

NEWS LETTER

BUREAU OF PLANT QUARANTINE

UNITED STATES DEPARTMENT OF AGRICULTURE

LIBRARY
STATE PLANT BOARD



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(NOT FOR PUBLICATION)

December 1, 1932.

ADMINISTRATIVE

On November 1 and 2 a meeting was held at Washington, D. C., of the business and fiscal officers of the Bureau of Plant Quarantine.

In addition to the statements made by Bureau officials and representatives, brief remarks were made by Messrs. W. W. Stockberger, Director of Personnel and Business Administration; W. A. Jump, Budget Officer and Assistant Director of Personnel and Business Administration; Alex. McC. Ashley, Chief, Division of Purchase, Sales and Traffic; J. P. Wenchell, Attorney, Solicitor's Office; P. L. Gladmon, Appointment Clerk; W. R. Fuchs, of the Disbursing Office, and H. A. Nelson, Chief, Division of Operation.

Those in attendance expressed themselves as being greatly benefited by the talks and discussions, which were timely and pertinent to fiscal and business matters of current importance, particularly under the Economy Act. As many of the talks and as much of the discussion as possible will be put in writing, and copies of the same distributed to each of the divisions of the Bureau for reference purposes. Also, full sets of business and fiscal forms used in each of the various divisions will be assembled and a complete set of same furnished to each division.

TECHNOLOGICAL DIVISION

The test work on determining the possibilities of using a heat treatment similar to that applied to citrus fruits in Florida during the Mediterranean fruit fly campaign on various fruits and vegetables in California has been continued by D. B. Mackie since its inception in California in 1930. While the work is not yet sufficiently advanced to make it possible to say just how each type or variety of fruit or vegetable will behave when exposed

to 110° F. for a period of eight hours in a saturated atmosphere, much information has been obtained upon the applicability of this method to these fruits and vegetables. During the season of 1931, he applied the treatment to 102 lots of fruits, including 4 of apricots, 8 of peaches, 9 of plums, 24 of pears, 3 of apples, 1 of nectarines, 10 of figs, 6 of grapes, 10 of fresh prunes, 1 of Italian squash, 2 of tomatoes, 3 of melons, 1 of Bell peppers, 1 of eggplant, 3 of grapefruit, 2 of lemons, and 14 of oranges. Mr. Mackie found that the fruits vary in their adaptability to this treatment. Citrus and pomaceous fruits stand the treatment best. Stone fruits, such as apricots, peaches, plums, and nectarines are much more apt to be injured by this treatment.

Pears seem to be particularly well adapted to this treatment. In 24 lots of pears of different varieties, only two were found which did not come through the treatment in good condition, and this was apparently due to the poor quality of the fruit. It was found that in Bartlett pears the process of ripening was retarded for a week or ten days as compared with respective control lot. The treatment can be applied to figs and grapes without injury and their keeping quality is apparently enhanced by the exposure to 110° F. for eight hours. This is probably due to the destruction of fungus spores which may be present on the fruit.

Some vegetables can be treated apparently without injury, and with others serious injury follows the application of the treatment. Good results were not obtained with Italian squash and eggplant, though tomatoes, in firm, ripe condition, seemed to be uninjured by this treatment. Melons and Bell peppers seem to be adapted to this method of treatment.

While the work is not yet finished, Mr. Mackie's results indicate that this treatment might be applied to a wide range of fruits and vegetables if it becomes necessary, but that it would not be adapted to an indiscriminate use on all all types. The work is being continued.

FOREIGN PLANT QUARANTINES

RECENT ENTOMOLOGICAL INTERCEPTIONS OF INTEREST

Fruit fly from Venezuela.--Fourteen immature larvae of Anastrepha sp. (Trypetidae) were intercepted at New York in six mamey apples (Mammea americana) in stores from Venezuela.

Fruit fly in apples.--Three larvae of Rhagoletis sp. (Trypetidae) were intercepted at Boston in an apple in quarters from Bermuda, and one larva of Rhagoletis sp. was taken at Brownsville, Tex., in an apple in baggage from Mexico.

Earwig from the Philippines.--Eparchus cruentatus Burr. (earwig) was intercepted at Honolulu in packing of orchids in cargo from the Philippines.

Heather from England.--Lochmaea suturalis Th. (Chrysomelidae) and Ulopa reticulata (Fab.) (Cicadellidae) were intercepted at Philadelphia on heather in the mail from England.

Aphid on cabbage.--Macrosiphum kaltenbachii Schout. was intercepted at Pensacola, Fla., on cabbage in stores from England. This is a European species, which is not known to occur in this country.

Heather from Scotland.--Amalus haemorrhous Herbst (Curculionidae) and Scolopostethus decoratus Hahn. (Lygaeidae) were intercepted at Philadelphia on heather in the mail from Scotland.

Scale insect on grapefruit and orange.--Morganella maskelli (Ckll.) (Coccidae) was intercepted at San Francisco on grapefruit in baggage from Rarotonga and on orange in baggage from Polynesia.

Thrips from Scotland.--Taeniothrips atratus (Haliday) was intercepted at Philadelphia on heather and dried flowers in the mail from Scotland. J.R. Watson, of Gainesville, Fla., states that this thrips, which is a common European species in flowers, does not occur in this country.

Earwig from France.--Two living specimens of Anisolabis moesta Guen. (earwig) were intercepted at New York in lily bulbs in cargo from France.

Thrips on heather.--Thrips flavus Schr. was intercepted at Philadelphia on heather in the mail from Scotland. J. R. Watson reports that this thrips, which is not known to occur in North America, is rather common in blossoms in Western Europe.

Beetle in green corn.--Two living adults of Leptipsius striatus (Lec.) (Monotomidae) were intercepted at Brownsville, Tex., in kernels of green corn in baggage from Mexico.

Wireworm from Argentina.--Heteroderes rufangulus Gyll. (Elateridae) was intercepted at Philadelphia in corn in cargo from Argentina.

Bean pod borer and European corn borer intercepted.--Living larvae of Maruca testulalis Geyer (bean pod borer) and Pyrausta nubilalis Hbn. (European corn borer) were intercepted at Seattle in green beans in stores from Japan.

Asiatic rice borer from China.--The Asiatic rice borer (Chilo simplex Butler) was intercepted at Chicago in rice straw in the mail from China. This pyralid has also been taken on 108 occasions with rice straw from Japan, once each with rice straw from Korea and India, and once with wheat straw from Japan.

RECENT PATHOLOGICAL INTERCEPTIONS OF INTEREST

Nematode interceptions.--Tylenchus dipsaci was intercepted at Philadelphia on onion from Sweden, this constituting a new locality record for T. dipsaci on onion.

Additional interceptions of T. dipsaci were made in Chionodoxa at New York, in hyacinth at Baltimore, Detroit, and New York (2), in narcissus at Chicago and Philadelphia, in Scilla at New York and Philadelphia (2), all from Holland, and in potato from Germany at New Orleans. Aphelenchus avenae was intercepted in Scilla from Holland at New York, Aphelenchoides fragariae in narcissus from Holland at Norfolk, and A. parietinus in hyacinth bulbs from Holland at New York and Philadelphia.

Lima bean and Ornithogalum seasons start.--The season's first interception of Elsinoe canavaliae on Lima beans from Cuba was made at New York November 2 as compared with November 10 last year. The first interceptions of Puccinia ornithogali-thyrsoideis on Ornithogalum from South Africa were made at Detroit and Philadelphia on November 3, as compared with October 29 last year, at New York.

More Fusarium sp. interceptions.--As noted in the October News Letter, p. 3, interceptions of Fusarium sp. are often quite varied. During the past month affected hosts included beet from Argentina and England, carrot from England and Holland, colocasia from China (2), Crocus from Holland (3), Galanthus from Holland, ginger from Japan, hyacinth from France and Holland (22), leek from Japan, lily from China and Japan, lime leaf from Japan, malanga from Spanish Honduras, narcissus from Germany and Holland (17), onion from Japan (2) and Spain, rice hulls from Japan, potatoes from Belgium, France, Germany (2), Holland (2), Italy, Japan, Norway, and Spain (2), waternuts from China, garlic from Argentina, turnip from Holland, undetermined leaves from Mexico, and chayote from Jamaica, a total of 20 hosts. These interceptions were made at Philadelphia (38), New York (9), Detroit (8), New Orleans (4), Savannah (4), Mobile (3), Norfolk (3), Seattle (3), Baltimore (2), Bellingham, Boston, Charleston, Chicago, Nogales, and Portland.

Sphaeronema sp. on Colocasia.--Diseased taro tubers from Japan intercepted at Philadelphia were found to be infected with Sphaeronema sp. This is the first record we have of a fungus of this genus on taro.

Interception from French West Indies.--Sweetpotatoes badly rotted as a result of infection with Diplodia tubericola were found at Mobile in stores from Guadeloupe, French West Indies. This appears to be our first disease interception from that place.

Celery late blight from Norway.--Celery from Norway traveled all the way to Seattle in stores and was found to be infected with Septoria apii.

Lingonberries diseased.--A sample of lingonberries from Newfoundland showing evidence of disease was sent in from New York and referred to the

Bureau of Plant Industry. The following report was received from Dr. H. F. Bain:

"Five or six berries had fruiting bodies of Sporonema oxycocci Shear. Since it is not usual for a fungus to fruit on berries so early in the season, careful examination was made and it was discovered that in every instance the fruiting bodies were on worm-injured berries. The worm injury closely resembled that caused by cranberry fruit worm."

This is our first record of an interception of this disease.

Stagonospora on narcissus.--Stagonospora curtisii, though widely distributed in narcissus-growing countries, had not been intercepted except for one doubtful specimen from Canada until it was found recently on narcissus leaves from Holland collected at Philadelphia.

WART SMUT DISCOVERED ON VENEZUELAN POTATOES

Native yellow potatoes (Solanum tuberosum) collected in the Andes Mountains near Meridia, Venezuela, and forwarded to this country for experimental work, were found on examination at the Washington inspection house on October 19, 1932, to have peculiar wart-like protuberances. Sections of these growths showed the presence of spores in cavities in the host tissues. After germinating some of the spores the fungus was finally determined by Dr. C. L. Shear as Polysaccopsis hieronymi (Schroet) P. Herm. This fungus is listed in Stevenson's manual under the name Urocystis hieronymi as occurring on branches and peduncles of Solanum sp. in Bolivia. Apparently it had not previously been reported as occurring on potato tubers. It has also been reported from Argentina and Brazil.

The Bureau of Plant Industry is very much interested in the disease, which might prove to be serious if introduced here, and is planning to test the commercial potato varieties of this country for resistance to it. The information that may be obtained in connection with the contemplated work might prove to be of the greatest value if the disease should become introduced at some time in spite of our efforts.

RARE ANTHRACNOSE FOUND ON MEXICAN PEAS

Green peas from Mexico intercepted at El Paso, Tex., November 29 and October 1, 1932, were found to be badly diseased with Colletotrichum pisi. This disease is discussed in Chupp's manual of vegetable-garden diseases where it is stated to be rare, having been found in Ecuador, Japan, and Wisconsin only. The disease affects all parts of the plant and is thought to be seed-borne. So much of the seed used in Mexico near the border is produced in the United States that it is quite possible affected seed from Wisconsin is directly or indirectly responsible for this occurrence of the disease.

FRIENDSHIP IMPORTATIONS

From time to time embarrassing situations arise in the enforcement of foreign plant quarantines, when an official or semiofficial agency abroad is prompted to express a friendly goodwill through the medium of a gift of living plants to American visitors or to our institutions or municipalities. The generous motive of the giver is without question, but these prized donations, inspired by a gracious desire to promote friendly international relations, are all too often brought back to this country by the recipient with little previous consideration for plant quarantine restrictions that may exist here. And when these restrictions are confronted there arises a tendency to urge special consideration on account of the international aspect of the case.

It is easy to see that the importer, believing himself to be the bearer of a sacred symbol of international amity, views the matter in a state of mind far above the sordid details of quarantine procedure, and can hardly understand that the hallowed aura of sentiment which seems to suffuse his plants does not in any way render them incapable of carrying dangerous pests.

The Oriental fruit moth incident is still well remembered in this connection, and quite recently another case has occurred which illuminates this problem, not only from the side of the importer, but from the plant quarantine viewpoint as well.

A party of American boys, visiting Australia under the auspices of the Young America League, brought home with them as a kindly gift from the Australian Prime Minister, 18 Australian plants, 2 of each of 9 species, with the expectation of planting them in their respective cities here. All these plants were enterable only under regulation 14 of Quarantine 37, the Nursery Stock, Plant, and Seed Quarantine, under which regulation they could be entered only by a special type of permit and utilized only for public-service purposes.

Among these plants were 2 acacias (Acacia baileyana), on which there were found in inspection at the port of San Francisco live eggs, nymphs, and adults of the psyllid, Psyllia acaciae-baileyanae, an abundant pest on this host in Australia.

Now it should be noted that but few useful species of acacia and none of eucalyptus are native to North America; practically all of those now in culture have been introduced here from other regions where they are indigenous, notably from Australia. Owing to a rather unusual bit of foresight, before there was much importation the practice arose of importing only the seeds of these trees; and our many widely used and varied cultivated species have thus been established from imported seed, and are in consequence practically free from their numerous native pests.

It must be clear from this outline of the situation that in the case cited a concession or relaxation of the regulations out of deference to sentimental considerations, however admirable and lofty these might be, could well have resulted in the establishment in our country of an insect nuisance which we have taken great pains over many years to exclude. This fundamental, if less spectacular, side of the question should undoubtedly be made a part of the picture before a hasty judgment condemns an apparently harsh and unfeeling enforcement of quarantine measures in such cases.

PUZZLING ORCHID RUST INTERCEPTED

An interesting illustration of the fact that it pays to examine even the most ordinary material with care at all times has developed in connection with the interception at Philadelphia of an orchid rust from Cuba in ship's quarters. On September 30, 1932, the inspector collected an old discolored leaf similar to hundreds of others sent in each year and found to bear nothing of importance. The specimen reached Washington as a leaf of an unknown plant. Routine examination disclosed nothing of interest except a few scattering rust spores of an unusual type. Further examination made it appear that part of the discolored areas were due to the rust. The Bureau of Plant Industry specialist to whom the leaf was taken was likewise skeptical when he saw the leaf but found on careful examination that the leaf was infected with a rust.

A letter to the Philadelphia office resulted in a reexamination of the plant when the vessel docked again. The host plant was found to be an orchid, determined as Laelia sp. by David Lumsden. The rust was tentatively assigned the name Hemileia americana on the basis of the notes in Stevenson's manual, but a comparison with the technical description disclosed that it did not fit that species or, in fact, any other of which descriptions were available in the Office of Mycology. A part of the material has been sent to Prof. H. S. Jackson, rust specialist, for determination.

The rust is apparently very destructive in its action, the affected plant being so badly diseased when reexamined that it was confiscated. Leaf specimens received showed that large areas, sometimes coalescing, had been discolored and badly injured by the fungus. It might be particularly important in Florida and Puerto Rico where efforts are being made to establish orchid growing out-of-doors and where native orchids might make control difficult if the disease became established.

EREMURUS FUNGUS NOT A RUST

Continued inspections in 1932 for Puccinia eremuri (see News Letter for September, 1932, p. 4) in the Ohio planting from which this rust was reported in 1931, failed to reveal its presence. A large quantity of the dead tops of the plants was brought to Washington and examined with extreme care but no trace of the rust could be found. In the course of the study of this material a careful reexamination was made of the original collection from

this planting and it was then discovered that the fungus present was not Puccinia eremuri but Myrothecium verrucaria, a saprophyte, the pustules of which and their accompanying spores bear a close resemblance to those of the rust. The stalk on which this fungus occurred was dead and weathered, and the fungus itself was so affected by the weathering that the confusion can be readily understood.

It is a matter of gratification that the Eremurus rust can still be reported as absent from the United States, and the incident further illustrates the care with which our field inspectors take cognizance of everything that appears to be doubtful or suspicious on imported plant material.

CONDITIONS AFTER THE HURRICANE IN PUERTO RICO

(Excerpts from a report by Richard Faxon, plant quarantine inspector in charge, October 26, 1932.)

Estimates of about 1,000,000 boxes of fruit lost and about 50,000 remaining are approximately correct. One source of fruit fly infestation was hard hit in the hurricane--the bitter almond. The wood of this tree is quite brittle and it suffered a great deal; they are being cut back to stumps 10 or 12 feet high. It will be several months at least before a new crop of nuts is borne, which will remove one danger point for some time. Several of the growers are making inquiries regarding shipment of vegetables, and have already planted peas, peppers, tomatoes, etc.

DOMESTIC PLANT QUARANTINES

TRANSIT INSPECTION

The employees of express companies at Washington, D. C., have been instructed by the general agents of the companies to turn back to origin shipments which they find to be in violation of Federal plant quarantines. At least four such shipments have been intercepted recently during a period of 60 days. These had not reached the point where they would come to the attention of the local transit inspector. Heretofore the cooperation received from express companies has consisted in instructions to refuse at the point of origin to accept shipments which did not have attached the required certificates or permits. Under the present scheme, shipments which are erroneously accepted may be intercepted when passing through Washington or consigned to that point, according to Mr. McAllister, General Agent of the Southeastern Express Company, and Mr. Canfield, Night Agent of the Railway Express Agency, Inc.

Two Japanese beetle quarantine inspectors, M. J. Kelly and T. J. Heald, have been assigned to the examination of mail and express shipments for

compliance with the requirements of that quarantine, and have been detailed to assist at Philadelphia and New York City, respectively.

Four more States have issued quarantines relating to the European corn borer since the list of States taking such action after the revocation of Federal quarantine No. 43 was published in the November News Letter. The newly added States are Oregon, South Carolina, Tennessee, and Wyoming.

WHITE PINE BLISTER RUST

The inspection of a number of white-pine growing nurseries whose owners have recently applied for permits to ship from the blister-rust infected States under the regulations as recently revised is being carried on with the cooperation of the Bureau of Plant Industry. R. G. Pierce, of that Bureau, is assisting Mr. Sheals in the eastern nurseries, and H. N. Putnam is aiding Mr. Corliss in the Middle West. The Division of Blister Rust Control of the Bureau of Plant Industry is responsible for carrying out preliminary Ribes eradication in cooperation with the States and the owners. After that is finished, the Bureau of Plant Quarantine determines whether the nurseries have complied satisfactorily with the quarantine requirements.

PHONY PEACH DISEASE

The staff for checking on shipments of peach nursery stock from and between the Southern States under the phony peach disease quarantine regulations was organized about the first of November and such shipments are now being checked at the more important distribution points.

BLACK STEM RUST QUARANTINE

Permits have been issued to 24 concerns under the black stem rust quarantine regulations for the fall and spring shipping seasons. Nurserymen engaged in the shipment of barberry and Mahonia plants to or between the 13 barberry eradication States of the Middle West apply in the spring for inspection of their premises. If they are found to be handling only rust-resistant species and varieties, permits are issued which authorize them to make such shipments. No such permits are, however, required for the common Japanese Berberis, which is immune to the disease..

EUROPEAN CORN BORER AND JAPANESE BEETLE

Specialized Corn Borer Activities

Tabulation of data gathered in the cooperative fall survey of European corn borer infestation in the 1-generation and 2-generation areas has been made by the Bureau of Entomology and reports published showing the seasonal corn borer population remaining in corn debris last spring, the average number of egg masses deposited per 100 plants, and the average number of borers per 100 plants. The respective surveys were conducted by the Bureaus of Plant Quarantine and Entomology in cooperation with interested State officials. The Bureau of Plant Quarantine gathered most of the data in the fall survey of infestation. The Bureau of Entomology carried on most of the activities connected with the debris and egg surveys. Interpretation of all data collected was made by the latter bureau. In making the debris survey, 45 fields were taken at random in each county and three 1-square-rod units of debris were examined in each field. The egg survey was carried on by selecting 30 fields at random in a 2-county unit. In each of the latter fields 30 random-selected plants were examined for freshly laid egg masses. According to the previous season's or probable density of infestation in the counties surveyed in the fall examination for infested plants, 30, 25, or 20 fields per county were taken at random. The greater number of fields were examined in lightly infested sections, with fewer fields visited in heavily infested zones. One hundred plants, 25 consecutive in the approximate center of each of the four quarters of the field, were examined to determine the percentage of stalk infestation. Where 25 or 30 fields per county were surveyed, 5 infested plants were dissected in each field to determine the average number of borers per infested plant. Where 20 fields per county was the unit, 10 infested plants were dissected for the purpose stated.

After completion of the general fall infestation survey in Connecticut, a more detailed examination of certain sections was conducted under State auspices to obtain comparable data for use with infestation records of previous years. To obtain such comparable figures it was necessary that the work be duplicated in the manner previously performed, which differs somewhat from the procedure employed in the wider spread survey.

Corn borer equipment is being generally overhauled at both the South Norwalk, Conn., and Springfield, Ohio, garages.

Exclusive or Combination Japanese Beetle Work

Concentration at South Norwalk of the project's supply of approximately 56,000 traps and trap standards was accomplished by the middle of October. Reconditioning of the traps began immediately. Cartons in which the metal portions of the traps were returned are opened and the different parts separated. As the cylinders, bait containers, and baffle and funnel combinations are separated, the parts are inspected. Those requiring straightening or

other reconditioning are set aside for repair. Cylinders in good condition are stored near the paint shop where their painting will be accomplished this winter. Baffles and funnels from the 21,000 trap assemblies purchased in 1932 are merely being washed prior to receiving another coat of gloss white paint. Men engaged in washing are each provided with two iron barrels, one in which the baffles are washed and the other for rinsing. Washing powder is added to lukewarm water in the washing barrel, and the trap parts upon removal are scrubbed when necessary with bottle washing brushes rubbed in a can containing laundry soap and some scouring soap. Rinsed baffles are placed in a bin and dried with an electric fan preliminary to repacking in paper cartons for later painting. Bait containers are being set aside for cleaning to remove adhering dried bait. Baffles and funnels purchased prior to this year were all repainted last winter. They are not in condition to receive a third coat of paint since another application would scale off the old paint. consequently, men are now engaged in removing from these parts the original coat of green paint and last year's application of gloss white paint. A number of laborers are employed in the paint removing job. Each man is provided with two iron barrels and a narrow rack in front of each. Each barrel is nearly filled with a mixture of three parts denatured alcohol to one part toluol. The barrels contain about 24 baffle and funnel assemblies each. As soon as one barrel is emptied, it is immediately refilled. The loosened paint is first scraped off with a long-handled wire brush and the job is finished with a specially made long-handled bristle brush. Another section of the headquarters garage has been set apart for trap repair. Here the parts are straightened. The oldest type baffles are removed from the funnels and the two parts rejoined by brazing. As early manufactured, trap baffles were soldered or electric spot welded to the funnels. Thus joined, the parts were easily knocked apart in the numerous handlings incident to their summer's use and annual reconditioning. Brazing the parts together with an oxyacetylene torch results in greater durability. The trap cleaning and straightening will continue until completed. Later, repainting of the traps will be carried on.

The degrees to which are restricted the movement of quarantined articles by nurseries and other shippers are dependent upon the extent of infestation on the nursery premises or in the general vicinity thereof. The present quarantine regulations provide that, "Nurseries, greenhouses, and other premises concerned in the movement of nursery and ornamental stock on which either grubs in the soil or one or more beetles have been found, will be classified as Class III. Such classification also may be given to nurseries, etc., in localities known to be generally infested where beetles or grubs are found in the immediate proximity (within approximately 500 feet) of such nurseries, etc., on adjacent property or properties." Interpretation of this latter provision has evolved considerably in the past few years. Prior to October 1, 1932, all infested establishments or establishments within 500 feet of which one or more beetles had been found were arbitrarily placed in Class III, and thus subjected to the most stringent regulation of stock shipped under certification. On the above-mentioned date, Mr. Strong, acting upon personal observations in a number of nurseries changed to Class III status due to the finding of beetles in

small numbers on near-by premises but in which establishments no infestation had been determined, issued instructions that the Class III status should be confined exclusively to establishments on which beetles or grubs have been found, or establishments quite definitely determined as in a generally infested section and within 500 feet of which beetles have been collected. Under this interpretation of the regulations 68 nurseries that had been given a Class III status were reassigned to Class I, and thereby permitted to ship their stock without chemical treatment or freeing it from soil. All establishments returned to Class I were scouted during the past summer and the actual premises found free from beetles. There appears to be no danger that infestation may be carried in shipments of stock from the 68 nurseries affected.

Visits to 10 golf courses in the Philadelphia suburban area disclosed plenty of Japanese beetle damage to greens, tees, fairways, or rough. Adult beetles during the past summer were present in about the usual numbers on 3 courses, in reduced numbers on 5 courses, and in larger than normal quantities on 2 courses. Two courses treated with arsenate of lead last year were not treated this year. The remaining 8 clubs treated their courses this year. Greens, fairways, and tees were treated on 3 courses. Greens and fairways on 2 courses received poison applications. Another club treated only its greens and tees. Some of the fairways received the insecticide in one instance, while another club treated only selected sections of its course. At one club larval injury was severe on two fairways. On one of them sod damage was so bad that it has been necessary to play winter rules all summer. On another course all the rough was apparently grub killed. Four other courses evidenced considerable sod damage in untreated rough. Obvious injury to fairways and rough was observed in 3 courses. Only 1 course, treated in 1931 and kept liberally watered all summer, was comparatively free from damage. The most noticeable injury on the latter course was in the rough. Grubs were numerous in the sod of 6 courses. One greens keeper reported fewer grubs than in previous years, indicating that the arsenical content of the soil has been sufficiently built up to control larval infestation. Additional observations of sod injury on private estates, parks, and college campuses near Philadelphia revealed numerous browned spots in the lawns throughout Valley Forge Park, Valley Forge, and Fairmount Park, Philadelphia. Sod injury is also apparent on the lawns surrounding Waldron Academy, Narberth; Beaver College, North Glenside; Haverford School, Haverford; and Villa Nova College, Villa Nova, as well as on numerous estates in the same sections. As a general observation, sod injury in the heavily infested area is considerably less than is usually in evidence at this time of the year. Where grubs infest lawns in large numbers, the grass usually browns and dies. This year an abundance of rain has permitted the grass to recover from the effects of larval feeding and continue its growth.

There was a large attendance at the hearing held at Washington on October 4 to consider the advisability of extending the Japanese beetle quarantine to territory found during the past year to be infested with that insect.

Among the 86 persons at the hearing were State agricultural officials from New Hampshire, West Virginia, Georgia, North Carolina, Illinois, and Louisiana. Representatives of both State departments and nurseries were present from New York, New Jersey, Pennsylvania, Ohio, Delaware, Maryland, and Virginia. Nurserymen from Massachusetts, Connecticut, and Michigan presented petitions from their respective States. Congressional representatives from Georgia and South Carolina also submitted statements from various organizations in their districts. The Canadian Department of Agriculture was represented, as was the American Farm Bureau Federation, National Canners Association, two southern railroads, the Florists' Exchange, and the Bureaus of Plant Industry, Entomology, and Plant Quarantine. As is the usual procedure at such hearings, after an introductory statement by Mr. Strong, Mr. Worthley detailed the seasonal developments in the quarantine and control activities during the past season. An interesting discussion followed.

At the invitation of Leonard S. McLaine, chief of the division of foreign pest suppression of the Canadian Department of Agriculture, Messrs. Strong and Worthley on October 19 accompanied Mr. McLaine and members of his staff on a short tour of Ontario communities in the Niagara peninsular section. The trip included visits to Niagara Falls, Queenston, Port Dalhousie, St. Catharines, Fonthill, Ridgeville, Vineland, Jordon, Grimsby, and Winona. Two hundred and fifty traps operated in Niagara Falls, N. Y., from July 21 to September 14, 1932, succeeded in catching 13 Japanese beetles. As a result, the Canadian authorities desired an investigation of the likelihood of a similar incipient infestation existing in near-by Ontario sections and an examination of the existing flora and cultivated crops from the standpoint of their desirability as beetle food. Many of the plants, trees, shrubs, and vines observed are among those susceptible to beetle attack. A great many grape vineyards exist in the section, which would afford desirable food were the beetle to become established there. The Canadian entomological branch is contemplating a trapping program in the Niagara Peninsula next summer.

According to a statement released by the New Jersey Department of Agriculture, tabulation of data on the Japanese beetle trapping program conducted under State auspices in Salem County during the summer, shows that a total of 500,000,000 beetles were captured in the county in July and August. The trapping was done with the cooperation of farmers and other residents of the county, who were loaned 2,100 traps by the State Department of Agriculture. The captured beetles, which were measured as caught, totaled 160,832 quarts. After being captured and killed, in most cases the insects were distributed as fertilizer on fields and woodlots. In September, representatives of the State Department of Agriculture finished collecting the traps from the persons to whom they had been loaned. The traps are being painted at the field station in Elmer, where they will be stored for use next year. Generally speaking, the traps survived their exposure this summer very well and were carefully taken care of by the farmers who tended them. Only a few of the traps will have to be repaired. The Salem County trapping program was in charge of Edgar G. Rex, supervisor, plant pest control, New Jersey Department of Agriculture.

Complimentary press statements commending the work of road inspectors are so rare that the following editorial appearing in the Boston, Mass., Traveller is offered verbatim:

"Route 28, south of Stoughton, seethed with traffic. Tires sang as they kissed concrete. Everybody was going somewhere, and anxious to get there quickly. What's that ahead? A sign. A khaki tent by the roadside. A neatly-uniformed young man. He is inspecting passing cars, looking for Japanese beetles. Why isn't there a traffic jam? We find out quickly. The young man states his business briefly, with a friendly smile. You smile back and answer his questions. He waves you on. You wave a cheery good-by. Somehow or other it is a matter of importance, important because the Japanese beetle must be conquered, but more important because a public employee is making the public enjoy an inconvenience. We do not know his name; did not pause to inquire. His chief will know--and be pleased."

Treatment of the two sites at which single Japanese beetles were trapped south of Florence, S. C., began on October 22 and was completed five days later. One spray truck in charge of a truck driver from the South Norwalk headquarters proceeded from New Cumberland, Pa., to Florence. As in the instance of the recent treatments at Erie, Pa., the work was supervised by W. F. Walsh, of the Pennsylvania district office at Oakmont. Since treatment of the two near-by infestations required the application of lead arsenate to but 4 acres, the work was accomplished by Mr. Walsh and the truck driver without additional assistance. Water for the spraying and subsequent washing in of the lead arsenate was obtained from a stream in a swamp a short distance from the sections treated. Lead arsenate was applied at the rate of 1,000 pounds per acre, 2 tons of this material having been furnished for this purpose by the State of South Carolina through Franklin Sherman, State Entomologist at Clemson College.

By the end of the first week in October, lifting of the few remaining beetle traps still in operation was accomplished. Traps in Maine, New Hampshire, and Vermont were operated the longest. Final tabulation of trap data discloses that 3,663 beetles were caught in traps placed in 142 cities and towns outside the present regulated zone. Eighty-nine of these infestations are of fewer than 10 beetles each, indicating incipient infestations which in the course of the usual visual scouting would probably not have been discovered. Traps placed in an additional 135 nonquarantined towns and cities yielded negative results. Traps as means of control at comparatively isolated infestations in regulated territory were in use in 33 localities in Delaware, Maryland, Massachusetts, New York, Pennsylvania, and Virginia. The latter traps were largely placed as a cooperative enterprise with the respective State concerned.

Messrs. L. H. Worthley and J. P. Johnson attended the ninth annual conference of Connecticut entomologists at the Agricultural Experiment

Station, New Haven, on October 28. Mr. Worthley presented a paper on the "Status of the Japanese Beetle in 1932." There were 65 entomological workers at the meeting. As part of the conference, those in attendance inspected the new quarters of the entomology department in the recently built Jenkins Memorial Laboratory. This new laboratory was dedicated and officially opened on October 11. Quarters are provided in the new building for the departments of botany, entomology, forestry, and genetics. Spacious entomological quarters afford much needed increased workrooms.

Interceptions of Japanese beetle infested plants at vehicular inspection stations continued in good quantity during October. The largest number of Japanese beetle grubs intercepted during the month was caught when an azalea plant containing 11 larvae of this species was surrendered at Atkinson Mills, Pa., by a motorist stopped while transporting the plant from Philadelphia to Berea, Ohio. Eight grubs each were removed from lots of plants destined to Cincinnati, Ohio, and Oakland, Pa. Soil about the roots of five trees being taken from New York City to Clinton, Ind., was found to contain 7 grubs. A total of 57 grubs and 1 adult beetle were taken from 14 lots of infested plants intended for movement to unquarantined sections.

Effective November 1, 1932, H. N. Bartley, of the South Norwalk headquarters, was transferred to Richmond, Va., where he will establish a Japanese beetle district office. Under a redistricting of regulated territory which became operative on November 1, Mr. Bartley assumed immediate supervision over the inspectors engaged in Japanese beetle quarantine enforcement in the mainland section of Virginia and the District of Columbia. W. C. Armstrong, in charge of the Baltimore office, will hereafter direct the work on both the Eastern and Western Shores of Maryland and in the eastern peninsular section of Virginia. W. E. Cranston, of the Dover, Del., office, will confine his activities to the district comprising the State of Delaware.

Further curtailment of the road patrol maintained at the border of the regulated territory was accomplished on October 1. At that time the number of men employed in Pennsylvania was reduced to a total of 10 men distributed among seven inspection stations. On the exit roads from regulated sections in Maryland and northern Virginia six posts were kept with a personnel of 7 inspectors. A single inspector was assigned to guard the principal roads leading from the Norfolk-Portsmouth quarantined zone. Where a post is manned by a single inspector, hours of duty are so staggered that the inspector's schedule may not be anticipated by regular truckers who might attempt to evade the quarantine.

A number of small Yellow Transparent apples were gathered during the month from trees which had early in July been defoliated by the Japanese beetle. The trees later sent out another crop of leaves, blossomed again, and produced fruit. The apples gathered, which were unedible, varied in size from that of a nutmeg to about three-quarters the size of a walnut.

MEXICAN FRUIT FLY

A rather heavy population of adult fruit flies in Matamoros was indicated by the taking of 22 flies in the traps during October. These flies were taken on three premises. In addition, 5 larvae were taken from two sour oranges which were grown on one of these and an adjoining premise. Thus four premises were found infested with either adults or larvae. In view of the rather heavy population and somewhat scattered nature of the infestation, it was thought advisable to give an application of the nicotine-molasses spray to all of the trees within the city rather than to the four blocks surrounding the infested premise as has been customary in the case of light infestations. Accordingly, this work was started on the 27th of the month. In addition to the application of the poison bait spray, all susceptible fruit, amounting to $28\frac{1}{2}$ field boxes, was taken from the trees in the infested areas and, after inspection, was destroyed by burial.

The heavy rains during the latter part of August, in September, and the first part of October, provided ideal pupating conditions in the normally dry soil of the patios of Matamoros, and this probably explains the large number of adults taken.

No trains operated between Matamoros and Monterrey from October 2 to 23, due to flood waters from the Rio Grande covering the tracks. During the latter part of this time, however, the trains were able to approach to within 6 kilometers of Matamoros. Freight was loaded on rafts at this point and transported by water into Matamoros. One hundred and sixty-five boxes of fruit were received in Matamoros during the month. No infestation could be found in this fruit at the time of its arrival and no infested fruit was recovered from the market during the month. This is the first month that has passed without recovering infested fruit from the market since the inspection work has been carried on in Matamoros. This is probably accounted for by the fact that during the greater part of the month no fruit was available on the market.

The first inspection of bearing groves was completed during the first part of the month, following which the work was lined up in such a manner that the regular routine of inspections by roads could be carried on. Groves were found to be in very good sanitary condition, it being necessary to withhold only 59 "Certificates of Inspection" on account of "drop" fruit. A total of 6,717 grove inspections were made during the month. In addition to the regular inspection, 1,323 traps were operated on 115 premises.

There was a lively movement of fruit during the month, particularly during the first part when the price and demand were both good. Most of the seeded variety of fruit was moved during the month. The seedless variety experienced considerable difficulty in passing the State maturity test, and during the latter part of the month truckers were complaining of a lack of fruit. Destinations of interstate shipments by truck as indicated by truckers included points in Oklahoma, Louisiana, Kansas, Arkansas, Colorado, New

Mexico, Illinois, Missouri, Nebraska, Ohio, Mississippi, Wyoming, and Pennsylvania. Approximately 570 carloads of fruit were moved by rail and truck during the month.

A unique method of harvesting citrus fruit was observed during the month which, so far as is known, is the first instance of its kind on record. A small grove located near the river was inundated to a depth of about 4 feet, due to a break in the levee. A test of this fruit showed that it was mature under the State green fruit law, whereupon the owner secured a row boat and gathered the fruit in it.

Arrangements were made for the establishment of road traffic inspection stations during the last week of the month. It had not been necessary to hold the roads previously, as all fruit had to be colored before moving and a close check was kept of the movement of fruit through the Master Permit system of clearing fruit from the quarantined area. The Master Permit system has elicited much favorable comment from truckers, growers, and other interests, but requires the inspectors to answer many calls after office hours.

Many of the groves had a heavy bloom during the month. A light bloom in October is frequently experienced, particularly on trees that are carrying a light crop or that have been poorly cared for. However, the present bloom is the heaviest that has been experienced since the quarantine has been in force. The fruit from this bloom would ripen during July and August when the host-free period is in effect, and naturally, therefore, will have to be removed before the beginning of the host-free period.

PINK BOLLWORM

Intensive field and gin-trash inspections have been continued in northern Florida during the month. It will be recalled that the first specimen was found in gin trash at High Springs, in Alachua County, on September 26. The second specimen was found on October 8 in trash from a gin at Lake City, in Columbia County. Then, on October 10, by field inspection, 10 living larvae and 4 pupae were found in a field about 10 miles northwest of High Springs in Columbia County. On October 26, 2 living larvae were found in a 3-acre field of sea-island cotton located 5 miles southwest of Alachua, in Alachua County. This field is approximately 17 miles southeast of the infested field in Columbia County. There was very little material suitable for inspection in the field, and the findings indicate that a thorough inspection is being made. Some 290 fields have been inspected, with the inspection being more intensive in the immediate vicinity of the gins at which specimens were found. Special attention was also paid to fields producing cotton which was ginned at the above gins. After the second gin-trash finding, the machine was withdrawn from Alachua and Columbia Counties and operated the remainder of the month in

counties west of these two, without finding any further signs of the pink bollworm.

After the infestation was discovered a farm-to-farm survey was made in the two counties involved and also in adjoining counties. The object of this survey was to determine the amount of unpicked cotton in the fields, as well as the amount of seed cotton being held in storage; also the amount of cottonseed which had been brought back to the farms from the gins. In the six counties surveyed it was found that there was a total of 572 farms which had a cotton acreage of 4,274. Inspectors of this project revisited the farms in order to persuade the farmers to pick out and gin their remaining cotton as soon as possible. It is very gratifying to report that excellent cooperation is being received along this line.

It was considered advisable to trace the movement of seed cotton and cottonseed from this area for the past three years. This information was obtained from the records at the railroad offices. This work has practically been completed, and it was found that some seed cotton had been moved to gins in southern Georgia, and also that cottonseed had been shipped to some six oil mills in southern Georgia during the past three years. All information on such movements was immediately transmitted to our inspector in Georgia, so that gin-trash and field inspections might be made in the areas to which these products had been shipped. This inspection work in southern Georgia is being done by eight inspectors of the State and four gin-trash machines. The results have all been negative.

On October 24 a public hearing was held in Washington to consider the advisability of quarantining the State of Florida on account of the pink bollworm. As a result of this hearing a quarantine was instituted and the counties of Alachua, Columbia, Gilchrist, Baker, Bradford, and Union were made a regulated area, this area being designated as lightly infested.

Gin-trash inspection began in the older regulated areas on October 17. The majority of the machines have had sufficient trash for steady operation. The results in the Midland area of Texas and the Salt River Valley of Arizona have been negative. In each of the remaining areas specimens have been taken. At this time, however, the inspection has not progressed sufficiently to determine whether or not there has been an increase or decrease in infestation. The machine in the Big Bend area of Texas has been operating longer than the other machines, but due to the floods there has not been a great deal of ginning. The results, however, indicate that the infestation has increased in this area.

Gin-trash inspection outside of the regulated areas has progressed very satisfactorily. During the month a machine was sent to Mexicali, in Lower California, the remainder of the machines continuing to operate in the States mentioned in the last Letter. The results have all been negative to date.

The two floods in the Big Bend area were mentioned in the last Letter. The damage has since been estimated to be at least 2,000 bales. This does not mean, of course, that this amount of cotton was washed away. In many of the fields the cotton plants were killed by having the water stay on them too long. A considerable amount of cotton, however, did wash away. Inspectors followed the crest of the second flood down the river to Brownsville, but no cotton products were observed below the Big Bend. After the flood waters subsided, large quantities of cotton debris were observed in mesquite thickets and the drifts along ditch banks and fences in the Big Bend. Some of this material was collected and given a thorough inspection. Some 30 pounds of seed cotton were taken from drifts at widely separated points, and after being ginned 20 pounds of cottonseed were obtained. This amount of seed contained 109 living and 41 dead larvae and 26 pupae. From 400 bolls which had partially decayed, so that no pickable cotton was left in them, 79 living and 21 dead larvae and 29 pupae were taken. From 36 partially opened bolls which had apparently been broken from the plants by the flood waters, 63 living larvae and 6 pupae were taken. While collecting the above material, 8 green bolls were found in various places. An inspection of these green bolls resulted in the finding of 35 living larvae. The above results indicate very clearly that large numbers of pink bollworms are in the flood debris throughout the Big Bend section. Plans have been made to burn all of this material. Observations made so far indicate that it will burn very readily. Of course, the material on both sides of the river will be burned, and it is thought that some cooperation can be secured from the Mexican officials. This burning will be done in connection with the clean-up work, which was just getting under way the first part of November.

PREVENTING SPREAD OF MOTHS

The assembling cage work for this season is now completed, and the results indicate that this phase of the gipsy moth work, although still in the experimental stage, is in some cases an important factor in determining the presence of gipsy moth infestations not previously known to exist, and as a check on scouting work and the effectiveness of spraying work. The technique of obtaining and preparing the material for the assembling cage work has been greatly improved during the last two seasons, resulting in many more catches than in previous years, and it is felt that some very valuable information has been obtained the last two seasons as a result of this work.

The assembling cage work is divided into two sections: First, obtaining material to be put out; and, second, the putting out and patrolling of the cages. The season of 1932 was a very favorable one for obtaining the material, and over 400,000 female pupae were collected. Due to special care in collecting and handling this material, and because parasitism and the wilt disease were not serious, a good issuance of female moths was obtained from these

pupae. This allowed for a large number of cages to be put out and gave us in addition a large supply of material which is being held through the winter for use next season.

A total of 5,825 cages were put out this season. The effectiveness of the attracting material is shown by the fact that as many as 14 male gipsy moths have been caught at a single cage during the summer.

In New Jersey, 1,910 cages of last season's over-wintered material were put out in 51 townships. The Federal Government supplied the materials and assisted in putting out the cages until the 1st of July. After that date State officials put the attracting material in the cages and patrolled them for the rest of the season. No catches were obtained in New Jersey. This is very gratifying and gives further assurance of the thoroughness of the extermination work that has been done in that State. The plan in New Jersey this year was to cage a band of townships south and west of the area where gipsy moth extermination work has been carried on; this to be a check on the area outside of any known previous infestations. It is hoped that in the following years we will be able to supply the material to cage a similar part of New Jersey to the west, north, and east of the area where the extermination work has been completed.

In Canada, 25 cages and material were given to the Canadian authorities to put out on the Canadian side of the international border as a check in that region. No male moths were caught in Canada.

In New York State, 16 towns were caged, using 451 cages. Only one of these cages caught a male moth. This was at Hillsdale. The work in 10 of the towns in New York State was done by the New York State Conservation Department, and the Federal Government took care of the remaining 6 towns.

In the New England States there was a total of 3,439 cages put out in Vermont, Massachusetts, and Connecticut, as follows: 1,061 in 30 towns in Vermont; 1,103 in 26 towns in Massachusetts; and 1,275 in 33 towns in Connecticut.

No males were caught at any of the cages in Vermont. In Massachusetts, 33 males were caught at 15 cages in 8 towns inside the barrier zone, and 126 males were caught at 44 cages in 4 towns adjoining the barrier zone to the east, making a total of 159 males caught at 59 cages in 12 different towns. In Connecticut, 47 males were caught at 31 cages in 12 towns inside the barrier zone, and 43 males were caught at 14 cages in 4 towns adjoining the barrier zone to the east, making a total of 90 males caught at 45 cages in 16 different towns.

Scouting will be carried on in towns in the barrier zone in which assembling cages trapped male gipsy moths this season.

This year, due to a shortage of funds, this office did not make any

special survey of the satin moth situation in New England. We did, however, have Federal men located beyond the satin moth quarantine line make observations in the towns in which they worked. We also suggested to various State authorities a group of towns just beyond the quarantined area from which information was desired. Within the quarantined area considerable information was obtained from State and Federal officials as to the degree of infestation. As a result of this work no infestations beyond the present quarantine line were found in Connecticut, Massachusetts, Vermont, or Maine, but two towns (Woodstock and Lincoln) just north of the quarantine line in New Hampshire were found infested. It would appear that there was not much dispersion this summer and in general that the infestation in the older infested area, with the exception of Maine, was not as severe as usual. In Maine, severe defoliation was recorded as far north as Waterville, Bath, Brunswick, and Bangor; and in New Hampshire as far north as Wakefield and Wolfeboro. There was practically no defoliation in Vermont. In Massachusetts the infestation was much less severe than formerly and in only 7 towns was an increase in infestation reported, while in about 50 towns the infestation was reported as less than last year. At Brewster, Chatham, Orleans, and Dennis on Cape Cod and at Fall River, Mass., there was considerable severe defoliation, some of the shade trees being entirely defoliated. No severe infestations were reported from Rhode Island or Connecticut. The Federal man doing quarantine work on Long Island did considerable scouting for satin moth in the townships of North Hempstead and Oyster Bay, but no infestation was found. The men patrolling assembling cages in New Jersey were on a constant watch for satin moth infestation but nothing was found. The New York Conservation Department also carried on some scouting for the satin moth, but no infestation was found in that State.

Messrs. Burgess, Crossman, Blaisdell, and Summers from this office attended the gipsy moth conference sponsored by the New York Conservation Department in Albany on October 7. The meeting was an enthusiastic one and was well attended. A series of photographs was presented showing gipsy moth defoliation which occurred this summer and also showing the present condition of trees which were defoliated during the past season. In addition to this there were exhibited specimens of small trees including white pine, spruce, and pitch pine to show their condition at this time. These trees were defoliated this summer, and the trees exhibited had not refoliated to any extent. These exhibits gave those present a mental picture of the damage this insect does which they could not obtain in any other way.

To date, three large truck loads of field tools and equipment needed for the Pennsylvania subproject have been transferred from Greenfield to the Wilkes-Barre storehouse. The heavy truck equipment at present stored in the Wilkes-Barre storehouse consists of two Federal trucks with commercial bodies attached, five Federal trucks equipped with spraying apparatus, and one 1,000-gallon tank trailer. The commercial trucks stored there will be used for transferring hose, lead, etc., from the storehouse to the field, and the trailer for transporting fish oil.

During the month two supervisors and four agents have been employed in mapping woodland areas in townships in the heavily infested area in Pennsylvania, as no maps containing the information needed by this project have ever been prepared for the towns in this area. A detailed description of the method employed in mapping a town has been given in a previous News Letter. The mapping of woodland acreages and roadways is a very important step that must be taken before intensive scouting and extermination work can be started.

During October most of the force in the Pennsylvania area scouted trees, brush, fences, debris, etc., to the flood water mark along the Susquehanna and Lackawanna Rivers between Pittston and Nanticoke. Work along the Susquehanna River had to be discontinued for about a week when heavy rains caused the river to overflow its banks. By the end of the month scouting along the Susquehanna River was completed, the lowlands on both sides of the river having been scouted a distance of approximately 18 miles upstream from Nanticoke. A total of nine infestations were found as a result of this work. Scouting along the lowlands of the Lackawanna River was practically completed at the end of the month, a distance of approximately 6 miles along this river from its junction with the Susquehanna River having been scouted. A total of five infestations were found as a result of this work.

It is fortunate the infestations in the lowlands along both of these rivers were discovered and egg clusters destroyed by creosote this fall, for a rather large percentage of the clusters were deposited on small growth, driftwood, tin cans, etc., that might have been carried downstream to points outside of the infested area during severe floods which usually occur each spring.

All scouting planned for the present in Pennsylvania will be completed early in November and most of the force in Pennsylvania will be transferred to southwestern Massachusetts and northwestern Connecticut to take up work at sites of old infestations. They will do intensive scouting in these sections of the barrier zone until their services are required for Christmas tree inspection work.

A report has been received from the official in charge of gipsy moth work in the State of New Jersey indicating that during October State men have been scouting the highway from the bridge that crosses the Delaware River near the Delaware Water Gap to Hackettstown, N. J., a distance of approximately 25 miles. Scouting has also been done at sites of old infestations in the township of Mendham. This work is being done as a precautionary measure. No evidence of the gipsy moth has been found as a result of this work.

The construction of a 4-lane trunk line highway through Glen Cove in Nassau County, Long Island, necessitated the presence of a quarantine inspector for over two weeks during the month. In order to clear the way, trees from 35 to 60 feet in height were pulled up by the roots by the construction company and given to any person who would take them away at once. No difficulty

was experienced in having the trees removed, for at times as many as 30 or 40 people were waiting to carry off this wood. Each tree had to be inspected, and certificates issued for any that were to be moved outside of the quarantined area.

As soon as possible after the beginning of the gipsy moth egg laying season, the quarantine inspectors begin their annual examinations of premises in their districts from which regular shipments of quarantined materials are sent out. In most of the districts the major portions of materials inspected are sent out by firms or individuals who ship regularly from particular localities. The thorough inspection of such localities will determine the degree of gipsy moth infestations, and in all cases where infestation is found it is possible for the district inspectors to materially decrease the chance of materials becoming infested, by recommending to the owners suitable safeguards. Where infestations are found they are indicated to the owners of the properties with proper instructions for effective control measures. With respect to many materials the owners can guard against infestation by storing or piling away from infested trees or shrubs. In some cases, where storage yards have tree or shrub growth, the removal of such growth is recommended; or, in case this is not desirable, eradication methods are resorted to. Careful inspection of premises, with recommendations for control if infested, has had decidedly beneficial results and has accounted to a marked extent for the comparatively small amounts of infestations which have been found in the past on materials presented for inspection. Almost without exception the quarantine district inspectors have received the hearty cooperation of the shippers, and recommendations for proper control measures have been accepted and followed conscientiously. As an illustration of the effectiveness of such measures, a shipper of lumber in one of the districts notified the district inspector that he had received an order for a number of carloads of lumber which he proposed to cut. Prior to shipment this lumber was to be stored for a period and an examination of the immediate surroundings showed there was considerable infestation. On recommendation of the district inspector some eradication methods were undertaken, but as an added precaution all lumber was piled well away from tree growth. When inspection was performed not a single sign of infestation was discovered on the lumber, but if it had been piled closer to tree growth, or if no eradication methods had been adopted, it is very probable that infestation would have been found.

The fall season for the inspection of evergreen boughs has been under way for some time. Such inspection is very seasonal and is confined to a period in late fall and early winter. Boughs are cut extensively in western Massachusetts and southern Vermont, pressed into bales of 100 pounds each, and shipped in carload lots to cold storage plants, where they are held until sold for use. The major portions of these boughs are used for covering lots in cemeteries, to provide a green blanket for the winter season. A number of them, however, are used for protecting semihardy trees and shrubs during the severe winter weather.

The fall inspection of Christmas trees will start very shortly and it

is expected that there will be a considerable number of carloads shipped before the completion of the season. This type of inspection is also extremely seasonal, and because of the rapidity with which it is necessary to move trees the inspection of them necessitates numerous additional assistants in all of the inspection districts in which trees are cut. In a number of sections firms or individuals specialize in the making of wreaths or other decorative pieces for the holiday trade. Such articles may be composed entirely of one type of material, such as laurel branches; but oftentimes they are made of a number of different evergreen cuttings, decorative berries, and cones from evergreen trees. Because of the way such pieces are made it is impossible to inspect after they are completed, and for this reason all such materials are examined thoroughly immediately after they are collected and before they are cut into suitable pieces, to be woven with other materials into the completed wreaths. Some of the completed pieces are of considerable size and quite elaborate. Often they are made up on wooden bases which, of course, have to be inspected and may have, in addition to the evergreen material, pieces of birch bark. This latter is collected in large sheets, very often where lots containing large trees are being cut off. The manufacturers are constantly searching for localities where materials can be collected and frequently have to travel long distances to obtain particular materials. Because of the perishable nature of berries and evergreen twigs these are collected fresh, but wooden blocks for bases, birch bark, deciduous twigs for handles of baskets, and similar materials may be collected in excess of immediate needs when supplies are found, and stored to be used as desired. Birch bark, particularly, can be stored for several years, and as this storage is usually under cover, well away from any possibilities of infestation, the initial inspection at the time of collection is sufficient.
