

know as much about them as I should. So I move that a geographically representative committee be appointed by the Chair with Mr. Sasscer as chairman, to take this matter under consideration and see whether any general rules, fundamental principles and recommendations can be laid down, this committee to make its report at the next session of this section.

MR. S. B. FRACKER: I second the motion. A number of our men in Wisconsin keep a little outside shrubbery in order that they may be entitled to carry a nursery inspection certificate, and they attach it to greenhouse plants when requested to do so by the express agent. This is true particularly of inter-state shipments. The problem, we have felt, was a serious one, not only owing to the dangers from some of the insects mentioned by Mr. Dietz, but in other ways. For example, the orchid weevil, *Cholus cattleyae*, has been distributed from one greenhouse to another by means of stock, and its distribution could probably have been prevented if inspection certificates had been required. It is an insect which is perfectly ruinous in the orchid houses when it once becomes established.

The motion of Mr. Headlee, seconded by Mr. Fracker, was voted upon and carried.

CHAIRMAN RUGGLES: The next paper on the program is "Important Foreign Insect Pests Collected on Imported Nursery Stock in 1921." by Mr. E. R. Sasscer.

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## IMPORTANT INSECTS COLLECTED ON IMPORTED NURSERY STOCK IN 1921

By E. R. SASSCER, *Washington, D. C.*

Exclusive of bulbs and seeds, 27,507,929 plants were introduced during the fiscal year 1921 from all foreign countries in compliance with Regulations 3 and 14 of Quarantine 37. Of this number, 21,172,049 plants arrived from France, the remainder being distributed among all other countries exporting to the United States. In spite of the emphasis which has been repeatedly made regarding the necessity of shipping only plants free from soil or earth, a number of shipments of plants, the roots of which were in part embedded in soil, arrived. Moreover, in several instances the soil included in the matted roots of *Astilbe* from Holland was found to be infested with the larvae of *Brachyrhinus sulcatus* Fab. which would have escaped the notice of the inspectors if the soil had not been detected, removed, and carefully

examined. While these larvae were for the most part in the soil, in some cases they had entered the clumps and occasioned some injury to the roots. In all of the shipments it was evident that an effort had been made to remove the soil, but the small amount remaining was sufficient to protect the larvae and permit them to accompany the plants. While it is true that the insect in question is known to be established in certain sections of this country, this instance forcibly emphasizes the possibilities which accompany the introduction of plants imbedded in soil.

Forty-two shipments of French fruit and rose stocks were found to harbor nests of the Brown Tail Moth in contrast with sixty-three from the same country during the past eight years. Incidentally, a number of these shipments also contained nests of the White Tree Pierid (*Aporia crataegi* L.). One shipment of fruit seedlings from Holland was infested with nests of the Brown Tail Moth and one consignment of quince stock from France contained egg masses of the Gypsy Moth. Larvae of the Sorrel Cutworm (*Acronycta rumicis* L.) were collected on quince, cherry, and rose; and pupae of the Dagger Moth (*Apatela auricoma* Fab.) were reported on pear, quince, and rose from France, and cherry from Holland. Narcissus bulbs from Holland were infested with the Lesser Bulb Fly (*Eumerus strigatus* Falln.); iris from England with *Anuraphis tulipae* Boyer, and *Lilium candidum* from France with *Cryptothrips dentipes* Reut. Egg masses of the European Lackey Moth (*Malacosoma neustria* L.) were intercepted on three shipments of French apple seedlings, and cocoons of *Emphytus cinctus* Linn. were taken on rose stocks from England, Ireland, France, and Holland.

The Black Fly of Citrus, *Aleurocanthus woglumi* Ashby, was collected on the foliage of citrus on nine occasions from Cuba and Jamaica, and once on what appeared to be bay from the Bahama Islands. In a majority of these cases, the eggs and pupae were on leaves attached to fruit found in the stores of ships arriving at American ports of entry. *A. spiniferus* Quaintance also arrived on citrus leaves from Japan. The Mexican Fruit Fly (*Anastrepha ludens* Loew) was intercepted in mangoes and sweet limes confiscated from immigrants at El Paso, and larvae of *A. fraterculus* Wied. were found in mangoes and Cuban plums from Cuba, Mexico and Jamaica. The Mediterranean Fruit Fly was taken on five occasions in coffee berries from Hawaii, and what appeared to be larvae of *Conotrachelus perseae* Barber was located in avocados from Mexico and Costa Rica, as well as a species of *Heilipus* from Mexico and *Stenomoma catenifer* Walsh from the Canal Zone and Mexico. Mango seed from Hawaii exhibited the Mango Weevil (*Sternochetus mangi-*

*ferae* Fab.), and sweet potatoes from Cuba and Mexico contained *Cylas formicarius* Fab., and shipments from Jamaica, the Bahama and Madeira Islands were infested with *Euscepes batatae* Waterhouse. *Metamasius sericeus* Oliv. was intercepted in sugar cane from Cuba found in ships' stores and in banana leaves in banana shipments from Costa Rica. The pink bollworm (*Pectinophera gossypiella* Saund.) was intercepted in cotton seed from England, Egypt, India, and on twenty-three occasions in cars arriving from the interior of Mexico.

Azaleas from Japan, introduced in accordance with Regulation 14, Quarantine 37, were in a number of instances found to bear injured buds. Repeated futile attempts were made to collect the insects responsible for the hollowing out of the buds. Samples of the injured buds were forwarded to Dr. S. I. Kuwana who advised that it was the work of the larvae of *Earias rosifera* Butler, which is reported to have two generations a year, the adult moth of the first brood appearing in April or May, and the second brood in July. The moth of the last brood deposits its eggs near the flower buds, and the larvae infest the buds shortly after hatching, and become full grown in September or October, hibernating in the larval condition in cocoons in the soil or between decayed leaves. In view of the fact that the exporting season in Japan is from November to April, and that the insect is in the soil or in old leaves at that time, and further that these plants are shipped absolutely free from soil, it appears that there is little likelihood of introducing this pest.

The Noctuid genus *Earias* contains some two dozen or more closely allied and similar species, several of which are known to be of primary economic importance; for example, *E. insulana* Boisduval, which is the well known Egyptian Cotton Bollworm, and is second only to the Pink Bollworm in the amount of injury it occasions to cotton in that country. *E. chlorana* Hubner is another injurious species feeding on willow in Europe.

The following is a list of some of the more important scale insects arriving on plants from various countries:

Coccid	Host	Origin
<i>Asterolecanium urichi</i> Ckll.	<i>Guiliema speciosa</i> (Palm)	Brazil
<i>Chaetococcus bambusae</i> (Mask.)	Bamboo	China
<i>Lecanium coryli</i> L.	Cherry cuttings	Germany
" " "	Apple scions	Czecho-Slovakia
" " "	Prune (cuttings)	"
" " "	Cherry (scions)	"
<i>Pseudococcus gahani</i> Green	<i>Tricuspidaeia dependens</i>	England
<i>Pseudococcus maritimus</i> (Ehrh.)	Bananas	Central America

<i>Coccid</i>	<i>Host</i>	<i>Origin</i>
<i>Ripersia palmarum</i> Ehrhorn	Cocoanuts	Raratonga, Cook Isl.
" " "	"	Hawaii
<i>Aspidiotus spinosus</i> Comst.	Rose	Bahama Islands
<i>Aspidiotus subsimilis</i> Ckll.	<i>Persea americana</i>	Ecuador
<i>Aspidiotus subsimilis</i> var. <i>anonae</i> Houser	<i>Areca</i> sp. (Palm)	Cuba
" " " "	Sour sop	Bahama Islands
" " " "	Unknown	Cuba
<i>Chrysomphalus scutiformis</i> Ckll.	Bananas	Central America
<i>Odonaspis inusitata</i> (Green)	Edible bamboo	China
" " "	Bamboo	"
<i>Odonaspis</i> sp. (apparently new)	<i>Arundo mauritanica</i> (Rhizomes)	Algeria
<i>Targionia sacchari</i> (Ckll.)	Sugar cane	Bahama Islands
" " "	" "	Br. Honduras
<i>Targionia</i> sp.	<i>Populus subintegerina</i>	Algeria
<i>Chionaspis inday</i> Banks	Cocoanuts	Hawaii
<i>Lepidosaphes ficus</i> Sign.	Fig	Italy
<i>Lepidosaphes tuberculata</i> Malen	Orchid	England
<i>Lepidosaphes mcgregori</i> Banks	Cocoanuts	Singapore
<i>Phenacaspis eugeniae</i> Mask	"Kukui" nut	Hawaii
" " "	Mango	"

SUMMARY OF COUNTRIES AND THE NUMBER OF SPECIES OF INSECTS REPORTED BY STATE AND FEDERAL INSPECTORS DURING THE CALENDAR YEAR 1921 UP TO AND INCLUDING DECEMBER 23

Algeria	4	Colombia	6
Antigua	1	Cook Island	3
Argentina	12	Costa Rica	10
Assam	1	Cuba	80
Australia	9	Czecho-Slovakia	4
Austria	1	Ecuador	13
Azores	3	Egypt	4
Bahama Islands	28	England	42
Bermuda	21		
Brazil	20	Fed. Malay States	4
British Guiana	12	France	51
British Honduras	6	Germany	6
British West Indies	6	Gaudeloupe	1
		Guatemala	16
Canada	4	Haiti	7
Canal Zone	10	Hawaii	49
Canary Islands	2	Holland	35
Ceylon	2		
Chile	9	India	32
China	33	Ireland	5

Isle of Pines	3	Salvador	1
Italy	82	San Domingo	7
Jamaica	50	Seychelles Islands	1
Japan	47	Siam	14
Java	10	Sicily	1
Jerusalem	1	South Africa	14
		Spanish Honduras	35
Madeira Islands	7	Spain	13
Malta	1	St. Kitts	1
Manchuria	1	Straits Settlements	8
Martinique	1	Sweden	5
Mexico	64	Syria	1
New Zealand	4	Tahiti	1
Nicaragua	7	Trinidad	4
Norway	4	Tripoli	1
Palestine	3	Turkey	1
Panama	12	Turks Islands	1
Paraguay	4		
Philippine Islands	17	Uruguay	4
Porto Rico	10	Venezuela	6
Portugal	2	Virgin Isl.	3
		Windward Isl.	1

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CHAIRMAN RUGGLES: The next paper is by Mr. McLaine

### A BRIEF RESUME OF NURSERY CONDITIONS IN HOLLAND, BELGIUM AND FRANCE

By L. S. McLAINE, *Ottawa, Can.*

During the early summer of 1921 the writer had the pleasure of visiting France, Holland and Belgium. The main object of the trip was to see some of the larger nursery sections, as well as to look into the methods employed by the various governments in the inspection of nursery stock for export, particularly to North America. Unfortunately only a very short time could be allotted to any one locality or country, thus making it impossible to secure any definite first hand knowledge of the insects that are likely to be imported on exportations of plants or plant products. The writer, however, was impressed with the serious effort that was being made, in most instances, to inspect thoroughly all export shipments and to see that only healthy plants were shipped under the certificates of inspection.

The situation of the nurserymen on the continent, from a financial standpoint, is by no means enviable at the present time. During the war their business was at a standstill, and to-day it is little