1152. Observations relating to *Glycobius* [= *Plagionotus*] *speciosus*.
873. PACKARD, A. S. The larval stages of *Mamestra picta*. <Amer. Nat., December, 1884, v. 18, pp. 1266-1267. Describes the early larval stages; injuries to ruta bagas.
874. PACKARD, A. S. Second report on the causes of the destruction of the evergreen and other forest trees in northern New England and New York. <Ann. Rept. [U. S.] Comm. Agric. for 1884, 1885, pp. 374-383. See Part 3, No. 2291, p. 329.
875. PACKARD, A. S. Third report on the causes of destruction of the evergreen and other forest trees in northern New England. <Ann. Rept. [U. S.] Comm. Agric. for 1885, 1886, pp. 319-333. See part 3, No. 2363, p. 357.

876. PACKARD, A. S. Additions to the third report on the causes of the destruction of the evergreen and other forest trees in northern New England. <Bull. No. 12, Div. Ent. U. S. Dept. Agric. [13 July], 1886, pp. 17-23.
See Part 3, No. 2364, p. 357.
877. PACKARD, A. S. Fourth report on insects injuring forest and shade trees. <Bull. No. 13, Div. Ent. U. S. Dept. Agric. [3 June], 1887, pp. 20-32.
See Part 3, No. 2382, p. 360.
878. PACKARD, A. S. Arsenical poisons in the orchard. <Garden and Forest, 29 February, 1888, v. 1, p. 9.
Summary statement of Forbes's experiments.
879. PACKARD, A. S. The red mite on verbenas. <Garden and Forest, 7 March, 1888, v. 1, p. 20, fig.
Habits and injuries of *Tetranychus telarius*: remedies.
880. PACKARD, A. S. Certain cone-eating insects. <Garden and Forest, 25 April, 1888, v. 1, pp. 100-101, figs.
Habits and injuries of *Pinipestis reniculella*; figures larva, adult, and infested cones; habits of *Dryocates affaber*.
881. PARKER, CHARLES. How to beat the chinch bugs. <Farmers' Review, 28 December, 1882.
Blissus leucopterus will not injure spring seed wheat that has been soaked in brine.
- PARMELEE, GEORGE. See Tracy, William W.
882. PARNELL, CHARLES. The cabbage worm. <Gardeners' Monthly, September, 1885, v. 27, p. 272.
Habits and injuries of *Anthomyia brassicae*.
883. PARRY, CHARLES. Tomato-worm parasites. <Amer. Ent., December, 1869-January, 1870, v. 2, p. 88.
Ravages of *Protoparce ccleus* checked by *Microgaster* sp.
884. PARSONS, JAMES H. Onion maggots. <Amer. Ent., November, 1869, v. 2, p. 51.
Means against *Anthomyia ceparum*.
885. PARSONS, J. H. Grasshoppers. <Amer. Ent., November, 1869, v. 2, p. 52.
Scarcity of locusts in New York.
886. PARSONS, T. Grasshoppers and the palmer worm. <Mass. Soc. Prom. Agric., Papers, 1807, pp. 32-33.
Invasions of locusts and palmer worms [$? = Leucania unipuncta$]; means against palmer worms.
887. PASCA, ISAAC D. Destroying pea weevils. <Amer. Ent., August, 1880, v. 3, n. s., v. 1, p. 205.
Means against *Bruchus pisi* [= *pisorum*].
888. PAULS, G. Clover-worms. <Amer. Ent. and Bot., May, 1870, v. 2, p. 209.
Habits of *Asopia costalis*.

889. PEABODY, CHARLES. Notes on the tarantula-killer. <Amer. Ent., November, 1869, v. 2, p. 52.
Habits of *Pepsis formosa*.
890. PECK, CHARLES H. The black spruce. <[Albany, 1875?], 21 pp.
Notes ravages of *Hylargus* [= *Dendroctonus*] *rufipennis*.
891. PECK, WILLIAM DANDRIDGE. The description and history of the cankerworm. <Mass. Mag., 1795, v. 7; September, pp. 323-327; October, pp. 415-416, 1 pl. Reprint: <Rules and regulations of the Mass. Soc. for promoting Agric., 1796, pp. 35-45, 1 pl. <New England Farmer, 6 July, 1827, v. 5, pp. 393-394.
Description of *Phalena* [= *Palaearcta*] *vernata* sp. nov.; habits, natural history, seasons, enemies, diseases, and probable habitat of the same.
892. PECK, W. D. Natural history of the slugworm. <Papers on Agric., Mass. Soc. for promoting Agric., 1799, pp. 9-20, 1 pl. Separate: <Boston, 1799, 14 pp., 1 pl.
Description of larvæ of a tenthredinid found on *Betula* and *Salix*; history of invasions, seasons, transformations, oviposition, and food plants of *Selandria* [= *Eriocampa*] *cerasi*; description and figures of the larva, pupa, and imago of the same and of the pupa and imago of a chalcid egg-parasite; description and figure of the ovipositor of the *Selandria*.
893. PECK, W. D. Important communication relative to the cankerworm. <Mass. Agric. Repos. and Journ., January, 1816, v. 4, No. 1, pp. 89-92.
Notices the rising of imagos in the fall of the year as exceptional; means against the cankerworm.
894. PECK, W. D. On the insects which destroy the young branches of the pear tree and the leading shoot of the Weymouth pine. <Mass. Agric. Journ., January, 1817, v. 4, No. 3, pp. 205-211, 1 pl. <Zool. Journ., January-April, 1825, v. 2, pp. 487-492.
Description, natural history, ravages, and means against *Scolytus pyri* [= *Xyleborus dispar*]; description and ravages of *S. strobi*; natural history, description, figures, ravages, and enemies of *Rhyncbanus* [= *Pissodes*] *strobi*.
895. [PECK, W. D.] Some notice of the insect which destroys the locust tree. <Mass. Agric. Repos. and Journ., January, 1818, v. 5, No. 1, pp. 67-73, 1 pl.
Description and figures of the larva, pupa, and imago of *Cossus robinia* n. sp., which bores in *Robinia pseudacacia* and *Quercus tinctoria*; *Clytus* [= *Cyllene*] *robinia* also a borer in the *Robinia*.
896. PECK, W. D. Insects which affect the oaks and cherries. <Mass. Agric. Repos., January, 1819, v. 5, no. 3, pp. 307-313. <Zool. Journ., January-April, 1826, v. 2, pp. 487-492. <Féruss. Bull., 1828, v. 14, pp. 151-152. <Isis, 1830, v. 10, p. 1065.
Description and figures of *Stenocorus putator* [= *Elaphidion villosum*] and of *Rhyncbanus cerasi* [= *Conotrachelus nenuphar*]; habits, injuries, and means against the same.
897. PERGANDE, THEODORE. Habits of thrips. <Psyche, August, 1882 [15 January, 1883], v. 3, p. 381.
Notes the food habits of several species.

898. PERIAM, JONATHAN. The army worm. <Amer. Enc. Agric., 1881.
Natural history of *Leucania unipuncta*.
899. PERKINS, GEORGE H. Insects injurious to the apple and potato.
<3d Rept. Vermont Board Agric. 1876, 1876, pp. 47, 14 figs.
900. PERKINS, G. H. On certain injurious insects. <4th Rept. Ver-
mont Board Agric. 1877, 1877, pp. 128-139.
Injuries of *Doryphora 10-lineata*; characters of the suborders of insects; insects injurious to the currant; habits and natural history of *Abraxas* [= *Eufitchia*] *ribearia*, *Amphidasys* [= *Eubyia*] *cognataria*, *Priocycla* [= *Endropia*] *armataria*, *Lozotenia* [= *Cacacia*] *rosaceana*, *Egeria tipuliformis*, *Pempelia grossularia* [= *Dakruma convolutella*], *Grapta progne*, *Orgyia antiqua*, *Nematus ventricosus* [= *ribesii*], *Pristiphora grossularia*, *Capsus 4-rivittatus* [= *Pacilocapsus lineatus*], *Psenocerus supernotatus*, *Cecidomyia grossulariæ* and *Lecanium* sp.; insects injurious to the raspberry, *Rhodites radicum*, *Selandria* [= *Monophadnus*] *rubi*, *Acronycta verrilli*, *Hyphantria textor* [= *cunea*], *Lozotania* [= *Cacacia*] *rosaceana*, *Aplodes* [= *Synchlora*] *rubicoraria*, *Egeria rubi* [= *Bombecia marginata*], *Pterophorus* sp., *Agrilus ruficollis*, *Oberea tripunctata*, *Haltica* [= *Epitrix*] *eucameris*, *Corimelœna pulicaria*, and *Oecanthus nireus*; insects injurious to the strawberry, *Emphytus* [= *Harpiphorus*] *maculatus*, *Osmia canadensis* [= *cognata*], *Angerona crocataria*, *Agrotis* sp., *Achylopera* [= *Phoroapteris*] *fragariae*, *Tortrix* [= *Eccopsis*] *permundana*, *Lozotania* [= *Cacacia*] *rosaceana*, *L. fragariæ* [= *Ptycholoma persicana*], *Acronycta oblongata*, *Anarsia lineatella*, *Lachnosterna fusca*, *Cotalpa lanigera*, *Paria sexnotata* [= *Typophorus canellus*], *Analcis* [= *Tyloclerema*] *fragariae*, *Colaspis flavida*, and *Corimelœna pulicaria*; habits, injuries, and natural history of *Pieris rapæ* and *P. oleracæ*; bibliography of the species discussed.
901. PERKINS, G. H. On some of the injurious insects of Vermont.
<5th Rept. Vermont Board Agric. 1878, 1878, pp. 250-286, figs. 1-37.
Abundance of *Doryphora 10-lineata*; characters, injuries, and remedies of *Estrus oris*, *Melophagus orinus*, *Clisiocampa distria*, *Nematus ventricosus* [= *Pteronius ribesii*], *Egeria tipuliformis*, *Eufitchia ribearia*, *Vanessa antiopa*, *Dermestes lardarius*, *Corynetes* [= *Necrobia*] *rufipes*, *Conotrachelus nenuphar*, *Bruchus pisi*, *Selandria* [= *Eriocampa*] *cerasi*, *Egeria* [= *Sciapteron*] *polistiformis*, *Prionus laticollis*, *Spilosoma virginica*, *Amphipyra* [= *Pyrophila*] *pyramidoides*, *Pterophorus* [= *Oryptilus*] *periscelidactylus*, *Acronycta oblongata*, *Alypia 8-maculata*, *Eudyras grata*, *Desmia maculalis*, *Chorocampa pampinatrix* [= *Ampelophaga myron*], *Philampelus achemon*, *P. satellitia* [= *pandorus*], *Thyreus abbotii*, *Haltica chalybea*, *Colaspis flavida*, *Pelidnota punctata*, *Macro-dactylus subspinosus*, *Sinoxylon basilare*, *Erythroneura* [= *Typhlocyba*] *ritis* and *Oecanthus nireus*.
902. PERKINS, G. H. On the more important parasites of the higher animals. <6th Rept. Vermont Agric. 1880, 1880, pp. 55-94, figs. 1-24.
Notice, with figures, of *Estrus oris*, *Melophagus orinus*, *Ixodes boris*, *I. unipuncta* and *Sarcoptes scabiei*.
903. PERKINS, G. H. Cooperation in the study of insects—Tent caterpillars. <Vermont State Agric. Exper. Station Bull. No. 11, June, 1888, pp. 1-8, figs. 1-2.
The aid of farmers desired; characters and natural history of *Clisiocampa americana*; remedies; notes on *C. sylvatica* [= *distria*].

904. PERLEY, ENOCH. An account of the lice found on many young apple trees in the district of Maine. <Papers on Agric., 1804, v. 2, pp. 103-105.
Injuries of [*Mytilaspis pomorum*]; remedies.
905. PERLEY, E. Lice infesting young orchards in the district of Maine; mode of destroying them. <Mass. Agric. Repos. and Journ., May, 1814, v. 3, pp. 144-145.
Habits and remedies of [*Mytilaspis pomorum*].
906. PETTIT, JOHNSON. Description of the wheat wireworm. <Can. Ent., January, 1872, v. 4, pp. 3-6, figs. 1-7.
History of *Agriotes mancus*.
907. PETTYS, GEORGE. Rats and the chinch bug in the fields. <Prairie Farmer, 20 July, 1859, v. 20, p. 50.
Abundance of *Blissus leucopterus*; preventives.
908. PHARES, D. L. The cotton army worm (*Anomis xyliua* Say). <Amer. Ent., August, 1869, v. 1, p. 242.
Habits of *Anomis* [= *Aletia*] *xyliua*; characters of the egg; preventives.
909. PHARES, D. L. The cotton caterpillar (*Anomis xyliua*). <Rural Carolinian, August, 1870, v. 1, pp. 683, 695.
Figures all stages of *Anomis* [= *Aletia*] *xyliua*, *Heliothis armiger* and *Laphygma frugiperda*. Contains sections entitled: History; Will the caterpillar cause cotton culture to cease?; Why is the caterpillar worse some years?; Errors: Proposed modes of destroying; Propagation.
910. PHELPS, WILSON. Rye with wheat for chinch bugs. <Prairie Farmer, 19 April, 1862, n. s., v. 9, p. 241.
Sowing rye among wheat saved the latter from *Blissus leucopterus*.
911. PHILIPS, M. W. The cotton worm. <Southern Cultivator, 1848, p. 28.
Characters of the larva and pupa of *Aletia xyliua* [= *argillacea*].
912. PHILIPS, M. W. Linseed oil for scale. <Gardeners' Monthly, September, 1876, v. 18, p. 271.
Effective.
913. PHILLIPS, J. B. The Rocky Mountain locust. *Caloptenus spretus*. Statistics of Minnesota for 1876. <8th Ann. Rept. Comm. Statistics, pp. 88-112.
Distribution and flight of destructive locusts; data of European invasions; statistics of ravages in the United States since 1818; ravages in Minnesota in 1875.
914. PICKERING, TIMOTHY. Description of a brush for destroying caterpillars' nests. <Mass. Agric. Repos. and Journ., July, 1817, v. 4, pp. 326-328. <New England Farmer, 1823, v. 1, p. 308.
Adaptation of a common bottle brush fastened to a pole; method of using the same.
915. PICKERING, T. [Pea culture]. <Mass. Agric. Repos. and Journ., June, 1822, v. 7, pp. 122-127. <New England Farmer, 1822, v. 1, p. 2.
By late sowing peas can be saved from the attacks of *Bruchus pisi* [= *pisorum*].

916. PILLSBURY, JOHN S. The Rocky Mountain locust or grasshopper. * * * <St. Louis, 1876.
See Part 3, No. 1557, p. 205.
917. PLEASANT, J. A. W. Grain worm, chinch bug, Dutton corn. <Cultivator, May, 1836, v. 3, pp. 41-42.
Ravages of ?*Leucania unipuncta*; habits and ravages of *Blissus leucopterus*; notes on *Cecidomyia* [= *Diplosis*] *tritici*.
918. POPENOE, EDWIN ALONZO. A new insect foe. <[Manhattan, Kans.], Industrialist, 29 May, 1880, v. 5, p. 2.
Characters, ravages, and habits of *Aranigus tessellatus*.
919. POPENOE, E. A. The webworm. Notes upon its habits and description of its transformations. <2d Quart. Rept. Kansas State Board Agric. for 1880, 1880, pp. 99-103.
Relates to *Eurycreon rautalis*.
920. POPENOE, E. A. The chinch bug and the season. <Quart. Rept. Kansas State Board. Agric., September, 1882. <Prairie Farmer, 25 November, 1882.
Notes the death of large numbers of *Blissus leucopterus* in Iowa, each being covered with a white fungus.
921. PORTER, J. R. The army worm. <Cultivator, September, 1837, v. 4, No. 7, pp. 116-117.
Ravages of *Leucania unipuncta*.
922. POTTER, NATHANIEL. Notes on the *Locusta septentrionalis americana decem septima*. <Baltimore, J. Robinson, 1839, 27 pp., 1 pl.
History, habits, descriptions, and figures of *Tibiceu septendecim*.
923. POWELL, S. [Letter relative to the Hessian fly.] <Amer. Museum, September, 1788, v. 4, pp. 244-245.
924. PRENTISS, A. N. Destruction of obnoxious insects by means of fungoid growths. <Amer. Nat., 1880, v. 14; August, pp. 575-581; September, pp. 630-635.
Account of experiments with yeast fungus upon aphids, coccids, and acarids.
925. PRINCE, JOHN. On a worm which attacks the apple tree. <Mass. Agric. Repos. and Journ., July, 1819, v. 5, pp. 360-361.
Habits and ravages of [*Chrysobothris femorata*].
926. PROCTOR, J. W. Circular lead troughs. <New England Farmer, 19 August, 1840, v. 19, p. 53.
States that Dennis's leaden oil troughs do more harm than good.
927. PROCTOR, J. W. Mr. Dennis and his patent troughs. <New England Farmer, 30 December, 1840, v. 19, p. 205.
Considers Dennis's troughs useless.
928. PROUTY, DANIEL. Extirpating borer. <Mass. Agric. Repos. and Journ., January, 1831, v. 10, pp. 273-274.
Means against *Saperda candida*.
929. PULLEN, B. Hindrances to successful fruit growing. <Amer. Ent. and Bot., April, 1870, v. 2, pp. 169-170.
Means against *Carpocapsa pomonella* and *Conotrachelus nenuphar*.

930. PUSEY, PENNOCK. The Rocky Mountain locust or grasshopper. * * * <St. Louis, 1876.
See Part 3. No. 1557, p. 205.
931. PUTNAM, JOSEPH DUNCAN. [Borer in grape canes.] <Proc. Davenport Acad. Nat. Sci., March, 1876. v. 1. p. 36.
Characters of *Amphicerus bicaudatus*; ravages and remedies.
932. PUTNAM, J. D. The maple bark louse. *Lecanium acericola*, W. and R. <Proc. Davenport Acad. Nat. Sci., March, 1876, v. 1, pp. 37-38.
Habits and enemies of *Lecanium acericola* [= *Pulvinaria innumerabilis*].
933. PUTNAM, J. D. Notes. <Proc. Davenport Acad. Nat. Sci., July, 1876, v. 1, pp. 265-267, pl. 36, figs. 1, 2.
Habits of *Caloptenus spretus* and of *Anabrus simplex*.
934. PUTNAM, J. D. Report on maple bark louse. <Trans. Iowa State Hort. Soc. for 1877, 1878, v. 12, pp. 317-324.
Characters, habits, natural history, ravages, and enemies of *Pulvinaria innumerabilis*.
935. PUTNAM, J. D. Biological and other notes on Coccidæ. 1. *Pulvinaria innumerabilis*; 2. *Aspidiotus ancyclus*. <Proc. Davenport Acad. Nat. Sci., 1879-1880, v. 2, pp. 293-348, pl. 12-13.
Separate: <Davenport, February, 1880, pp. 293-348, 2 plates.
Synonymy, natural history, habits, anatomy, diseases, parasites, enemies, ravages, and means against *Pulvinaria innumerabilis*; food plants and mode of distribution; notes on other species of *Pulvinaria* and on *Aspidiotus ancyclus*.
936. PUTNAM, J. D. Report on bark lice. <Trans. Iowa State Hort. Soc. for 1879, 1880, v. 14, pp. 73-77.
Food habits of numerous coccids; their effect on trees; remedies.
937. R., J. Disease in cabbages. <Gardeners' Monthly, August, 1885, v. 27, pp. 238-239.
Injuries of *Anthomyia brassicæ*.
938. RADDE, GUSTAV. *Pyrethrum roseum*. <Amer. Ent., October, 1880 [v. 3], n. s., v. 1, p. 252.
Flowers of the wild plant give an effective insect powder.
939. RATHVON, SIMON SNYDER. [Bark louse.] <Penn. Family Journ., August, 1854, v. 4, pp. 256-258.
Describes *Coccus* [= *Pulvinaria*] *innumerabilis*.
940. RATHVON, S. S. Entomological essay. Read before the Fruit Growers' Association of Eastern Pennsylvania at its meeting in West Chester on the 13th day of June, 1860. <Gardeners' Monthly, 1860, v. 2; October, pp. 299-301; November, pp. 326-329; December, pp. 356-359, plate 1.
Losses caused by insects; characters of the orders of insects, with notes on some species of especial economic interest; writings on entomology; characters, habits, and injuries of *Saperda candida*, *S. vestita*, *S. calcarata*, *S. tridentata*, *Oberea tripunctata*, *Rhagium lineatum*, *Clytus flexuosus* [= *Cyllene robiniv*], *C.* [= *C.*] *picta*, *Archopalus fulminans*, *Hylotrupes bajulus*, *Elataphidion* [= *Romaleum*] *atomarium*, and *Chion* [= *cinclus*] *garganicus*; means against longicorns.

941. [RATHVON, S. S.] The destruction of insects. <Prairie Farmer, 22 November, 1860. S. b., No. 2, pp. 45-46.
The increase of noxious insects is owing to the destruction of their natural enemies.
942. RATHVON, S. S. Entomology and its relations to the vegetable productions of the soil with reference to both destructive and beneficial insects: <Rept. U. S. Comm. Patents for 1861, Agriculture 1862, pp. 585-620, figs. 1-90.
Characters, habits, and figures of many of the commoner beetles of eastern North America.
943. RATHVON, S. S. Entomology and its relations to the vegetable productions of the soil with reference to both destructive and beneficial insects. <Ann. Rep. [U. S.] Comm. Agric. for 1862, 1863, pp. 372-390, 33 figs.
Characters, habits, injuries of and means against the commoner species of Orthoptera, including the Forficulidæ; figures several species.
944. RATHVON, S. S. Bagworms *alias* Basket worms *alias* Drop-worms [*Thyridopteryx ephemeraformis*]. <Pract. Ent., February, 1867, v. 2, pp. 53-54.
Food plants; characters and habits of larvæ.
945. RATHVON, S. S. The little corn moth. <Pract. Farmer, June, 1868. S. b. No. 3, p. 20.
Characters of *Gelechia* [= *Sitotroga*] *cerealella* and of its larva; habits, ravages, and means against the same.
946. [RATHVON, S. S.] Sweet potato bug. <Pract. Farmer, 1868. S. b. No. 3, p. 35.
Characters and injuries of *Coptocycla* sp.; food plants of the same.
947. RATHVON, S. S. Corn beetle. <Pract. Farmer, August, 1868. S. b. No. 3, pp. 35-36.
Habits and injuries of *Spheuophorus sculptilis*.
948. RATHVON, S. S. Grape codling. <Pract. Farmer, November, 1868, p. 170. S. b. No. 3, p. 48.
Characters and habits of *Carpocapsa vitisella* [= *Eudemis botrana*].
949. RATHVON, S. S. More grape worms. <Pract. Farmer, December, 1868. S. b. No. 3, p. 48.
Injuries of *Caliodes* [= *Craponius*] *inæqualis*; characters of the larva of *Eudemis botrana*; larval habits.
950. R[ATHVON], S. S. The nine-pronged wheel-bug. <Amer. Ent., January, 1869, v. 1, p. 96.
Life habits of *Prionotus novenarius* [= *Prionidus cristatus*].
951. R[ATHVON], S. S. The squirrel bot. <Amer. Ent., February, 1869, v. 1, pp. 116-117.
Life history of *Cuterebra buccata*.
952. RATHVON, S. S. Hatching of the seventeen-year Cicada. <Amer. Nat., April, 1869, v. 3, p. 106.

953. R[ATHVON], S. S. "Wasps and their habits." <Amer. Ent., June, 1869, v. 1, p. 200.
Habits of a yellow hornet, allied to *Vespa vulgaris*, which nests on branches of trees.
954. R[ATHVON], S. S. Cicada notes. <Amer. Ent., November, 1869, v. 2, p. 51.
Habits and appearance of *Cicada* [= *Tibicen*] *septendecim*.
955. RATHVON, S. S. The Dropworm again. <Amer. Ent., December, 1869–January, 1870, v. 2, p. 81.
Habits, ravages, and means against *Thyridopteryx ephemeraformis*.
956. R[ATHVON], S. S. Rocky Mountain grasshopper can not live in Pennsylvania. <Amer. Ent., December, 1869–January, 1870, v. 2, p. 88.
Larvæ of *Caloptenus spretus* hatched from eggs received from Kansas died in Pennsylvania.
957. RATHVON, S. S. A new bean-weevil. <Amer. Ent., February, 1870, v. 2, pp. 118–119.
History of *Bruchus obsoletus* [= *obtectus*]; its ravages; means against.
958. RATHVON, S. S. Luminous (?) leaf-hopper. <Amer. Ent. and Bot., December, 1870, v. 2, p. 371.
Habits of *Diedrocephala coccinea*
959. [RATHVON, S. S.]. Periodical Cicada not in Krentz Creek Valley. <Amer. Ent. and Bot., December, 1870, v. 2, p. 372.
Tibicen septendecim abundant on the north side of the hills in northeastern York County, but has not been observed on the south side of the hills nor in the valley of the Krentz Creek.
960. RATHVON, S. S. Insects injurious to the apple. <Proc. Penn. Fruit Growers' Soc., 18 January, 1871, pp. 70–94, 3 pl.
Short accounts, with figures of many of the insects injurious to apple trees in Pennsylvania.
961. RATHVON, S. S. About those white grubs. <Gardeners' Monthly, January, 1872, v. 14, n. s., v. 5, pp. 9–10.
Nomenclature of *Lachnosterna* spp.; means against *Doryphora 10-lineata*.
962. RATHVON, S. S. Elm-leaf beetle (*Galeruca xanthomelana*). <Field and Forest, December, 1876, v. 2, pp. 96–98.
Descriptions of the early stages and imago of *Galerucella luteola*; method of pupation; its abundance at Lancaster, Pa.
963. RATHVON, S. S. *Doryphora decemlineata*. <Field and Forest, January, 1877, v. 2, pp. 114–116.
Notes its abundance and the probability of its being carried to Europe.
964. RATHVON, S. S. The "wheel-bug" (*Reduvius norennarius*). <Field and Forest, February, 1878, v. 3, pp. 108–109.
Food habits of *Reduvius norennarius* [= *Prionidius cristatus*].
965. RATHVON, S. S. The tobacco horn worm. <Amer. Farmer, August, 1878, v. 7, p. 278.

966. RATHVON, S. S. Notes on the army worm. <Lancaster Farmer, July, 1880.
Remedies for *Leucania unipuncta*.
967. RATHVON, S. S. A supplement to the army worm. <Lancaster Farmer, August, 1880, p. 114.
Variations, number of broods, and hibernation of *Leucania unipuncta*.
968. RAVENEL, H. W., and Berekmans, P. J. Results of two years' examination of grapevines at Aiken, S. C., and at Fruitland, in Augusta, Ga., on the "Grape Phylloxera." <Proc. Amer. Pomol. Soc. 1875, 1875, pp. 110-112.
969. RAYMOND, H. C. Annual report from the third district. <Ann. Rept. Iowa State Hortic. Soc. for 1876, 1877, pp. 60-65.
Remarks on injurious insects; means against borers.
970. RAYMOND, H. C. Report on entomology. <Trans. Iowa State Hortic. Soc. for 1878, 1879, pp. 427-431.
Notes on some of the commoner injurious insects of orchards; means against the same; the value of birds.
971. RAYMOND, S. W. The wheat midge. <Country Gentl., 12 July, 1860, v. 16, p. 27. <Cultivator, August, 1860, ser. 3, v. 8, p. 254.
Injuries and habits.
972. RAYMOND, S. W. The appearance of the wheat midge. <Country Gentl., 23 August, 1860, v. 16, p. 122.
A reply to Harris.
973. REED, EDMUND BAYNES. The plum sphinx moth. *Sphinx drupiferarum* (Smith and Abbot). <Can. Ent., April, 1871, v. 3, pp. 4-7, figs. 1-3.
Characters, habits, and life history.
974. REED, E. B. New enemies of the Colorado potato beetle. <Can. Ent., November, 1871, v. 3, pp. 169-171, figs. 35-36.
Deals with *Mysia 15-punctata* and *Perillus circumcinctus*.
975. REED, E. B. Insects affecting the plum. <Rept. Fruit Growers' Assoc. of Ontario for the year 1870, 1871, pp. 118-128, figs. 53-61.
Characters, habits, injuries, and means against *Conotrachelus nenuphar*, *Acronycta psi* [= *occidentalis*], *Lozotania* [= *Cacoccia*] *rosaceana*, and *Grapholitha oculana* [= *Tmetocera ocellana*].
976. REED, E. B. Insects affecting the plum. <Rept. Ent. Soc. Ontario for 1871, 1872, pp. 22-26, figs. 19-25.
Habits and life histories of *Sphinx drupiferarum*, and *Megachile brevis*; seasonal notes on *Conotrachelus nenuphar*, *Acronycta psi* [= *occidentalis*] and *Grapholitha oculana* [= *Tmetocera ocellana*].
977. REED, E. B. Insects injurious to the potato. <Rept. Ent. Soc. Ontario for 1871, 1872, pp. 65-81, figs. 65-83.
Habits, history, ravages, remedies, parasites, and enemies of *Lema trilineata*, *Doryphora 10-lineata*, *Epicauta vittata*, *E. cinerea* [= *Macrobasis unicolor*], *E. atrata* [= *pennsylvanica*], and *Macrosila 5-maculata* [= *Protoparce celsus*].

978. REED, E. B. Insects attacking the cucumber, melon, pumpkin, and squash. <Rept. Ent. Soc. Ontario for 1871, 1872, pp. 89-92, figs. 96-104.
General account of the life histories, habits, ravages, and means against *Egeria cucurbitæ* [= *Melittia ceto*], *Coreus* [= *Anasa*] *tristis*, *Diabrotica vittata*, and *Haltica* [= *Epitrix*] *cucumeris*.
979. REED, E. B. Insects infesting maple trees. <Rept. Ent. Soc. Ontario for 1872, 1873, pp. 35-43, figs. 26-33.
Habits and history of *Clytus* [= *Plagionotus*] *speciosus*, *Dryocampa rubicunda*, *Telca polyphemus*, *Platysmia* [= *Attacus*] *ecrophia*, *Apatela* [= *Acronycta*] *americana*, *Ophiura* [= *Parallelia*] *bistriaris*, *Ornix* [= *Incurraria*] *acerifoliella*, and *Stegania pustularia*.
980. REED, E. B. Insects affecting the peach. <Rept. Ent. Soc. Ontario for 1872, 1873, pp. 44-47, figs. 34-35.
Habits, life history, ravages, and remedies of *Egeria* [= *Sannina*] *exitiosa*.
981. REED, E. B. Insects injurious to the potato. <Rept. Ent. Soc. Ontario for 1872, 1873, pp. 48-50, figs. 36-37.
Seasonal notes on *Doryphora 10-lineata*; ravages, enemies, and remedies.
982. REED, E. B. On some of our common insects—No. 15. The Io moth *Saturnia* [= *Hyperchiria*] *io* Fabr. <Can. Ent., December, 1874, v. 6, pp. 227-229, figs. 27-30.
Characters, habits, and food plants.
983. REED, E. B. On some common insects which affect the horse, the ox, and the sheep. <Rept. Ent. Soc. Ontario for 1873, 1874, pp. 34-41, figs. 25-31.
Characters, habits, and means against *Estrus crvis*, *O.* [= *Hypoderma*] *boris*, and *Gastrophilus equi*.
984. REED, E. B. Entomological contributions. <Ann. Rept. Ent. Soc. Ontario for 1874, 1875, pp. 11-16, figs. 1-6.
Treats of *Hyperchiria io*, *Chrysobothris femorata*, and *Clytus pictus* [† = *Cyllene robinia*].
985. REED, E. B. Diptera—two-winged flies. <Ann. Rept. Ent. Soc. Ontario for 1882, 1883, pp. 45-53, figs. 17-44.
A general sketch including notes on several species of economic interest.
986. REED, E. B. Damage caused by ants. <Rept. Ent. Soc. Ontario for 1883, 1884, p. 38.
Ravages of and means against *Camponotus ligniperdus* [= *herculeus*].
- REED, E. B. See also Saunders, William.
987. REESE, W. P. Paris green and the cotton caterpillar. <Rural Carolinian, December, 1873.
988. REESE, W. P. The cotton caterpillar again. <Rural Carolinian, 1874, v. 5, pp. 565-566.
Habits of *Anomis xyliua* [= *Aletia argillacea*]; means against its ravages.
989. REINECKE, OTTOMAR. Invasion of *Phytonomus opimus* [= *punctatus*] Le Conte. <Buffalo Freie Presse, 12 August, 1884, <Bull. Brooklyn Ent. Soc., September, 1884, v. 7, p. 76.

990. RICHARDSON, JOSHUA. The screw-fly and its ravages. <Peoria [Illinois] Medical Monthly, February, 1883.
991. RITCHIE, ANDREW S. Notes on the *Spectrum femoratum*. <Can. Nat., February, 1866, n. s., v. 2, pp. 66-69.
Characters and habits of *Spectrum* [= *Diapheromera*] *femoratum*.
992. RITCHIE, A. S. The toad as an entomologist. <Can. Nat., June, 1869, n. s., v. 4, pp. 174-178. <Amer. Nat., August, 1871, v. 5, pp. 329-334.
Food habits of *Bufo americanus*.
993. RITCHIE, A. S. Notes on the small cabbage butterfly. *Pieris rapæ*. <Can. Ent., September, 1869, n. s., v. 4, pp. 293-300.
994. RIVERS, J. J. *Egeria hemizoniæ* Hy. Edw. <Papilio, January, 1883, v. 3, p. 26.
Habits and injuries.
995. ROBBINS, P. G. Cankerworms. <New England Farmer, 25 June, 1830, v. 8, p. 384.
Ravages of and means against *Anisopteryx* [= *Paleacrita*] *vernata*.
996. ROBBINS, P. G. Security against cankerworms. <New England Farmer, 13 July, 1831, v. 9, p. 410.
Successful use of troughs with liquids
997. ROBINSON, F. C. Seventeen-year Cicada in Pennsylvania. <Amer. Ent., July, 1880, v. 3, n. s., v. 1, p. 178.
Occurrence of *Cicada* [= *Tibicen*] *septendecim* at Uniontown, Pa., in 1880.
998. ROGERS, R. VASHON. On some of our common insects. 15.—The Coccinellidæ. <Can. Ent., May, 1874, v. 6, pp. 81-85, figs. 9-15.
General account of the habits and characters of the Coccinellidæ, with special mention of some of the commoner species.
999. ROGERS, R. V. On some of our common insects. The luna moth—*Actias luna* Linn. <Can. Ent., August, 1875, v. 7, pp. 141-143. <Ann. Rept. Ent. Soc. Ontario for 1875, 1876, pp. 43-44.
Characters, life history, habits, and food plants of *Actias luna*.
1000. ROGERS, R. V. The luna moth (*Actias luna*). <Can. Ent., October, 1875, v. 7, pp. 199-200.
Habits.
1001. ROGERS, R. V. Entomology for beginners.—Tiger beetles. <Can. Ent., April, 1880, v. 12, pp. 61-65, figs. 10-15. <Ann. Rept. Ent. Soc. Ontario for 1880, 1881, pp. 22-25, figs. 4-9.
Characters, habits, and life history of the Cicindelidæ; notice of several of the commoner Canadian species.
1002. ROGERS, R. V. Entomology for beginners. <Can. Ent., August, 1880, v. 12, pp. 148-152, fig. 21. <Ann. Rept. Ent. Soc. Ontario for 1880, 1881, pp. 31-34, fig. 13.
Characters and habits of *Clytus* [= *Plagionotus*] *speciosus*, *C.* [= *Cyllene*] *pictus*, and *C.* [= *C.*] *robinia*.

1003. RUFFIN, EDMUND. The corn or fly weevil. No. 1-2. <Amer. Agric., 1847, v. 6, February, pp. 52-53; March, pp. 93-94.
Characters, habits, and ravages of *Anacampsis* [= *Sitotroga*] *cerealella*; remedies.
1004. RUGGLES, NATHAN. Cankerworms. <Goodsell's Farmer. <New England Farmer, 9 April, 1834, v. 12, p. 308.
Bands of chestnut burrs effective against *Anisopteryx* [= *Palcaerita*] *vernata*.
1005. SAFFER, LEVI G. Food plant of green sprangling slugworm. <Amer. Ent. and Bot., May, 1870, v. 2, p. 210.
Limacodes sp. feeding on sycamore.
1006. SAFFER, L. G. Colorado potato beetle in Indiana. <Amer. Ent. and Bot., September, 1870, v. 2, p. 304.
Ravages of *Doryphora 10-lineata*.
1007. SANBORN, FRANCIS GREGORY.* Entomology. <5th Ann. Rept. Secr. Mass. Board Agric. for 1857, 1858, pp. 197-201.
Characters, habits, and means against *Saperda birittata* [= *candida*], *Rhynchonius* [= *Conotrachelus*] *nenuphar*, *Crioceris* [= *Lema*] *trilineata*, and *Clisiocampa americana*.
1008. SANBORN, F. G. Insects of Massachusetts which are beneficial to agriculture. <10th Ann. Rept. Secr. Mass. Board Agric. for 1862, 1863, pp. 124-185, figs. 1-60.
Habits, characters, and figures of many of the commoner beneficial insects.
1009. SANBORN, F. G. The habits of insects in their relations to man. <12th Ann. Rept. Secr. Mass. Board Agric. for 1864, 1865, pp. 139-160.
Notes on bark lice and plant lice; insects injurious to the apple and the peach; silkworm moths; ravages of *Orgyia leucostigma*, *Eumetopona* [= *Datana*] *ministra*, *Anisopteryx* [= *Palcaerita*] *vernata*, and *Conotrachelus nenuphar*; insecticides for various insects; petroleum an "insect elixir mortis."
1010. [SANBORN, F. G.] Dragon flies.—Neuroptera. <Mass. Ploughman, 4 August, 1866. S.-b. No. 2, p. 27.
Habits and usefulness of Odonata.
1011. SANBORN, F. G. Plant lice and scale insects. <Amer. Journ. Hortic., August, 1867, v. 2, pp. 85-90, 8 figs. S.-b. No. 2, pp. 62-63.
General notice of the Aphididæ, Psyllidæ, and Coccidæ; their characters, habits, and means against their injuries.
1012. SAUNDERS, WILLIAM. Description of a larva found infesting the seed of the grape. <Can. Ent., 15 October, 1868, v. 1, pp. 20-21.
Describes the larva of *Isosoma vitis*.
1013. SAUNDERS, W. <Can. Farmer, 15 October, 1868, p. 316.
Habits and ravages of *Isosoma vitis*.
1014. SAUNDERS, W. Notes and experiments on currant-worms. <Can. Ent., 1 October, 1869, v. 2, pp. 13-17. <Amer. Ent. and Bot., May, 1870, v. 2, pp. 200-203.
Habits, ravages, and means against *Nematus ventricosus* [= *ribesii*].

* Born at Andover, Mass., 18 January, 1838; died at Providence, R. I., 4 June, 1884.

1015. SAUNDERS, W. The grape-seed insect (*Isosoma vitis* n. sp).
 <Can. Ent., 15 November, 1869, v. 2, pp. 25-27.
 Characters, habits, and ravages of *Isosoma vitis*.
1016. SAUNDERS, W. The currant worm again. <Can. Ent., 1 January, 1870, v. 2, pp. 47-48.
 Contents that the larva of *Nematus ventricosus* [= *ribesii*] occasionally hibernates.
1017. SAUNDERS, W. An insect friend—*Arma placidum*, Ulke. <Can. Ent., 16 May, 1870, v. 2, pp. 93-94, fig.
 Note and figure of *Arma* [= *Podisus*] *placidus*, Uhler [misprinted Ulke].
1018. SAUNDERS, W. Development of egg of imported currant saw-fly (*Nematus ventricosus* [= *ribesii*]).
 Brief descriptive note.
1019. SAUNDERS, W. Entomological gleanings. <Can. Ent., 1 July, 1870, v. 2, pp. 111-113.
 Habits and ravages of *Phytocoris linearis* [= *Lygus pratensis*], *Nematus ventricosus* [= *ribesii*], and of an undetermined leaf-roller.
1020. SAUNDERS, W. Entomological gleanings. Paper No. 2. <Can. Ent., 31 August, 1870, v. 2, pp. 126-129.
 Habits, food plants, and means against *Phytocoris linearis* [= *Lygus pratensis*]; characters, habits, and ravages of *Phycita nebulo* [= *Acrobasis indiginella*], and *Cidaria diversilineata*.
1021. SAUNDERS, W. Egg of imported currant worm not inserted in leaf. <Amer. Ent. and Bot., July-August, 1870, v. 2, p. 274.
 States that the eggs of *Nematus ventricosus* [= *ribesii*] are fastened to the surface of the leaves.
1022. SAUNDERS, W. Extract from a report on the plum Curculio (*Conotrachelus nenuphar*). <Can. Ent., September-October, 1870, v. 2, pp. 137-139, fig. 8.
 Means against the ravages of *Conotrachelus nenuphar*.
1023. SAUNDERS, W. Entomological gleanings. Paper No. III. <Can. Ent., September-October, 1870, v. 2, pp. 146-149, figs.
 Ravages, parasites, and new food plants of *Nematus ventricosus* [= *ribesii*]; ravages, habits, and means against *Eriocampa cerasi*.
1024. SAUNDERS, W. Hints to fruit growers. Paper No. 1. <Can. Ent., April, 1871, v. 3, pp. 12-13, figs. 6-8.
 Means against *Conotrachelus nenuphar*, *Clisiocampa americana*, *Aphis* [= *Myzus*] *cerasi*, and *Grapholitha oculana* [= *Tmetocera ocellana*].
1025. SAUNDERS, W. Entomological Gleanings. [Paper No. 4.] <Can. Ent., April, 1871, v. 3, pp. 14-15, fig. 10.
 Habits and life history of *Orgyia leucostigma*.
1026. SAUNDERS, W. On the larva of the peach borer (*Ægeria exitiosa*). <Can. Ent., June, 1871, v. 3, pp. 22-23, fig. 11.
 Characters and ravages of *Ægeria* [= *Sannina*] *exitiosa*; preventives.
1027. SAUNDERS, W. Hints to fruit growers. Paper No. 2. <Can. Ent., June, 1871, v. 3, pp. 25-27, figs. 12-14.
 Habits and means against *Nematus ventricosus* [= *ribesii*]; means against *Conotrachelus nenuphar* and *Carpocapsa pomonella*; preventive for borers.

BIBLIOGRAPHY OF ECONOMIC ENTOMOLOGY.

1028. SAUNDERS, W. Hints to fruit growers. Paper No. 3. Ent., August, 1871, v. 3, pp. 66-70, figs. 25-29.
Life histories, ravages, and means against *Charocampa pampinatrix* [= *Ampelophaga myron*] and *Hyphantria texor* [= *cunca*].
1029. SAUNDERS, W. Notes on the larva of *Priocycla* [= *Endropia*] *armataria* Herr. Sch. <Can. Ent., October, 1871, v. 3, pp. 130-131, fig. 30.
Characters, habits, and food plants.
1030. SAUNDERS, W. Hints to fruit growers. Paper No. 4. <Can. Ent., October, 1871, v. 3, pp. 149-155, figs. 31-33.
Natural history of *Attacus cecropia*.
1031. SAUNDERS, W. Insects injurious to the grape. <Rept. Fruit Growers' Assoc. of Ontario for the year 1870, 1871, pp. 94-117, figs. 34-52.
Characters, habits, injuries, and means against *Charocampa pampinatrix* [= *Ampelophaga myron*], *Eudryas grata*, *E. unio*, *Desmia maculalis*, *Pterophorus* [= *Oxyptilus*] *periscelidactylus*, *Cidaria diversilineata*, *Spilosoma virginica*, *Pelidnota punctata*, *Haltica chalybea*, *Isosoma ritis*, *Tettigonia* [= *Typhlocyba*] *ritis*, *Pemphigus vitifolia* [= *Phylloxera vastatrix*], *Acanthus nireus*, and *Apis mellifica*.
1032. SAUNDERS, W. Hints to fruit growers. Paper No. 5. <Can. Ent., July, 1872, v. 4, pp. 133-136, figs. 8-11.
Habits, ravages, and means against *Egeria* [= *Sannina*] *exitiosa*, *Clisiocampa americana*, *C. sylvatica* [= *distria*], and *Dakruma convolutella*.
1033. SAUNDERS, W. Blistering beetles. <Can. Ent., July, 1872, v. 4, p. 139, figs. 12-13.
Ravages of *Macrobasis fabricii* [= *unicolor*] and of *Epicauta vittata*.
1034. SAUNDERS, W. *Osmia canadensis* Cresson. <Can. Ent., December, 1872, v. 4, pp. 237-238, fig. 14.
Characters of *Osmia canadensis* [= *cognata*] injurious to strawberry plants.
1035. SAUNDERS, W. Insects injurious to the grape. <Rept. Ent. Soc. Ontario for 1871, 1872, pp. 17-21, figs. 8-18. —
Seasonal notes on *Charocampa pampinatrix* [= *Ampelophaga myron*], *Desmia maculalis*, *Pterophorus* [= *Oxyptilus*] *periscelidactylus*, *Spilosoma virginica*, *Pelidnota punctata*, *Haltica chalybea*, *Tettigonia* [= *Typhlocyba*] *ritis*, and *Phylloxera vitifolia* [= *vastatrix*]; characters and habits of *Amphipyra* [= *Pyrophila*] *pyramidoides* and *Agrotis depressus*.
1036. SAUNDERS, W. Insects injurious to the currant and gooseberry. <Rept. Ent. Soc. Ontario for 1871, 1872, pp. 27-44, figs. 26-40.
General account of the life habits, ravages, and means against *Nematus ventricosus* [= *ribesii*], *Pristiphora grossularia*, *Ellopia* [= *Eufitchia*] *ribearia*, *Grapta progne*, *Angerona crocataria*, *Priocycla* [= *Endropia*] *armataria*, *Amphidasys* [= *Eubyia*] *cognataria*, *Lozotonia* [= *Cacaëcia*] *rosaceana*, *Capsus 4-rivittatus* [= *Pacillocapsus lineatus*], *Egeria tipuliformis*, *Pscocercus supernotatus*, *Pemphelia grossularia* [= *Dakruma convolutella*], and *Cecidomyia grossularia*.

1037. SAUNDERS, W. On some of our common insects. IV. The Isabella tiger moth—*Pyrrharcia (Spilosoma) isabella*. <Can. Ent., April, 1873, v. 5, pp. 75-77, fig. 14.
Characters and life history.
1038. SAUNDERS, W. On some of our common insects. 5. The grapevine plume—*Pterophorus periscelidactylus*. <Can. Ent., May, 1873, v. 5, pp. 99-100, fig. 5.
Life history, habits, and ravages of *Pterophorus* [= *Oxyptilus*] *periscelidactylus*.
1039. SAUNDERS, W. On some of our common insects. 6. The raspberry sawfly—*Selandria rubi* Harris. <Can. Ent., June, 1873, v. 5, pp. 101-103.
Characters and life history of *Selandria* [= *Monophadnus*] *rubi*.
1040. SAUNDERS, W. On some of our common insects. 8. The bacon beetle—*Dermestes lurdarius* Linn. <Can. Ent., September, 1873, v. 5, pp. 171-172, fig. 18.
Characters, habits, history, and ravages.
1041. SAUNDERS, W. Insects injurious to the grape. Addenda to reports for 1870-71. <Rept. Ent. Soc. Ontario for 1872, 1873, pp. 10-14, figs. 2-7.
Habits, life histories, ravages, and remedies of *Macroductylus subspinosus*, *Philampelus achemon*, *Thyreus abbotii*, and *Isosoma vitis*.
1042. SAUNDERS, W. Insects injurious to the strawberry. <Rept. Ent. Soc. Ontario for 1872, 1873, pp. 15-26, figs. 8-15.
Life histories, ravages, and means against *Anarsia lineatella*, *Lachnosterna quercina* [= *fusca*], *Anchylopera* [= *Phoropteris*] *fragariae*, *Exartema* [= *Ecopsis*] *permundana*, *Lozotawia fragariana* [= *Ptycholoma persicana*], *L.* [= *Cacocia*] *rosaccana*, *Agrotis* sp., *Angerona crocataria*, *Acronycta obliquata*, *Emphytus* [= *Harpiphorus*] *maculatus*, *Osmia canadensis* [= *cognata*], and *Corimelana pulicaria*.
1043. SAUNDERS, W. On some of our common insects. 12. The American copper underwing—*Amphipyra pyramidoides* Guen. <Can. Ent., February, 1874, v. 6, pp. 27-28, figs. 3-4.
Characters, habits, and means against *Amphipyra* [= *Pyrophila*] *pyramidoides*.
1044. SAUNDERS, W. Notes on the larva and pupa of *Saperda moesta* Lec. <Can. Ent., April, 1874, v. 6, pp. 61-63.
Food habits; characters of the early stages.
1045. SAUNDERS, W. On some of our common insects. 16. The gooseberry sawfly (*Nematus ventricosus* Klug). <Can. Ent., June, 1874, v. 6, pp. 101-104, figs. 16-19.
Characters, life history, habits, ravages, and enemies of *Nematus ventricosus* [= *ribesii*].
1046. SAUNDERS, W. On some of our common insects. 17. The current geometer or measuring worm—*Ellopia (Abraxis) ribearia* Fitch. <Can. Ent., July, 1874, v. 6, pp. 138-139, figs. 22-23.
Characters, habits, and means against *Ellopia* [= *Enfitchia*] *ribearia*.

1047. SAUNDERS, W. On some of our common insects. 18. The spotted *Pelidnota*—*Pelidnota paucata* Linn. <Can. Ent., August, 1874, v. 6, pp. 141-142, fig. 24.
Characters and habits.
1048. SAUNDERS, W. Insects injurious to the raspberry. <Rept. Ent. Soc. Ontario for 1873, 1874, pp. 7-17, figs. 1-11.
Life histories, habits, and injuries of *Rhodites radicum*, *Agrilus ruficollis*, *Oberca tripunctata*, *Ecanthus nircus*, *Byturus unicolor*, *Selandria* [= *Monophadnus*] *rubi*, *Acronycta verrilli*, *Hypphantria textor* [= *cunea*], *Pterophorus* sp., *Lozotania* [= *Cacacia*] *rosaceana*, *Crepidodera* [= *Epitrix*] *cucumeris*, *Aplodes* [= *Synchlora*] *rubivora*, and *Corimelana pulicaria*.
1049. SAUNDERS, W. Insects injurious to the strawberry. <Rept. Ent. Soc. Ontario for 1873, 1874, pp. 18-19, fig. 12.
Characters, habits, and injuries of *Enphytus* [= *Harpiphorus*] *maculatus* and *Paria sexnotata* [= *Typophorus canellus*].
1050. SAUNDERS, W. On some of our common insects. The green grape-vine worm—*Amphipyra pyramidoides*. <Can. Ent., January, 1875, v. 7, pp. 14-15, figs. 2-3.
Characters, habits, and food plants of *Amphipyra* [= *Pyrophila*] *pyramidoides*.
1051. SAUNDERS, W. On some of our common insects. The cylindrical orthosoma—*Orthosoma cylindricum* Fabr. <Can. Ent., February, 1875, v. 7, p. 29, figs. 4-5.
Characters and food habits of *Orthosoma cylindricum* [= *brunneum*].
1052. SAUNDERS, W. On some of our common insects. The beautiful wood nymph—*Eudryas grata*. <Can. Ent., March, 1875, v. 7, pp. 41-44, figs. 6-8.
Characters, habits, and parasite of *Eudryas grata*.
1053. SAUNDERS, W. On some of our common insects—*Drasteria erectea* Cram. <Can. Ent., June, 1875, v. 7, pp. 115-117, fig. 12.
Characters, habits, and seasons.
1054. SAUNDERS, W. *Pieris rapæ*. <Can. Ent., September, 1875, v. 7, p. 163.
Abundant near London, Ontario.
1055. SAUNDERS, W. Notes on the past season. <Ann. Rept. Ent. Soc. Ontario for 1874, 1875, pp. 17-22, figs. 7-16.
Treats of *Nematus ventricosus* [= *ribesii*], *Ellopia* [= *Eufitchia*] *ribecaria*, *Orygia leucostigma*, and the blight of the apple tree.
1056. SAUNDERS, W. How to destroy the pear slug. <Gardeners' Monthly, July, 1876, v. 18, pp. 206-207.
Advises powdered hellebore against *Selandria* [= *Eriocampa*] *crasi*.
1057. SAUNDERS, W. Notes on cantharides. <Can. Ent., December, 1876, v. 8, pp. 221-228, 1 plate, fig. 49. <Ann. Rept. Ent. Soc. Ontario for 1876, 1877, pp. 24-29, 1 plate, fig. 1.
Characters of several North American species; the habits and transformations of the group.

1058. SAUNDERS, W. On cankerworms. <Ann. Rept. Ent. Soc. Ontario for 1875, 1876, pp. 25-28, figs. 1-6.
Life histories, enemies, and means against *Anisopteryx* [= *Paleacrita*] *vernata* and *A. pomctaria*.
1059. SAUNDERS, W. Notes of the year. <Ann. Rept. Ent. Soc. Ontario for 1875, 1876, pp. 29-35, figs. 7-16.
Habits and ravages of *Clisiocampa americana* and *C. sylvatica* [= *disstria*]; history of *Pieris rapæ*; remedies; notes on *Selandria* [= *Eriocampa*] *cerasi*, *Nematus ventricosus* [= *ribesii*], *Doryphora 10-lineata*, and the blight of the apple tree.
1060. SAUNDERS, W. On some of our common insects. <Ann. Rept. Ent. Soc. Ontario for 1874, 1875, pp. 22-28, figs. 17-29.
Characters, life history, and parasites of *Attacus cecropia*; life history of *Colias philodice* and of *Deilephila lineata*.
1061. SAUNDERS, W. On some injurious insects. <Ann. Rept. Ent. Soc. Ontario for 1874, 1875, pp. 43-53, figs. 35-41.
Life history, ravages, and means against *Carpocapsa pomonella*: its parasites; life history, habits, ravages, and means against *Selandria* [= *Eriocampa*] *cerasi*.
1062. SAUNDERS, W. On some of our common insects. <Ann. Rept. Ent. Soc. Ontario for 1875, 1876, pp. 36-42, figs. 17-29.
Deals with *Deiopeia bella*, *Drasteria erectea*, *Eudryas grata*, *Orthosoma cylindricum* [= *brunneum*], and *Telea polyphemus*.
1063. SAUNDERS, W. The luna moth—*Actias luna* Linn. <Can. Ent., February, 1877, v. 9, pp. 31-33, fig. 1.
Characters and food plants.
1064. SAUNDERS, W. On *Deilephila chamænerii* and *lineata*. <Can. Ent., March, 1877, v. 9, pp. 63-67, figs. 2-5.
Characters and food plants.
1065. SAUNDERS, W. *Clisiocampa sylvatica*—The forest-tent caterpillar. <Can. Ent., August, 1877, v. 9, pp. 158-159, fig. 6.
Abundance of *Clisiocampa sylvatica* [= *disstria*]; habits, food plants, and ravages.
1066. SAUNDERS, W. Annual address of President [Entomological Society of Ontario]. <Can. Ent., October, 1877, v. 9, pp. 183-187. <Ann. Rept. Ent. Soc. Ontario for 1877, 1877, pp. 4-6.
Includes notes on the ravages of *Pieris rapæ* and *Doryphora 10-lineata*.
1067. SAUNDERS, W. On some of our common insects. <Ann. Rept. Ent. Soc. Ontario for 1876, 1877, pp. 35-38, figs. 3-8.
Characters and food plants of *Actias luna*, *Deilephila chamænerii*, and *D. lineata*. Notes on *Papilio asterias*.
1068. SAUNDERS, W. Notes of the year. <Ann. Rept. Ent. Soc. Ontario for 1876, 1877, pp. 39-40, fig. 9.
Deals with *Heliophila* [= *Leucania*] *unipuncta*, *Pempelia grossulariæ* [= *Dakruma convolutella*], and *Pieris rapæ*.

1069. SAUNDERS, W. The Aphides or plant lice. <Ann. Rept. Ent. Soc. Ontario for 1877, 1877, pp. 31-39, figs. 4-30.
Habits and life history of Aphididae; characters, habits, and ravages of *Aphis mali*, *A.* [= *Myzus*] *cerasi*, and *Eriosoma pyri* [= *Schizoneura luvigera*]; enemies of and means against Aphididae.
1070. SAUNDERS, W. Observations on the eggs of *Clisiocampa sylvatica* [= *disstria*] and *americana*. <Can. Ent., February, 1878, v. 10, pp. 21-23.
Larvæ mature early in the fall, hibernating within the eggs; Acari destructive to the eggs.
1071. SAUNDERS, W. The achemon sphinx—*Philampelus achemon* Drury. <Can. Ent., June, 1878, v. 10, pp. 101-103, figs. 4-6.
Characters, food plants, and transformations.
1072. SAUNDERS, W. The Abbot sphinx—*Thyreus abboti* Swainson. <Can. Ent., July 1878, v. 10, pp. 130-131, fig. 7.
Characters and food plants.
1073. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., October, 1878, v. 10, pp. 181-190. <Ann. Rept. Ent. Soc. Ontario for 1878, 1879, pp. 4-8.
General notice of several injurious insects and of recent entomological literature; habits and injuries of *Anthrenus scrophularia*, *Clisiocampa sylvatica* [= *disstria*], *Doryphora 10-lineata*, *Cecidomyia destructor*, *Pieris rapæ*, *Carpocapsa pomonella*, and *Conotrachelus neuophar*.
1074. SAUNDERS, W. The goldsmith beetle (*Cotalpa lanigera*). <Can. Ent., February, 1879, v. 11, pp. 21-22, figs. 9-10.
Characters, life history, and habits.
1075. SAUNDERS, W. Insect powder. <Can. Ent., March, 1879, v. 11, pp. 41-43. <Amer. Nat., September, 1879, v. 13, pp. 572-574.
Notice of the use as insecticides of the powdered flowers of different species of Pyrethrum.
1076. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., October, 1879, v. 11, pp. 181-189. <Ann. Rept. Ent. Soc. Ontario for 1879, 1880, pp. 4-9.
Notice of injurious pine insects and of means against destructive insects; note on insect diseases and on several injurious species; mention of recent entomological literature and events.
1077. SAUNDERS, W. Notes of the year. <Ann. Rept. Ent. Soc. Ontario for 1878, 1879, pp. 28-35, figs. 5-14.
Abundance and ravages of *Clisiocampa sylvatica* [= *disstria*]; remedies and enemies; characters and ravages of *Diabrotica vittata*; remedies; characters and habits of *Coreus* [= *Anasa*] *tristis*; its ravages and means against them; life history and injuries of *Aspidiotus conchiformis* [= *Mytilaspis pomorum*]; remedies; life history of *Clytus* [= *Plagionotus*] *speciosus*; preventives; history and habits of *Anthrenus scrophularia*; means against its depredations.

1078. SAUNDERS, W. Entomology for beginners, No. 2. <Can. Ent., January, 1880, v. 12, pp. 4-6, figs. 1-2.
Notice of *Catocala ultronia*; characters, habits, and life history of *Psenocercus supernotatus*; its ravages and parasites; preventive.
1079. SAUNDERS, W. Entomology for beginners.—The common woolly bear (*Spilosoma virginica*). <Can. Ent., March, 1880, v. 12, pp. 56-57, fig. 9. <Ann. Rept. Ent. Soc. Ontario for 1880, 1881, pp. 21-22, fig. 3.
General account of the life-history of *Spilosoma virginica*.
1080. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., October, 1880, v. 12, pp. 189-197. <Ann. Rept. Ent. Soc. Ontario for 1880, 1881, pp. 5-9.
Contains notes on insect-eating birds, on cutworms, *Pieris rapa*, *Bruchus pisi* [= *pisorum*] *Clisiocampa sylvatica* [= *disstria*], etc.
1081. SAUNDERS, W. Entomology for beginners.—On two mites. <Can. Ent., November, 1880, v. 12, pp. 237-239, figs. 22-23.
Characters, habits, and life history of *Tetranychus telarius* and of *Tyroglyphus siro*; remedies.
1082. SAUNDERS, W. The pea weevil (*Bruchus pisi*). <Ann. Rept. Ent. Soc. Ontario for 1879, 1880, pp. 63-65, fig. 31.
Characters and life history; remedies.
1083. SAUNDERS, W. Notes on various insects. <Ann. Rept. Ent. Soc. Ontario for 1879, 1880, pp. 71-77, figs. 38-50.
Deals with *Dytiscus harrisii*, *Hydrophilus triangularis*, *Papilio turnus*, *Philampelus achemon*, *Catocala ultronia*, *Saturnia* [= *Hyperchiria*] *io*, and *Psenocercus supernotatus*.
1084. SAUNDERS, W. Entomology for beginners. <Can. Ent., January, 1881, v. 13, pp. 1-2, figs. 1-2.
Characters, habits, and injuries of *Euryomia* [= *Euphoria*] *inda* and of *Thyreus abbotii*.
1085. SAUNDERS, W. Entomology for beginners. The Satellite Sphinx—*Philampelus satellitia* [= *pandorus*] Linn. <Can. Ent., March, 1881, v. 13, pp. 41-43, figs. 4-5.
Characters, habits, and life history.
1086. SAUNDERS, W. Entomology for beginners. The legged maple borer—*Egeria aceris* (Clemens). <Can. Ent., April, 1881, v. 13, pp. 69-70, fig. 6.
Characters, life history, and injuries.
1087. SAUNDERS, W. Entomology for beginners. <Can. Ent., June, 1881, v. 13, pp. 117-119, figs. 7-8.
Characters, habits, and life histories of *Alaus oculatus* and *Lucanus dama*.
1088. SAUNDERS, W. Entomology for beginners. The red-humped apple-tree caterpillar (*Notodonta concinna*). <Can. Ent., July, 1881, v. 13, pp. 138-140, figs. 9-11.
Characters and life history of *Notodonta* [= *Aedemasia*] *concinna*.

1089. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., October, 1881, v. 13, pp. 197-205. <Ann. Rept. Ent. Soc. Ontario for 1881, 1882, pp. 5-9.
Treats of *Bupalis* [= *Sitotroga*] *cercalella*, *Blissus leucopterus*, *Leucania unipuncta*, *Crambus vulgiragellus*, *Lachnosterna fusca*, *Diabrotica longicornis*, and *Doryphora 10-lineata* from an economic standpoint; notes on insecticides and on recent progress of entomology.
1090. SAUNDERS, W. A chapter on mites. <Ann. Rept. Ent. Soc. Ontario for 1880, 1881, pp. 69-75, figs. 55-66.
Characters of the Acarina, with notes on the habits and characters of some of the more familiar species: remedies.
1091. SAUNDERS, W. Entomology for beginners. The Southern cabbage butterfly—*Pieris protodice*. <Can. Ent., January, 1882, v. 14, pp. 1-2, figs. 1-3.
Characters and life history.
1092. SAUNDERS, W. Entomology for beginners. The Polyphemus moth—*Telea polyphemus*. <Can. Ent., March, 1882, v. 14, pp. 41-45, figs. 4-9.
Characters, life history, and parasites.
1093. SAUNDERS, W. Entomology for beginners. The great leopard moth—*Epantheria scribonia* Stoll. <Can. Ent., June, 1882, v. 14, pp. 113-115, figs. 12-13.
Characters, habits, and life history.
1094. SAUNDERS, W. The grape Phylloxera—*Phylloxera vastatrix*. <Can. Ent., July, 1882, v. 14, pp. 121-128, figs. 14-19.
Life history, characters, ravages, remedies, and enemies.
1095. SAUNDERS, W. Address of the President [Ent. Soc. Ontario]. <Can. Ent., August, 1882, v. 14, pp. 142-150. <Ann. Rept. Ent. Soc. Ontario for 1882, 1883, pp. 7-12.
Economic notes on *Cecidomyia destructor*, *Phylloxera vastatrix*, parasites of *Nematus ventricosus* [= *ribesii*] and *Systema frontalis*; a new disease of the pea; insects injurious to fruits.
1096. SAUNDERS, W. The grapeberry moth—*Lobesia botrana*. <Can. Ent., September, 1882, v. 14, pp. 178-180, fig. 21.
Characters and habits of *L.* [= *Eudemis*] *botrana*: ravages and remedies.
1097. SAUNDERS, W. Entomology for beginners.—The poplar dagger moth—*Acronycta lepusculina* Guénée. <Can. Ent., December, 1882, v. 14, pp. 221-223, figs. 22-24.
Characters, habits, ravages, and life history of *Acronycta lepusculina*: habits and characters of *Hibernia tiliaria*.
1098. SAUNDERS, W. Popular papers on entomology. <Ann. Rept. Ent. Soc. Ontario for 1881, 1882, pp. 18-22, figs. 1-9.
Deals with *Philampelus satellitia* [= *pandorus*], *Euryomia* [= *Euphoria*] *inda*, *Egeria acerri*, *Notodonta* [= *Edemasia*] *concinna*, *Alaus oculatus*, and *Lucanus dama*.

1099. SAUNDERS, W. Insects injurious to clover. <Ann. Rept. Ent. Soc. Ontario for 1881, 1882, pp. 37-48, figs. 13-21.
Deals with *Cecidomyia leguminicola*, *C. trifolii*, *Hylastes* [= *Hylesinus*] *trifolii*, *Languria mozardi*, *Asopia costalis*, *Drasteria crechta*, and *Colias philodice*.
1100. SAUNDERS, W. Insect killers. <Rept. Western N. Y. Hort. Soc. <Trans. Wis. State Hort. Soc., 1882, v. 12, pp. 338-344.
Notes on substances that destroy noxious insects, especially bisulphide of carbon, Paris green, London purple, hellebore, and pyrethrum.
1101. SAUNDERS, W. Entomology for beginners. <Can. Ent., January, 1883, v. 15, pp. 1-2, figs. 1-2.
Characters, habits, life history, and ravages of *Phycita nebulo* [= *Aerobasis indiginella*].
1102. SAUNDERS, W. Entomology for beginners.—The melon moth—*Eudiotis hyalinata* Linn. <Can. Ent., March, 1883, v. 15, pp. 56-57, fig. 3.
Characters and habits.
1103. SAUNDERS, W. Entomology for beginners. <Can. Ent., May, 1883, v. 15, pp. 96-97, fig. 5.
Characters, habits, and injuries of *Aphis mali*.
1104. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., October, 1883, v. 15, pp. 181-189. <Rept. Ent. Soc. Ontario for 1883, 1884, pp. 8-13.
Includes economic notes concerning *Orgyia leucostigma*, *Cecidomyia leguminicola* and *Egeria aceris*; Paris green for *Carpocapsa pomonella*.
1105. SAUNDERS, W. Entomology for beginners.—The Promethea emperor moth—*Callosamia promethea* Drury. <Can. Ent., December, 1883, v. 15, pp. 231-233, figs. 10-13.
Characters and life history of *Callosamia* [= *Attacus*] *promethea*.
1106. SAUNDERS, W. Popular papers on entomology. Entomology for beginners. The Southern cabbage butterfly—*Pieris protodice*. <Ann. Rept. Ent. Soc. Ontario for 1882, 1883, pp. 14-18, figs. 1-11.
Deals with *Pieris protodice*, *Epantheria scribonia*, and *Telea polyphemus*.
1107. SAUNDERS, W. Notes of the year. <Ann. Rept. Ent. Soc. Ontario for 1882, 1883, pp. 62-69, figs. 75-82.
History, characters, and ravages of *Phylloxera vastatrix*; remedies and enemies; life history of *Lobesia* [= *Eudemis*] *botrana*; its ravages; remedies; notes concerning *Cecidomyia leguminicola* and *C. destructor*.
1108. SAUNDERS, W. Insects injurious to fruits. <Philadelphia, J. B. Lippincott & Co., 1883, 8 vo. 436 pp., 440 figs. Second edition.

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1109. SAUNDERS, W. Entomology for beginners.—*Smerinthus excrucatus* and *myops*. <Can. Ent., January, 1884, v. 16, pp. 9–11, figs. 1–3. <15th Ann. Rept. Ent. Soc. Ontario, 1885, pp. 26–27, figs. 1–3.

Characters and life histories.

1110. SAUNDERS, W. Entomology for beginners.—*Pulvinaria innumerabilis* Rathvon. <Can. Ent., August, 1884, v. 16, pp. 141–143, fig. 5. <15th Ann. Rept. Ent. Soc. Ontario, 1885, pp. 27–28, fig. 4.

Characters, life history, ravages, and remedies.

1111. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., November, 1884, v. 16, pp. 204–213. <15th Ann. Rept. Ent. Soc. Ontario, 1885, pp. 15–20.

Deals with cutworms, *Cecidomyia destructor*, *Doryphora 10-lineata*, *Graptodera* [= *Haltica*] *chalybea*, *Conotrachelus nenuphar*, *Grapta progne*, *Selandria* [= *Monophadnus*] *rubi*, *Phytonomus punctatus*, *Pulvinaria innumerabilis*, and *Pyramis cardui*: brief note on the recent progress of economic entomology.

1112. SAUNDERS, W. Popular papers on entomology. Entomology for beginners. <Rept. Ent. Soc. Ontario for 1883, 1884, pp. 22–26, figs. 1–8.

Treats of *Phycita nebulo* [= *Acrobasis indiginella*], *Aphis mali*?, *Eudiotrys hyalinata*, *Acronycta lepusculina*, *Hibernia tiliaria*, and *Eudemis botrana*.

1113. SAUNDERS, W. Insects injurious to the white pine—*Pinus strobus*. <Rept. Ent. Soc. Ontario for 1883, 1884, pp. 52–59, figs. 19–29.

Life histories and habits of *Monohammus confusor*, *M. scutellatus*, *Criocephalus agrestis*, *Orthosoma brunneum*, *Chalcophora virginiensis*, *C. liberta*, *Dicera tenurosa*, *Buprestis striata*. B. [= *Chrysobothris*] *harrisii*, *Hyllobius pales*, *Pissodes strobi*, *Chermes pinicorticis*, *Chionaspis pinifolia*, *Lophyrus abbotii*, *Nephotyga* [= *Pinipestis*] *zimmermanni*, *Retinia comstockiana*, and *Gelechia pinifoliella*.

1114. SAUNDERS, W. The chinch bug—*Micropus leucopterus* Say. <Rept. Ent. Soc. Ontario for 1883, 1884, pp. 59-62, figs. 30-31.
Ravages and history of *Micropus* [= *Blissus*] *leucopterus*; remedies.
1115. SAUNDERS, W. Entomology for beginners.—The raspberry saw-fly. *Selandria rubi* Harris. <Can. Ent., January, 1885, v. 17, pp. 1-2, figs. 1-2. <16th Ann. Rept. Ent. Soc. Ontario, 1886, pp. 14-15, figs. 1-2.
Characters and life history of *Selandria* [= *Monophadnus*] *rubi*; ravages and means against.
1116. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., December, 1885, v. 17, pp. 235-243. <16th Ann. Rept. Ent. Soc. Ontario, 1886, pp. 4-9.
Deals with *Isosoma tritici*, *Anthomyia brassicae*, cabbage caterpillars, fungus diseases of insects, *Anthonomus musculus* [= *signatus*], *Macroductylus sub-spinosus*, and *Bruchus pisi* [= *pisorum*]; notice of recent entomological publications.
1117. SAUNDERS, W. Annual address of the President of the Entomological Society of Ontario. <Can. Ent., October, 1886, v. 18, pp. 184-188. <17th Ann. Rept. Ent. Soc. Ontario, 1887, pp. 6-8.
Brief notes on *Doryphora 10-lineata*, *Conotrachelus nenuphar*, *Pieris rapae*, and *Bruchus pisi* [= *pisorum*]; notice of recent entomological events and works.
1118. SAUNDERS, W., and REED, E. B. Report * * * on the Colorado potato beetle. <Can. Ent., July, 1871, v. 3, pp. 41-51, figs. 1-6, 21-23.
Contains: Localities, 41. Necessity for investigation, 41. The Colorado or 10-lined potato beetle, 42. Its natural food, 43. The three-lined potato beetle, 43. Extent of damage, 44. Its probable continuance, 44. Is it poisonous, 44. Artificial remedies. Paris green, 45. How best applied, 45. Quantities required and probable cost per acre, 45. Not dangerous if carefully used, 46. Other remedies tried, 46. Hand picking, 47. Are all potatoes alike liable to attack, 48. Natural enemies, 48. Poultry, 49. Suggestions, 50. Acknowledgments, 50.
1119. SAUNDERS, WILLIAM. *Phylloxera vastatrix*. <Field and Forest, February, 1877, v. 2, pp. 138-140.
Interrelations of fungi and *Phylloxera*: preventives.
1120. SAUNDERS, W. Insect powders. <Amer. Ent., June, 1880 [v. 3], n. s., v. 1, p. 151.
Advises experiments with the ox-eye daisy for insecticide properties.
1121. SAUNDERS, WILLIAM EDWIN. Insects injurious to drugs. <Can. Ent., May, 1883, v. 15, pp. 81-83. <Rept. Ent. Soc. Ontario for 1883, 1884, pp. 29-30.
Deals with *Sitotrypa panicea*, *Calandra remota-punctata* [= *granaria*], *Tenebroides mauritanica*, *Tribolium ferrugineum*, *Silvanus surinamensis*, and *Anthrenus varius* [= *verbasci*].

1122. SAY, THOMAS.* Some account of the insect known by the name of the Hessian fly and of a parasitic insect that feeds on it. <Journ. Acad. Nat. Sci. Phil., 1817, ser. 1, v. 1; July, pp. 45-48; August, pp. 63-64, pl. 1. Reprint: <Amer. Ent., Ed. Leconte, v. 2, pp. 4-7. See: <Psyche, August-September, 1884, v. 4, p. 266. <New England Farmer, 30 July, 1830, v. 9, p. 9.
Describes and figures *Cecidomyia destructor*; description of the eggs, larva, and pupa; transformations; figure of wheat shewing work of insect with larva and pupa in place; describes and figures *Ceraphron* [= *Merisus*] *destructor*.
1123. SAY, T. Season of 1816. <Mem. Phil. Soc. Prom. Agric., 1818, v. 4, pp. 224-226.
Notes on *Cecidomyia destructor*, *Cicada* [= *Tibicen*] *septendecim*, and cutworms, noctuid larvæ.
1124. SAY, T. Hessian fly, grain moth, cutworm. <Mem. Phil. Soc. Prom. Agric., 1818, v. 4, pp. 236-237.
Notes on *Cecidomyia destructor*, *Tinea granella*, and noctuid larvæ.
1125. SAY, T. Account of the insect so injurious to the peach tree. <Journ. Acad. Nat. Sci. Phil., 1823, ser. 1, v. 3, pp. 216-221. Reprint: <Amer. Ent., Ed. Leconte, v. 1, pp. 36-41. <Bull. Univ. Sci. Nat. et Geól., 1825, v. 4, pp. 148-150.
Natural history, habits, and means against *Aegeria* [= *Sannina*] *exitiosa*.
1126. SAY, T. Correspondence relative to the insect that destroys the cotton plant. <Southern Agric., 1828, v. 1, p. 203. Reprint: <New Harmony Disseminator, 1830. <Trans. N. Y. State Agric. Soc., 1857, v. 17, pp. 813-814. <Amer. Ent., Ed. Leconte, v. 1, pp. 369-371.
Letter from C. W. Capers sending specimens of the cotton worm; Say's answer to the same, with description of *Noctua xyliua* [= *Aletia argillacea*].
1127. SCHUYLER, W. R. The wheat midge. <Western Rural, 13 July, 1867. S.-b. No. 2, p. 116.
Ravages of *Cecidomyia* [= *Diplosis*] *tritici*.
1128. SCHWARZ, EUGENE A. Diseases of *Chauliognathus* larvæ. <Amer. Ent., November, 1880 [v. 3], n. s., v. 1, p. 277.
Notes on a fungoid disease destructive to the larvæ of *Chauliognathus pennsylvanicus*; pupæ of *Aletia argillacea* destroyed by the same larva.
1129. SCHWARZ, E. A. Biological note on *Euplectrus comstockii* Howard. <Amer. Nat., January, 1881, v. 15, pp. 61-63. <Naturalist's Leisure Hour, January, 1881.
Habits of this cotton worm parasite.
1130. SCHWARZ, E. A. Wood-boring Coleoptera. <Amer. Nat., October, 1882, v. 16, pp. 823-824.
Notes that several supposed wood-borers are only inquilines.

* Thomas Say was born in Philadelphia, Pa., 27th of July, 1787, and died at New Harmony, Ind., 10 October, 1834. See: Amer. Entomology, Edited by Leconte, v. 1. Also: <Pop. Sci. Mo., September, 1882, v. 21, pp. 687-691.

1131. SCHWARZ, E. A. Insects affecting drugs. <Can. Ent., July, 1883, v. 15, p. 140. <Rept. Ent. Soc. Ontario for 1883, 1884, p. 30. Food habits of *Lasioderma serricorne* and *Cryphalus jalappa*.
1132. SCHWARZ, E. A. Notes on the food habits of some N. A. Rhynchophora. <Bull. Brooklyn Ent. Soc., October, 1884, v. 7, pp. 84-85.
1133. SCHWARZ, E. A. Injury done by *Colaspis tristis*. <Amer. Nat., September, 1883, v. 17, p. 978. Notes injuries to terminal twigs of pear and peach trees.
1134. SCHWARZ, E. A. Coleoptera infesting prickly ash. <Amer. Nat., December, 1883, v. 17, pp. 1288-1289. Habitat of *Zygobaris conspersa*: notes on other beetles found on prickly ash; injuries of *Trirhabda tomentosa* and of *Papilio cresphontes*.
1135. SCHWARZ, E. A. On a new food plant of *Pieris rapa*. <Proc. Ent. Soc. Wash., 1 March, 1888, v. 1, p. 49. Notes the occurrence of the eggs of *Pieris rapa* on *Barbarea vulgaris*.
1136. SCOTTEN, GEORGE. [*Amphicervus bicaudatus*.] <Gardeners' Monthly, August, 1875, v. 17, p. 244. Habits.
1137. SCREVEN, JOHN. The "maggot" of the rice fields. <Amer. Ent., November, 1880 [v. 3], n. s., v. 1, pp. 262-263. Habits and ravages of [*Lissorhoptrus simplex*].
1138. SCUDDER, SAMUEL HUBBARD. [Notes on white ants.] <Proc. Bost. Soc. Nat. Hist., June, 1860, v. 7, pp. 287-288. Records injuries of *Termes frontalis* [= *flavipes*] to the solid living wood of grapevines.
1139. SCUDDER, S. H. [A destructive Aphis: the army worm.] <Proc. Bost. Soc. Nat. Hist., November, 1861, v. 8, p. 209. Occurrence of *Aphis* [= *Nectarophora*] *granaria* in western Massachusetts; abundance and ravages of [*Leucania unipuncta*].
1140. SCUDDER, S. H. [Cankerworm parasite.] <Proc. Bost. Soc. Nat. Hist., April, 1863, v. 9, p. 185. Oviposition of *Platygaster* in the egg-masses of *Anisopteryx* [= *Palaecrita*] *vernata*.
1141. SCUDDER, S. H. [On the ravages of an insect allied to *Tomiscus eruditus*.] <Proc. Bost. Soc. Nat. Hist., September, 1865, v. 10, pp. 13-14. Ravages in the leather binding of a volume of pamphlets.
1142. SCUDDER, S. H. A novel depredator of the grapevine. <Amer. Journ. Hortic., February, 1867, v. 1, pp. 154-157. Injuries of *Termes frontalis* [= *flavipes*].
1143. SCUDDER, S. H. An insect destructive to squash vines. <Amer. Journ. Hortic., February, 1868, v. 3, pp. 80-82, fig. Description and figure of *Epilachna borealis*.
1144. SCUDDER, S. H. [Oviposition of *Xiphidium* sp.? in stems of cotton plant.] <Proc. Bost. Soc. Nat. Hist., May, 1868, v. 11, p. 435.

1145. SCUDDER, S. H. [Notes on *Pieris rapae*.] <New England Farmer, 11 September, 1869, v. 24.
1146. SCUDDER, S. H. List of the Orthoptera collected by Dr. A. S. Packard, Jr., in the western United States in the summer of 1877. <2d Rept. U. S. Ent. Commission, 1880 [4 April, 1881], pp. [23]-[28].
See Part 3, No. 1959, p. 274.
1147. SCUDDER, S. H. The pine moth of Nantucket—*Retinia frustrana*. <Boston, 1883, pp. 20, 1 pl. See: <Can. Ent., September, 1879, v. 11, p. 176.
Habits, ravages, description, and figures of *Retinia frustrana* sp. nov.
1148. SCUDDER, S. H. Habits and forms of *Caloptenus spretus*. <Psyche, February [6 March], 1876, v. 1, p. 144.
1149. SCUDDER, S. H. Notes on *Melittia cucurbitæ* [= *ceto*] and a related species. <Psyche, July-September, 1885 [21 February, 1887], v. 4, pp. 303-304.
Comparative biologic notes.
1150. SCUDDER, S. H. Further injury to living plants by white ants. <Can. Ent., November, 1887, v. 19, pp. 217-218.
Termes flavipes injuring geranium cuttings.
1151. SEABROOK, W. B. The cotton caterpillar. <Charleston Mercury. <Amer. Farmer, 1847, v. 2, p. 308.
Discusses the hibernation of the adult.
1152. SEAMAN, W. H. Some remarks on fungi considered as insecticides. <Amer. Ent., February, 1880 [v. 3], n. s., v. 1, pp. 40-41.
Comments on the proposition to propagate fungi for the destruction of injurious insects.
1153. SEYMOUR, A. B. The maple bark louse. <Trans. Wis. State Hortie. Soc., 1887, v. 17, pp. 81-85.
Life history of *Pulvinaria innumerabilis*: its modes of spreading; parasites; enemies; remedies.
1154. SHIELDS, P. S. Boll rot. <Amer. Ent., October, 1880 [v. 3], n. s., v. 1, p. 252.
Ravages of *Heliothis armiger*; enemies of *Aletia argillacea*.
1155. [SHIMER, HENRY.] *Chrysopa illinoiensis*—A new destroyer of the chinch bug. <Prairie Farmer, 1 July, 1865. S.-b. No. 1, p. 37.
Describes and figures *Chrysopa illinoiensis* and its larva; figure of the cocoon; habits and natural history.
1156. SHIMER, H. Notes upon *Galeruca vittata*, the striped cucumber bug, with a description of its larva and its breeding place. <Prairie Farmer, 12 August, 1865 [v. 32], n. s., v. 16, p. 109. S.-b. No. 1, pp. 44-45.
Describes and figures the larva and pupa of *G.* [= *Diabrotica*] *vittata*: food habits and seasons.

1157. SHIMER, H. The black onion-fly. <Prairie Farmer, 2 September, 1865. S.-b. No. 1, p. 41. <Pract. Ent., 30 October, 1865, v. 1, p. 4.
 Characters, habits, and ravages of *Ortalis* [= *Tritoxa*] *flexa*.
1158. SHIMER, H. Notes on *Doryphora 10-lineata* Say. (The ten-striped spearman—"Potato bug.") <Pract. Ent., 25 June, 1866, v. 1, pp. 84-85.
 Habits and transformations; enemies and remedies.
1159. SHIMER, H. Coccus vs. Aphis. Preliminary notice of a new plant louse genus. <Prairie Farmer, 3 November, 1866 [v. 34], n. s., v. 18, p. 290. S.-b. No. 2, pp. 42-43.
 Generic characters of *Pemphigus vitifolii* [= *Phylloxera vastatrix*]; describes *P.* [= *P.*] *globosa*; enemies of *P. vastatrix*
1160. SHIMER, H. A new grape Aphis. <Prairie Farmer, 17 November, 1866 [v. 34], n. s., v. 18, p. 316. S. b. No. 2. p. 42.
 Characters, habits, and enemies of *Aphis illinoensis*.
1161. SHIMER, H. The grape leaf gall Coccus (*Pemphigus vitifolii*, Fitch.) <Pract. Ent., November, 1866, v. 2, pp. 17-19.
 Habits of *Pemphigus vitifolii* [= *Phylloxera vastatrix*]; injuries; remedies; enemies.
1162. SHIMER, H. "Grape leaf louse"—*Daktulosphaira vitifoliae* <Prairie Farmer, 8 December, 1866, v. 34, n. s., v. 18, p. 365. S.-b. No. 2, p. 44.
 Characters of *Daktulosphaira* [= *Phylloxera*]; method of hibernation and dissemination of *D. vitifoliae* [= *Phylloxera vastatrix*].
1163. SHIMER, H. Notes on *Micropus (Lygaeus) leucopterus* Say ("the chinch bug"). With an account of the great epidemic of 1865 among insects. <Proc. Acad. Nat. Sci. Phil., May, 1867, pp. 75-80. <Trans. North. Ill. Hort. Soc., 1867-68, pp. 97-101.
 Detailed account of the ravages of *Micropus* [= *Blissus*] *leucopterus* during 1864 and 1865; enemies and epidemic disease.
1164. SHIMER, H. Additional note on the chinch bug. <Proc. Acad. Nat. Sci. Phil., 1867, p. 234.
 Disappearance of *Blissus leucopterus* from the vicinity of Mount Carroll, Ill., owing to epidemic disease.
1165. SHIMER, H. Description of a new species of Cecidomyia. <Trans Amer. Ent. Soc., October, 1867, v. 1, p. 281-283.
 Description of *Cecidomyia aceris*; food plant; characters of the cocoon.
1166. SHIMER, H. Notes on the "apple bark louse" (*Lepidosaphis conchiformis* Gmelin sp.) with a description of a supposed new Acarus. <Trans. Amer. Ent. Soc., January, 1868, v. 1, pp. 361-374.
 Natural history, characters, habits, and transformations of *Lepidosaphis conchiformis* [†= *Mytilaspis pomorum*]; describes *Acarus* [= *Tyroglyphus*] *malus*.

1167. SHIMER, H. The wavy-striped flea-beetle. <Amer. Nat., December, 1868, v. 1, pp 514-517, figs. 1-2.
Character, habits, and ravages of *Phyllotreta striolata* [= *vittata*].
1168. SHIMER, H. Nature's method of controlling noxious insects. <Trans. N. Illinois Hortic. Soc., 1867-68, pp. 97-101.
Reprint of Nos. 1163, 1164; scarcity of *Blissus leucopterus* during the summer of 1867.
1169. SHIMER, H. The applebark louse in 1866.—Birds vindicated from the charge preferred against them by the State entomologist. <Trans. Illinois State Hortic. Soc., 1868, n. s., v. 2, pp. 227-233.
Natural history of *Aspidiotus conchiformis* [= *Mytilaspis pomorum*] and of *Acarus* [= *Tyroglyphus*] *malus*; birds as disseminators of bark lice.
1170. SHIMER, H. Descriptions of two acarians bred from the white maple, *Acer dasycarpum*. <Trans. Amer. Ent. Soc., May, 1869, v. 2, pp. 319-320.
Describes *Vasates quadripedes* [= *Phytoptus quadripes*] and *Acarus* [= *Tyroglyphus*] *aceris*.
1171. SHIMER, H. Insects injurious to the potato. <Amer. Nat., April, 1869, v. 3, pp. 91-99, figs. 13-19.
Habits, characters, injuries, and enemies of *Doryphora 10-lineata*; figures of all stages and of several adult meloids; figures several enemies of the *Doryphora*.
1172. SHIMER, H. Notes on *Chermes pinicorticis* ("White pine louse"). <Trans. Amer. Ent. Soc., November, 1869, v. 2, pp. 383-385.
Characters and habits; characters of *Pineus*, gen. nov. [= *Chermes*]; enemies and parasite of the *Chermes*.
1173. SHIMER, H. A summer's study of hickory galls, with descriptions of supposed new insects bred therefrom. <Trans. Amer. Ent. Soc., November-December, 1869, v. 2, pp. 386-398.
Deals with the characters and habits of several species of *Dactylospheera* [= *Phylloxera*]; synoptic table of their galls; descriptions of the galls, the winged adults, and of the mother insects; parasites of the galls and of the gall lice.
1174. SHIMER, H. Notes on insects bred from the prickly ash (*Xanthoxylum americanum*). <Trans. Amer. Ent. Soc., December, 1869, v. 2, pp. 7-8.
Characters and habits of *Liopus xanthoxyli* [= *fascicularis*]; notes on *Lamophilus adustus*, *Sacium fasciatum*, and *Micracis saturalis*.
1175. SHIMER, H. A brief extract from notes on grapevine borers. <Trans. Amer. Ent. Soc., December, 1869, v. 2, pp. 8-9.
Habits of *Amphicerus bicaudatus*, *Callidium* [= *Phymatodes*] *amoenus*, and *Lyctus opaculus*; note on parasites found with the borers.
1176. SHIMER, H. Bookworms. <Amer. Ent. and Bot., October, 1870, v. 2, pp. 322-324, figs. 200-201.
Ravages of *Ptinus brunneus*, *Sitodrepa panicea*, *Carpocapsa pomonella*, *Aglossa pinguinialis*, and *Celetes eruditus*; note on the destructive habits of white ants.

1177. SHIMER, H. An essay on the bark louse. <Trans. Ill. State Hort. Soc. for 1869, 1870, n. s., v. 3, pp. 160-168.
Characters and habits of bark lice; natural history, injuries, and means against *Aspidiotus conchiformis* [= *Mytilaspis pomorum*].
1178. SHIMER, H. Entomological notes. <Trans. Ill. State Hort. Soc. for 1869, 1870, n. s., v. 3, pp. 275-281.
Discusses epidemic disease of *Blissus leucopterus*; enemies of chinch bugs.
1179. SHIMER, H. Additional notes on the striped squash beetle. <Amer. Nat., June, 1871, v. 5, pp. 217-220, figs. 60-61.
Ravages and habits of *Diabrotica vittata*; figures early stages and adult; describes and figures *Melanosphora diabrotica*; its habits.
1180. SHUFELDT, R. W. *Romalea microptera*. <Science, 28 December, 1883, v. 2, pp. 811-814, plate.
Habits and life history of *Romalea microptera* [= *Dictyophorus reticulatus*].
1181. SHURTLEFF, CARLTON A. The army worm. <Proc. Essex Inst., 2 July, 1862, v. 3, pp. 193-200.
The occurrence of *Leucania unipuncta* in New England from 1743 to 1861; its characters, habits, ravages, early stages, enemies, and preventives.
1182. SIEWERS, C. G. Mold as an insect destroyer. <Amer. Nat., November, 1879, v. 13, pp. 681-683.
Notes on Hagen's theory; occurrence of fungoid diseases among larval insects.
1183. SKIPWITH, P. H. *Ailanthus* obnoxious to insects. <Amer. Ent., September, 1880, v. 3, n. s., v. 1, p. 228.
Notes the effect of the leaves of the *Ailanthus* upon insects.
1184. SMITH, EMILY ADELLA. Shade trees, indigenous shrubs and vines, by J. T. Stewart, M. D., and insects that infest them, by Miss Emily A. Smith. <Peoria, Ill., 1877, 55 pp., figs.
Treats of *Tremex columba*, *Vanessa antiopa*, *Egeria aceris*, *Datana ministra*, *Hyphantria textor* [= *cunea*], *Attacus promethea*, *Clisiocampa americana*, *C. sylvatica* [= *disstrata*], *Xylentes* [= *Cossus*] *robinia*, *Acronyctu populi*, *Ornic* [= *Incurraria*] *accrifoliella*, *Stenocorus putator* [= *Elaphidion villosum*], *Clytus* [= *Cyllene*] *robinia*, *Curculio* [= *Hyllobius*] *pales*, *Hylurgus* [= *Dendroctonus*] *terebrans*, *Psylla* [= *Pachyppsilla*] *celtis-mamma*, *Eriosoma* [= *Schizoneura*] *ulmi*, *Pemphigus vagabundus*, *P.* [= *Colopha*] *ulmicola*, and *Lecanium acericola* [= *Pulvinaria innumerabilis*].
1185. SMITH, E. A. The maple-tree bark louse. <Amer. Nat., October, 1878, v. 12, pp. 655-661, figs. 1-6.
Characters, habits, and parasites of *Lecanium acericorticis* [= *Pulvinaria innumerabilis*]; description of *Coccophagus lecanii*.
1186. SMITH, E. A. Modes of spreading and means of extinguishing the maple-tree bark louse. <Amer. Nat., December, 1878, v. 12, pp. 808-809.
Lecanium acericorticis [= *Pulvinaria innumerabilis*] transported on the legs of wasps and flies; advises the use of a fire-extinguisher with the addition of carbolic acid as a remedy.
1187. SMITH, E. A. Report. <Trans. Dept. Agric. State of Illinois for 1877, 1878, n. s., v. 7, pp. 107-132.
See No. 1288.

1188. SMITH, E. A. The oak-leaf Tortrix. <Trans. Ill. State Hortic. Soc. for 1877, 1878, n. s., v. 11, pp. 237-240.
Natural history of *Argyrolepis* [--- Tortrix] *quercifoliaria*; its enemies and parasites.
1189. SMITH, E. A. Natural history of *Euura salicicola*. <N. Amer. Ent., December, 1879, v. 1, pp. 41-43, fig.
Characters and habits of *Euura salicicola* and of *Eurytoma studiosa*.
1190. SMITH, E. A. Biological and other notes on *Pseudococcus aceris*. <N. Amer. Ent., April, 1880, v. 1, pp. 73-87, pl. 6.
Characters, habits, and history of *Pseudococcus aceris*; its parasites and enemies; describes *Acerophagus coccois*.
1191. SMITH, E. A. Injurious insects. <Trans. Wis. State Hortic. Soc., 1880, v. 10, pp. 28-45, figs. 1-11.
History, characters, habits, enemies, and remedies of *Heliophila* [= *Leucania*] *unipuncta*; natural history, injuries, and remedies of *Pieris rapa*; describes and figures *Pulvinaria innumcrabilis*; its habits, injuries, enemies, and remedies.
1192. SMITH, EUGENE A. The cotton belt. <4th Rept. U. S. Ent. Commission, 1885 [3 February, 1886], pp. 59-80.
See Part 3, No. 2343, p. 338.
1193. SMITH, E. C. The chinch bug. <The Cultivator, August, 1855, ser. 3, v. 3, pp. 237-238.
Habits and ravages of *Blissus leucopterus*.
1194. SMITH, J. B. Report upon cranberry and hop insects. <Bull. No. 4, Div. Ent. U. S. Dept. Agric., [3 May], 1884, pp. 9-50, figs. 1-4.
See Part 3, No. 2277, p. 325.
1195. SMITH, J. B. Report upon insects affecting the hop and the cranberry. <Ann. Rept. [U. S.] Comm. Agric. for 1884, 1885, pp. 393-398.
See Part 3, No. 2291, p. 330.
1196. SMITH, J. B. Some observations on museum pests. <Proc. Ent. Soc. Wash., 1 March, 1888, v. 1, pp. 113-114.
Preventives and remedies against the commoner insects that injure collections of insects; habits of the same.
1197. SMITH, SIDNEY I. [Address]. <5th Annual Rept. Secretary Connecticut Board Agric., 1871-72, 1872, pp. 203-234.
Importance of the study of insects with notes on their structure and habits; notice of some of the more important writings on entomology.
1198. SMITH, S. I. Report of the Entomologist. <6th Annual Rept. Secretary Connecticut Board Agric., 1872-73, 1873, pp. 345-383.
Characters and habits of *Prionus brevicornis* [= *laticollis*], *Saperda candida*, and *Crioceris asparagi*; general notice of the Orthoptera, with table for the identification of the families; notes on the characters, habits, and injuries of the commoner species found in New England.
- SMITH, WARREN. See Wise, John C.
1199. SNOW, FRANK H. The Rocky Mountain locust (*Caloptenus spretus* Uhler). <Trans. Kans. Acad. Sci., 1875, v. 4, pp. 26-28.
Natural history, ravages, and enemies.

1200. SNOW, F. H. Not the army worm. <Lawrence [Kans.] Journal, 28 July, 1880. See: <Psyche, October, 1880 [12 February, 1881], v. 3, p. 127.
Account of *Eurygeron rautalis*.
1201. SNOW, F. H. A new museum pest—*Trogoderma tarsale* Mels. <Psyche, June, 1882 [13 October, 1882], v. 3, pp. 351–352.
Characters of the larva and pupa.
1202. SNOW, F. H. Hominivorous habits of *Lucilia* [= *Comptosmyia*] *macellaria*, “the screw-worm.” <Psyche, March–April, [4 June], 1883, v. 4, pp. 27–29.
1203. SNOW, F. H. The purslane worm (*Copidryas gloveri* Grote). <Science, 21 October, 1887, v. 10, p. 204.
Abundance and injuries.
1204. SONNE, CHARLES. Ash-gray blister beetle on beans. <Amer. Ent. and Bot., July–August, 1870, v. 2, p. 274.
Habits and ravages of *Lytta cinerea* [= *Macrobasis unicolor*].
1205. SOUTHWICK, T. T. Carbolic acid for insects. <Gardeners' Monthly, May, 1877, v. 19, pp. 144–145. S.–b. No. 14, p. 45.
Formula and method of using; especially effective against plant lice.
1206. SPALDING, THOMAS. The cotton caterpillar. <Savannah Republican. <Amer. Farmer, 1847, v. 2, p. 283.
Advocates the destruction of refuse in the spring and of the adult *Aletia argillacea* before oviposition.
1207. SPEYER, A. On *Cucullia intermedia* n. sp. and *C. lucifuga* W. V. <23d Ann. Rept. N. Y. State Cabinet Nat. Hist. for 1869, 1873, pp. 217–222.
See No. 153.
1208. SPRAGUE, PHILIP S. A rove beetle as a parasite on the cabbage maggot. <Amer. Ent. and Bot., September, 1870, v. 2, p. 302.
Habits and ravages of *Anthomyia brassicae*; *Aleochara anthomyia* [= *nitida*] an enemy of the same.
1209. SPRAGUE, P. S. A new rove beetle; parasitic on the cabbage maggot. <Amer. Ent. and Bot., December, 1870, v. 2, p. 370.
Habits and characters of *Aleochara anthomyia* [= *nitida*]; parasitic upon *Anthomyia brassicae*.
1210. SPRINGER, PHIL. M. Grape Curculio. <Amer. Ent., November, 1869, v. 2, p. 52.
Ravages of *Calliodes* [= *Craponius*] *inaequalis*.
1211. STAUFFER, JACOB. The basket worm. <Horticulturist, January, 1859, v. 14, pp. 34–38, figs.
Characters, habits, injuries, and means against *Thyridopteryx ephemeraeformis*.
1212. STAUFFER, J. A new grape enemy, *Myochrous villosus* variety. <Gardeners' Monthly, August, 1865, v. 7, pp. 233–234, figs.
Characters and habits of *Myochrous* [= *Xanthonia*] *villosula*; injuries and remedies.

1213. STAUFFER, J. How to expel the borer. <Gardeners' Monthly, October, 1872, v. 14, n. s., v. 5, p. 297.
The galvanic action of copper, zinc, and iron nails causes borers to "back out" of trees.
1214. STAUFFER, J. White ants. <Gardeners' Monthly, April, 1875, v. 17, n. s., v. 8, pp. 114-115.
Injuries of *Termites* sp. to pelargoniums in greenhouses.
1215. S[TELLE], J. P[ARISH]. A locust year in Tennessee. <Amer. Ent., December, 1869-January, 1870, v. 2, p. 87.
Occurrence of pupæ of *Cicada* sp. at Savannah, Tenn.
1216. STELLE, J. P. Southern notes. <Amer. Ent., December, 1869-January, 1870, v. 2, pp. 90-91.
Characteristics of *Tinea* sp.; remedies; soot for *Pieris protodice*; parasite of *Sphinx 5-maculata* [= *Protoparce celeus*]; means against *Coreus* [= *Anasa tristis*].
1217. STELLE, J. P. Southern notes. <Amer. Ent., February, 1870, v. 2, p. 124.
Habits and characters of *Anomis xyliua* [= *Aletia argillacca*].
1218. STELLE, J. P. Southern notes. <Amer. Ent., March, 1870, v. 2, pp. 153-154.
Note on the need of State entomologists, especially in the Southern States; ravages of *Strachia* [= *Murgantia*] *histrionica*; means against mosquitoes.
1219. S[TELLE], J. P. The harlequin cabbage bug in Tennessee. <Amer. Ent., March, 1870, v. 2, p. 155.
Ravages of *Strachia* [= *Murgantia*] *histrionica*.
1220. STELLE, J. P. Southern notes. <Amer. Ent. and Bot., April, 1870, v. 2, pp. 175-176.
Poisoned nectar of *Datura stramonium* as a means against *Sphinx 5-maculata* [= *Protoparce celeus*]; insectivorous habits of toads; value of the American Entomologist to southern cultivators.
1221. STELLE, J. P. Southern notes. <Amer. Ent. and Bot., June, 1870, v. 2, pp. 238-239, fig. 150.
Characters and habits of *Scorpio boreus* and *Buthus carolinianus*; occurrence of *Mygale hentzii* in Tennessee; characters and habits of *Scolopendra heros*.
1222. S[TELLE], J. P. Cypress gall.—The wrong tree. <Amer. Ent. and Bot., July-August, 1870, v. 2, p. 273.
Cecidomyia cupressi-anaanassa found on *Taxodium distichum* and not on *Cupressus thyooides*.
1223. STELLE, J. P. Depths to which Cicadas go. <Amer. Ent. and Bot., July-August, 1870, v. 2, p. 274.
Pupæ of *Cicada* sp. frequently found from six to nine feet below the surface.
1224. STELLE, J. P. Brood IV of the periodical Cicada. <Amer. Ent. and Bot., October, 1870, v. 2, p. 337.
Occurrence of Brood IV of *Tibicen septendecim* in Florida, Alabama, Mississippi, and Tennessee.
1225. STELLE, J. P. The cotton caterpillar. <Mobile Register. <Southern Farm and Home, October, 1872, p. 457.
Natural history of *Aletia argillacca*; remedies.

1226. STELLE, J. P. The cotton caterpillar. <Rural Alabamian, 1872, v. 1, pp. 78-80.
Argues that the ravages of *Aletia argillacea* are more serious after a severe winter than after a mild one; describes the adult; habits of the larva; remedies.
1227. STELLE, J. P. The cotton caterpillar.—All about how to save the cotton crop. <Mobile Register, 5 July, 1873.
Describes *Aletia argillacea* in all its stages; figures the adult; habits and remedies.
1228. STELLE, J. P. That patent on Paris green. <Mobile Weekly Register, 21 November, 1874.
Relates to the ground covered by the patent of W. B. Royall.
1229. STELLE, J. P. The cotton caterpillar and how to combat it successfully. <Rural Carolinian, 1874, v. 5, pp. 511-516, figs. 1-2.
Characters and habits of *Anomis xyliua* [= *Aletia argillacea*]; means against its ravages.
1230. STELLE, J. P. The cotton worm. <Southern Farmers' Monthly, June, 1880.
1231. STELLE, J. P. To save the cotton. <Mobile Register, 4 September, 1880.
Advises Paris green and London purple.
1232. STELLE, J. P. Boll rot caused by bollworm. <Amer. Ent., October, 1880, [v. 3], n. s., v. 1, p. 250.
Abundance and ravages of *Heliothis armiger*.
1233. STELLE, J. P. Ants vs. *Aletia* again. <Amer. Ent., October, 1880, [v. 3], n. s., v. 1, p. 251.
Habits of ants as enemies of *Aletia argillacea*.
1234. STELLE, J. P. Road dust vs. cotton worms. <Amer. Ent., October, 1880, [v. 3], n. s., v. 1, pp. 251-252.
Road dust retards the destructiveness of *Heliothis armiger* and *Aletia argillacea*.
1235. STELLE, J. P. Pyrethrum in the garden. <Amer. Ent., December, 1880, [v. 3], n. s., v. 1, p. 296.
Effectiveness of pyrethrum powder against turnip and cabbage insects.
1236. STELLE, J. P. The cotton-worm investigation. <Mobile Register, 15 January, 1881. <Southern Farmers' Monthly, April, 1881. <Galveston News, 4 August, 1881.
Summary of the results of the work of the U. S. Entomological Commission.
1237. STELLE, J. P. Killing cotton worms. <Mobile Register. <Selma Times, 18 July, 1881.
Discusses the value of pyrethrum, London purple, Paris green, and arsenic.
1238. STELLE, J. P. To save the cotton crop. <Galveston News, 19 August, 1881.
Advises the use of London purple.
1239. STELLE, J. P. Report [on *Aletia argillacea*]. <4th Rept. U. S. Ent. Comm., 1885 [3 February, 1886], pp. [25]-[35].
See Part 3, No. 2343, p. 345.

1240. STICKNEY, J. P. Insect pests. <Trans. Wis. State Hortic. Soc., 1887, v. 17, pp. 233-240.
Injuries of and remedies for *Carpocapsa pomonella*, *Anthonomus quadrigibbus*, and *Conotrachelus nenuphar*; notes on cankerworms, apple-tree borers, currant worms; the benefits derived from birds and from predaceous and parasitic insects.
1241. STONE, JOHN. Destroying bee moth. <Mass. Agric. Repos. and Journ., January, 1831, v. 10, pp. 272-273.
Means against *Galleria cereana*.
1242. STOUT, O. E. Insects injurious and beneficial. <Rept. Kaus. State Hortic. Soc. for 1879, 1880, v. 9, pp. 86-91.
Treats briefly of *Saperda candida*, *Chrysobothris femorata*, *Carpocapsa pomonella*, *Sannina exitiosa*, *Egeria pyri*, *Sciapteron polistiformis*, *Allypia octomaculata*, *Pelidnota punctata*, *Fidia viticida*, and *Bembecia marginata*: their characters, habits, ravages, and remedies; notes on insects injurious to shade and ornamental trees, and on parasitic and predaceous insects.
1243. STRATTON, M. E. Jasper County. <Prairie Farmer, August, 1855, v. 15, p. 257.
Ravages and food habits of *Blissus leucopterus*.
1244. STRECKER, HERMANN. Butterflies and moths in their connection with agriculture and horticulture. <Harrisburg, 1879, 22 pp.
Food habits of various species; notes on insectivorous plants and on beneficial moths; parasites; conspicuous larvæ; mimicry; monstrosities; distribution; writings of several entomologists.
1245. STREET, D. Gas tar for seed corn. <Country Gentleman, 30 April, 1863, v. 21, p. 289.
Means against cutworms.
1246. STRETCH, R. H. Notes on *Pieris menapia* Felder. <Papilio, September, 1882, v. 2, pp. 103-110, pl. 2.
Natural history, ravages, distribution, and enemies as observed in Washington.
1247. STRETCH, R. H. Notes on the genus *Clisiocampa*. <Papilio, January, 1883, v. 3, pp. 19-20.
Notes on the habits and early stages of two undetermined species of *Clisiocampa*.
1248. STROOP, S. J. *Æstrus hominis* in Texas. <Amer. Nat., July, 1873, v. 7, p. 437.
Notes a specimen taken from the shoulder of a boy.
1249. SUMMERS, S. V. Notes on *Rhynchophorus zimmermanii* Sch. <Can. Ent., July, 1873, v. 5, pp. 123-124.
Characters of the larva of *Rhynchophorus zimmermanii* [= *cruentatus*]; food plants and ravages.
1250. SWINTON, A. H. Data obtained from solar physics and earthquake commotions applied to elucidate locust multiplication and migration. <3d Rept. U. S. Ent. Comm., Wash., 1883 [6 March, 1884], pp. 65-85.
See Part 3, No. 2267, p. 317.

1251. SYLVESTER, E. WARE. [Injurious insects]. <4th Ann. Rept. Secy. State Pomol. Soc. Mich. 1874, 1875, pp. 72-74.
Notes on the habits and injuries of *Phylloxera vastatrix*, *Anisopteryx pometaria*, *Nematus ribesii*, *Ellopiæ [= Eufitchia] ribearia*, and *Doryphora 10-lineata*.
1252. T., S. F. A word for the toad. <Amer. Ent. and Bot., September, 1870, v. 2, p. 301.
Toads feeding on *Lytta [= Epicauta] vittata*.
1253. TAYLOR, ALEXANDER S. An account of the grasshoppers and locusts of America. <Ann. Rept. Smithsonian Inst. for 1858. 1859, pp. 200-213.
Includes an account of the locust invasions in the Pacific Coast States.
1254. TAYLOR, F. G. H. A remedy for the caterpillar. <Southern Cultivator, 1871, p. 385.
Advocates arsenic in solution.
1255. TAYLOR, THOMAS. Naphthaline as an insecticide, etc. Its effects on seeds, plants, insects, and other animals. <1884, 8vo., 6 pp.
1256. TEELE, B. R. Destructiveness of the army worm. <Country Gentleman, 20 February, 1868. S.-b. No. 2, p. 118.
Ravages and migrations of *Aletia argillacea [= xyliua]*.
1257. TEMPLIN, L. J. The army worm. <Ohio Farmer, 23 September, 1876.
1258. TENNEY, SANBORN. The Colorado potato beetle in Niles, Mich. <Amer. Nat., May, 1871, v. 5, pp. 170-171.
Occurrence, abundance, and injuries of *Doryphora 10-lineata*; enemies and remedies; food habits and food preferences.
1259. TENNEY, S. Disappearance of the Colorado potato beetle at Niles, Mich. <Amer. Nat., April, 1872, v. 6, p. 234.
Manner and cause of the disappearance of *Doryphora 10-lineata* not understood; Paris green saved many fields.
1260. THACHER, JAMES. Bee moth.—The best method of destroying the bee moth, or preventing its ravages among bees. <Mass. Agric. Repos. and Journ., April, 1832, v. 10, pp. 387-393.
Deals with *Phalena [= Galleria] cereana*.
1261. THOMAS, CYRUS.* Chinch bug. <Prairie Farmer, 27 January, 1859, v. 19, p. 52.
Notes on the hibernation of *Blissus leucopterus*: means against its ravages.
1262. THOMAS, C. The chinch bug. <Prairie Farmer, 10 February, 1859, v. 19, p. 84.
Characters of *Blissus leucopterus*.
1263. THOMAS, C. Entomological notes. <Prairie Farmer, 5 July, 1860, [v. 22], n. s., v. 6, p. 4, figs. 1-4. S.-b. No. 1, pp. 7-8.
Characters of *Cassidide*; describes *Coptocycla aurichalcea* and *Cassida bivitata*; food plants; remedies.

* Born at Kingsport, Tenn., 27 July, 1825.

1264. THOMAS, C. Entomological notes. No. 1. <Prairie Farmer, 1861, [v. 23], n. s., v. 7; 25 April, p. 268; 2 May, p. 284. S.-b. No. 2, pp. 46-47.
Remarks on the relations of insects to plants; causes of increase of injurious insects; rotation and separation of crops as a means against insects.
1265. THOMAS, C. Entomological notes. No. 2. <Prairie Farmer, 16 May, 1861, [v. 23], n. s., v. 7, p. 317, 2 figs. S.-b. No. 1, pp. 43-44.
Description of larva and imago of *Elatridæ*: list of species found in Illinois; descriptions of some of them; means against larvæ of Elaters.
1266. THOMAS, C. Entomological notes. No. 3. <Prairie Farmer, June, 1861. S.-b. No. 2, p. 48.
Asilus sp. attacking elaterid; description of *Melolonthidæ*: list of species found in Illinois; describes *Lachnosterna pilosicollis* [= *tristis*], *L. balia*, and *L. quercina* [= *fusca*]; their habits; description and habits of the larva of *L. quercina* [= *fusca*]; habits and ravages of *Melolontha vulgaris*; replacement of one genus by another in opposite fauna.
1267. THOMAS, C. The army worm. <Prairie Farmer, 1861, n. s., v. 7, p. 363.
1268. THOMAS, C. The army worm. <Prairie Farmer, 1861, n. s., v. 7, p. 393. S.-b. No. 1, pp. 21-22.
Description and figure, seasons, habits, and means against the larva of *Leucania unipuncta*: figure and description of the pupa.
1269. THOMAS, C. The army worm. <Illinois Farmer, September, 1861.
Characters of larva, pupa, and adult of *Leucania unipuncta*: preventive.
1270. THOMAS, C. Further from the army worm. <Prairie Farmer, 1861, n. s., v. 8, p. 100.
Notes concerning the habits of *Leucania unipuncta* in Jackson County, Ill., in 1861.
1271. THOMAS, C. The army-worm question. <Prairie Farmer, 1861, n. s., v. 8, p. 293.
Discusses the question of the hibernation of the egg of *Leucania unipuncta*; considers the species single brooded.
1272. THOMAS, C. Army-worm question continued. <Prairie Farmer, 1861, n. s., v. 8, pp. 306-307.
Argues against egg hibernation of *Leucania unipuncta* and in favor of pupal hibernation.
1273. THOMAS, C. Insects injuring field crops and forecasts in reference thereto for the next year. <Farmers' Review, 24 November, 1881.
Predicts the appearance of *Leucania unipuncta* in a moist season following a dry one.
1274. THOMAS, C. Aphides. Plant lice. <Prairie Farmer, 18 January, 1862. S.-b. No. 2, pp. 104-105.
Characters, habits, and hibernation of *Aphis avenæ* [= *Neclarophora granaria*].
1275. THOMAS, C. Aphides. Plant lice. <Prairie Farmer, 1 February, 1862. S.-b. No. 2, p. 62.
Characters of Psyllidæ; describes *Psylla pyri* and its early stages; its habits and means against its injuries.

1276. THOMAS, C. The hateful or Colorado grasshopper. <Amer. Ent., December, 1869–January, 1870, v. 2, pp. 81–84.
Habits and migrations of *Caloptenus spretus*.
1277. THOMAS, C. Chinch bug. <Prairie Farmer, 12 June, 1875
History and life history of *Blissus leucopterus*; remedies.
1278. THOMAS, C. Entomological notes. No. 3. Winter plowing and spading. Chinch bug. <Western Rural, 6 November, 1875.
Preventives against *Blissus leucopterus*; enemies.
1279. THOMAS, C. Lime for chinch bug. <Prairie Farmer, 6 November, 1875.
Lime beneficial as a fertilizer but not as a destroyer of *Blissus leucopterus*; winter burning.
1280. THOMAS, C. Grasshoppers and chinch bugs. <Prairie Farmer, 19 May, 1877.
1281. THOMAS, C. Hydrology and insects. <Trans. Ill. State Hort. Soc. for 1877, 1878, n. s., v. 11, pp. 39–45.
Disenses moisture and its relation to the multiplication of insects.
1282. THOMAS, C. Entomology. <Trans. Ill. State Hort. Soc. for 1877, 1878, n. s., v. 11, pp. 155–178.
Habits and injuries of white grubs, wireworms, blister beetles, *Bruchus pisi* [= *pisorum*] *B. obsoletus* [= *oblectus*] *B. granarius*, *Baridius* [= *Trichobaris*] *trinitata*, *Crioceris asparagi*, *Lema trilineata*, *Doryphora 10-lineata*, *Diabrotica vittata*, *Hallica* [= *Epitrix*] *cucumeris*, *Psylliodes punctulata*, *Orchestris* [= *Phyllotreta*] *vittata*, Cassididae, *Gryllotalpa columbia*, locusts, *Murgantia histrionica*, *Anasa tristis*, *Lygus lineolaris*, [= *pratensis*], *Blissus leucopterus*, *Capsus A-vittatus* [= *Pacilocapsus lineatus*], *Empoa fabae*, and *Aphis brassicae*.
1283. [THOMAS, C.] U. S. Entomological Commission. Circular No. 1. <Washington, 1877.
See Part 3, No. 1575, p. 212.
1284. [THOMAS, C.] Bulletin of the United States Entomological Commission. * * * No. 1. <Washington, 1877.
See Part 3, No. 1577, p. 212.
1285. [THOMAS, C.] Bulletin of the United States Entomological Commission. * * * No. 2. <Washington, May, 1877.
See Part 3, No. 1578, p. 212.
1286. THOMAS, C. A wheat insect. <Prairie Farmer, 21 July, 1877.
1287. THOMAS, C. Sixth report of the State entomologist on the noxious and beneficial insects of the State of Illinois.—The first biennial report by Cyrus Thomas. <Trans. Dept. Agric. State of Illinois for 1876, 1877, n. s., v. 6, 174+7 pp., 31 figs. Separate: <Springfield, Ill., 1877, 174+7 pp., 31 figs.

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1289. THOMAS, C. Note on *Caloptenus spretus*. <Ball. U. S. Geol. and Geogr. Surv., 3 May, 1878, v. 4, pp. 485–501.

Discusses the means of preventing the migrations and attacks of *Caloptenus spretus*: the early occurrence of invasions: their frequency, and limits: the danger of their extension: their range: the specific standing of *C. spretus* and of allied species.

1290. [THOMAS, C.] First annual report of the United States Entomological Commission. * * * <Washington, 29 July, 1878.
See Part 3, No. 1643, pp. 222-230.
1291. THOMAS, C. Eighth report of the State entomologist on the noxious and beneficial insects of the State of Illinois.—Third annual report by Cyrus Thomas. <Trans. Dept. Agric. State of Illinois for 1878, 1879, n. s., v. 8, 212 + 10 pp., 46 figs. Separate: <Springfield, Ill., 1879, 212 + 10 pp., 46 figs.

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1292. THOMAS, C. The chinch bug. Its history, characters, and habits, and the means of destroying it or counteracting its injuries. <Bull. No. 5, U. S. Ent. Comm., 1879, 44 pp., 1 map, 10 figs. See: <Amer. Ent., 1880, v. 3, n. s., v. 1, February, pp. 46-47; April, pp. 85-86.

Treats of *Blissus leucopterus*.

1293. THOMAS, C. A new cabbage worm. <Amer. Ent., January, 1880 [v. 3], n. s., v. 1, p. 22.
Description, habits, seasons, ravages, and means against the larvæ of *Pionea rimosalis*.

1294. THOMAS, C. A foe to cottonwood. <Prairie Farmer, 21 February, 1880, v. 51, p. 58. Reprint: <Amer. Ent., July, 1880 [v. 3], n. s., v. 1, p. 159.

Ravages of *Lina scripta*.

1295. THOMAS, C. A new enemy to wheat. <Prairie Farmer, 28 August, 1880.

Habits of a new wheat stalk worm; description of *Chlorops* sp.

1296. THOMAS, C. Locusts in the Northwest. <Amer. Ent., September, 1880 [v. 3], n. s., v. 1, p. 225.

Localities of *Caloptenus spretus* in Manitoba, Minnesota, and Wisconsin in 1880; localities where the species does not occur; *Doryphora 10-lineata* known at Bayfield, Wis., since 1845.

1297. THOMAS, C. Temperature and rainfall as affecting the chinch bug. Periodicity in its increase. <Amer. Ent., October, 1880 [v. 3], n. s., v. 1, pp. 240-242. See: <Prairie Farmer, 10 September, 1881.
- Data relating to the condition of the weather in Illinois, Iowa, and Missouri in relation to the outbreaks of *Blissus leucopterus*; relation of rainfall to the appearance of the same; two successive dry years needed for the development of the species in injurious numbers; high temperature and diminished rainfall the cause of excessive development of the chinch bug.
1298. THOMAS, C. Sudden increase of one of our large locusts. <Amer. Ent., October, 1880 [v. 3], n. s., v. 1, p. 250.
- Abundance and ravages of *Acridium americanum*.
1299. THOMAS, C. Modification observable in locusts. <Amer. Ent., October, 1880 [v. 3], n. s., v. 1, p. 251.
- Structural changes observed in *Camnula atrox* adaptive to migratory habits.
1300. THOMAS, C. Notes on the army worm. <Moore's Rural New Yorker, 1880, November, December.
1301. THOMAS, C. Ninth report of the State entomologist on the noxious and beneficial insects of the State of Illinois.—Fourth annual report by Cyrus Thomas. <Trans. Dept. Agric. State of Illinois for 1879, 1880, n. s., v. 9, 142 + 3 pp., 30 figs. Separate: <Springfield, Ill., 1880, 142 + 3 pp., 30 figs.

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1302. THOMAS, C. Questions answered. <Prairie Farmer, 8 January, 1881.

Winter habits of *Blissus leucopterus*.

1303. THOMAS, C. Antichinch-bug crops. <Farmers' Review, 20 January, 1881, v. 6, p. 35.
Injuries of *Blissus leucopterus*: preventives.
1304. [THOMAS, C.] Second report of the United States Entomological Commission. * * * <Washington, 1880 [4 April, 1881].
See Part 3, No. 1959, pp. 269-275.
1305. THOMAS, C. Crop destroyers: The corn worm, chinch bug, and army worm. <Farmers' Review, 18 August, 1881.
1306. THOMAS, C. Corn worms, chinch bug, Hessian fly. <Prairie Farmer, 20 August, 1881.
1307. THOMAS, C. Remedies against and means of counteracting injurious insects. <Amer. Agric., October, 1881, v. 40, p. 406.
Considers topical applications of slight value; importance of the study of the relations of the climatic influences to insect development; data drawn from the same.
1308. THOMAS, C. Insects injuring field crops, and forecasts in reference thereto for next year. <Farmers' Review, 24 November, 1881, v. 7, p. 322.
1309. THOMAS, C. Tenth report of the State entomologist on the noxious and beneficial insects of the State of Illinois.—Fifth annual report by Cyrus Thomas. <Trans. Dept. Agric. State of Illinois for 1880, 1881, n. s., v. 10, 6+238+6 pp., 2 pls., 79 figs. Separate: <Springfield, Ill., 1881, 6+238+6 pp., 2 pls., 79 figs.

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1310. THOMAS, C. Relation of meteorological conditions to insect development. <Trans. Illinois State Hortie. Soc. for 1880, 1881, n. s., v. 14, pp. 89-99. Abstract: <Farmers' Review, 13 January, 1881, v. 6, p. 30.

Years of greatest drouth generally marked by unusual development of insect life.

1311. THOMAS, C. Eleventh report of the State entomologist on the noxious and beneficial insects of the State of Illinois.—Sixth annual report by Cyrus Thomas. <Trans. Dept. Agric. State of Illinois for 1881, 1882, n. s., v. 11, 104+2 pp. Separate: <Springfield, Ill., 1882, 104+2 pp.

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1313. THOMAS, C. Best means of counteracting our insect foes. <Trans. Indiana Hortic. Soc. 1881, 1882, v. 20, pp. 81-82. Means against *Cecidomyia destructor*; remedies for various insects.
1314. THOMAS, DAVID. Some account of the *Chrysomela vitivora*. <Amer. Journ. Sci. and Arts, 1834, v. 26, pp. 113-114. Characters, habits, and natural history of *Chrysomela vitivora* [= *Haltica chalybea*]; injuries.
1315. THOMAS, D. Destroying insects. <Horticulturist, October, 1846, v. 1, p. 198. Advocates the use of sweetened water among fruit trees.
1316. THOMAS, H. M. Insects injurious to the horticulturist. <Trans. Wisconsin State Hortic. Soc., 1873, pp. 110-120. Ravages of and means against cankerworms; their distribution; importance of economic entomology.
1317. THOMAS, JOHN J. The diseases and insects injurious to the wheat crop. <Trans. N. Y. State Agric. Soc. for 1843, 1844, v. 3, pp. 201-216, figs. 1-3. Injuries of the grain worm, wheat weevil, and Hessian fly.
1318. THOMAS, J. J. Diseases and enemies of the plum. <4th Ann. Rept. Secy. State Pomol. Soc. Mich. 1874, 1875, pp. 35-36. Means against *Conotrachelus nenuphar*.

1319. TICKNOR, E. [Enemies to sheep]. <Mass. Agric. Repos. and Journ., January, 1816, v. 4, No. 1, pp. 33-34.
Letter to J. Quincy; habits and ravages of *Estrus oris*.
1320. TILTON, JAMES. [Curculio]. <Domestic Encly., v. 3, p. 116.
Extract: <Papers on Agric., 1809, v. 2, pp. 15-19.
Habits and ravages of the Curculio [= *Conotrachelus nenuphar*]; enemies.
1321. TOWNLEY, JOHN. Do cutworms destroy tree buds? <Pract. Ent., March, 1867, v. 2, pp. 64-66.
Ravages and means against them.
1322. TOWNLEY, J. Do hogs destroy grubs? <Pract. Ent., May, 1867, v. 2, pp. 90-91.
Evidence showing the destruction of insects and their larvæ by hogs.
1323. TOWNSEND, BENJAMIN R. The Harlequin cabbage bug. <Amer. Ent. and Bot., April, 1870, v. 2, p. 177.
Abundance of *Murgantia histrionica* in Texas.
1324. TOWNSEND, B. R. The red ant of Texas. <Amer. Ent. and Bot., October, 1870, v. 2, pp. 324-325, figs. 202-203.
Habits and ravages of *Atia fervens*.
1325. TOWNSEND, C. H. T. The oak pruners: *Elaphidion parallelum* [= *rillesum*] Newm. and *Phymatodes variabilis* Fab. <17th Ann. Rept. Ent. Soc. Ontario, 1887, pp. 15-16.
Habits.
1326. TOWNSEND, J. L. Death to house flies. <Amer. Ent. and Bot., September, 1870, v. 2, p. 304.
Means against.
1327. TRABUE, A. E. Army worm. <Amer. Ent., November, 1869, v. 2, p. 52.
Food habits of *Leucania unipuncta*.
1328. TRACY, WILLIAM W., and PARMELEE, GEORGE. Injurious insects. <Traverse City, 1874, 12 pp.
Characters, habits, and means against the ravages of *Egeria* [= *Sannina*] *escitiosa*, *Agrotis* spp., *Carpocapsa pomonella*, *Chrysobothris femorata*, *Superda caudata*, *Conotrachelus nenuphar*, and *Aphis mali*.
1329. TREAT, MARY. White grub fungus. <Amer. Ent., November, 1869, v. 2, p. 52.
Abundance; color.
1330. TREAT, M. Parasitic mites on the house fly. <Amer. Ent., December, 1869-January, 1870, v. 2, p. 87.
Note on the occurrence and transference.
1331. TREAT, M. The tomato worm. <Amer. Ent., December, 1869-January, 1870, v. 2, p. 87.
Food plants of *Sphinx 5-maculata* [= *Protoparce celeus*].
1332. TREAT, M. Polyphemus moth. <Amer. Ent., December, 1869-January, 1870, v. 2, p. 88.
Transformations of *Telca polyphemus*.

1333. TREAT, M. Plant lice and their enemies. <Amer. Ent., March, 1870, v. 2, pp. 141-143.
Habits of several dipterous and hymenopterous foes of Aphididae.
1334. TREAT, M. My raspberry and verbena moths and what came of them. <Amer. Ent. and Bot., May, 1870, v. 2, pp. 203-205, figs. 125-126.
Life history and habits of *Aplodes* [= *Synchlora*] *rubivora* and of *Penthina fullereana* [= *hebesana*].
1335. TREAT, M. Pupa of the girdled Sphinx. <Amer. Ent. and Bot., June, 1870, v. 2, p. 241.
Characters of the larva and pupa of *Sphinx* [= *Protoparce*] *cingulata*.
1336. TREAT, M. To kill the pea weevil. <Amer. Ent. and Bot., June, 1870, v. 2, p. 241.
Recommends boiling water against *Bruchus pisi* [= *pisorum*].
1337. TREAT, M. The enemies of the oak. <Amer. Agric., September, 1874, v. 33, p. 344, figs. 1-5.
Characters and ravages of *Prionus laticollis*, *Nyctelia* [= *Cossus*] *robinia*, *Dryocampa senatoria*, and of the oak pruner [= *Elaphidion villosum*].
1338. TREAT, M. Notes on harvesting ants in New Jersey. <Amer. Ent., September, 1880, [v. 3], n. s., v. 1, pp. 225-226.
Characters and habits.
1339. TREAT, M. Injurious insects of the farm and garden. <N. Y., 1882. 2+8 pp., 163 figs.

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1340. TREAT, JOSEPH. The insect extinguisher. <15 pp.
1341. TRELEASE, WILLIAM. Plant-feeding ground beetles. <Amer. Ent., October, 1880 [v. 3], n. s., v. 1, p. 251.
Notes *Harpalus caliginosus* feeding on *Ambrosia artemisiifolia*.
1342. TRIMBLE, ISAAC P. Injurious insects. <Proc. Amer. Pomol. Soc., 1864, pp. 93-96.
Habits, ravages, and means against *Carpocapsa pomonella*; habits of *Conotrachelus nenuphar*.
1343. [TRIMBLE, I. P.] Spare the toad. <Can. Farmer, 15 August, 1865. S.-b. No. 1, p. 45.
Notes the insectivorous habits of the common toad.
1344. TRIMBLE, I. P. A treatise on the insect enemies of fruit and fruit trees. <N. Y., 1865, 11 pls.
Treats of *Conotrachelus nenuphar* and *Carpocapsa pomonella*.

1345. [TRIMBLE, I. P.] Birds; their usefulness: An appeal to farmers and sportsmen. <Newark Advertiser. <Can. Farmer, 1 December, 1866. S.-b. No. 2, pp. 51-52.
Notes the usefulness of various birds and of the Ichneumonidae as destroyers of noxious insects.
1346. TRIMBLE, I. P. [Apple maggot.] <N. Y. Semiweekly Tribune, 17 July, 1867.
Distribution of *Trypeta pomonella*.
1347. TRIMBLE, I. P. An insect talk. <Proc. Amer. Pomol. Soc., 1867, pp. 118-121.
Habits of and means against *Conotrachelus nenuphar* and *Carpocapsa pomonella*.
1348. TRIMBLE, I. P. The plum Curculio will deposit in fruit which overhangs water. <Amer. Ent., February, 1870, v. 2, pp. 119-120.
Facts and arguments to prove that trees planted over water are not protected from *Conotrachelus nenuphar*.
1349. TRIMBLE, I. P. Radish maggots. <Amer. Ent. and Bot., July-August, 1870, v. 2, pp. 273-274.
Abundance of *Anthomyia raphani*: food habits.
1350. TRIMBLE, I. P. Chip-trap Curculio catching. <Amer. Ent. and Bot., July-August, 1870, v. 2, p. 274.
St. Joseph methods applicable in the early days of the season only.
1351. TROOP, JAMES. Strawberry pests. <Science, 1884, v. 4, No. 91, p. 6.
Notes on *Tylocladerma fragariae* and *Otiorynchus ligneus* [= *ovatus*].
1352. TRUE, FREDERICK W. Bot flies in a turtle. <Science, 5 December, 1884, v. 4, p. 511.
Notes the occurrence of larval Cestridae [† = *Sarcophaga* sp.] in the neck of the box turtle.
1353. TRUESDELL, J. A. Preventive for the chinch bug. <Cultivator and Country Gentl., 1 September, 1887, v. 52, p. 673.
Advises sowing a strip of field corn around the grain; salt effective as a check.
1354. TUFTS, JOSEPH. On the insect found in apples and pears. <Mass. Agric. Repos. and Journ., July, 1819, v. 5, pp. 364-367.
Characters, habits, and injuries of [*Carpocapsa pomonella*].
1355. TURNER, HENRY. The *Belostoma* piscivorous. <Amer. Nat., September, 1879, v. 13, p. 585.
Food habits of *Belostoma* sp.
1356. TURNER, H. *Belostoma* piscivorous. <Amer. Nat., November, 1879, v. 13, pp. 710-711.
Notes the mode of capturing prey employed by *Belostoma* sp.; its method of feeding.
1357. UHLER, PHILIP REESE. Insects. <Amer. Farmer, August, 1859, ser. 5, v. 1, pp. 39-40.

1358. UHLER, P. R. Insects, No. 2. Chinch bug—ladybird. <Amer. Farmer, September, 1859, ser. 5, v. 1, pp. 68-69.
1359. UHLER, P. R. Insects injurious to vegetation. <Rept. Comm. Patents for 1860, Agriculture, 1861, pp. 312-322.
Deals with some of the commoner insects injurious to the pear and apple; their characters, habits, ravages, and remedies.
1360. UPTON, WHEELOCK S. The cotton caterpillar. <De Bow's Review, 1846, v. 2, p. 354.
Preventives.
1361. VAN DUZEE, E. P. Occurrence of the chinch bug (*Blissus leucopterus* Say) at Buffalo, N. Y. <Can. Ent., November, 1886, v. 18, pp. 209-210. <17th Ann. Rept. Ent. Soc. Ontario, 1887, pp. 20-21.
Abundance, habits, and ravages.
1362. VAWTER, WILLIAM. Season in Missouri. <Prairie Farmer, September, 1854, v. 14, p. 326.
Ravages of *Blissus leucopterus*.
1363. VELLIE, J. W. Birds beneficial and injurious to horticulture. <Trans. Ill. State Hortic. Soc. for 1870, 1871, n. s., v. 4, pp. 129-135.
Notes on the food habits of some of the commoner birds found about Rock Island, Ill.
1364. VERRILL, ADDISON E. The woolly apple-tree blight—*Eriosoma lanigera* Harris. <Prac. Ent., 25 December, 1865, v. 1, p. 21.
Occurrence of winged females of *E. [=Schizoneura] lanigera*: its power of enduring cold.
1365. VERRILL, A. E. The external parasites of domestic animals; their effects and remedies. <4th Ann. Rept. Secretary Connecticut Board Agric. for 1869-1870, 1870, pp. 72-122, figs. 1-48.
Characters and habits of the more important dipterous, hemipterous, and arachnid enemies of domestic animals; means against them.
1366. VERRILL, A. E. The internal parasites of domestic animals; their effects and remedies. <4th Ann. Rept. Secretary Connecticut Board Agric. for 1869-1870, 1870, pp. 162-256, figs. 49-84.
Notes on *Pentastoma* spp.
1367. VERRILL, A. E. Additional observations on the parasites of man and the domestic animals. <5th Ann. Rept. Secretary Connecticut Board Agric. for 1871-1872, 1872, pp. 321-342.
Notice of *Pentastoma settenii* and of ? *Dermatobia norialis*.
1368. VORCE, C. M. Wholesale destruction of Acari by a fungus. <Proc. Amer. Soc. Micr., 1881, v. 4, p. 49. <Amer. Mo. Micr. Journ., September, 1881, v. 2, p. 166.
Acari observed covered with fungus spores.

1369. VOYLE, JOSEPH. Experiments upon scale insects affecting the orange. <Bull. No. 1 Div. Ent. U. S. Dept. Agric. [17 April], 1883, pp. 19-30.
See Part 3, No. 2164, p. 302.
1370. VOYLE, J. Report on the effects of cold on the scale insects of the orange in Florida. <Bull. No. 4 Div. Ent. U. S. Dept. Agric., [3 May], 1884, pp. 70-73.
See Part 3, No. 2277, p. 325.
1371. WAGNER, BALTHASAR. Observations of the new crop gall-gnat. <3d Rept. U. S. Ent. Comm. 1883. [6 March], 1884, pp. [8]-[38].
See Part 3, No. 2267, p. 321.
1372. WAIT, WILLIAM S. The army worm. <Missouri Reporter, 1842.
History and habits of *Leucania unipuncta*; preventives.
1373. WALDO, J. CURTIS. The cotton worm. A treatise on the enemy of the great staple, with the practical experience of many of the most intelligent planters of the South, as to the means of destroying the worm. <New Orleans, 1878.
Characters and history of *Aletia argillacea*; preventives and enemies.
1374. WALKER, ERNEST. Hot water for destroying insects. <Gardeners' Monthly, May, 1884, v. 26, p. 139.
Hot water at about 120° the most effectual against insects in the greenhouse.
1375. WALTON, ALICE B. Entomology of Muscatine County, Iowa. <History of Muscatine County, 1879.
Gives the dates of appearance in Iowa of some of the more destructive insects since 1836; their years of abundance; notes on some of the commoner species.
1376. WALTON, A. B. Notes on destructive insects of 1880. <Trans. Iowa State Hortic. Soc. for 1880, 1881, v. 15, pp. 516-519.
Ravages of *Ceresa bubalus*, *Scandria* [= *Monostegia*] *rose*, *Anchylopera* [= *Phoropteris*] *fragaria*, *Tettigonia* spp., *Membracis* spp., and *Haltica* spp.; remedies; brief notes of other species.
1377. WALTON, A. B. The new cabbage butterfly. <Trans. Iowa State Hortic. Soc. for 1879, 1880, v. 14, pp. 78-81, 3 figs.
Natural history, characters, habits, and ravages of *Pieris rapa*; its enemies; remedies.
1378. WALTON, A. B. "The cabbage question." <Trans. Iowa State Hortic. Soc. for 1880, 1881, v. 15, pp. 113-116.
Habits and injuries of *Pieris rapa*.
1379. WARDER, JOHN A. [Injurious insects]. <Pract. Ent., 30 October, 1865, v. 1, pp. 6-7.
Brief notes on *Lecanium* sp., *Clisiocampa americana*, *Datana ministra*, *Clostera* [= *Ichthyura*] *inclusa*, *Hyphantria texor* [= *eunea*], grape Thrips?, locusts, white grubs, and rose insects.

1380. WARDER, R. H. Notes on the periodical Cicada.—It does oviposit in evergreens. <Amer. Ent., February, 1869, v. 1, p. 117. Oviposition of *Cicada* [= *Tibicen*] *septendecim* in three evergreens; note on the fungus found in the abdomen of the Cicada; injuries to young orchards.
1381. WARNER, S. P. The onion maggot. <New England Farmer, v. 53, No. 18. <Mass. Ploughman, v. 33, No. 46. Habits of *Anthomyia ceparum*.
1382. WASHINGTON, E. S. The army worm. <Valley Farmer, 1862, v. 14, p. 161. Considers *Leucania unipuncta* viviparous, mistaking parasitic larvæ for the young.
1383. WATERS, G. W. The chinch bug. <Farmers' Review, 19 October, 1887, v. 18, p. 658. Hardiness of *Blissus leucopterus*; preventives against ravages.
1384. WEBSTER, FRANCIS M. Entomology and agriculture. <Chicago Weekly Inter-ocean, 1874, 2, 9, 16, 23, 30 July; 6 August. Notes on some of the common injurious and beneficial insects
1385. WEBSTER, F. M. An enemy of the gall louse. <Prairie Farmer, 4 October, 1879. Attack of *Podabrus tomentosus* upon *Pemphigus populiceus*.
1386. WEBSTER, F. M. Food of some beetles. <Prairie Farmer, 15 November, 1879. Herbivorous food habits of Carabidæ; insect enemies of *Ambrosia artemisiifolia*.
1387. WEBSTER, F. M. More about the food of beetles. <Prairie Farmer, 1879. Records *Anisodactylus sericeus* depredating upon seeds of *Agrostis vulgaris*.
1388. WEBSTER, F. M. Food habits of ground beetles. <Amer. Ent., July, 1880, [v. 3], n. s., v. 1, p. 173. Records herbivorous food habits of *Harpalus herbivagus* and *Megilla maculata*.
1389. WEBSTER, F. M. More about the new corn insect. <Prairie Farmer, 2 October, 1880, v. 51, p. 314. Relates to *Diabrotica longicornis*.
1390. WEBSTER, F. M. Notes on the food of predaceous beetles. <Bull. No. 3 Ill. State Lab. Nat. Hist., November, 1880, pp. 149-152. Résumé of previous observations; plant-eating habits of *Harpalus caliginosus*, *H. pennsylvanicus*, *H. herbivagus*, *Amara angustata*, *Anisodactylus sericeus*, *Calathus gregarius*, and *Megilla maculata*; observations on the carnivorous habits of *Harpalus pennsylvanicus*, *Anisodactylus ballimorensis*, *Platynus cupripennis*, *Staphylinus cinnamopterus*, *Dyschirius globulosus*, *Bradycellus rufestris*, and *Podabrus tomentosus*.
1391. WEBSTER, F. M. List of Chrysomelidæ observed on *Salix discolor* and *S. petiolaris* var. *gracilis*. <Bull. Brooklyn Ent. Soc., January, 1881, v. 3, p. 79. Notes 35 species.
1392. WEBSTER, F. M. Cecropia cocoons punctured by the hairy woodpecker. <Amer. Nat., March, 1881, v. 15, p. 241-242. Records and explains methods of attack upon the cocoons of *Attacus cecropia*.

1393. WEBSTER, F. M. Notes on the occurrence of some species of Cerambycidae. <Our Home and Science Gossip, August, 1881. Records 43 species from DeKalb County, Ill.
1394. WEBSTER, F. M. Some studies of the food of Silphidae (carrion beetles). <Our Home and Science Gossip, August, 1881. Notes herbivorous food habits of *Silpha americana* [† = *sarinancensis*] and of *Catops* [= *Choleva*] *simplex*.
1395. WEBSTER, F. M. Leaves from my notebook. <Our Home and Science Gossip, September, 1881. Food habits of *Pterostichus lucublandus* and *P. sayi*: notes on and occurrence of *Telephorus rectus*, *T. carolinus*, *Isomira 4-striata*, *Nomaretus bilobus*, *Hister bimaculatus*, *Phengodes frontalis*, *Odontopus filicornis*, *Xylotrechus annosus*, *Cryptocephalus struatulus*, and *Balaninus nasicus*
1396. WEBSTER, F. M. Observations on the army worm—*Leucania unipuncta*. <Our Home and Science Gossip, 1882, January, February. Character of infested fields in Illinois; number of broods; parasites.
1397. WEBSTER, F. M. A myriopod in a new rôle <Prairie Farmer, 15 April, 1882. Notes *Julus* [= *Parajulus*] *impressus* attacking ears of corn.
1398. WEBSTER, F. M. Notes from Illinois; grain-feeding habits of the field cricket. <Amer. Nat., June, 1882, v. 16, p. 513. See: <Sci. Amer., 17 June, 1882, v. 46, p. 283. Ravages of *Gryllus* sp. on grains of corn; food habits of *Epicauta pennsylvanica* and *Diabrotica fossata*; *D. longicornis* a serious pest of the cornfield.
1399. WEBSTER, F. M. Clover insects. <Amer. Nat., September, 1882, v. 16, p. 746. Adds *Lachnosterna serricornis*, *Macrobasis unicolor*, *Colaspis brunnea*, and *Epicurus imbricatus* to Lintner's list of clover insects.
1400. WEBSTER, F. M. The corn-root worm. <Kendall County [Illinois] Record, 14 September, 1882. Advocates rotation of crops to lessen severity of ravages of *Diabrotica longicornis*: notes injuries in Kendall and adjoining counties.
1401. WEBSTER, F. M. Corn-root worms. <Sandwich [Illinois] Gazette, 17 November, 1882. Ravages of *Diabrotica longicornis*; advises rotation of crops.
1402. WEBSTER, F. M. Observations on the Angoumois grain moth and its parasites. <Trans. Dept. Agric. State of Illinois for 1882, 1883, n. s., v. 12, pp. 144-154. See Part 4, No. 708, p. 84.
1403. WEBSTER, F. M. A new parasite on the larvæ of the Angoumois grain moth. <Prairie Farmer, 1883. Notes *Heteropus ventriosus* as a parasite of *Gelechia* [= *Sitotroga*] *cerealella*; its life history.
1404. WEBSTER, F. M. The Hessian fly. <Bull. No. 1 Purdue Univ. School of Agric., 30 December, 1884. Natural history of *Cecidomyia destructor*; remedial and preventive measures.

1405. WEBSTER, F. M. Insects affecting fall wheat. <Ann. Rept. [U. S.] Comm. Agric. for 1884, 1885, pp. 383-393.
See Part 3, No. 2291, p. 329.
1406. WEBSTER, F. M. Insects affecting growing wheat. <Bull. No. 3 Purdue Univ. School of Agric., 15 April, 1885.
Life histories of *Gortyna nitela*, *Meromyza americana*, *Isosoma tritici*, *I. grande*, and *Diplosis tritici*.
1407. WEBSTER, F. M. Injury to seed corn after planting. <Indiana Farmer, 27 June, 1885.
Agonodrus pallipes as an enemy to recently-planted seed corn.
1408. WEBSTER, F. M. A new corn pest. <Indiana Farmer, 4 July, 1885.
Depredations of *Crambus* sp., in fields of young corn.
1409. WEBSTER, F. M. Insects found on corn and wheat. <Indiana Farmer, 18 July, 1885.
Notes concerning *Corimelana pulicaria*.
1410. WEBSTER, F. M. Insects affecting the corn crop. <Rept. Indiana State Board Agric., 1885.
1411. WEBSTER, F. M. Report of experiments at Lafayette, Ind. <Bull. No. 11 Div. Ent. U. S. Dept. Agric., [26 February], 1886, pp. 9-22.
See Part 3, No. 2344, p. 351.
1412. WEBSTER, F. M. Insects affecting fall wheat. <Ann. Rept. [U. S.] Comm. Agric. for 1885, 1886, pp. 311-319.
See Part 3, No. 2363, p. 356.
1413. WEBSTER, F. M. Sweet potato "bugs." <Indiana Farmer, 3 July, 1886.
Ravages of and means against *Cassida bivittata*, and *Coptocycla aurichalcea*.
1414. WEBSTER, F. M. What's the matter with the wheat? <Indiana Farmer, 24 July, 1886.
Notes on *Isosoma tritici* and *I. grande*.
1415. WEBSTER, F. M. The glassy cutworm. <Indiana Farmer, 24 July, 1886.
Ravages of *Hadena devastatrix*.
1416. WEBSTER, F. M. Blister beetles. <Indiana Farmer, 14 August, 1886.
Macrobasis unicolor denuding cherry trees.
1417. WEBSTER, F. M. The American *Meromyza*. <Bull. No. 9 Purdue Univ. School of Agric., 30 October, 1886.
Shows that there are three annual broods of *Meromyza americana* in the United States.
1418. WEBSTER, F. M. Horticultural entomology. <Trans. Indiana Hortic. Soc. for 1885, 1886, pp. 49-55.

1419. WEBSTER, F. M. Insects of the year. <Trans. Indiana Hortie. Soc. for 1885, 1886, pp. 55-71.
 Characters, injuries, and remedies of *Carpocapsa pomonella*, *Trypeta pomonella*, *Anthonomus quadrigibbus*, *Bucculatrix pomifoliella*, *Coleophora malivorella*, *Phycis* [= *Acrobasis*] *indiginella*, *Paleacrita vernata*, *Ecanthus niveus*, *Selandria* [= *Eriocampa*] *cerasi*, *Nematus ventricosus* [= *ribesii*], *Conotrachelus nuuphar*, *Haltica chalybea*, *Eudemis botrana*, and *Lachnosterna fusca*.
1420. WEBSTER, F. M. Insects affecting the corn crop. <35th Ann. Rept. Indiana State Board Agric. 1885, 1886, v. 38, pp. 180-215, pls. 1-6.
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1421. WEBSTER, F. M. A record of some experiments relating to the effect of the puncture of some hemipterous insects upon shrubs, fruits, and grains, 1886. <Bull. No. 13 Div. Ent. U. S. Dept. Agric., [3 June], 1887, p. 54-58.
 See Part 3, No. 2382, p. 361.
1422. WEBSTER, F. M. Fighting the Aphis of the plum and cherry trees. Potato beetles. <Indiana Farmer, 4 June, 1887.
 Advises pyrethrum or kerosene emulsion for the Aphis [= *Myzus cerasi*] and Hammond's slug shot for potato beetles.
1423. WEBSTER, F. M. Worth their weight in gold. <Indiana Farmer, 9 July, 1887.
 Value of *Chilocorus birulnerus* as a destroyer of insect pests.
1424. WEBSTER, F. M. A new enemy to the Colorado potato beetle. <Indiana Farmer, 30 July, 1887.
Calathus gregarius destroys the eggs and young larvae of *Doryphora 10-lineata*; ravages of *Systema blanda* on potato vines.
1425. WEBSTER, F. M. Report on buffalo gnats. <Bull. No. 14 Div. Ent. U. S. Dept. Agric., [3 August], 1887, pp. 29-39.
 See Part 3, No. 2388, p. 361.

1426. WEBSTER, F. M. Insect enemies of crops. The outlook. <Farmers' Review, 28 September, 1887.
Opposes the theory that the abandonment of wheat growing will exterminate *Blissus leucopterus*; its abundance in Louisiana where wheat is not produced.
1427. WEBSTER, F. M. Hessian fly. <Indiana Farmer, 19 November, 1887.
Notes differences between the appearances of infested and healthy wheat plants in autumn.
1428. WEBSTER, F. M. The chinch bug. <Farmers' Review, 23 November, 1887.
Habits of and means against *Blissus leucopterus*; probabilities of its occurrence the following year.
1429. WEBSTER, F. M. Insects affecting small grains and grasses. <Ann. Rept. [U. S.] Comm. Agric. for 1886, 1887, pp. 573-582.
See Part 3, No. 2394, pp. 364-365.
1430. WEBSTER, F. M. Insects affecting the smaller cereal grains. <36th Ann. Rept. Indiana State Board Agric. 1886, 1887, v. 88, pp. 180-195.
Habits and injuries of *Cecidomyia destructor*, *Meromyza americana*, *Isosoma tritici*, *I. grande*, *Diplosis tritici*, and *Blissus leucopterus*.
1431. WEBSTER, F. M. Insects of the year. <Trans. Indiana Hortic. Soc. for 1886, 1887, pp. 107-117, pl. 1.
Deals with *Selandria* [= *Monophadnus*] *rubi*, *Macrodaetylus subspinosus*, *Euphoria inda*, *Egeria tipuliformis*, *Psenocerus superrotatus*, *Eruchas fabre* [= *obtectus*], *Ithycerus noveboracensis*, *Aphis pruni*, and *Lygus pratensis*; notes on sweet potato Cassididae and on Meloidae infesting potatoes.
1432. WEBSTER, F. M. Beating the bugs. <Indiana Farmer, 14 April, 1888.
Habits of various injurious insects; advises rotation of crops and variation in the season of plowing.
1433. WEBSTER, F. M. The army worm. <Indiana Farmer, 23 June, 1888.
Predicts ravages of *Leucania unipuncta* in Indiana; remedial measures.
1434. WEBSTER, F. M. Report on the season's observations in Indiana, and especially upon corn insects. <Ann. Rept. [U. S.] Comm. Agric. for 1887, 1888, pp. 147-154.
See Part 3, No. 2418, p. 370.
1435. WEED, CLARENCE MOORES. Injurious insects new to Michigan. <12th Ann. Rept. Sec. State Hortic. Soc. for 1882, 1883, pp. 185-189.
Notice of the life history, ravages, and means against *Sitranus surinamensis*, *Palorus depressus*, *Lamophlaus alternans*, and *Orygia leucostigma*. Scarcity of *Clisicampa americana* and *Conotrachelus nenuphar*.
1436. WEED, C. M. Scale insects and their enemies. <Prairie Farmer, 12 July, 1884.
Notes on the natural history and enemies of *Pulvinaria innumerabilis*.

1437. WEED, C. M. An enemy to borage. <Amer. Bee Journ., 13 August, 1884.
Notice of *Pyraucis cardui* injuring borage in Michigan; remedies.
1438. WEED, C. M. The thistle butterfly. <Prairie Farmer, 23 August, 1884.
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1439. WEED, C. M. The dog-day harvest-fly. <Prairie Farmer, 30 August, 1884.
Natural history of *Cicada pruinosa* [= *tibicen*]; chronology.
- 1439a. [WEED, C. M.] The red-humped caterpillar. <Prairie Farmer, 13 September, 1884.
Natural history and remedies of *Aedemasia concinna*.
1440. [WEED, C. M.] Entomological notes. <Prairie Farmer, 13 September, 1884.
Abundance of *Pulvinaria innumerabilis* in Illinois; the use of pyrethrum; remedies for cherry slug; notice of "Notes on injurious insects."
1441. [WEED, C. M.] The cabbage maggot. <Prairie Farmer, 20 September, 1884.
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1442. [WEED, C. M.] The apple maggot. <Prairie Farmer, 27 September, 1884.
Ravages of *Trypeta pomonella*; natural history; remedies.
1443. [WEED, C. M.] The plum Curculio again. <Prairie Farmer, 4 October, 1884.
Notes on jarring as a means against *Conotrachelus nenuphar*.
1444. [WEED, C. M.] The May beetle. <Prairie Farmer, 11 October, 1884.
Natural history of *Lachnosterna fusca*; remedies.
1445. [WEED, C. M.] The onion fly. <Prairie Farmer, 18 October, 1884.
Natural history of *Anthomyia ceparum*; means against its ravages.
1446. [WEED, C. M.] Wireworms—true and false. <Prairie Farmer, 25 October, 1884.
Characters of larval Elateride and of Julidæ; natural history of the former.
1447. [WEED, C. M.] The strawberry crown borer. <Prairie Farmer, 8 November, 1884.
Life history of *Tyloclerma fragariae*; remedies.
1448. [WEED, C. M.] The white-marked tussock moth. <Prairie Farmer, 15 November, 1884.
Notes on the life history of *Orgyia leucostigma*; remedies.
1449. [WEED, C. M.] The zebra caterpillar. <Prairie Farmer, 22 November, 1884.
Life history of *Mamestra picta*; remedies.
1450. [WEED, C. M.] The spotted Pelidnota. <Prairie Farmer, 29 November, 1884.
Brief notice of *Pelidnota punctata*.

1451. [WEED, C. M.] Some beneficial insects. I. <Prairie Farmer, 6 December, 1884.
Account of the habits and life histories of the *Carabidae* and *Coccinellida*.
1452. [WEED, C. M.] Grape root borers. <Prairie Farmer, 13 December, 1884.
Life history of *Prionus laticollis*.
1453. WEED, C. M. The rhinoceros beetle. <Prairie Farmer, 3 January, 1885, v. 57, p. 9.
Characters of Coleoptera; notice of *Dynastes tityus*.
1454. WEED, C. M. Some beneficial insects. IV. <Prairie Farmer, 10 January, 1885, v. 57, p. 25.
Habits and life histories of Odonata, dragon flies.
1455. WEED, C. M. The food of birds. The robin. <Philadelphia Weekly Press, 21 January, 1885.
Notes the result of investigations on the food of young robins and the conclusions of Forbes on the food of the adults.
1456. WEED, C. M. Grapevine flea-beetle. <Prairie Farmer, 24 January, 1885, v. 57, p. 27.
Characters of *Graptolera* [= *Haltica*] *chalybea*: habits and remedies.
1457. WEED, C. M. The maple bark louse. <Prairie Farmer, 31 January, 1885, v. 57, p. 72.
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1458. WEED, C. M. The pea weevil. <Prairie Farmer, 7 February, 1885, v. 57, p. 89.
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1459. WEED, C. M. The bean weevil. <Prairie Farmer, 14 February, 1885, v. 57, p. 105.
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1460. WEED, C. M. The fall webworm. <Prairie Farmer, 21 February, 1885, v. 57, p. 121.
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1461. WEED, C. M. Apple-tree case bearer. <Prairie Farmer, 7 March, 1885, v. 57, p. 153.
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1462. WEED, C. M. Apple-leaf crumpler. <Prairie Farmer, 21 March, 1885, v. 57, p. 181.
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1463. WEED, C. M. The striped vine beetle. <Prairie Farmer, 28 March, 1885, v. 57, p. 196.
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1464. WEED, C. M. The apple-leaf Bucculatrix. <Prairie Farmer, 4 April, 1885, v. 57, p. 217.
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1465. WEED, C. M. Ohio entomology. <Prairie Farmer, 4 April, 1885, v. 57, p. 217.
 Urges the appointment of a State entomologist for Ohio.
1466. WEED, C. M. Cankerworms. <Prairie Farmer, 18 April, 1885, v. 57, p. 229.
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1467. WEED, C. M. The tent caterpillar. <Prairie Farmer, 18 April, 1885, v. 57, p. 245.
 Life history of and means against *Clisiocampa americana*.
1468. WEED, C. M. Insect notes for April. <Prairie Farmer, 25 April, 1885, v. 57, p. 265.
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1469. WEED, C. M. An enemy to raspberries. Snowy tree cricket. <Prairie Farmer, 25 April, 1885, v. 57, p. 265.
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1470. WEED, C. M. The onion fly. <Prairie Farmer, 2 May, 1885, v. 57, p. 277.
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1471. WEED, C. M. The codling moth. <Prairie Farmer, 9 May, 1885, v. 57, p. 297.
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1472. WEED, C. M. Imported currant worm. <Prairie Farmer, 16 May, 1885, v. 57, p. 313.
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1473. WEED, C. M. Insect notes and work for May. <Prairie Farmer, 16 May, 1885, v. 57, p. 313.
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1474. WEED, C. M. Streaked cottonwood leaf beetle. <Prairie Farmer, 23 May, 1885, v. 57, p. 329.
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1475. WEED, C. M. The coming locust plague. <Prairie Farmer, 23 May, 1885, v. 57, p. 329.
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1476. WEED, C. M. Remedies for cabbage maggots. <Prairie Farmer, 30 May, 1885, v. 57, p. 345.
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1477. WEED, C. M. The plum Curculio. <Prairie Farmer, 30 May, 1885, v. 57, p. 345.
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1478. WEED, C. M. A serious grape pest. <Prairie Farmer, 6 June, 1885, v. 57, p. 361.
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1479. WEED, C. M. Insect notes and news. <Prairie Farmer, 6 June, 1885, v. 57, p. 361.
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1480. WEED, C. M. Flat-headed apple-tree borer. <Prairie Farmer, 6 June, 1885, v. 57, p. 361.
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1481. WEED, C. M. Pear and cherry slug. <Prairie Farmer, 13 June, 1885, v. 57, p. 377.
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1482. WEED, C. M. The seventeen-year locust. <Prairie Farmer, 20 June, 1885, v. 57, p. 393.
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1483. WEED, C. M. The goldsmith beetle. <Prairie Farmer, 27 June, 1885, v. 57, p. 409.
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1484. WEED, C. M. Remedies for bark lice. <Prairie Farmer, 27 June, 1885, v. 57, p. 409.
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1485. WEED, C. M. Insect notes and comments. <Prairie Farmer, 27 June, 1885, v. 57, p. 409.
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1486. WEED, C. M. Insect notes and news. <Prairie Farmer, 11 July, 1885, v. 57, p. 441.
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1487. WEED, C. M. A disease attacking insects. <Prairie Farmer, 11 July, 1885, v. 57, p. 441.
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1488. WEED, C. M. The tomato worm. <Prairie Farmer, 11 July, 1885, v. 57, p. 441.
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1489. WEED, C. M. A handsome moth—the Cecropia. <Prairie Farmer, 18 July, 1885, v. 57, p. 457.
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1490. WEED, C. M. The apple Curculio. <Prairie Farmer, 1 August, 1885, v. 57, p. 489.
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1491. WEED, C. M. The Kansas webworm. <Prairie Farmer, 1 August, 1885, v. 57, p. 489.
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1492. WEED, C. M. Cecropia moth. <Prairie Farmer, 1 August, 1885, v. 57, p. 489.
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1493. WEED, C. M. Parasite on tomato worms. <Prairie Farmer, 8 August, 1885, v. 57, p. 503.
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1494. WEED, C. M. A serious pest—Clover seed midge. <Prairie Farmer, 8 August, 1885, v. 57, p. 503.
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1495. WEED, C. M. The oyster-shell bark louse. <Prairie Farmer, 15 August, 1885, v. 57, p. 521.
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1497. WEED, C. M. Parasites on bark lice. <Prairie Farmer, 15 August, 1885, v. 57, p. 521.
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1498. WEED, C. M. The regal walnut moth. <Prairie Farmer, 22 August, 1885, v. 57, p. 537.
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1499. WEED, C. M. The elm-leaf beetle. <Prairie Farmer, 22 August, 1885, v. 57, p. 537.
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1500. WEED, C. M. Cottonwood beetle. <Prairie Farmer, 22 August, 1885, v. 57, p. 537.
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1501. WEED, C. M. The fall webworm. <Prairie Farmer, 29 August, 1885, v. 57, p. 553.
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1502. WEED, C. M. The red-humped caterpillar. <Prairie Farmer, 5 September, 1885, v. 57, p. 567.
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1503. WEED, C. M. The Hessian fly. <Prairie Farmer, 12 September, 1885, v. 57, p. 587.
Natural history of *Cecidomyia destructor*; remedies.
1504. WEED, C. M. Rocky Mountain locust enemies. <Prairie Farmer, 3 October, 1885, v. 57, p. 674.
Life history of *Trombidium sericeum* and of *Anthomyia calopteni* [= *Phorbia fusciceps*].
1505. WEED, C. M. The clover stem borer. <Prairie Farmer, 10 October, 1885, v. 57, p. 667.
Life history of *Languria mozardi*; its distribution; remedies.
1506. WEED, C. M. Seasonable insect notes. <Prairie Farmer, 17 October, 1885, v. 57, p. 685.
Miscellaneous notes.
1507. WEED, C. M. The clover-leaf midge. <Prairie Farmer, 17 October, 1885, v. 57, p. 685.
Life history of *Cecidomyia trifolii*.
1508. WEED, C. M. Rise and fall of the chinch bug. <Prairie Farmer, 31 October, 1885, v. 57.
Notes on the influence of wet and dry weather and of diseases upon *Blissus leucopterus*.

1509. WEED, C. M. The white grub again. <Prairie Farmer, 31 October, 1885, v. 57, p. 713.
Ravages of the larva of *Lachnopterna fusca*: life history of the species; remedies; enemies.
1510. WEED, C. M. Two orchard pests. <Prairie Farmer, 7 November, 1885, v. 57, p. 733.
Life history of *Trypeta pomonella* and of *Carpocapsa pomonella*: remedies.
1511. WEED, C. M. The grape-berry moth. <Prairie Farmer, November, 1885, v. 57, p. 764.
Natural history of *Endemis botrana*; remedies; parasites.
1512. WEED, C. M. The velleda lappet-moth. <Prairie Farmer, 5 December, 1885, v. 57, p. 795.
Sketch of the life history of *Tolype velleda*.
1513. WEED, C. M. The nine-pronged wheel bug. <Prairie Farmer, 12 December, 1885, v. 57, p. 809.
Characters, distribution, and life history of *Prionotus* [= *Prionidus*] *cristatus*.
1514. WEED, C. M. Lady beetles. <Prairie Farmer, 19 December, 1885, v. 57, p. 895.
Life habits of Coecemellidae.
1515. WEED, C. M. Popular entomology. The Isabella tiger moth. <Prairie Farmer, v. 57.
Life history of *Pyrrharetia isabella*: its parasites.
1516. WEED, C. M. The strawberry crown girdler. <14th Ann. Rept. Secr. State Hortic. Soc. for 1884, 1885.
See Part 4, No. 324, p. 45.
1517. WEED, C. M. Food relations of birds, frogs, and toads. <14th Ann. Rept. Secr. State Hortic. Soc. for 1884, 1885.
See Part 4, No. 324, p. 46.
1518. WEED, C. M. Cherry slug. <14th Ann. Rept. Secr. State Hortic. Soc. for 1884, 1885.
See Part 4, No. 324, p. 46.
1519. WEED, C. M. Food of the friendly toad. <Prairie Farmer, 16 January, 1886, v. 58, p. 38.
Notice of the food habits of the common toad.
1520. WEED, C. M. The stalk borer. <Prairie Farmer, 30 January, 1886, v. 58, p. 71.
Life history of *Gortyna nitela*.
1521. WEED, C. M. The white-marked tussock moth. <Prairie Farmer, 6 February, 1886, v. 58, p. 85.
Orgyia leucostigma abundant in Nebraska; life history; remedies.
1522. WEED, C. M. Seasonable reminders. <Prairie Farmer, 20 March, 1886, v. 58, p. 183.
Miscellaneous notes.
1523. WEED, C. M. The bean weevil. <Prairie Farmer, 20 March, 1886, v. 58, p. 183.
Habits and life history of *Bruchus obsoletus* [= *obtectus*]; preventives and remedial measures.

1524. WEED, C. M. The currant stem borer. <Prairie Farmer, 3 April, 1886, v. 58, p. 215.
Life history and habits of *Egeria tipuliformis*: means against its ravages.
1525. WEED, C. M. The imported cabbage worm. <Prairie Farmer, 10 April, 1886, v. 58, p. 233.
Notice of the habits and life history of *Pieris rapa*.
1526. WEED, C. M. Rear horse or camel cricket. <Prairie Farmer, 17 April, 1886, v. 58, p. 247.
Brief account of the life history of *Mantis* [= *Phasmomantis*] *carolina*.
1527. WEED, C. M. Reminders for the season. <Prairie Farmer, 17 April, 1886, v. 58, p. 247.
Miscellaneous notes.
1528. WEED, C. M. Maple caterpillars. <Prairie Farmer, 17 April, 1886, v. 58, p. 247.
Means against the ravages of *Orygia leucostigma*.
1529. WEED, C. M. The imported currant worm. <Prairie Farmer, 24 April, 1886, v. 58, p. 265.
Life history and habits of *Nematus ventricosus* [= *ribesii*]; remedies.
1530. WEED, C. M. Notes for the season. <Prairie Farmer, 1 May, 1886, v. 58, p. 281.
1531. WEED, C. M. Insect notes and news. <Prairie Farmer, 8 May, 1886, v. 58, p. 297.
1532. WEED, C. M. Destroying ants. <Prairie Farmer, 8 May, 1886, v. 58, p. 297.
Remedies recommended.
1533. WEED, C. M. Entomological nonsense. <Prairie Farmer, 15 May, 1886, v. 58, p. 311.
Notice of various absurd theories advocated for the destruction of insects.
1534. WEED, C. M. Tree cricket—serious damage. <Prairie Farmer, 22 May, 1886, v. 58, p. 327.
Life history and habits of *Acanthus niveus*: remedies.
1535. WEED, C. M. Insects affecting hay crops. <Prairie Farmer, 29 May, 1886, v. 58, p. 345.
Brief notes on some of the insects injurious to forage crops; refers to the literature on the subject.
1536. WEED, C. M. Queries answered. <Prairie Farmer, 5 June, 1886, v. 58, p. 357.
Means against the pine scale and against cutworms.
1537. WEED, C. M. Grasshoppers vs. leaf-hoppers. <Prairie Farmer, 19 June, 1886, v. 58, p. 389.
Brief notes.
1538. [WEED, C. M.] Seasonable insect notes. <Prairie Farmer, 19 June, 1886.
1539. WEED, C. M. Cottonwood-leaf beetle. <Prairie Farmer, 10 July, 1886, v. 58, p. 443.
Natural history, ravages, and means against *Linia scripta*.

1540. WEED, C. M. The cherry-tree slug. <Prairie Farmer, 17 July, 1886, v. 58, p. 453.
Natural history of *Selandria* [= *Eriocampa*] *cerasi*: remedies.
1541. WEED, C. M. Seasonable insect notes. <Prairie Farmer, 24 July, 1886, v. 58, p. 469.
1542. WEED, C. M. The fall webworm. <Prairie Farmer, 24 July, 1886, v. 58, p. 469.
Natural history of *Hyphantria textor* [= *cunea*]: its ravages and means against them.
1543. WEED, C. M. Not "chigres or jiggers." <Prairie Farmer, 14 August, 1886, v. 58, p. 523.
Natural history of *Leptus* [= *Tetranychus*] *americanus*, and *L.* [= *T.*] *irritans*.
1544. WEED, C. M. The beautiful wood-nymph. <Prairie Farmer, 4 September, 1886, v. 58, p. 565.
Characters and life history of *Eudryas grata*: injuries and remedies.
1545. WEED, C. M. The Abbot Sphinx. <Prairie Farmer, 11 September, 1886, v. 58, p. 585.
Natural history of *Thyrus abbotii*.
1546. [WEED, C. M.] Southern Illinois notes. <Prairie Farmer, 2 October, 1886.
Effects of the drouth and the ravages of *Blissus leucopterus*.
1547. WEED, C. M. About dragon flies. <Prairie Farmer, 23 October, 1886, v. 58, p. 697.
Characters and habits of Odonata.
1548. WEED, C. M. A larva and its parasites. <Prairie Farmer, 30 October, 1886, v. 58, p. 713.
Life history of *Microgaster* sp., infesting *Darapsa* [= *Ampelophaga*] *myron*.
1549. WEED, C. M. A peculiar insect—mole cricket. <Prairie Farmer, 6 November, 1886, v. 58, p. 735.
Characters and habits of *Gryllotalpa borealis*.
1550. WEED, C. M. The apple-leaf crumpler. <Prairie Farmer, 13 November, 1886, v. 58, p. 748.
Natural history of *Phycis* [= *Acrobasis*] *indiginella*: remedies.
1551. WEED, C. M. The tree cricket. <Prairie Farmer, 18 December, 1886, v. 58, p. 835.
Oviposition of *Ecauthus nivicus*: remedies.
1552. WEED, C. M. On the injurious insects of central Illinois. <Trans. Dept. Agri. State of Illinois for 1885, 1886, v. 23, pp. 48-57. Separate: <Springfield, Ill., 1886.
See Part 4, No. 745, p. 89.
1553. WEED, C. M. Leaf-cutting bees. <Prairie Farmer, 1 January, 1887, v. 59, p. 3.
Habits of *Megachile* sp.
1554. WEED, C. M. Apple-tree insects. <Prairie Farmer, 1 January, 1887, v. 59, p. 3.
Miscellaneous notes.

1555. WEED, C. M. Insects of the orchard. 2. <Prairie Farmer, 8 January, 1887, v. 59.
Means against *Schizoneura lanigera* and *Aphis mali*.
1556. WEED, C. M. Insects of the orchard. 3. <Prairie Farmer, 15 January, 1887, v. 59, p. 35.
Distribution and life history of *Phycis* [= *Acrobasis*] *indiginella*; remedies.
1557. WEED, C. M. Insects of the orchard. 4. <Prairie Farmer, 22 January, 1887, v. 59, p. 57.
Distribution and life history of *Pempelia hammondi*; remedies.
1558. WEED, C. M. The lesser apple-leaf roller. <Prairie Farmer, 29 January, 1887, v. 59, p. 67.
Ravages of *Teras minuta*; its life history; dimorphism; remedies.
1559. WEED, C. M. The solitary caterpillar. <Prairie Farmer, 12 March, 1887, v. 59, p. 163.
Life history of and means against *Callimorpha lecontei*.
1560. WEED, C. M. Inquiries answered. <Prairie Farmer, 12 March, 1887, v. 59, p. 163.
1561. WEED, C. M. The pea weevil. <Prairie Farmer, 26 March, 1887, v. 59, p. 199.
Natural history of *Bruchus pisi* [= *pisorum*]; remedies.
1562. WEED, C. M. Cutworms. <Prairie Farmer, 7 May, 1887, v. 59, p. 295.
Life history, ravages, and means against Agrotidae.
1563. WEED, C. M. The Cecropia emperor moth. <Prairie Farmer, 21 May, 1887, v. 59, p. 326.
Characters of the larva and adult of *Platysamia* [= *Attacus*] *cecropia*; means against the ravages of the larva.
1564. WEED, C. M. Seasonable insect notes. <Prairie Farmer, 4 June, 1887, v. 59, p. 358.
1565. WEED, C. M. The strawberry slug. <Prairie Farmer, 4 June, 1887, v. 59, p. 358.
Habits and life history of *Emphytus* [= *Harpiphorus*] *maculatus*; ravages and remedies.
1566. WEED, C. M. Bark lice on apples. <Prairie Farmer, 11 June, 1887, v. 59, p. 378.
Characters and ravages of *Mytilaspis pomorum*; remedies; enemies.
1567. WEED, C. M. Questions answered. <Prairie Farmer, 11 June, 1887, v. 59, p. 378.
1568. WEED, C. M. Destroying rose slugs. <Prairie Farmer, 25 June, 1887, v. 59, p. 415.
Résumé of remedies.
1569. WEED, C. M. Interesting notes afield. <Prairie Farmer, 2 July, 1887, v. 59, p. 429.
Notes on insect parasites and on predaceous insects.
1570. WEED, C. M. Blister beetle on potatoes. <Prairie Farmer, 9 July, 1887, v. 59, p. 439.
Life history of *Epicaula vittata* and of *Macrobasis unicolor*.

1571. WEED, C. M. Plant lice on melons. <Prairie Farmer, 9 July, 1887, v. 59, p. 439.
Known remedies unsatisfactory; rotation advised.
1572. WEED, C. M. Notes afield, 2. <Prairie Farmer, 16 July, 1887, v. 59, p. 455.
Notes on predaceous insects, dragon flies, and wasps.
1573. WEED, C. M. Questions answered. <Prairie Farmer, 16 July, 1887, v. 59, p. 455.
Deals with *Leucania albilinea* and with "cankerworms."
1574. WEED, C. M. Questions answered. <Prairie Farmer, 23 July, 1887, v. 59, p. 471.
Means against *Blissus leucopterus*; notes on Meloidæ.
1575. [WEED, C. M.] Chinch bugs in northern Illinois. <Prairie Farmer, 23 July, 1887.
Ravages of *Blissus leucopterus*.
1576. WEED, C. M. Notes afield, 3. <Prairie Farmer, 30 July, 1887, v. 59, p. 487.
Life history of *Danais archippus*.
1577. WEED, C. M. The dog-day harvest fly. <Prairie Farmer, 6 August, 1887, v. 59, p. 503.
Characters and life history of *Cicada pruinosa* [= *tibicen*].
1578. WEED, C. M. The oak-twig pruner. <Prairie Farmer, 13 August, 1887, v. 59, p. 519.
Habits and life history of *Elaphidion villosum*; remedies and preventives.
1579. WEED, C. M. The strawberry midget. <Prairie Farmer, 27 August, 1887, v. 59. <Trans. Ill. State Hortic. Soc. for 1887, pp. 230-233. <Popular Gardening, May, 1888, v. 3, p. 176.
Characters, food habits, and ravages of *Thrips tritici*; notes on allied species; suggestions as to remedies.
1580. WEED, C. M. Notes afield, 4. <Prairie Farmer, 10 September, 1887, v. 59, p. 582.
Notes on the habits and life history of the Asilidæ.
1581. WEED, C. M. Apple worms.—A remedy. <Prairie Farmer, 10 September, 1887, v. 59, p. 582.
Results from spraying with London purple.
1582. WEED, C. M. Buffalo carpet beetle. <Prairie Farmer, 10 September, 1887, v. 59, p. 582.
Remedies for *Anthrenus scrophulariarum*.
1583. [WEED, C. M.] Chinch bugs. <Prairie Farmer, 17 September, 1887.
Means against ravages of *Blissus leucopterus*.
1584. WEED, C. M. Insects affecting corn. <Philadelphia Weekly Press, 21 September, 1887.
Notes on *Crambus zeclus*, *Diabrotica longicornis*, Agrotidæ, and *Aphis maidis*; the last named hibernates in the egg state.

1585. WEED, C. M. Buffalo carpet beetle. <Prairie Farmer, 24 September, 1887, v. 59, p. 615.
Life history and habits of *Anthrenus scrophulariae*.
1586. WEED, C. M. Notes afield, 5. <Prairie Farmer, 1 October, 1887, v. 59, p. 630.
Life history and habits of Coccinellida.
1587. WEED, C. M. Notes afield, 6. <Prairie Farmer, 15 October, 1887, v. 59, p. 663.
Habits and life history of spiders; review of recent works on spiders.
1588. WEED, C. M. An injury to apple trees. <Prairie Farmer, 22 October, 1887, v. 59, p. 679.
Life history of *Calodasys unicomis*: ravages and remedies.
1589. WEED, C. M. The solitary caterpillar. <Prairie Farmer, 5 November, 1887, v. 59, p. 710.
Habits and means against *Callimorpha lecontei*.
1590. WEED, C. M. Granary weevils. <Prairie Farmer, 26 November, 1887, v. 59.
Life history, habits, and distribution of *Calandra granaria*: means against.
1591. WEED, C. M. Notes afield, 8. <Prairie Farmer, 10 December, 1887, v. 59, p. 799.
Habits of "katydids;" their enemies.
1592. WEED, C. M. Rhinoceros beetle. <Prairie Farmer, 24 December, 1887, v. 59.
Brief account of the life history of *Dynastes tityus*.
1593. WEED, C. M. The tomato worm. <Prairie Farmer, 31 December, 1887, v. 59.
Characters and life history of *Phlegethoutius [= Protoparce] celeus*: means against.
1594. WEED, C. M. On an Illinois outbreak of indigenous locusts: A study in entomological prognostications. <Proc. Soc. Prom. Agric. Sci., 1887, pp. 92-94.
Account of an outbreak of *Caloptenus femur-rubrum* and *C. differentialis* in Illinois; conclusions as to methods of predicting the cessations of such uprisings.
1595. WEED, C. M. Apple-tree borers. <Prairie Farmer, 7 January, 1888, v. 60, p. 3.
Résumé of the life history of *Chrysobothris femorata*: remedies.
1596. WEED, C. M. A cricket parasite. <Prairie Farmer, 7 January, 1888, v. 60, p. 3.
Brief notice of the life history of *Mermis* sp.
1597. WEED, C. M. A chicken tick. <Prairie Farmer, 7 January, 1888, v. 60, p. 3.
Account of injury to chickens by *Argas* sp.; coal oil the best remedy.
1598. WEED, C. M. Notes afield. VI. How insects destroy each other. <Prairie Farmer, 28 January, 1888, v. 60, p. 51.
Discusses predaceous and parasitic insects.

1599. WEED, C. M. On the occurrence of apterous males among the Aphididae. <Amer. Nat., January, 1888, v. 22, p. 70.
Schizoneura cornicola, *Aphis maidis*, and an undetermined *Aphis* have apterous males.
1600. WEED, C. M. How to apply insecticides. <Prairie Farmer, 25 February, 1888, v. 60, p. 188.
Deals with Paris green, London purple, pyrethrum, hellebore, kerosene mixtures, and tobacco.
1601. WEED, C. M. Seasonable insect notes. <Prairie Farmer, 28 April, 1888, v. 60, p. 273.
Notes on various insect remedies; London purple as a means against *Conotrachelus nenuphar*.
1602. WEED, C. M. Growing sound apples. <Prairie Farmer, 28 April, 1888, v. 60, p. 273.
Urges spraying.
1603. WEED, C. M. On the synonymy of the apple-leaf creaser, *Ornithogeminatella* (Pack.). <Amer. Nat., April, 1888, v. 22, p. 364.
Discussion of the literature.
1604. WEED, C. M. The clover hay worm. <Prairie Farmer, 5 May, 1888, v. 60.
Résumé of the life history of *Asopia* [= *Pyralis*] *costalis*: position of clover stacks should be changed.
1605. WEED, C. M. The spring and summer treatment of apple orchards to prevent insect injuries. <Bull. No. 3 Ohio Agric. Exper. Station, pp. 25-38, figs. 1-10. <Prairie Farmer, 12 May, 1888.
Brief life histories of the insects affecting the trunk, the foliage, the fruit; insecticide apparatus; spraying nozzles; chronological summary.
1606. WEED, C. M. Experiments with remedies for the plum curculio. <Bull. No. 3 Ohio Agric. Exper. Station, p. 38. <Prairie Farmer, 12 May, 1888.
Recommends spraying with arsenites, dusting with lime, and mixing trees of American and European varieties.
1607. WEED, C. M. Some notes on apple insects. <Rural New Yorker, 19 May, 1888, v. 47, p. 333.
Notes concerning apple-tree borers and the codling moth.
1608. WEED, C. M. Notes on cutworms. <Ohio Farmer, 19 May, 1888, v. 74.
Life history of the group; poisoned baits, trapping, and digging out recommended as remedies.
1609. WEED, C. M. Biological notes on some North American Ichneumonidae. <Psyche, May, 1888, v. 5, pp. 51-53.
Notes on the hosts and breeding habits.
1610. WEED, C. M. Questions answered. <Prairie Farmer, 9 June, 1888, v. 60, p. 375.
Notes concerning an undetermined strawberry insect, chinch bugs, and plant lice infesting the plum.

1611. WEED, C. M. The cecropia emperor moth. <Prairie Farmer, 9 June, 1888, v. 60, p. 375.
Life history of *Attacus cecropia*.
1612. WEED, C. M. Seasonable insect notes. <Ohio Farmer, 16 June, 1888, v. 74.
Notes on the injuries of Aphididæ, *Selandria* [= *Monophadnus*] *rubi*, and cankerworms; *Bibio albipennis* not injurious.
1613. WEED, C. M. A new potato beetle. <Prairie Farmer, 23 June, 1888, v. 60, p. 412.
Deals with *Epicarvus imbricatus*.
1614. WEED, C. M. Cicadas, or harvest flies, and beetles. <Popular Gardening, 1888, v. 4, p. 45.
Résumé of the life history of Cicadidæ; *Epicauta* sp. injuring garden crops.
1615. WELLS, R. L. Mounding peach trees. <Amer. Ent., June, 1869, v. 1, p. 201.
See Part 2, No. 617, p. 74.
1616. WELLS, T. C. Notes from Kansas. <Amer. Ent., March, 1880, [v. 3], n. s., v. 1, p. 77.
Notes concerning *Nysius destructor* [= *angustatus*], *Doryphora 10-lineata*, *Anisota* [= *Dryocampa*] *rubicunda*, *Carpocapsa pomonella*, *Sannina exitiosa*, *Phyllorera rufatris*, *Luperus noxius* [= *brunneus*], *Blissus leucopterus*, *Caloptenus spretus*, and *Deilephila lineata*.
1617. WESTON, F. Correspondence on the black warts of the plum tree. <Horticulturist, December, 1848, v. 3, pp. 277-279.
See Part 4, No. 1098, p. 124.
1618. WESTWOOD, JOHN OBADIAH. Insects in the library. <Gardeners' Chronicle, 13 September, 1879, v. 12, p. 340.
Review of Hagen's "Insect pests in libraries;" notice of various insects and their remedies; publications.
1619. WHICHER, GEORGE M. The purslane worm. <Science, 4 November, 1887, v. 10, p. 228.
Abundance of *Copidryas gloreri* at Hastings, Nebr.
1620. WHITAKER, B. Essay on insects. <Trans. Ill. State Hortic. Soc. for 1874, 1875, n. s., v. 8, pp. 289-291.
Notes on the losses caused by noxious insects; the causes of their increase and the need of measures and laws for their destruction.
1621. WHITEFORD, J. The plague of locusts. <Sci. Amer., 1874, v. 31, p. 196.
Ravages of *Caloptenus spretus*; enemies.
1622. WHITMAN, ALLEN. Report on the Rocky Mountain locust for 1876. <St. Paul, 1877, 43 pp.
Invasions of *Caloptenus spretus* in Minnesota; natural history, habits, ravages, parasites, and enemies; means against young and adult locusts.
1623. WHITMAN, A. Report from Minnesota. <1st Rept. U. S. Ent. Comm., 29 July, 1878, pp. [3]-[12].
See Part 3, No. 1643, p. 227.
- WHITMAN, A. See Wise, John C.

1624. WIELANDY, JOHN F. Apple-tree borers. <Amer. Ent., March, 1870, v. 2, pp. 146-148.
Habits of *Chrysobothris femorata* and *Saperda bivittata* [= *candida*]; their ravages; remedies and preventives.
1625. WIELANDY, J. F. Squash bug and white bush scallop. <Amer. Ent., March, 1870, v. 2, p. 156.
Food habits of *Coreus* [= *Anasa*] *tristis* and *Diabrotica vittata*.
1626. WIER, D. B. Insects most noxious to fruit growers. <Trans. Wis. State Hortic. Soc. for 1872, 1872, pp. 155-167, figs. 14-17.
Deals with *Saperda bivittata* [= *candida*], *Chrysobothris femorata*, *Trypeta pomonella* and *Conotrachelus nenuphar*.
1627. WIER, D. B. Entomology: Study of a leaf. <Trans. Ill. State Hortic. Soc. for 1873, 1874, n. s., v. 7, pp. 332-335.
Notes on various mites, aphids and fungi found on the leaves of *Populus monilifera*; their enemies; injuries of *Phylloxera vitifoliae* [= *castatrix*] to Delaware grape vines; Concord vines practically exempt.
1628. WIER, D. B. The fruit grower and the bugs. <Trans. Ill. State Hortic. Soc. for 1874, 1875, n. s., v. 8, pp. 29-33.
Natural history of *Capsus oblineatus* [= *Lygus pratensis*].
1629. WIER, D. B. Native plums. How to fruit them. They are claimed to be practically curculio proof. <Bull. No. 14, Div. Ent. U. S. Dept. Agric., [3 August], 1887, pp. 39-52.
See Part 3, No. 2388, p. 361.
1630. WILEY, BENJAMIN F. The army worm. <Prairie Farmer, 1861, n. s., v. 8, p. 37.
Notes on the infested fields, duration of life, and food habits of *Leucania unipuncta*.
1631. WILLARD, X. A. The cheese fly. <Western Rural, 19 August, 1869. <Amer. Ent., December, 1869-January, 1870, v. 2, p. 78.
Injuries of and means against *Piophilus casei*.
1632. WILLCOX, JOSEPH. On the flight of grasshoppers. <Proc. Acad. Nat. Sci. Phil., 1875, p. 361.
Habits as observed in Colorado.
1633. [WILLIAMS, H. T.] Advantages of keeping hogs in orchards. <Horticulturist, January, 1869, v. 24, pp. 17-18.
As destroyers of injurious insects hogs are very efficient.
1634. WILLIAMS, H. T. Insects in the garden. <Horticulturist, July, 1870, v. 25, pp. 193-194.
Advises the use of carbolic acid preparations.
1635. [WILLIAMS, H. T.] Carbolic plant protector. <Horticulturist, October, 1870, v. 25, pp. 315-316.
Efficacy as a preventive.
1636. [WILLIAMS, H. T.] Care for the peach borer. <Horticulturist, May, 1871, v. 26, p. 154.
Advises the use of carbolic soap.

1637. [WILLIAMS, H. T.] What is the "varmint?" <Horticulturist, November, 1872, v. 27, p. 344.
Injuries of *Acrobasis indiginella*: remedies.
1638. [WILLIAMS, H. T.] Remedies for cabbage lice. <Horticulturist, April, 1873, v. 28, p. 99.
Salt and kerosene.
1639. WILLIAMS, H. T. Carbolic soap for insects. <Horticulturist, May, 1873, v. 28, pp. 156-157.
Effective against Aphididae.
1640. WILLIAMS, H. T. Insects in orchards. <Horticulturist, July, 1873, v. 28, p. 223.
Remedies.
1641. [WILLIAMS, H. T.] Printers' ink. <Horticulturist, March, 1874, v. 29, pp. 94-95.
Its use against cankerworms.
1642. WILLIAMS, JOSEPH. Household pests. <Rept. Ent. Soc. Ontario for 1873, 1874, pp. 26-33, figs. 19-24.
Treats of *Dermestes lardarius*, *Tinca flarifrontella*, *Culex pipiens?*, and *Musca domestica*.
1643. WILLIAMS, J. Beneficial and injurious insects (chiefly of the order Hymenoptera). <Ann. Rept. Ent. Soc. Ontario for 1876, 1877, pp. 41-55, figs. 10-18.
Treats of *Apis mellifica*, *Galleria cerana*, *Trupanea* [= *Promachus*] *apivorus*, *Pimpla annulipes*, *Tremex columba*, *Sigalphus cureulionis*, and *Porizon* [= *Thersilochus*] *conotracheli*.
1644. WILLIAMS, J. On grapevine galls. <Ann. Rept. Ent. Soc. Ontario for 1877, 1877, pp. 48-51, figs. 37-41.
Deals with *Cecidomyia v.-pomum*, *C. v.-coryloides*, *C. v.-riticola*, and *Lasioptera vitis*.
1645. WILLIAMS, J. Dragon flies. <Ann. Rept. Ent. Soc. Ontario for 1877, 1877, pp. 52-55, figs. 42-49.
General account of the habits and usefulness of the Odonata.
1646. WILLIAMS, J. Beneficial insects. <Ann. Rept. Ent. Soc. Ontario for 1878, 1879, pp. 36-46, figs. 15-35.
General account of typical forms of Chrysopidae, Cicindelidae, Carabidae, and Coccinellidae.
1647. WILLIAMS, WILLIAM H. Why the cotton worm thrives South. <Rural New Yorker, 17 August, 1872.
Advocates the use of poisoned fruit to attract the adults.
1648. WILLISTON, SAMUEL W. Mode of advent of *Anthrenus scrophulariae*. <Psyche, March-April [24 September], 1878, v. 2, p. 126.
Introduced with skeletons from England.
1649. WILLISTON, S. W. *Drosophila ampelophila* Loew. <Can. Ent., July, 1882, v. 14, p. 138.
Food habits and characters.

1650. WILLISTON, S. W. The screw-worm fly—*Comptosia macellaria*. <Psyche, November–December, 1883 [11 February, 1884], v. 4, pp. 112–114.
Synopsis of Arribáizaga's studies.
1651. WILSON, WILLIAM DUANE. Iowa Farmers' College, crops, etc. <Prairie Farmer, 4 July, 1863, n. s., v. 12, p. 4.
Ravages of *Blissus leucopterus*.
1652. WILSON, W. E. A mite infesting a pork-packing house. <Amer. Nat., July, 1882, v. 16, p. 599.
Abundance of *Tyroglyphus longior*.
1653. WINCHELL, ALEXANDER. Notes on *Selandria cerasi* Harris, as it occurs at Ann Arbor, Mich. <Proc. Bost. Soc. Nat. Hist., February, 1865, v. 9, pp. 321–325.
Ravages, habits, development, and remedies of *Selandria* [= *Eriocampa*] *cerasi*.
1654. WINFREE, P. The cotton caterpillar. <De Bow's Review, 1847, v. 4, p. 251. <De Bow's Indus. Resources, 1852, p. 172.
Argues against the migration theory of Gorham.
1655. WISE, JOHN C., SMITH, WARREN, and WHITMAN, ALLEN. The grasshopper, or Rocky Mountain locust, and its ravages in Minnesota. * * * <Saint Paul, 1876, 50 pp., 8 figs.
Literature; invasions; ravages; natural history of *Caloptenus spretus*, with notes on related species; influences of climate; enemies and parasites.
1656. WISLIZENUS, A. The army worm. <Trans. St. Louis Acad. Sci., 1863, v. 2, pp. 159–160.
Life history of *Bombyx graminis* [= *Leucania unipuncta*].
1657. WITTING, GEORGE. Capture of cotton moth in January, <Amer. Ent., June, 1880, [v. 3], n. s., v. 1, p. 152.
Occurrence of *Aletia argillacea* in Texas in January.
1658. [WOOLVERTON, L.] Flat headed apple-tree borer. <Can. Hortic., v. 11, pp. 147–148, fig. 56.
Habits of and means against *Chrysobothris femorata*.
1659. [WOOLVERTON, L.] Grapevine leaf-hopper. <Can. Hortic., v. 11, p. 148.
Habits of and means against *Typhlocyba ritis*.
1660. [WOOLVERTON, L.] Peach-tree borer. <Can. Hortic., v. 11, pp. 148–149.
Habits of and means against *Egeria* [= *Sannina*] *cutitiosa*.
1661. [WOOLVERTON, L.] Oyster-shell bark louse. <Can. Hortic., v. 12, pp. 24–25, fig. 11.
Characters, habits, and means against *Mytilaspis pomorum*.
1662. [WOOLVERTON, L.] The tree cricket. <Can. Hortic., v. 12, pp. 140–141, figs. 36–38.
Injuries of *Acanthus niveus*: remedy.

1663. [WOOLVERTON, L.] Fighting insects. <Can. Hortic., v. 12, pp. 154-155, fig. 46.
Means against plant and bark lice; means against apple-tree borers.
1664. [WOOLVERTON, L.] Spraying for the plum Curculio. <Can. Hortic., v. 12, p. 203.
Result of Forbes's experiments.
1665. [WOOLVERTON, L.] The pithy gall of the blackberry. <Can. Hortic., v. 12, p. 204, fig. 53.
Characters of *Diastrophus nebulosus* and of its gall; figures gall and the larva.
1666. [WOOLVERTON, L.] Kerosene for bark lice. <Can. Hortic., v. 12, pp. 204-205.
Effective.
1667. [WOOLVERTON, L.] The grapevine flea beetle. <Can. Hortic., v. 12, pp. 232-233, fig. 62.
Characters, injuries, and means against *Graptodera* [= *Haltica*] *chalybea*.
1668. WRIGHT, CHARLES. The cattle tick. <Amer. Nat., March, 1869, v. 3, pp. 51-52.
Habits of *Ixodes boris*.
1669. WRIGHT, C. *Sarcopsylla (Pulex) penetrans*. <Amer. Nat., September, 1869, v. 3, pp. 386-387.
Habits and injuries.
1670. WRIGHT, G. The strawberry grub. <Gardeners' Monthly, November, 1876, v. 18, p. 333.
Habits of and means against.
1671. WYMAN, JEFFRIES. [Empusa upon house fly]. <Proc. Bost. Soc. Nat. Hist., December, 1854, v. 5, p. 90.
Notes on the growth of the fungus.
1672. ZABRISKIE, JEREMIAH LOTT. A caterpillar fungus from New Zealand, and some related species of the United States. <Journ. N. Y. Micros. Soc., April, 1885, v. 1, pp. 89-94, figs. 1-6.
Notes on *Cordyceps* sp. found on larvæ of *Lachnosterna*, of lepidopterous insects, and on *Lecanium* sp.
1673. ZELLER, J. G. The striped cucumber beetle in a new rôle. <Amer. Ent. and Bot., June, 1870, v. 2, p. 239.
Ravages of and means against *Diabrotica vittata*.
1674. ZIMMERMAN, C. D. [*Nephopteryx* [= *Pinipestis*] *zimmermani*]. <Can. Ent., January, 1878, v. 10, p. 20.
Food plants and ravages.
1675. ZIMMERMAN, C. D. [*Carpocapsa pomonella*]. <Can. Ent., March, 1878, v. 10, p. 60.
Larvæ and pupæ destroyed by *Tenebroides laticollis*.
1676. Z[IMMERMAN], C. D. The codling moth. [*Carpocapsa pomonella*]. <N. Amer. Ent., July, 1879, v. 1, pp. 5-7.
Life habits and means against injuries.

1677. ZIMMERMAN, C. D. Value of an entomological magazine to fruit growers. <Amer. Ent., May, 1880, [v. 3], n. s., v. 1, p. 125.
Usefulness of reliable information upon insects.
1678. ZIMMERMAN, C. D. Insects injurious to nursery stock and best methods of destroying them. <Gardeners' Monthly, August, 1881, v. 23, pp. 238-239.
Habits, injuries, and remedies of Aphididae, *Penthina oculana* [= *Tmetocera ocellana*], *Loxotania* [= *Cacacia*] *rosaceana*, *Phyllophaga* [= *Lachnosterna*] *fusca*, *Sclandria* [= *Eriocampa*] *cerasi*, *Egeria* [= *Sauvina*] *citiosa*, and *Trombidium* [= *Tetranychus*] *telarius*: general remedies.
1679. ZIMMERMAN, J. H. The cotton worm; its characters, habits, etc. <De Bow's Review. <Amer. Cotton Planter, August, 1855.
Transformations of *Actia argillacea* and of *Heliothis armiger*: remedies.

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