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UNITED STATES
DEPARTMENT OF AGRICULTURE
AND
THE STATE ENTOMOLOGICAL
AGENCIES COOPERATING



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Prof. H. F. Wilson, Entomologist, University of Wisconsin, Madison.

INTRODUCTORY STATEMENT

In presenting the initial number of the second volume of the Bulletin, the Insect Pest Survey wishes formally to thank its Collaborators for the very sincere and painstaking efforts they have made in obtaining and transmitting information relative to insect conditions in their respective territories. It wishes, also, to express its appreciation of the commendations they have made of the Survey's work, both in correspondence and in the resolutions adopted at the Annual Meeting of the American Association of Economic Entomologists held at Toronto.

The coming season's reports promise to be much more complete than those of last year. The Collaborators in most cases have organized definitely for Survey work, some with a special force of assistants, and others by a cooperative arrangement with the Extension Service of the State, thus utilizing the County Agent force. The scope of the Survey's work is much better appreciated than when the work was inaugurated, and the Collaborators are reporting all notes on insect conditions at the present time, realizing that what might seem a trivial and normal condition may prove of inestimable value, when associated with similar reports from several other Collaborators.

One of the greatest difficulties experienced in summarizing the data received is in interpreting the comparative terms used in describing the extent of destructiveness of a pest. This is no fault of the reports but serves to accentuate the lack of definite standards in this field. The nearest approach to these definite standards is the percentage of infestation and percentage of damage figures that are being used in some of the major pest surveys.

The Annual Summary of the insect conditions for 1921 is now about ready for publication. The scope of this work was necessarily modified from that set forth in the Introductory statement of Volume 1. The entire field could not be covered with the limited force at command, so nineteen of the more important and interesting pests were selected and reviewed.

OUTSTANDING ENTOMOLOGICAL FEATURES
FOR THE WINTER OF 1921-22
AND THE SPRING OF 1922 UP TO APRIL 1.

The Hessian fly situation has not been reported as at all serious in any of the important wheat-growing sections this spring.

Over the region infested by the chinch bug the winter has been comparatively mild and observations in Illinois indicate that the winter mortality of this pest was extremely low. The adults became active in southern Illinois during the middle of March. Investigations made in Ohio indicate that this pest normally hibernates in farm wood lots and not in the weeds and grass along the fence rows as was formerly believed to be the case.

An interesting phase of the green-bug situation has developed this spring. Surveys carried on by the Bureau of Entomology indicate that there is practically no infestation of the green bug in northern Texas this year, the severe droughts of last summer having prevented the growth of volunteer wheat. In northern Oklahoma and eastern Kansas, however, there seems to be a sufficient green-bug infestation to start an outbreak in these regions, if weather conditions are favorable. This seems to indicate that the outbreaks of the green-bug in Oklahoma and Kansas are not necessarily the result of the northward migration of this pest from northern Texas.

The false wireworms have become seriously abundant and destructive in western Kansas and Nebraska. The dry fall and winter in many localities prevented germination of the seed until this spring, and the false wireworms have consequently been favored by this condition.

The corn borer that was discovered in Texas and northern New Mexico last summer has been determined this spring as Diatraea lineolata Walker. The Survey carried on this spring indicates that in the Big Bend country of Texas the infestation amounts to 50 per cent of the corn.

The seed-corn maggot again appeared on the Atlantic Seaboard this spring, having been reported from North Carolina on March 6. This pest has also been reported this year in Alabama and Louisiana.



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The variegated cutworm was exceedingly abundant in January in the State of Sinaloa, Mexico, where it is one of the serious pests attacking the commercial tomato and pepper plantations.

The southern green plant-bug is again becoming destructive in southern Alabama. This pest has not been troublesome since the freeze of 1918.

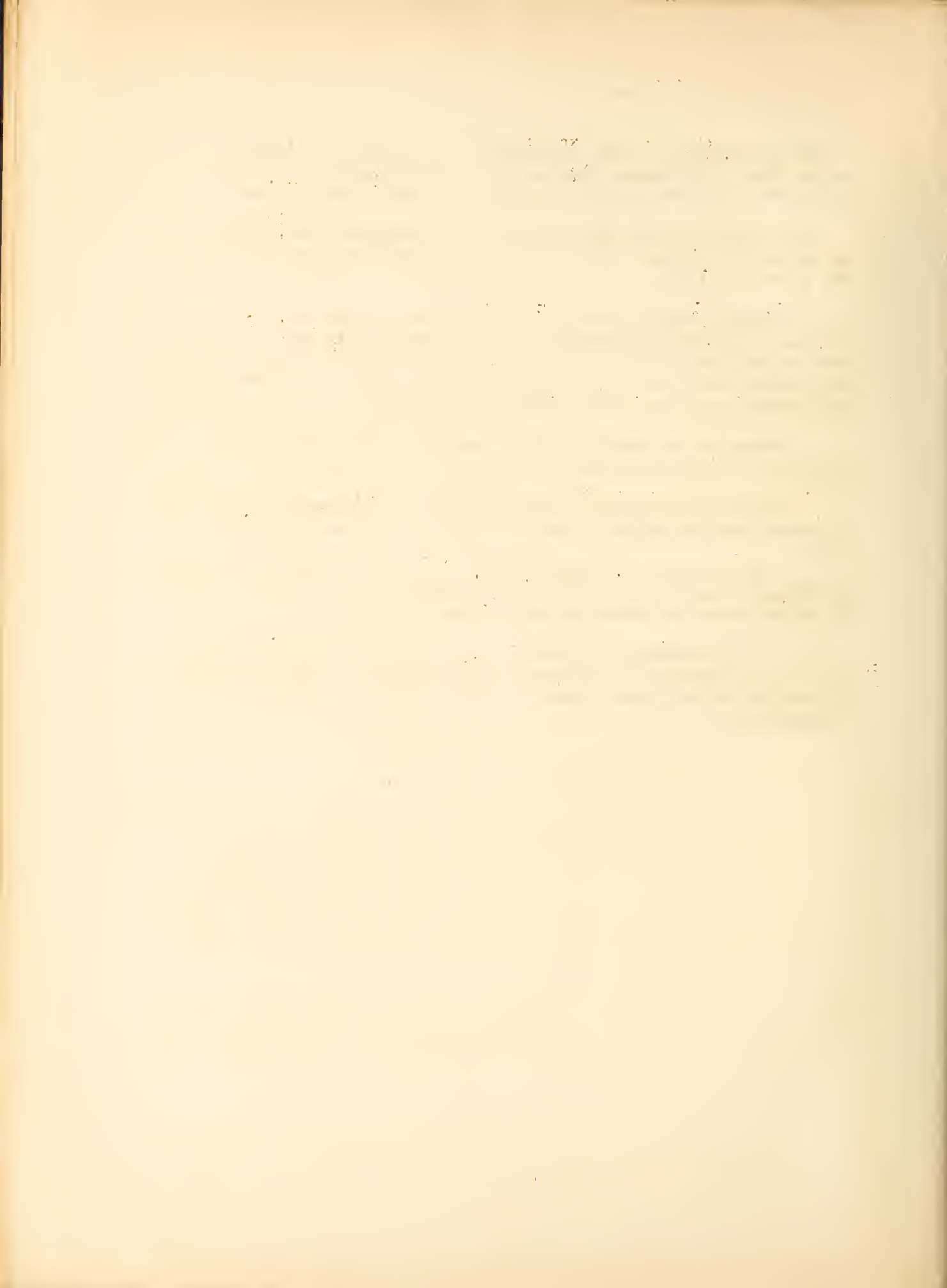
The boll weevil passed the winter very successfully in Alabama, this spring's examinations showing that 16 per cent of the beetles were alive. This is about five times the normal average and indicates that with favorable weather a serious boll-weevil year may be expected in this region.

About 40 per cent of the papaya fruit in the Fort Myers district of Florida was destroyed by the papaya fruit fly.

Florists in Maryland, New York, and Massachusetts are reporting serious depredations by the chrysanthemum gall midge.

The cyclamen mite is reported as very serious in greenhouses in the Baltimore and Philadelphia districts where it is attacking cyclamen and snapdragon.

The strawberry leaf-beetle as a rose pest in greenhouses is attracting considerable attention this spring. Reports of serious injury have been received from Massachusetts and Pennsylvania.



CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

New York C. R. Crosby (survey for 1921). "During the late summer of 1921, the Bureau of Entomology, in cooperation with this office, made very careful counts of wheat stubble throughout New York State to ascertain the percentage of infestation by the Hessian fly. The samples were taken at various points throughout the counties, this office taking 25 straws in a sample while the Bureau of Entomology examined from 20 to 50 straws. The samples were taken at from 4 to 20 different places in each county with the following results:

	<u>Per cent</u>		<u>Per cent</u>
Cayuga.....	6.9	Ontario.....	4.0
Columbia.....	9.9	Orleans.....	10.6
Erie.....	8.2	Seneca.....	2.6
Genesee.....	7.6	Tompkins.....	12.4
Livingston.....	4.2	Ulster.....	6.4
Monroe.....	2.8	Wayne.....	9.3
Niagara.....	12.3	Wyoming.....	4.9

"This makes an average infestation for the State in last year's stubble of 7.3 per cent."

Iowa C. N. Ainslie, Bureau of Entomology. "Examinations made late in October, 12 miles from Sioux City, showed plenty of eggs and larvae as well as puparia in volunteer wheat at that time. Twenty miles north of this point no trace of the fly could be found. In this latter region no volunteer wheat was found in the fields examined and the sown grain was quite free. On the Missouri River bottoms to the south the infestation was very general, but the injury will probably be slight."

Nebraska M. H. Swenk (November 18, 1921). "The only report of serious injury to the new wheat by the Hessian fly coming to our attention during the period here covered (October 15 to November 18, 1921) was from York County during the middle of October in early sown fields."

(March 15). "Examinations of the winter wheat in various localities indicate that the Hessian fly is present about as it was in the Spring of 1921. The outlook at present does not look particularly serious."



Missouri

J. R. Horton, Bureau of Entomology (October 31, 1921). "Examinations in 8 counties showed that the most serious infestation in this State is in the southeastern third, here the infestation ranging from 19 to 32 per cent. Through the center of the State the infestation ranges from 5 to 6 percent, while in the northwestern third of the State the infestation in the single county inspected showed 2 per cent infestation. The infestation in the several counties was as follows:

	<u>Per cent</u>		<u>Per cent</u>
Wright.....	6.6	Wodaway.....	2.0
Boone.....	5.3	Mississippi.....	32.0
Perry.....	19.5	Crawford.....	22.7
Green.....	5.2	St. Louis.....	27.9

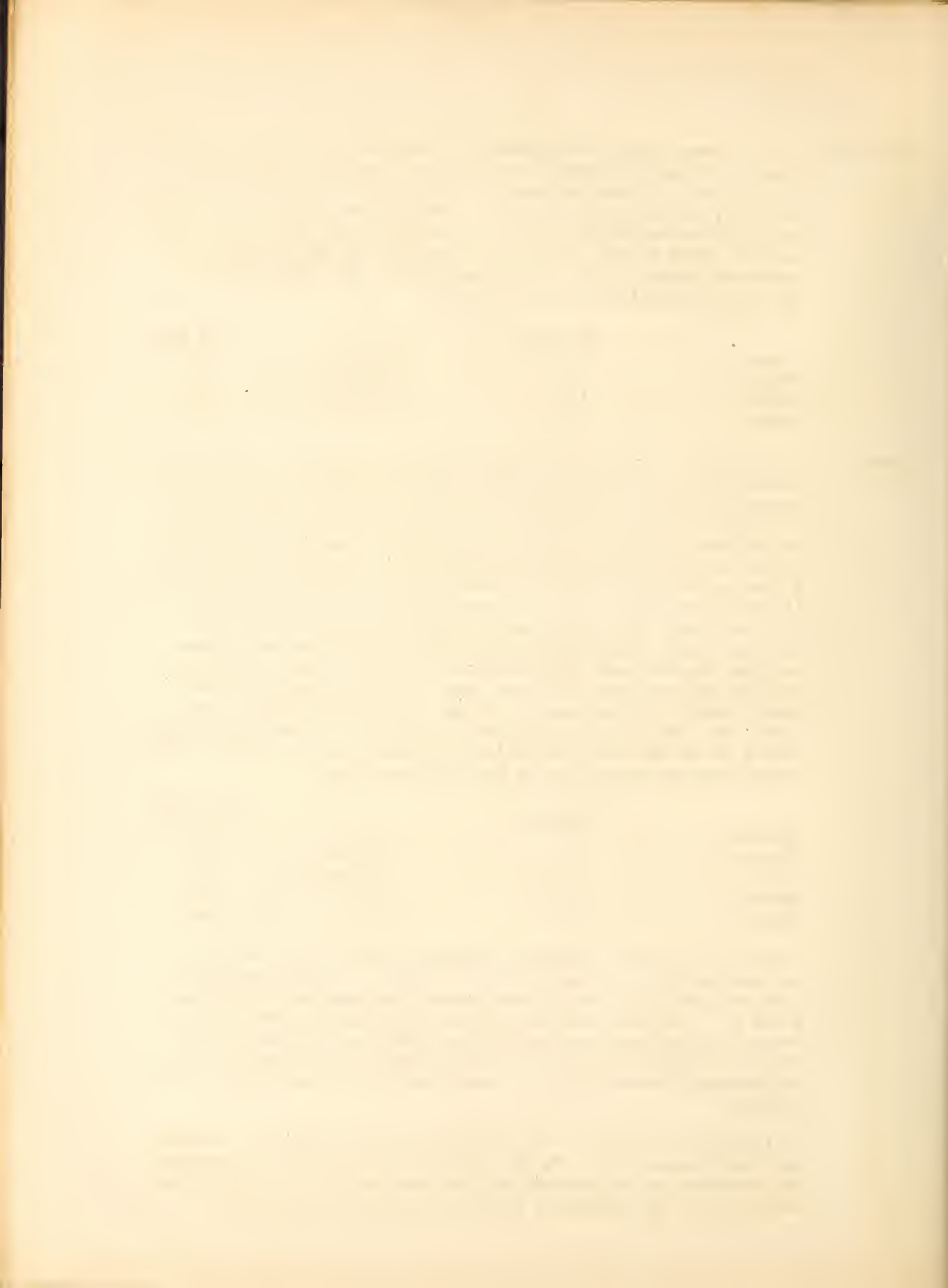
Kansas

J. R. Horton, Bureau of Entomology (Oct. 31, 1921). "Several examinations of wheat were made during the fall of 1921 to ascertain percentage of infestation and the relative parasitism. On September 3, examinations were made in the middle portions of southern Kansas, at which time volunteer wheat was well advanced in the fields, having been about 1 inch high on August 8, having developed 3 or 4 leaves on August 17, and having begun tillering on August 29. The condition of the flaxseeds during this month was as follows: Empty but not parasitized, 30.7 per cent; containing healthy larvae, 30.2 per cent; containing diseased and dried-up larvae, 16.4 per cent; containing living parasites, 10.2 per cent; containing parasite emergence holes, 12.3 per cent. Up to that time no pupae were found, nor had any emergence been observed. Infestation ranged from 7 to 26 per cent, averaging 14.1 per cent. On October 31, county examinations gave the following results:

	<u>Per cent</u>		<u>Per cent</u>
Russell.....	0.3	Cowley.....	1.0
Ellsworth.....	0.4	Sedgwick.....	6.0
Rush.....	2.0	McPherson.....	0.6
Barton.....	0.0	Saline.....	1.0
Summer.....	2.2	Ellis.....	0.4

"During the month of October only one-third of the total number of Hessian fly pupae examined were alive. A heavy mortality also occurred among the larvae during the month of September. (Nov. 1). At this time examinations of flaxseeds show empty but not parasitized puparia, 18 per cent; healthy Hessian fly larvae, 58.5 per cent; Hessian fly pupae, 1.5 per cent; diseased, or dried-up larvae, 16.5 per cent; and parasitized larvae, 5.5 percent."

G. A. Dean (March 13). "We are receiving few inquiries concerning the Hessian fly. There is some infestation by the Hessian fly over the entire eastern half of the State, but with the exception of a few places we do not anticipate any injury."



- Arkansas J. R. Horton, Bureau of Entomology (Oct. 31, 1921). "Examinations made in Washington County showed infestation less than 0.5 per cent. In Searcy County, infestation averages 3.2 per cent."
- Oklahoma J. R. Horton, Bureau of Entomology (October 31, 1921). "Examinations made in the several counties in Oklahoma showed the following results: No Hessian fly found in Woods County, Canadian County, Kay County, and Craig County. Ottawa County averaged 2.9 per cent, Garfield County 1.2 per cent, and Tulsa County 0.6 per cent."

CHINCH BUG (Blissus leucopterus Say)

- Illinois S. C. Chandler (March 14). "Chinch bugs are becoming active on warm days in southern Illinois. Apparently very little mortality has resulted during the winter."
- Ohio T. H. Parks (March 17). "Examinations made today in northwestern Ohio to determine the hibernating quarters showed that probably nine-tenths of all living chinch bugs hibernated in the fallen leaves of farm wood lots. Woods located 1/2 mile from previously infested cornfields were found to contain the hibernating bugs. None were found in dense bluegrass along roadsides and fence rows."

GREEN BUG (Toxoptera graminum Rond.)

W. R. Walton, Bureau of Entomology (March 3). "We are at last in a position to give you a summary on the green-bug situation in Texas, Oklahoma, Kansas, and southwestern Missouri."

"In northern Texas, where the green bug was so abundant last year at this time, it has been impossible for our men, Mr. C. H. Gable and Mr. E. E. Russell, to find any trace of infestation. The late summer was very dry, preventing the growth of volunteer grain, and this is believed to have prevented the development of the insect. On the other hand, Mr. Horton reports the green bug present in the following counties in Oklahoma: Grady, Muskogee, Caddo, Tulsa, Logan, Washington."

The insect has been reported as present, either by Mr. Horton or the Kansas State men, from the following counties of Kansas: Montgomery, Neosho, Linn, Labette, Allen, Miami, Cherokee, Bourbon, Leavenworth, the last county having been reported by Prof. Dean.

"In Missouri, Prof. Haseaman reported a slight infestation in Jasper County in the southwestern corner of the State."

"The green-bug situation as it appears at the present time is most interesting for these reasons: The prevalent opinion during past years has been that serious outbreaks in Oklahoma and Kansas are the result of excessive breeding of this pest in Texas and a heavy northerly migration, whereas the present Survey shows unmistakably that in spite of the fact that there is no infestation in Texas, enough infestation exists in Oklahoma and Kansas to serve as a starter for a very serious infestation this spring, given favorable weather conditions."



This seems to justify the contention that in all probability the great outbreaks of Toxoptera have not been due to early migration, but to the development of the insect in volunteer grain throughout the regions most seriously infested, and the apparent progress of the insect northward is due more to the progress of spring than to migrations of the adult Toxoptera. The present evidence, of course, is not conclusive but is enlightening with respect to this matter."

Kansas J. R. Horton, Bureau of Entomology (March 16). "March examination shows the following status of the green bug in several counties in Kansas: Examinations were made in Sedgwick, Sumner, Harvey, McPherson, Saline, Dickerson, and Marion Counties, and no green bug was found with the exception of two nymphs which were found in a field two miles south of Bell Plaine in Sumner County. Wheat is generally in good condition due to recent rains. During most of the winter it has been poor owing to severe drought, and practically no volunteer and little of the seed grain sprouted until February - conditions which are rather unfavorable for aphids."

Meromyza punctifer Becker

Oregon L. P. Rockwood, Bureau of Entomology (March 8). "I have just received the Meromyza material reared from wheat collections during the outbreak in Union County, Oregon, in June and July, 1921, determined by Dr. J. M. Aldrich, who found but one Meromyza americana Fitch in this lot, all the other specimens being M. punctifer. It would be advisable, therefore, to change the records published in the last volume of the Survey Bulletin on this outbreak so as to refer to M. punctifer as the species causing the damage. However, I think it would be advisable to retain the record of the occurrence of M. americana in this region, as it has been stated that this species does not occur west of the Rocky Mountains."

WHEAT MIDGE (Contarinia tritici Kirby)

Washington L. P. Rockwood, Bureau of Entomology (March 8). "The wheat midge, records of which were published in the Insect Pest Survey Bulletin, Volume 1, No. 4, page 147, and Volume 1, No. 5, page 188, should be corrected. Dr. E. P. Felt has determined the material from this infestation as Thecodiplosis mosellana Gehin. Similar material was reared from wheat collected at Batavia, N.Y. in 1912, by Dr. Felt."

JOINTWORM (Harmolita tritici Fitch)

New York C. R. Crosby (March 22). "A very complete survey was carried on during the late summer of 1921 to ascertain the infestation of wheat by the jointworm in the more important grain-growing counties of New York State. These examinations were made co-operatively by this office and the Bureau of Entomology, with the following results:



New York

	<u>Per cent</u>		<u>Per cent</u>
Ontario.....	4.4	Cayuga.....	3.2
Orleans.....	3.5	Columbia.....	0.3
Seneca.....	2.6	Erie.....	0.3
Tompkins.....	0.8	Genesee.....	6.9
Ulster.....	2.6	Livingston.....	4.9
Wayne.....	5.1	Monroe.....	4.3
Wyoming.....	1.1	Niagara.....	0.9

"The average infestation for the State being 2.9 per cent."

WHEAT-SHEATH GALL JOINTWORM (Harmolita vaginicola Doane)

"C. R. Crosby (March 22). "In connection with the Hessian fly and jointworm survey carried on late last summer, observations were also made on this insect with the following results. No infestation in Ontario, Tompkins, Erie, Orleans, Wyoming, Genesee, Seneca, Columbia, and Niagara Counties.

<u>County</u>	<u>Per cent</u>
Ulster.....	0.3
Wayne.....	.2
Monroe.....	.1
Livingston.....	.2
Cayuga.....	2.1

"A 0.2 per cent infestation average for the State."

APPLE-GRAIN APHIS (Rhopalosiphum prunifoliae Fitch)

Nebraska M. H. Swenk (November 18, 1921). "In Baker County growing wheat was found rather heavily infested around the roots by the apple-grain aphid, but not a great amount of damage was done by it."

FALSE WIREWORM (Eleodes opaca Say)

Nebraska M. H. Swenk (November 18, 1921). "In Garden County the wheat has nearly all been more or less damaged by the Great Plains false wireworm, and some fields were practically destroyed during the period covered by this report (October 15 to November 15)."

Kansas J. W. McColloch (March 25). "This insect is making its appearance in wheat fields of western Kansas where it did a large amount of damage last fall, due to the dry weather and the poor germination of the grain. In many parts of the State the wheat did not germinate last fall and has laid over winter in the ground. Recent rains have started the seed to germinate and apparently stimulated the false wireworm to greater activity. As this insect will be in the larva stage for about another month, we may anticipate even greater injury."

MORMON CRICKET (Anabrus simplex Wald.)

Montana A. L. Strand. "Through a mistake in identification which has since been cleared up, the coffee cricket, Paranabrus scabricollis Thom., was reported in Volume 1, No. 5 of the Insect Pest Survey Bulletin as occurring in Toole and Teton Counties. This should have been the Mormon cricket, Anabrus simplex."

Aphodius distinctus Mill.

Nebraska M. H. Swenk (November 18, 1921). "Heavy flights of this beetle were observed in the wheat fields in Cheyenne County early in November, but no injury was done."

WHITE GRUBS (Phyllophaga spp.)

West Virginia L. M. Peairs (March 10). "Larvae are quite numerous about Morgantown, full-grown grubs being within 10 to 12 inches of the surface."

CUTWORMS (Undetermined)

Kansas G. A. Dean (March 13). "We are receiving a few reports of cutworms from the south-central part of the State. These are in wheat."

CORN

A NEW CORN BORER (Diatraea lineolata Walker)

Texas W. R. Walton, Bureau of Entomology (March 19). "During the summer of 1921, Mr. R. A. Epperson, one of the inspectors of the Federal Horticultural Board, employed under the direction of Dr. W. D. Hunter on the Mexican border, discovered that a lepidopterous stalk-borer was very numerous in the corn in the Rio Grande Valley from El Paso southward through the Big Bend country, being especially numerous on the Mexican side of the line. Messrs. C. H. Gable and R. A. Epperson were assigned to investigate the insect with a result that a single adult was reared which was determined during the month of February this year as Diatraea lineolata Walker. The late Mr. W. R. McConnell had studied this insect at Carlsbad, New Mexico, during the month of February, 1914, and the following year.

"Messrs. Gable and Epperson conducted a survey in the Big Bend Country of Texas during the first ten days of February this year and found the insect present in all cornfields in Brewster County, and as far north as Las Cruces, New Mexico. The infestation was heavier along the river than elsewhere. Here it was impossible to find an uninjured stalk. In some fields where only stubble was found there had been approximately 50 per cent infestation and 25 per cent of the dead stubble contained living larvae. Sugar cane and milo maize were also attacked, although

the latter was but slightly injured. The insect is believed to be present in the Pecos Valley of New Mexico although this report has not been confirmed.

"The information regarding the biology of the insect so far collected indicates that its life history closely parallels that of Diatraea zeacolella and D. saccharalis. There are probably two generations annually, the second one wintering as larvae in the root stock of the corn. The insect is believed to have been conveyed across the Mexican border in fodder carried by the Mexicans for their horses and burros."

CLOVER

GREEN CLOVER WORM (Plathypena scabra Fab.)

New York E. P. Felt (December 17, 1921). "Mr Roy Latham, of Orient Point, reported that quite a number of the moths were flying on the evening of December 17."

GRASS

LUBBER GRASSHOPPER (Dictyophorus reticulatus Thunb.)

Florida H. W. Fogg (March 18). "This insect is normally abundant about Eustis in Lake County."

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F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

Idaho Claude Wakeland (March 18). "Field men of the Department of Agriculture report that in certain parts of the State, especially in the Boise Valley, most of the codling moth larvae wintering above the snow line have been killed by the extremely low temperatures."

WOOLLY APPLE APHIS (Eriosoma lanigerum Hausm.)

New York C. R. Crosby (December 19, 1921). "Specimens of crab-apple trees slightly infested in New York City."

APPLE TWIG-MINER (Marmara elotella Busck)

Connecticut M. P. Zappe (March 24). "The insects seem to be quite plentiful in a portion of an orchard at Branford where this pest has been observed in previous years."

APPLE AND THORN SKELETONIZER (Hemerophila pariana Clerck)

New York E. P. Felt (March 23). "Mr. Henry Bird reports, from Rye, that this insect was the most important pest last year in parts of Westchester County and it presumably will be equally abundant during the coming season. There appear to be four broods and the activities of native parasites were noticeable."

SPRING CANKERWORM (Paleacrita vernata Peck)

Missouri A. F. Satterthwait (February 18). "Five males were caught by hand, and others were seen in flight, attracted to an out-door electric light between the hours of 7 and 10 p. m. The weather has been fair and mild but the frost is not yet out of the ground at Webster Groves."

FALL CANKERWORM (Alsophila pometaria Harr.)

Ohio H. A. Gossard (March 18). "Cankerworm moths, which may have been either of the fall or spring species, most probably the former, were reported by Mr. C. F. Irish to have appeared in Cleveland on February 23. Male moths were seen in Wooster the 1st of March."

BUFFALO TREE-HOPPER (Ceresa bubalus Fab.)

Connecticut M. P. Zappe (March 24). "Orchards in both North Haven and Branford show many oviposition scars on the twigs and smaller branches. This pest, apparently, has been present for several years. These scars are present, although less numerous, on pears."



- New York C. R. Crosby (February 9). "Oviposition scars present on apple and pear at Fernwood February 14. Several acres of young trees at Truxton with many egg scars."
- Ohio H. A. Gossard (March 18). "We have received dozens of specimens of twigs of fruit trees damaged by the buffalo tree-hopper, C. bubalus, and Stictocephala inermis. Reports of such injuries have exceeded the average."

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

- Connecticut W. E. Britton (March 8). "This insect has been rather scarce for several years and now seems to be increasing."
- New York E. P. Felt (March 23). "Mr. Henry Bird reports that this insect appears to be absent in parts of Westchester County."
- Illinois S. C. Chandler (March 14). "Owing to the mild weather, the mortality of the San Jose Scale has been rather low at Olney. Of 1,000 scales examined, 522 were alive."

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

- New York C. R. Crosby (January 14). "Ten acres of apples 3 miles northwest of Ithaca are badly infested with this insect."

SCURFY SCALE (Chionaspis furfura Fitch)

- New York C. R. Crosby (February 1). "Four rows of old apple trees at Upper Red Hook are very badly infested."

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

- New York C. R. Crosby (January 17). "Observed an infested tree at Katonah."
- Ohio H. A. Gossard (March 18). "This insect was received three times and there were eight or ten additional inquiries about the control of this pest without specimens."

ROUNDHEADED APPLE-TREE BORER (Saperda candida Fab.)

- Ohio H. A. Gossard (March 18). "Among orchard insects the roundheaded apple-tree borer was received from East Canton."

PEACH

CHERRY SCALE (Aspidiotus forbesi Johns.)

- Maryland E. N. Cory (February 24). "This pest has multiplied about Berlin in spite of spraying, probably being protected by the scaly bark due to peach scab."

PEACH BORER (Aegeria exitiosa Say)

Pennsyl- S. W. Frost (fall of 1921). "Paradichlorobenzene has been placed about
vania trees of several orchards in Adams as well as other counties in Pennsylv-
vania. An examination of the trees in Adams County on November 1st
showed no evidence of any of the chemical being left."

Ohio H. A. Gossard (March 18). "A large number of inquiries, two or three
dozen of them during the past two months, indicate great interest in the
use of paradichlorobenzene for the peach-tree borer."

LESSER PEACH TREE BORER (Aegeria pictipes G. & R.)

Ohio H. A. Gossard (March 18). "The lesser peach-tree borer was the subject
of a few inquiries and observations in peach orchards, which are frequent-
ly cultivated and, therefore often scarred and bruised, showed that such
orchards are quite run down with this pest as compared with orchards not
cultivated so often."

PLUM

PLUM GALL-MITE (Eriophyes phloeocoptes Nal.)

Ohio H. A. Gossard (March 18). "On March 15 the plum gall mites had become
active and were creeping over the outside of the galls in dozens and were
swarming within by hundreds."

RASPBERRY

STRIPED TREE CRICKET (Oecanthus nigricornis Walk.)

Ohio H. A. Gossard (March 18). "We have received dozens of specimens of
orchard twigs and the canes of small fruits injured by the tree cricket.
Reports of such injuries have exceeded the average."

BLACKBERRY

FLORIDA FLOWER THRIPS (Frankliniella bispinosus projectus Watson)

Florida Jeff Chaffin (March 18). "Thrips are very numerous and will, no doubt,
do quite a bit of damage to commercial blackberry plants in the vicinity
of Bradentown (Manatee County). This is the first year I have noticed
this pest."

CURRANT

IMPORTED CURRANT BORER (Aegeria tipuliformis Clerck)

New York C. R. Crosby (December 30, 1921). "Infested canes were received from
East Hampton today."

GRAPE

ROSE CHAFER (Macrodactylus subspinosus Fab.)

Ohio H. A. Gossard (March 18). "Five inquiries about the control of the rose beetle during January and February indicate that this insect was locally abundant last season and is expected again this year. Reports of such injuries have exceeded the average."

CITRUS FRUIT

FLORIDA FLOWER THRIPS (Frankliniella bispinosus projectus Watson)

Florida J. R. Watson (March 20). "This thrips, which marks and scars the fruit while in bloom, appears to be more numerous this year throughout the entire State."

PAPAYA

PAPAYA FRUIT FLY (Toxotrypana curvicauda Gerst.)

Florida W. R. Eberhardt (March 11). "This insect has damaged about 40 per cent of the fruits in the Ft. Myers district, where it has been noticed for the first time this year."

TRUCK - CROP INSECTS

POTATO AND TOMATOPOTATO BEETLE (Leptinotarsa decemlineata Say)

Louisiana T. H. Jones (March 13). "Mr. R. W. Axt observed beetles recently among seed potatoes at planting time. Without doubt these entered the containers in the field or a near-by shed."

SEED-CORN MAGGOT (Hylemyia cilicrura Rond.)

Louisiana T. H. Jones (December 18, 1921). "Under date of December 18 Mr. Foulks wrote 'The maggots are beginning to work on my cabbage crop and I feel a little uneasy about them.' No specimens of the maggots were sent but I am of the opinion that they probably were this species, which has caused some damage on this truck farm in previous years."

North Carolina R. W. Leiby (March 6). "A letter from Mr. D. C. McCotter of Cash Corner, Pamlico County, says: 'I am sending you, under separate cover, specimens of seed potatoes showing the same maggot worm that attacked the crop last season. It has appeared again this season and is likely to do as great damage to the crop as it did last year. The specimens I am sending you have been in the ground about three weeks. The last planting has not yet been attacked but I am fearful that it will be in a short time. I have about 100 acres already planted and about the same acreage to plant. Have stopped planting until you can send a man here to assist me in arranging some solution of this matter to see if the seed can not be treated in some way before planting. Unless something is done right away, the crop will most certainly be a failure.' On the same date a telegram was received from Mr. W. L. Stancil, Secretary of the Chamber of Commerce of Beaufort, which read as follows: 'Irish potatoes that have been planted are being attacked by a maggot in Carteret County. Please advise at once what to do or send man to investigate. Only a small part of crop planted. If seed can be treated wire formulae. Prompt action must be taken.'"

Alabama J. M. Robinson (March 15). "This insect was reported here about March 5, the maggots being about half grown, and we are attempting to check up on the life history here at Auburn."

CORN EAR-WORM (Heliothis obsoleta Fab.)

Mexico R. H. Van Zwaluwenburg (January 14). "The tomato fruitworm has not showed up yet in this part of the State of Sinaloa in any numbers. Only a few eggs have been found so far this season. Two years ago this insect practically ruined the crop in the Culiacan district in February, March, and April. I am informed that there are between 7,600 and 7,800 acres of tomatoes planted on this coast between Nayarat and the south Sonora line, equivalent to about 5,500 acres in good condition. The crop began to move about the middle of January and will continue into April if the market holds."

VARIEGATED CUTWORM (Lycophotia margaritosa Haw.)

Mexico R. H. Van Zwaluwenburg (January 14). "The variegated cutworm is extremely abundant in this section, Las Hochis, Sinaloa, on tomatoes and peppers, causing repeated replanting in many cases. Mr. F. L. Yeaw says it is especially destructive to peppers, destroying buds and young fruit. It has destroyed approximately 50 per cent of the first cutting of tomatoes. In one instance 60 worms were found at the base of a single plant."

SOUTHERN GREEN PLANT-BUG (Nezara viridula L.)

Alabama W. E. Hinds (December 24, 1921). "These insects have increased in numbers gradually since the very great reduction, which occurred during the first week of February, 1918, when the temperature dropped to about 10 degrees above zero in the southeastern part of Alabama. On account of that cold weather following a very warm January, these bugs were so greatly reduced that they were hardly noticeable in 1918. During the past fall, however, they have become so abundant as to cause complaint. If the present winter continues to be mild we must look forward to serious damage from this pest in southern Alabama during this season."

FLORIDA FLOWER THRIPS (Frankliniella bispinosus projectus Watson)

Florida Jeff Chaffin (March 18). "Mr. Briggs reports that this thrips is doing some damage to tomatoes in the Bradentown section in Manatee County."

C A B B A G E

CABBAGE APHIS (Brevicoryne brassicae L.)

Texas M. C. Tanquary (January 30). "A report, dated January 13, of the appearance of lice on cabbage at San Benito, Tex., has been received. There were not many lice at that time but they were beginning to appear in a cabbage patch of 100 acres."

S T R A W B E R R Y

STRAWBERRY FLEA-BEETLE (Haltica ignita Illig.)

Florida J. Chaffin (March 8). "Several reports have been received during the past ten days of this insect doing serious damage to the strawberry plantings in Polk and Hillsboro Counties."

COTTON RED SPIDER (Tetranychus telarius L.)

Louisiana T. H. Jones (March 15). "Judging from reports, red spiders have caused considerable injury to strawberries in Louisiana this spring. We received letters from Springfield, La., dated February 27, and Panchatula, dated March 6, complaining of damage, and I have received verbal reports to the effect that they have been and are doing damage in fields in the parish of Tangipahoa, the important strawberry-growing section of the State."

B E A N

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Alabama W. E. Hinds (March 16). "The Mexican bean beetle appears to be active already to some extent. In fact, it has been active during every month since first discovered in Alabama in 1920. There has been no complete dormancy even in midwinter. A very heavy attack of this insect also seems to be in progress. Bean raisers in the territory where the beetle did extensive damage in 1921 are, apparently, reducing their planting to between 10 and 20 per cent of what they had planted previously. The damage to the 1921 crop of snap beans, shell beans, and lima beans in the most heavily infested area was approximately 80 per cent of a normal crop."

New Mexico R. L. Middlebrook (March 22). "The Mexican bean beetle appeared in the Mesilla Valley on March 16."

P E A S

PEA APHIS (Illinoia pisi Kalt.)

Louisiana T. H. Jones (March 1). "Mr. O. G. Price, County Agent of Saint Tammany Parish, complains of damage to peas by aphids in his Parish. No specimens accompanied the complaint."

W A T E R M E L O N

COTTON APHIS (Aphis gossypii Glov.)

Florida J. R. Watson (March 18). "These insects are just making their appearance in the Ft. Myers district of Lee County."

C U C U M B E R

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

New Mexico R. L. Middlebrook (March 15). "The striped cucumber beetle put in its first appearance here today."

C E L E R Y

COTTON RED SPIDER (Tetranychus telarius L.)

Florida J. R. Watson (March 20). "This insect is doing serious damage to several celery plantings in the vicinity of Sandford in Seminole County."

SUGAR BEET

BEET ROOT-APHIS (Pemphigus balsamiferae Williams)

Nebraska M. H. Swenk (November 18, 1921). "Up to the time of heavy frosts the sugar-beet louse was doing considerable damage to the sugar beets in Scottsbluff County."

LETTUCE

MYRIAPODS (Geophilidae)

Alabama W. E. Hinds (March 18). "Centipedes attacking roots of lettuce were received from Celina."

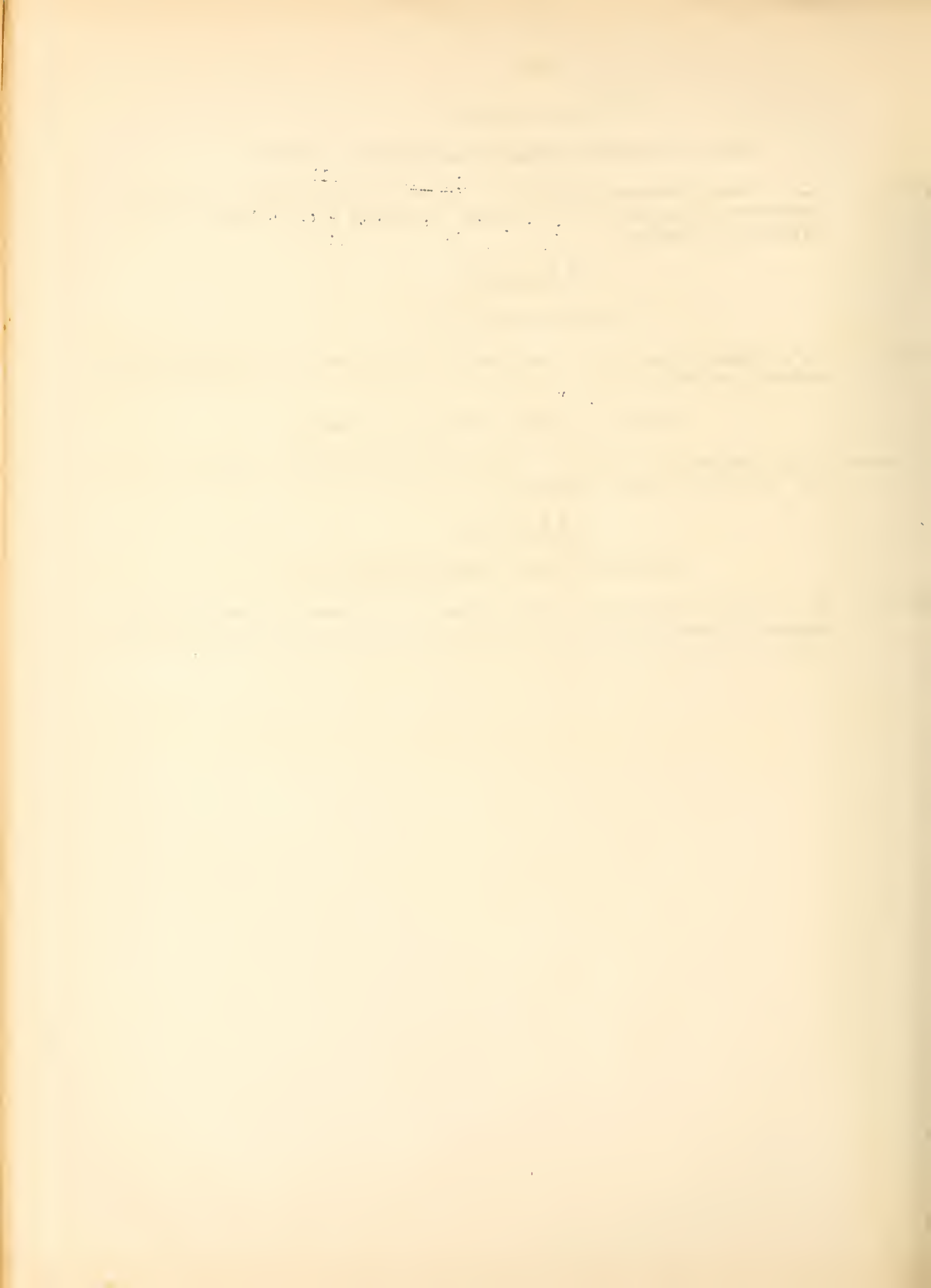
LETTUCE LEAFHOPPER (Species not known)

New Mexico R. L. Middlebrock (March 2). "The lettuce leafhopper appeared here for the first time this season today."

PEPPERS

GREEN PEACH APHIS (Myzus persicae Sulz.)

Florida J. R. Watson (March 20). "This insect was noticed doing considerable damage in several commercial plantings of peppers in the Ft. Myers district in Lee County."



S O U T H E R N F I E L D C R O P I N S E C T S

COTTON

BOLL WEEVIL (Anthonomus grandis Boh.)

Alabama W. E. Hinds (March 16). "The winter of 1921-22 has been exceedingly short and favorable for a very high percentage of boll weevil survival in hibernation. Killing frosts occurred unusually late in the fall of 1921 and in many localities cotton was green and weevils were breeding therein until the end of December. This shortened the usual hibernating period by nearly two months. Recent examinations indicate that the percentage of living weevils in the field at this time runs exceptionally high, 16 percent being found in some cases. This is about five times the normal average survival and indicates that we shall have a very early emergence from hibernation, and exceptionally heavy attack upon the young cotton plants. If normal rainfall occurs through June and July we anticipate exceptional weevil damage to the 1922 cotton crop."

SUGAR CANE

CANE LACEWING (Leptodictya tabida H. Schaefer)

Mexico R. H. Van Zwaluwenburg (January 14). "The cane lacewing insect has been very abundant since October on corn and on old sugar-cane plants. It is also abundant just now on the common bamboo."



F O R E S T A N D S H A D E - T R E E I N S E C T S

GENERAL FEEDERS

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

Nebraska M. H. Swenk (March 15). "The leafless condition of the trees has caused inquiries regarding the scale-insect infestations which are now exposed and comparatively conspicuous. Such inquiries are related chiefly to the oyster-shell scale."

TUSSOCK MOTH (Hemerocampa leucostigma S. & A.)

Illinois C. C. Compton (March, 1922). "From the number of egg masses it is evident that the tussock moth will be numerous this year in Humboldt Park and also Oak Park, Chicago. The temperature has been above the normal, and but few egg masses show parasitism."

BORERS

Nebraska M. H. Swenk (March 15). "Reports indicate that the various shade-tree borers are resuming activity. Reports of this sort have been received since March 9."

MAPLE

MAPLE SESIAN (Sesia acerni Clem.)

Ohio H. A. Gossard (March 18). "Maple sesian was received from Hicksville in Defiance County."

FLAT-HEADED APPLE-TREE BORER (Chrysobothris femorata Oliv.)

Illinois M. D. Leonard (November 26, 1921). "I have just received specimens of the flat-headed apple-tree borer from Danville. The nurseryman who sent them in stated that they were very injurious to newly planted hard and Norway maples."

ELM

WOOLLY ELM APHIS (Eriosoma americana Riley)

Ohio H. A. Gossard (March 18). "This insect was received about a half dozen times and about twice as many inquiries evidently referring to this pest came in during the winter."

AMERICAN ELM SCALE (Chionaspis americana Johns.)

Nebraska M. H. Swenk (March 15). "The leafless condition of the trees has caused inquiries regarding the scale-insect infestations which are now exposed and comparatively conspicuous."

ASH

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

New York C. R. Crosby (January 10). "Trees are badly infested in hedge rows at Barton."

BIRCH

BRONZE BIRCH BORER (Agrius anxius Gory)

Ohio H. A. Gossard (March 18). "The bronze birch borer was reported from Akron."

HICKORY

HICKORY BARKBEETLE (Scolytus quadrispinosus Say)

New York E. P. Felt (March 23). "Mr. Henry Bird reports that this insect has practically disappeared from the Westchester County areas where it was so abundant some years ago."

PINE

PINE LEAF SCALE (Chionaspis pinifoliae Fitch)

New York E. P. Felt (March 23). "Mr. R. E. Horsey reports that the pine leaf scale occurs throughout the Pinetum of the park area of Rochester, though not so evident as last season due to successful spraying in June, 1921."

LARCH

LARCH CASE-BEARER (Coleophora laricella Hubn.)

New York W. T. M. Forbes (November 19, 1921). "The hibernating cases are more scarce about Ithaca as compared with normal years."

GREENHOUSE AND ORNAMENTAL PLANTS

CHRYSANTHEMUM

CHRYSANTHEMUM GALL MIDGE (Dianthronomyia hypogaea F. Loew)

- Massachusetts C. R. Crosby (November 8, 1921). "Badly infested plants were observed at Winchester."
- New York C. R. Crosby (March 23). "Mr. J. J. deVyver reports that the chrysanthemum midge has become established in some greenhouses at Oronota."
- Maryland E. N. Cory (November 26, 1921). "Examinations of a large number of greenhouses in Baltimore reveals a greater degree of injury than was anticipated, the damage running from 10 to 50 per cent of the flower crop. This injury takes no account whatever of the effect on the stock plants; infested greenhouses were observed at College Park, Govanstown, Branchville, Mt. Washington, and Baltimore."

CABBAGE LOOPER (Autographa brassicae Riley)

- Indiana H. F. Dietz (November 3, 1921). "The cabbage looper did its greatest damage to chrysanthemum foliage. However, chrysanthemums at this time of the year usually have an abundance of foliage, so they can spare some. On this account the insect's damage was not nearly as great as that of the earworm because the loopers rarely ate the buds. On the other hand, when the caterpillar ate the foliage near the top of the plant it ruined the flowers for show or sale purposes."

COTTON RED SPIDER (Tetranychus telarius L.)

- New York C. R. Crosby (November 12). "Plants badly infested with this insect were observed in greenhouses at Manhasset."

FERNS

HEMISPHERICAL SCALE (Saissetia hemisphaerica Targ.)

- New York C. R. Crosby (November 4, 1921). "Reports of this insect damaging ferns from Prince Bay."
- C. R. Crosby (December 6, 1921). "Reports of this insect damaging ferns at Fredonia."

CARNATIONS

COTTON CUTWORM (Prodenia ornithogalli Guen.)

- Indiana H. F. Dietz (November 3, 1921). "The yellow striped armyworm did its

greatest damage to carnations. In one case the plants were almost mowed down by it, but taken as a whole this pest was not as abundant in greenhouses as the looper or the corn earworm, and its damage was less than that of either of these pests."

CYCLAMEN

CYCLAMEN MITE (Tarsonemus pallidus Banks)

Maryland E. N. Cory (January 18, 1922). "Mr. C. C. Hamilton reports that 60 per cent of the plants failed to make satisfactory blooms and could not be sold from three greenhouses infested in the Baltimore district."

Alabama W. E. Hinds. "Cyclamen mites were received from Springfield."

CYCLAMEN WEEVIL (Brachyrhinus sulcatus Fab.)

Maryland E. N. Cory (January 17, 1922). "Mr. C. C. Hamilton reports that this insect is present in very small numbers in Baltimore greenhouses, the infestation being less than 1 per cent."

RHODODENDRON

RHODODENDRON TINGIS (Stephanitis rhododendri Horv.)

New York C. R. Crosby (February 25). "Infested leaves received from Cold Spring Harbor."

ROSE

STRAWBERRY LEAF-BEETLE (Paria canella Fab.)

Massachu- C. A. Weigel (March, 1921). "This insect has been reported as very
setts destructive in a rose house at Wakefield."

Pennsylv- C. F. Doucette (March 21, 1922). "Beetles are beginning to show up
vania actively, but not as numerous as last year in the Philadelphia district, where they are attacking roses under glass. Scattered beetles were observed feeding and the first egg masses were found on March 20."

ROSE LEAF TYER (Cacoecia rosaceana Harr.)

Illinois C. C. Compton (March 1922). "This insect has been reported during the winter of 1921-22 as more abundant than usual. From 10 to 20 per cent of the roses are estimated as being damaged by this pest."

SNAPDRAGON

CYCLAMEN MITE (Tarsonemus pallidus Banks)

Pennsyl- C. A. Weigel. "This insect is reported as serious in several greenhouses
vania in the Philadelphia district where it is attacking snapdragon."

SUNFLOWER

SUNFLOWER PEACOCK FLY (Straussia longipennis Wied.)

Montana A. L. Strand. "This insect was reported in Volume 1, No. 7, page 269,
under date of September 6, 1921, as infesting the stems of cultivated
sunflowers. At that time the species had not been identified. Exami-
nations of several hundred plants showed that 80 per cent were infested."

POINSETTIA

TERMITES (Reticulitermes flavipes Kol.)

New York C. R. Crosby (November 2, 1921). "This insect has been found doing
considerable damage in Brooklyn greenhouses."

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

North M. D. Leonard (March 10). "On February 20 I received a cutting from
Carolina a euonymus bush which was badly infested with this scale. This was
from Greensboro."

ORNAMENTAL ASPARAGUS

HYACINTH MITE (Rhizoglyphus hyacinthi Boisd.)

Pennsyl- C. F. Doucette (March 10). "Asparagus plumosus in a greenhouse at Mal-
vania vern was completely infested by this mite which occasioned a loss of 66
per cent of the crop."

SMILAX

HYACINTH MITE (Rhizoglyphus hyacinthi Boisd.)

Pennsyl- C. F. Doucette (March 10). "In the Malvern district three crops of
vania smilax are harvested each season; the November crop was entirely de-
stroyed by this mite this season and the February crop was only 75 per
cent normal."

CAMELIA

TEA SCALE (Fiorinia theae Green)

Louisiana T. H. Jones (March 15). "There has been considerable complaint of injury

to camellias by the scale insect this past winter and this spring. Letters regarding injury were received from Opelousas December 21 and January 4, LeCompte January 24, and Wilson February 21. There have been several complaints from Baton Rouge and vicinity. The tea scale appears to be the most common species present, though Lepidosaphes newsteadi Sulc., Parlatoria proteus Curtis, and Pseudaonidia paeonia Ckll. also attacked this ornamental shrub."



I N S E C T S A F F E C T I N G M A N A N D D O M E S T I C
A N I M A L S.

MAN

MOSQUITOES (Culicidae)

New York E. P. Felt (March 23). "Mosquitoes became somewhat active at Bainbridge about March 18."

DOMESTIC ANIMALS

OX WARBLE (Hypoderma lineatum DeV.)

West Virginia L. N. Peairs (March 17). "Rather severe infestation of cattle by this insect was observed at Morgantown, 10 to 15 of the parasites being found in each animal."

BITING CATTLE LOUSE (Trichodectes scalaris Nitzsch)

Ohio H. A. Gossard (March 18). "This insect was received from Cuyahoga Falls during February where it was infesting live stock."

H O U S E H O L D I N S E C T S

TERMITE (Reticulitermes tibialis Banks)

Nebraska M. H. Swenk (November 18, 1921). "A case of the virtual destruction of a building at Holdrege, Phelps County, by our small native termite came to our attention during late October."

SILVERFISH (Lepisma saccharina L.)

New York C. R. Crosby (January 26). "Reports of the serious infestation of offices by this insect were received from New York City."

STORED PRODUCT INSECTS

GRAIN

GRANARY WEEVIL (Calendra granaria L.)

- New York H. S. Doane (November 1, 1921). "This insect is causing much injury to stored wheat at Romulus and Seneca Falls, in Seneca County."
- Nebraska M. H. Swenk (November 18, 1921). "In northern Nebraska, especially Cedar County, heavy injuries to stored oats by the granary weevil were evident."

RICE WEEVIL (Calendra oryza L.)

- Ohio H. A. Gossard (March 18). "The rice weevil was reported as destructive from Medina."
- South Carolina A. E. Conradi (November 1, 1921). "Reports from the county agents indicate that this insect is very seriously injurious to stored corn in Laurens, Lexington, Lancaster, Clarendon, Saluda, Marion, Fairfield, and Chester Counties, the damage appearing even more serious than usual."

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus (Silvanus) surinamensis L.)

- Iowa C. N. Ainslie (November 3, 1921). "Elevator men and grain buyers in northwestern Iowa, eastern Nebraska, and eastern South Dakota are complaining of serious damage from 'bran bugs' and grain weevils in stored grain. I understand that oats have suffered the most, the kernel being eaten out leaving the hulls empty. It is supposed that the unusually mild winter of 1920-21 is responsible for the multiplying of these pests. Investigation of these reports indicates that most of the injury is being done by the saw-toothed grain beetle, which appears to have multiplied throughout the Northwest. This species has also been very annoying by its inroads on household food supplies. Calendra granaria and C. oryza are present in limited numbers while Psocids are especially numerous in the oats. While the injury caused by these pests is rather small, terminal elevator men are docking the farmers from 3 cents to 13 cents a bushel which is probably out of proportion to the real injury."
- Nebraska M. H. Swenk (November 18, 1921). "In northwestern Nebraska, especially in Cedar County, heavy injury to stored oats by the saw-toothed grain beetle was evident."

Nebraska (March 15). "Since March 5 reports of stored grain pests in wheat and other grains in the farmer's bins have again started to come in, indicating a resumption of activity by these insects."

Ohio H. A. Gossard (March 18). "The saw-toothed grain beetle was received from Akron and Curtice."

INDIAN MEAL MOTH (Plodia interpunctella Hubn.)

Ohio H. A. Gossard (March 18). "This insect was sent in, as doing damage, from Springfield."

Nebraska M. H. Swenk (March 18). "Stored grain in bins was, in some instances, found infested with the Indian meal moth."

MEAL SNOUT-MOTH (Pyralis farinalis L.)

New York C. R. Crosby (November 30, 1921). "This insect was reported as destroying bulbs in storage on Staten Island, the bulbs being tulip and hyacinth."

EUROPEAN GRAIN MOTH (Tinea granella L.)

Connecticut M. P. Zappe (March 24). "Many larvae, pupae, and adults present in a large seed warehouse at Milford. Most of the injury is on corn stored in the warehouse since 1920."

FOREIGN GRAIN BEETLE (Cathartus advena Waltl.)

Nebraska M. H. Swenk (November 18, 1921). "In northeastern Nebraska, especially in Cedar County, injury to stored grain was noted by the foreign grain beetle."

YELLOW MEALWORM (Tenebrio molitor L.)

New York C. R. Crosby (November 30, 1921). "This beetle was found among tulip and hyacinth bulbs on Staten Island."

Ohio H. A. Gossard (March 18). "This insect was sent in from Akron."

CADELLE (Tenebroides mauritanicus L.)

Nebraska M. H. Swenk (November 18, 1921). "The injury to stored wheat in bins of farmers in eastern Nebraska by the cadelle insect, the extent of which I described last month as almost unprecedented in this State, continued with but gradual abatement until early in November, since which time reports of injuries have been much fewer."

CONFUSED FLOUR BEETLE (Tribolium confusum Duv.)

Ohio H. A. Gossard (March 18). "Confused flour beetle was sent in from New Philadelphia."

TOBACCO PRODUCTS

CIGARETTE BEETLE (Lasioderma serricorne Fab.)

New York C. R. Crosby (December 20, 1921). "Received cigars completely destroyed by this insect from New York City."

BEANS

BEAN WEEVIL (Mylabris cinctus Say.)

New York C. R. Crosby. "During the months of November, December, and January numerous reports were received from all parts of the State of serious injury to beans by this insect. Specimens were sent in from Delmar, Depew, Copenhagen, Harmondspont, Schenectady, Elmira, Lake George, Cincinnatus, North Franklin, Ossining, Adams, Seneca, and Waterloo. At last place about 20 per cent of a stock of 50 bushels of beans were destroyed."

Ohio H. A. Gossard (March 16). "Bean weevil was received from six or eight different points in the State."

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