

FURTHER NOTES ON PUBLIC HEALTH SERVICE QUARANTINE ENTOMOLOGY

JOHN E. PORTER¹

Beginning early in the 14th century, the city of Venice required all ships desiring trade with its people to remain at anchorage for forty days prior to docking. The word quarantine (derived from the Italian *quarantina*, meaning forty) has come, since this time, to connote not 40 days of isolation but rather a system or type of scientifically established restrictions involving in some cases, embargoes and in others, treatments and inspections of peoples, cargoes and/or carriers.

Only in comparatively recent times have entomological quarantines achieved recognized standing. Representatives of various European countries, in 1881, agreed upon certain measures to limit the area of destruction occasioned by the importation from America of the grape phylloxera.

California, in 1886, was the first of our states to take action to prevent the introduction of agricultural pests and plant diseases from foreign countries or other states. The Federal Plant Quarantine Act of 1912 established regulations covering international commerce.

Public Health entomology since 1900 has operated to control insect vectors of disease arriving at United States ports in ships. The establishment of codified federal regulations in 1941 gave a definite entity to the public

TABLE 1.—ORDERS OF INSECTS COLLECTED FROM AIRCRAFT—MIAMI, FLORIDA
JULY 1, 1956, THROUGH JUNE 30, 1957.

Order	Number or Families	Number of Specimens
Thysanura	1	1
Ephemeroptera	1	11
Odonata	1	1
Orthoptera	6	125
Isoptera	1	1
Dermaptera	2	4
Psocoptera	1	4
Thysanoptera	1	1
Hemiptera	11	65
Homoptera	7	115
Coleoptera	25	217
Trichoptera	1	2
Lepidoptera	13	324
Diptera	34	7567
Hymenoptera	13	191
Totals:	118	8629

¹ Entomologist, U.S. Quarantine Station, Miami Beach, Florida, Division of Foreign Quarantine, Public Health Service, U.S. Department of Health, Education, and Welfare.

TABLE 2.—MOSQUITOES RECOVERED FROM AIRCRAFT, MIAMI INTERNATIONAL AIRPORT—MIAMI, FLORIDA, JULY 1, 1956, THROUGH JUNE 30, 1957.

Species	Alive	Knocked Down	Dead
Culicidae	—	—	5
<i>Aedes</i> sp.	3	1	78
<i>A.</i> sp. (prob.) <i>euiris</i>	—	—	1
<i>A.</i> sp. (prob.) <i>tortilis</i>	—	—	3
<i>A. albifasciatus</i>	—	—	2
<i>A. obturbator</i>	—	—	1
<i>A. sollicitans</i>	2	—	18
<i>A. taeniorhynchus</i>	88	18	728
<i>A. tortilis</i>	—	—	2
<i>Aedomyia squammipennis</i>	—	—	1
<i>Anopheles</i> sp.	—	—	10
<i>A.</i> (<i>Nyssorhynchus</i>) sp.	—	—	4
<i>A.</i> sp. (prob.) <i>albimanus</i>	—	—	3
<i>A.</i> sp. (prob.) <i>crucians</i>	—	—	1
<i>A.</i> sp. (prob.) <i>grabhamii</i>	—	—	1
<i>A.</i> sp. (prob.) <i>quadrifasciatus</i>	—	—	1
<i>A. albimanus</i>	1	—	10
<i>A. albitarsis</i>	—	—	1
<i>A. crucians</i>	—	—	9
<i>A. grabhamii</i>	1	—	11
<i>A. quadrifasciatus</i>	1	—	1
<i>A. neomaculipalpus</i>	—	—	1
<i>A. vestitipennis</i>	—	—	1
<i>Culex</i> sp.	23	—	79
<i>C.</i> (<i>Melanoconion</i>) sp.	4	—	57
<i>C.</i> sp. (prob.) <i>nigripalpus</i>	1	—	—
<i>C.</i> sp. (prob.) <i>quinquefasciatus</i>	2	—	6
<i>C.</i> sp. (prob.) <i>tarsalis</i>	2	—	1
<i>C. nigripalpus</i>	9	—	4
<i>C. pilosus</i>	—	—	1
<i>C. quinquefasciatus</i>	163	47	94
<i>C. tarsalis</i>	2	2	1
<i>Culiseta</i> sp.	—	—	3
<i>Mansonia</i> sp.	1	—	21
<i>M. flaveolus</i>	—	—	3
<i>M. indubitans</i>	—	—	10
<i>M. titillans</i>	1	—	17
<i>Psorophora</i> sp.	—	—	3
<i>P. ciliata</i>	—	—	1
<i>P. confinnis</i>	1	—	21
<i>P. pygmaea</i>	—	—	4

Totals: 305 68 1219

health quarantine entomology program. The details of this program were published in the June, 1957, issue of the FLORIDA ENTOMOLOGIST.² Briefly, the U. S. Public Health Service has pioneered the development and improvement of aircraft disinsectization to destroy vectors of disease (and also some potential agricultural pests). It is responsible for establishing the federal regulations we follow governing in-flight spraying of aircraft and the inspection of airplanes after their arrival at United States airports, along with the entomological surveillance of these airports.

The Public Health Service maintains certain inspectional and control facilities against *Aedes aegypti* mosquitoes in southern United States. This entails searching and spraying of aircraft and ships arriving from yellow fever suspect or endemic ports along with the control of mosquito breeding at airport and in the dock areas.

The reports of insect recoveries made by our sanitary inspectors at the various airports of entry have proved to be useful data for analysis by authorities throughout the world, interested in the possible threats to their countries of insects "hitch-hiking" aboard airplanes.

Some of our recent findings, as shown in the Tables 1-4, indicate to some extent the variety of insects found aboard planes and ships.

It can be seen from these tables that insects of all kinds are capable of being transported by aircraft and ships. Many insects arrive in Miami in a condition satisfactory for further propagating the species and would possibly do so if our inspectors did not apply terminal disinsectization in most instances. Thus, there is a necessity to maintain a continuing alertness and defense against these potential threats of disease and destruction.

TABLE 3.—ORDERS OF INSECTS RECOVERED FROM SHIPS, MIAMI, FLORIDA *

Order	Number of Families	Number of Specimens
Thysanura	1	5
Collembola	1	1
Ephemeroptera	1	3
Orthoptera	3	8150
Dermaptera	2	61
Psocoptera	1	31
Thysanoptera	1	1
Hemiptera	6	79
Homoptera	3	11
Coleoptera	17	173
Lepidoptera	5	53
Diptera	22	6603
Hymenoptera	7	7618
Totals:	70	22789

* Data taken from inspection records of Miami Quarantine Station, November, 1945 - May, 1946; May, June, August and September, 1950, and July 17, 1957.

² Porter, John E., 1957. The development of public health Service quarantine entomology and its program in South Florida. Fla. Entom. 40(2): 45-49.

TABLE 4.—MOSQUITOES RECOVERED FROM SHIPS, MIAMI, FLORIDA *

Species	Alive	Dead
Culicidae	—	4
<i>Aedes</i> sp.	1	1
<i>A. aegypti</i> (larvae)	2	—
<i>A. aegypti</i>	8	1
<i>A. sollicitans</i>	3	1
<i>A. taeniorhynchus</i>	15	30
<i>Anopheles</i> sp.	—	1
<i>Anopheles</i> sp., prob. <i>albimanus</i>	—	1
<i>A. albimanus</i>	—	2
<i>A. crucians</i>	—	1
<i>Culex</i> sp.	1	15
<i>C. nigripalpus</i>	—	1
<i>C. quinquefasciatus</i>	42	11
Totals:	72	69

* Data taken from inspection records of Miami Quarantine Station, November, 1945 - May, 1946; May, June, August and September, 1950, and July 17, 1957.

A BOX TURTLE FATALITY APPARENTLY CAUSED BY *SARCOPHAGA CISTUDINIS* LARVAE: On February 10, 1957, a specimen of *Terrapene carolina* was collected near Gainesville, Florida. Examination of its neck region revealed two large and two small wounds surrounded by several large swellings each packed with fly larvae, thirty-five of which were removed from the wounds and reared to adults. Approximately 36 larvae remained in the swellings. These larvae later left the wounds and pupated. The adults were identified as *Sarcophaga cistudinis* Ald.¹ The turtle was cared for in captivity for four and one-half weeks, at which time it died. Apparently the damage caused by the larvae (total number of larvae counted was 71) was extensive enough to cause the death of the turtle. Wayne King and James V. Griffo, Jr., Department of Biology, University of Florida.

¹ Identification made by Mr. W. L. Downes, Entomological Research Service, U.S.D.A., Beltsville, Maryland.