CALIFORNIA PLANT PEST and DISEASE REPORT

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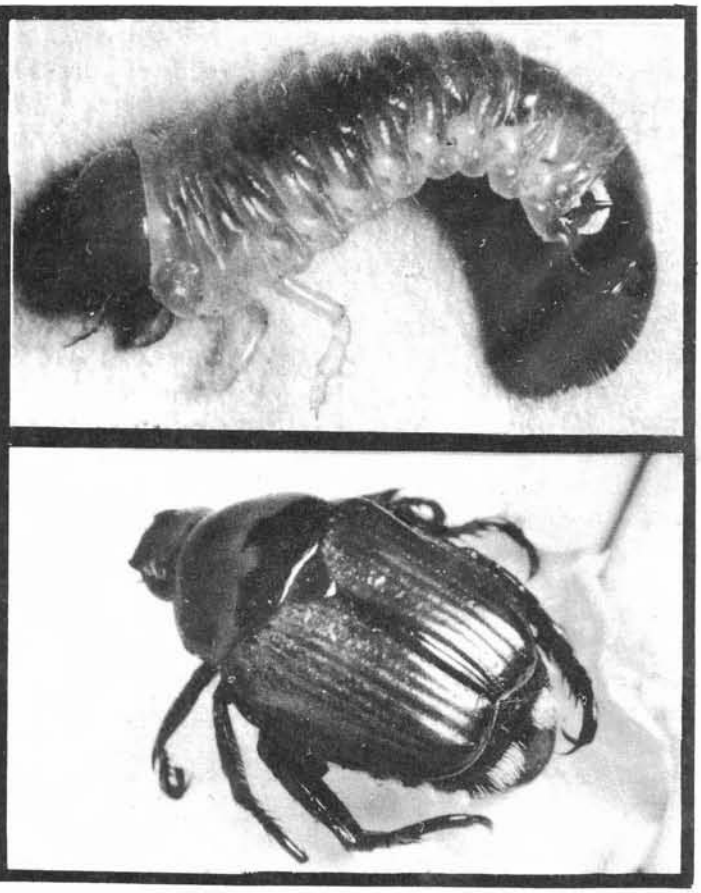
California Department of Food and Agriculture 1220 N Street Sacramento California 95814

JAPANESE BEETLE ERADICATION PROJECT



JAPANESE BEETLE RETURNS TO SACRAMENTO

MADRONE CANKER: A NEW DISEASE?

Kathleen L. Kosta

A serious disease of madrone (*Arbutus menziesii*) has been spreading rapidly in California forests within the last several years, causing dieback of branches and sometimes death of entire trees. Reports of madrone canker are widespread, ranging from Santa Cruz county northward, and from the Santa Clara valley to the Sierra foothills. Samples of diseased madrones have been received from the California Department of Forestry, Department of Parks and Recreation, and county agricultural commissioners, representing declining trees in state parks, forests, private residences and natural woodlands. Although madrone canker appears to have been present in California for a number of years, and has been referred to in literature (2), never before has such extensive damage been reported, nor has the causal organism been identified.

The symptoms of the disease begin as a dark red discoloration of the bark, followed by blackening of the branches and finally dieback, giving the appearance of fire damage. The cankered areas frequently extend into the heartwood of the tree. In some cases the tree successfully walls off the disease organism(s) at the junction of branches. However in more recent years, the ability of madrones to wall off the disease organism(s) appears to have declined, and the cankers advance to the large main branches. They are frequently observed extending down the branch in a wedge-shaped pattern on the surface (Fig. 1), eventually girdling the entire branch. There is some question as to whether the disease of the small twigs is caused by the same organism that invades the large branches.

Upon request of state and county agencies, and working in conjunction with the California Department of Forestry, members of the diagnostic laboratory of the California Department of Food and Agriculture have been intensively sampling diseased madrones and attempting to isolate the causal organism(s). Early indications are that fungal pathogens may be responsible, at least in part, for this disease. Two fungi have consistently been isolated from cankered stems and blighted tips. Pathogenicity tests are currently being conducted, in cooperation with the Department of Parks and Recreation, at Bothe-Napa State Park and Stevenson State Park in the Napa Valley.

Preliminary tests, completed last year, indicate that *Fusicoccum* sp. may be responsible; this fungus is a known pathogen of other hardwoods (1,3). *Phomopsis* sp. has also been found in conjunction with the cankers on numerous occasions (1), although one study has shown that *Phomopsis* is "incapable of invading live tissue" of madrone and is of questionable pathogenicity (4). Other fungi that have been isolated from blighted flowers and small twigs are *Hendersonula* sp. and *Pestalotia* sp. The pathogenicity tests are being conducted with all the listed fungi and results will be reported upon completion.

Kathleen Kosta is a Seasonal Agricultural Inspector with the Analysis and Identification Unit, CDFA in Sacramento.

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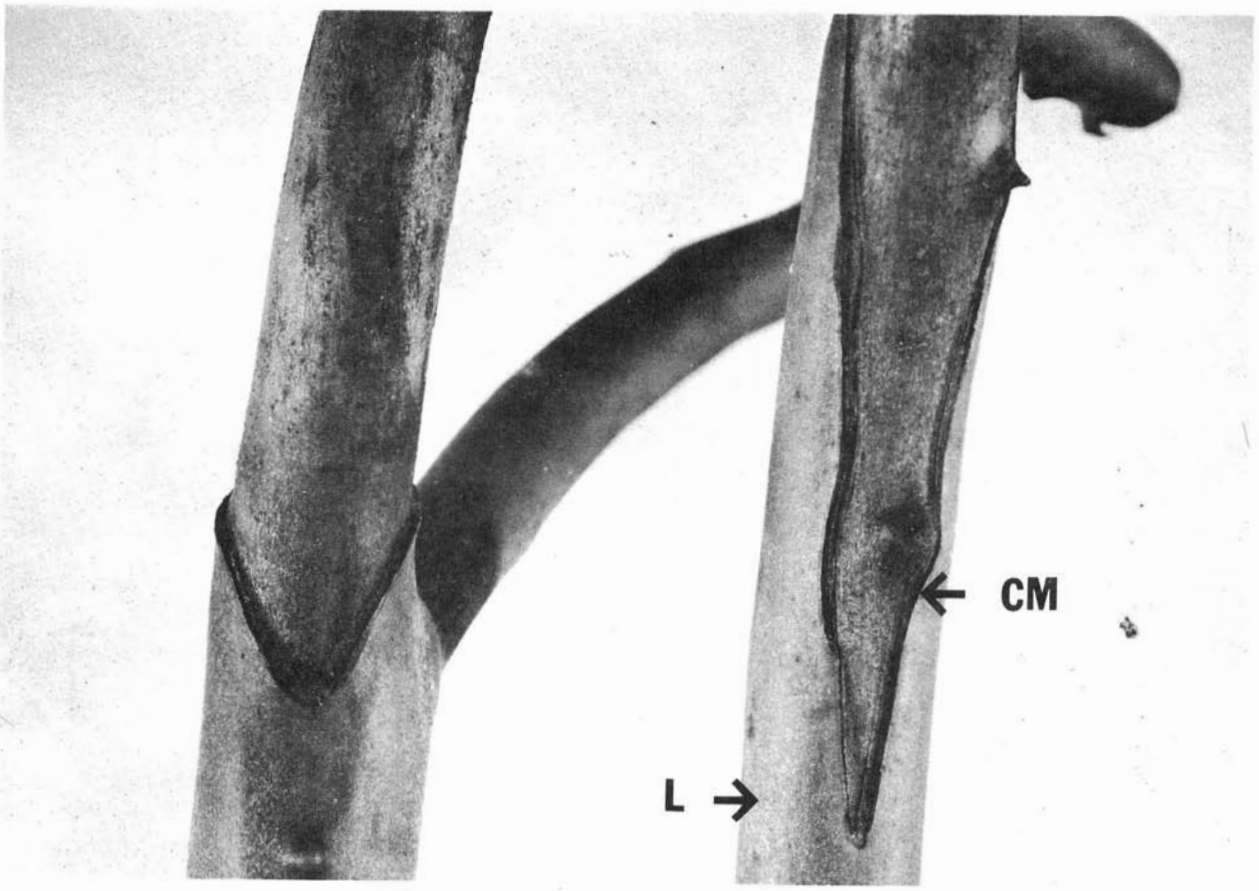

Madrone canker extending down branch. (CM-canker margin, L-living tissue)
(Photo by Chet Fukushima)

TIP BLIGHT OF PISTACHIO

D.C. Opgenorth, M. Sorrell, A.W. Beneke and T. Dowd

A tip or bud blight of pistachio (*Pistacia vera*) has recently been observed in Butte county. Before trees leafed out, external and internal discoloration of buds was noticed. After new growth this spring, tip dieback and wilting of new shoots was seen. Twenty or more strikes on a single mature tree were not uncommon. Trees that had set a large crop the previous year seemed especially susceptible to this condition.

The shoot tips on the new growth were blackened, wilted, blighted and croziered (Fig. 1). In most cases they were withered and dried beyond any hope of isolating the pathogen; a rusty red discoloration extended into tissue produced the previous year, and isolations made from this discolored tissue were usually found to be *Botrytis* sp..

Isolating *Botrytis* sp. consistently from weakened trees in an abnormally wet year should not be surprising. However, since a considerable number of trees were involved and numerous shoot tips on each tree showed symptoms, the potential for a disease problem does exist. Thus, we intend to investigate this problem next season and would greatly appreciate reports concerning this problem from other areas of the state. While several other diseases of pistachio have been reported in the United States, (1,2,3) a tip or shoot blight incited by *Botrytis* sp. has not been previously documented.

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D.C. Opgenorth is a Plant Pathologist and Mary Sorrell is an Agricultural Biological Technician with the CDFA Analysis and Identification Unit, Sacramento. A.W. Beneke and T. Dowd are Agricultural Biologists with the Butte County Agricultural Commissioner's office in Chico.

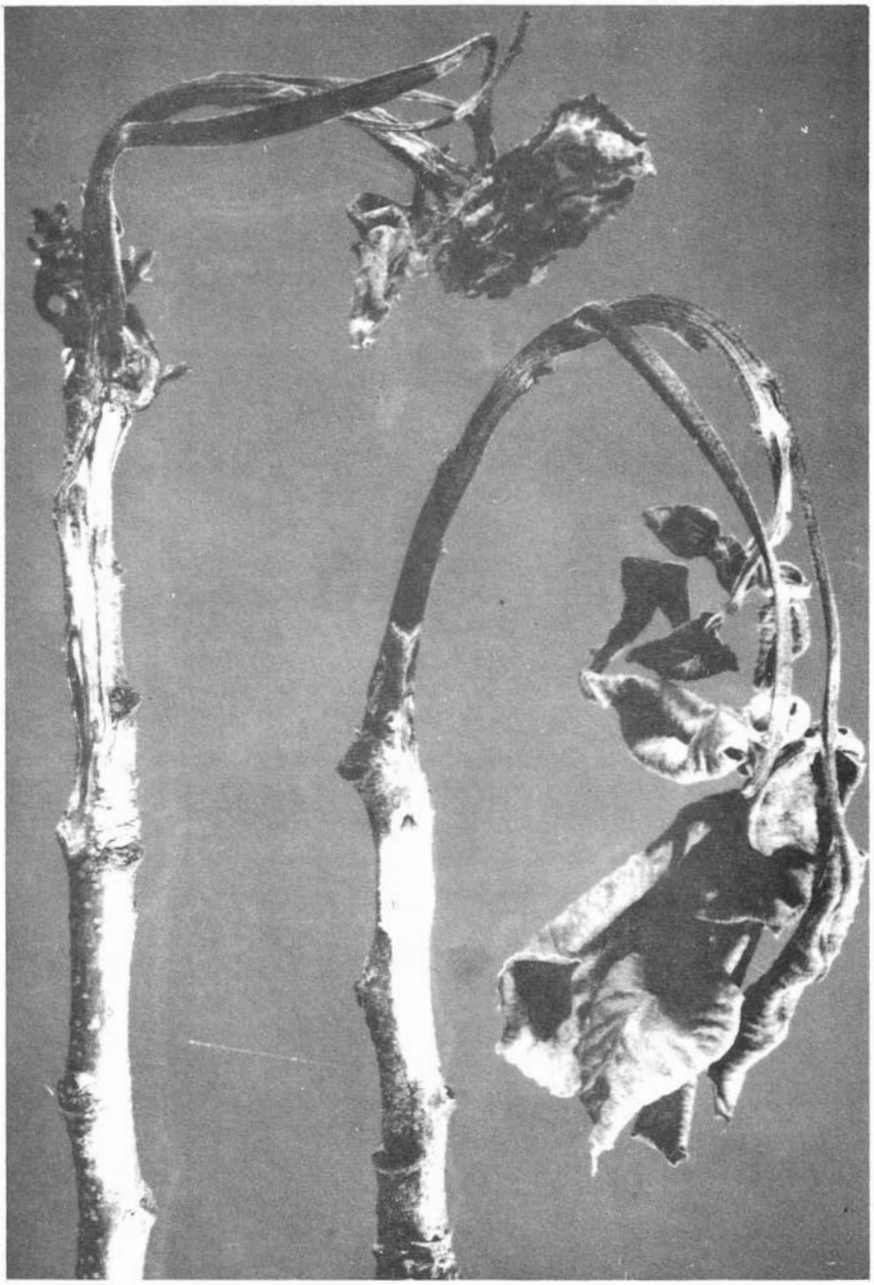

Fig. 1. Shoot tips on new growth of pistachio trees affected by tip blight are blackened, wilted, and croziered.

DOWNY LEAF SPOT OF WALNUT

Mary Sorrell and D.C. Opgenorth

Downy leaf spot of walnut is a disease of minor economic importance caused by the fungus *Microstroma juglandis* (Bereng.). It is not common in Pacific coast walnut-growing areas except during wet springs such as we have had for the last two years. *M. juglandis* and other species of the genus *Microstroma* are found fairly commonly on leaves of *Juglans* (walnut), *Quercus* (oak), and *Carya* (hickory) throughout Europe and North America.

Symptoms on the upper surface of the leaves are small white to yellowish angular spots, associated with leaf malformations (Fig. 1). On the lower leaf surface the lesions have a downy white appearance (Fig. 2). Lesions on the fruit are reported to be circular, up to an inch in diameter, with a downy growth of the fungus around the edge. The hull may be slightly indented but not malformed. *M. juglandis* has been reported to also cause witches'-broom symptoms on walnut trees.

The septate, hyaline hyphae of *M. juglandis* grow between the epidermal cells of the leaf and mass together beneath the stomata into relatively large cushions or stromata (Fig. 3). The basidia bearing the spores push out through the stomates and give the white downy appearance to the lesions. The spores are hyaline, small (6.5 µ x 2.1 µ) and rod-shaped with rounded ends and contain single nuclei.

Control is seldom necessary but cyprex, maneb, and zineb have been recommended. Bordeaux mixture also is probably effective, as this disease is seldom seen in orchards that have been sprayed with this mixture.

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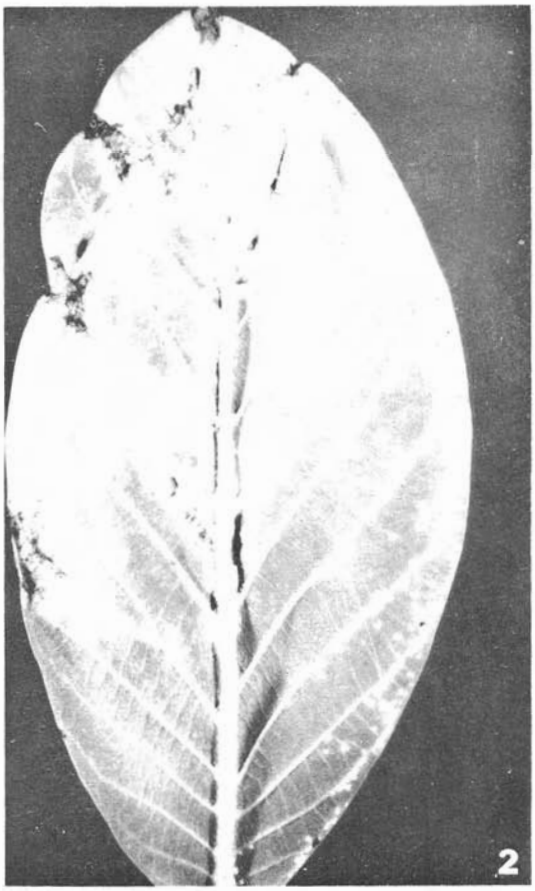
Mary Sorrell is an Agricultural Biological Technician and D.C. Opgenorth is a Plant Pathologist with the CDFA Analysis and Identification Unit, Sacramento.



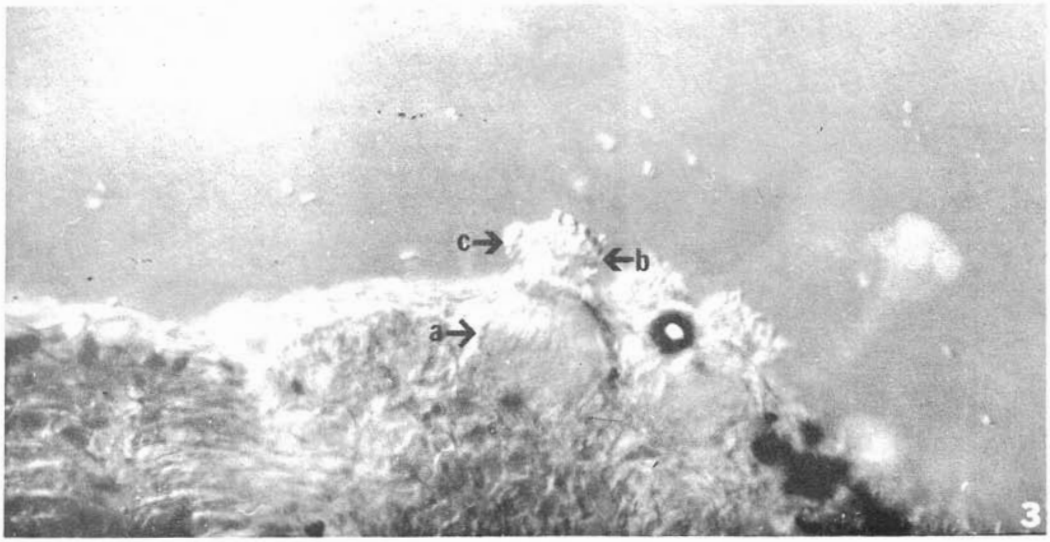


Fig. 1. Upper surface of walnut leaves showing spotting and distortion.

Fig. 2. Lower surface of walnut leaves showing distortion and white downy appearance.

Fig. 3. Cross section of an infected walnut leaf showing stroma (a), and basidium (b), bearing spores (c).

DIAMOND SCALE OF CALIFORNIA FAN PALM

Jeanenne B. White

An unusually distinctive foliage disease occurring on California fan palm, *Washingtonia filifera*, is diamond scale caused by the fungus *Sphaerodothis neowashingtoniae*. The disease appears during the spring and summer months in California where infections have been reported from various counties including Riverside, Los Angeles, Santa Barbara, Santa Clara and Sacramento.

The common name "diamond scale" is derived from the elongated ebony-colored, diamond-shaped carbonaceous pustules, 1/4 to 3/4 inches long, that erupt through the upper and lower epidermis of palm leaves and stalks. Within the pustules are perithecial cavities (locules) containing numerous double-walled sac-like cells (asci), each producing eight one-celled dark-brown ascospores. The ascospores are exceptionally large, 65 µ long by 30 µ wide, and are actually visible to the naked eye on leaf surfaces.

Initial infections commonly occur on the lower palm fronds, depressed against the trunk, which have turned chlorotic and died during the winter months to form a dense thatch area. In the spring and summer the disease becomes evident and progresses upward to healthy leaves and stalks. The fungus may remain viable for several years in perennial fronds without killing the host tissue. However, resultant gradual chlorosis and tissue desiccation eventually cause the fronds to die.

Dissemination of *Sphaerodothis* spores occurs through splashing water, winds, and contaminated pruning equipment. Inadequate pruning of the diseased and dead fronds increases inoculum potential and widens areas of infection.

Successful control measures for this disease include removal of all dead and infected fronds, sterilization of pruning equipment, and regular use of fungicide foliage sprays such as 3-3-50 bordeaux mixture.

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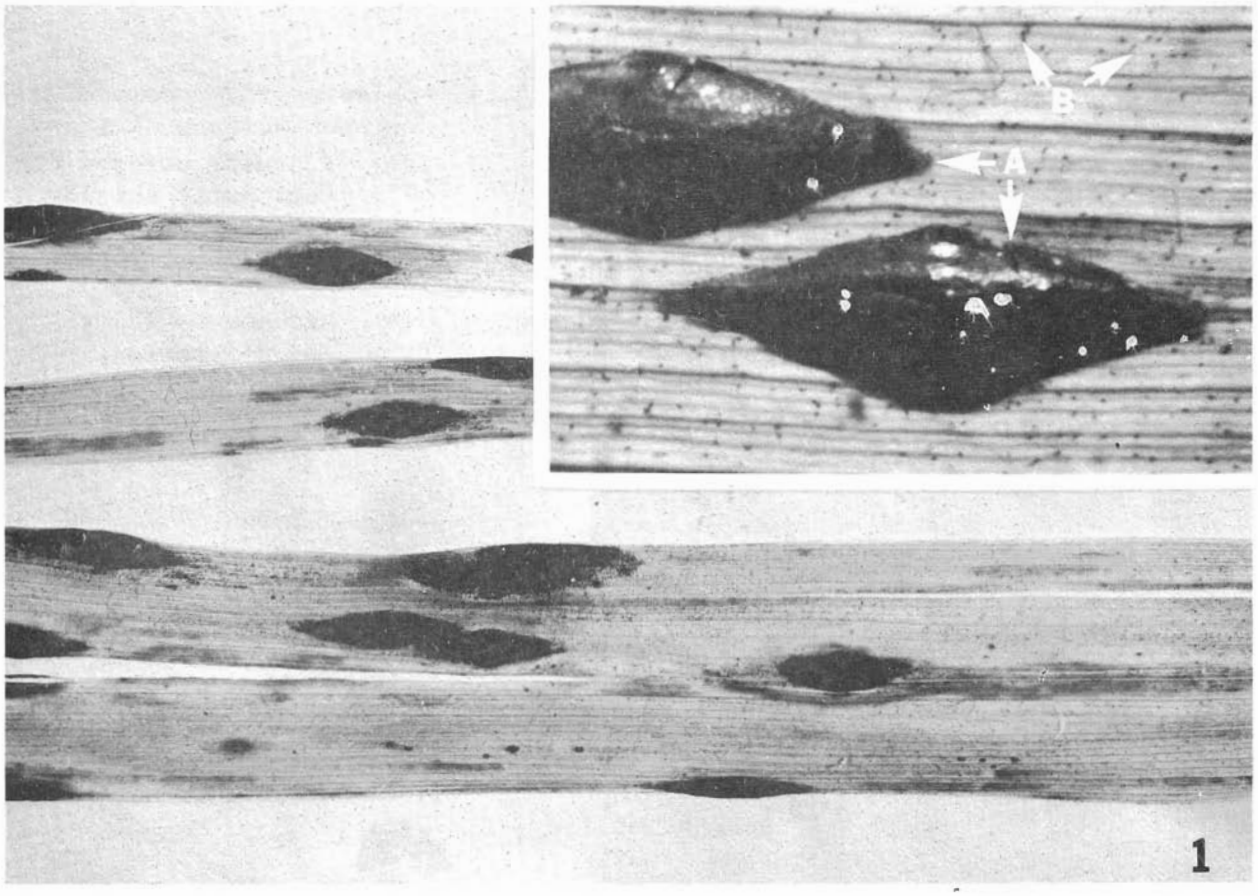
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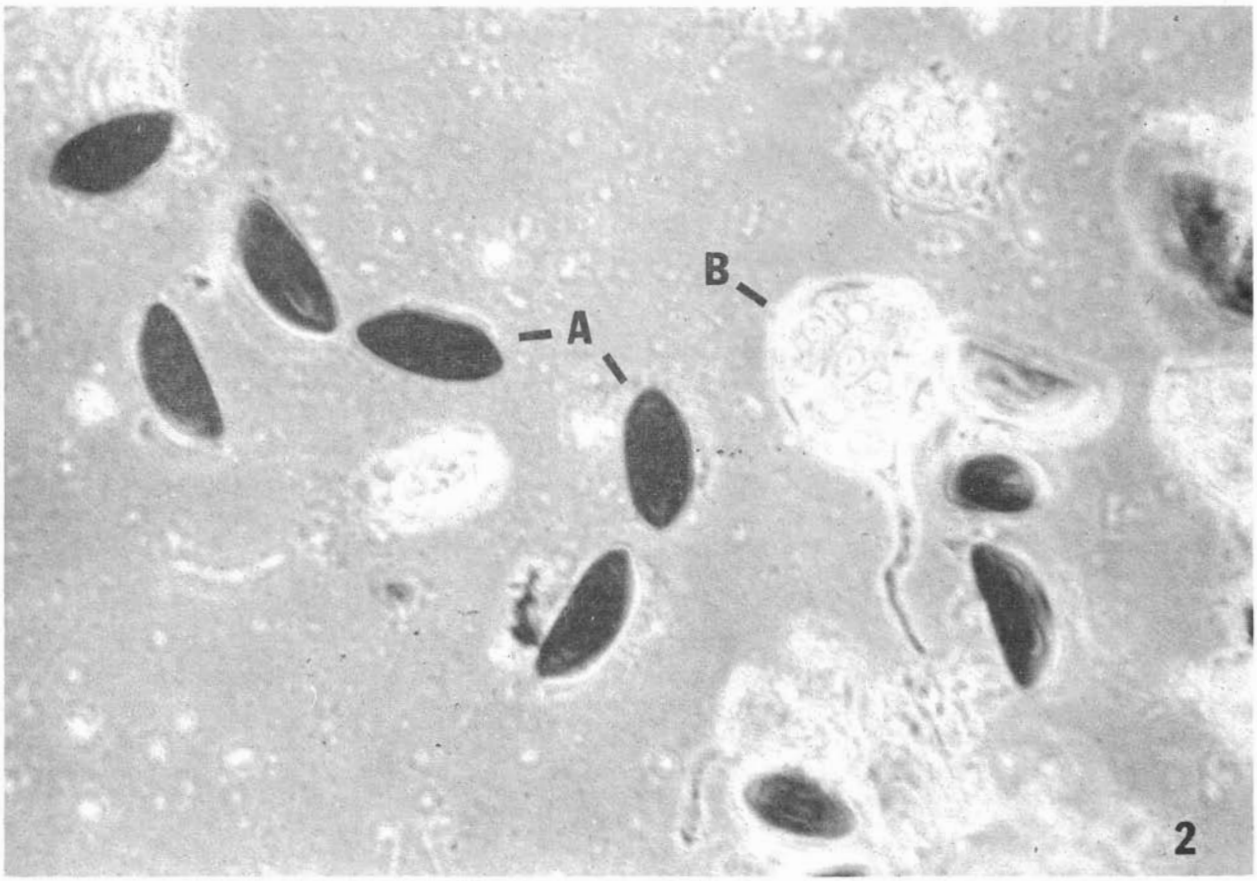
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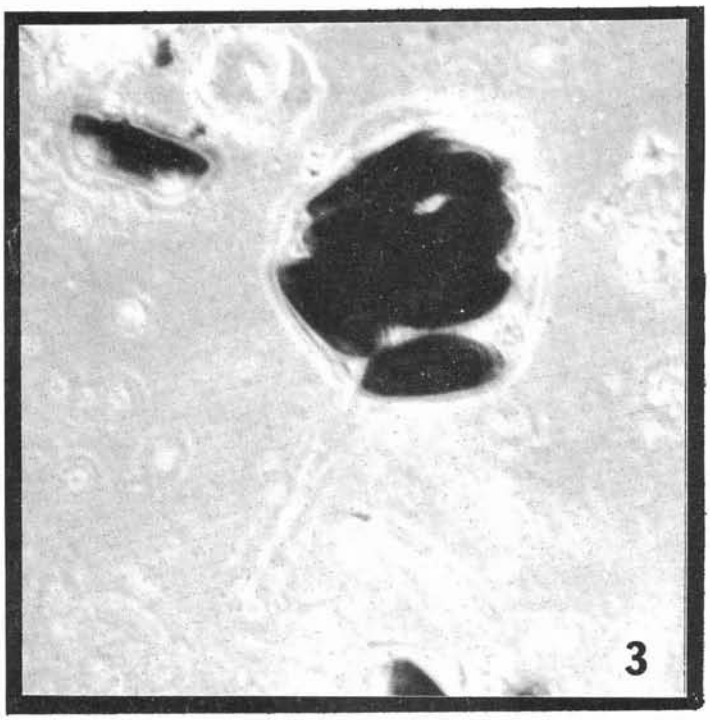


Fig. 1. *Sphaerodothis neowashingtoniae* on *Washingtonia filifera*
(A) Pustules covered by stromatic shields (clypei).
(B) Visible ascospores.

Fig. 2. (A) Ascospores (330x magnification).
(B) Immature ascus with differentiating ascospores.

Fig. 3. Mature bitunicate (double-walled) ascus with dark ascospores.

CDFA SEED WORKSHOP

John A. Miller

Thirty representatives of the California seed industry participated in an intensive seminar on seed inspection in Sacramento May 17-20, 1983. This first annual Seed Workshop was presented by the CDFA seed laboratory staff under the supervision of Lewis Davis, Principal Biologist.

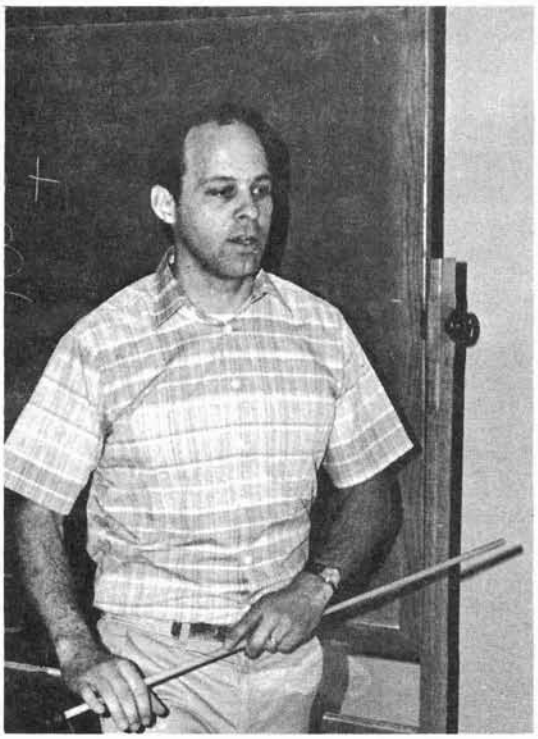
Assistant Director, Rex Magee, welcomed the guests to the workshop, commending the group for continuing to hone their vocational skills by attending this 28-hour seminar. The workshop is one of a series which can be attended to obtain points towards certification as a Registered Seed Technologist by the Society of Commercial Seed Technologists.

The workshop was broken down into two segments each day, the morning being devoted to seed purity, with the afternoon covering seed germination.

Jackie Chesi and Jim Effenberger discussed purity rules, seed taxonomy, uniform blowing techniques, and purity procedures. The students were provided with seed samples with which to practice identifying noxious weed seeds. In addition, the instructors identified all the various weed and crop seeds which the students had brought with them.

Paul Peterson, Debbie Meyer, and Bob Abbott taught the afternoon sessions on seed germination. These lectures included a discussion of germination rules, seed physiology, tetrazolium viability testing, accelerated aging tests, moisture sensitivity, and the procedures for evaluation of seed germination. The lectures were supplemented by a hands-on session of evaluating actual germination tests.

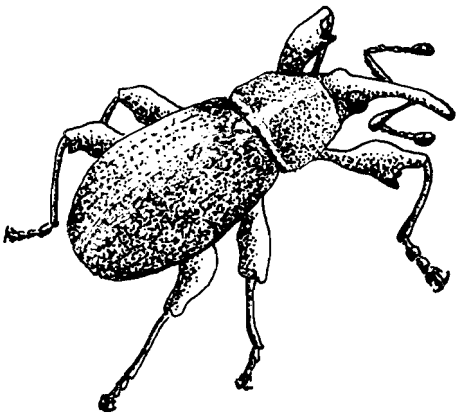
John A. Miller is a Seasonal Agricultural Inspector with the CDFA Analysis and Identification Unit, Sacramento.



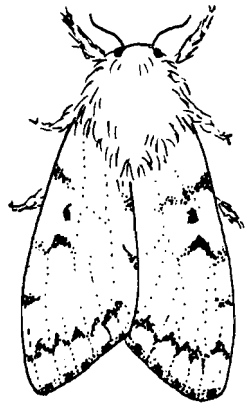
ABOVE: Jackie Chesi lectures the workshop on identification of Agropyrons, Solanums, and Cynodons. The visual characteristics of the seedcoats and the pericarp were discussed in detail to enable correct identifications in seed purity testing.

LEFT: Jim Effenberger discusses the purpose of seed testing, and how to obtain accurate and standardized results.

RIGHT: Debbie Meyer displays the proper method and media for germinating seeds. Seedlings are subject to a variety of physiological problems which may be reduced through correct procedures.



Entomology Highlights



Japanese beetle - *Popillia japonica* -(A)- The big news is that Japanese beetle is here in River City - again. The specific locality is Orangevale, a small community in Sacramento County just a few miles northeast of the city limits of Sacramento. Two dead specimens were first found by Chuck Dotson in a Japanese beetle trap on June 30 at a residence on Beech Avenue. Since then, many live beetles have been collected at or within a block or two of the original site. Also specimens have been collected at two sites about 3/4 - 1 mile from the original.

Japanese beetle was originally found in Sacramento at Capitol Park in 1961. Over 500 adult beetles were collected in the downtown area in that infestation.

The current infestation in Orangevale is being treated with Sevin sprays one square mile around each infested site. Presently that means three square mile treatment areas. The treatment areas may later receive a ground treatment of Oftanol for larval control. Determinations of the beetles were by Alan Hardy and Fred Andrews, CDFA.

The following summary by John Pozzi brings the 1983 Japanese beetle finds up to date as of July 7:

> "A total of 26 Japanese beetles have either been trapped or visually found at 11 Orangevale residences in Sacramento County. Twenty of these Japanese beetles were found on nine properties within a few blocks of 5718 Beech Avenue where the first beetle was trapped 6/30/83. Five beetles were detected about 3/4 of a mile northeast of 6025 Filbert Street, and a single Japanese beetle was trapped one mile to the north at 6440 Beech Avenue.
>
> In response to these finds, Sacramento County personnel have increased the Japanese beetle trap density to 50 traps per square mile in the four square mile core area around the finds. One mile out from the core area is being trapped at 25 per square mile in 12 square miles. One half mile from this area there are 12 traps per square mile. A total of 716 traps are in place in the 25 square mile intensive survey area. The Japanese beetle trap density remains at two traps per

square mile outside the intensive trapping area.

Eradicative treatments of infested properties began on July 2, 1983 and all have been treated with Sevin. Expanded ground spraying in a 3-1/2 square mile area around the finds began on 7/06/83.

Sacramento County Agricultural Commissioner's staff and CDFA Japanese Beetle Eradication Project personnel are to be complimented for the professional manner with which the program was implemented. Sacramento county personnel installed over 700 Japanese beetle traps in two days, responded to homeowner telephone call-ins concerning suspect Japanese beetles, and conducted visual surveys for the beetle. CDFA personnel have rapidly mobilized spray equipment, materials and personnel for the ground chemical treatment program."

Eradication procedures are being based on the recommendations of a distinguished group of experts which make up the following Science Advisory Panel for Japanese Beetle:

Members:

Dr. T.L. Ladd, Jr. (Chairman)
Director
Japanese Beetle Research Laboratory
USDA-ARS
Wooster, Ohio

Dr. M.G. Klein
Research Entomologist
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Dr. Robert Dowell (Secretary)
Economic Entomologist
Exotic Pest Analysis Staff
Calif. Dept. Food and Agriculture
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The following list of questions and answers was compiled by the CDFA staff responsible for evaluating the potential of agricultural pests which are not generally established in California. It contains everything that you always wanted to know about Japanese beetle but were afraid to ask. We are including it here hoping that it will be useful to field personnel when working with the general public and the press. Some of the questions deal specifically with the Sacramento infestation, but most are pertinent no matter where Japanese beetle might be found in the State.

QUESTIONS AND ANSWERS ON THE JAPANESE BEETLE

Prepared by Exotic Pest Analysis Staff
California Department of Agriculture
Sacramento, California

1. Why is this insect called the Japanese beetle?
   Because the first beetle came from Japan, which is its original home.
2. How did it get into this country?
   In 1916 a few beetles were found near Riverton, N.J. The evidence indicated that the first beetles came over as grubs in soil about the roots of plants imported from Japan.
3. How can we find out for ourselves if the Japanese beetle is present in our locality, previously reported as not infested?
   By searching for them. The best time to look is on sunny days, between about 10 A.M. and 3 P.M.

   Plants to examine particularly are elm trees, grape vines, virginia creeper, and rose bushes. The beetles generally will be found feeding on the upper surfaces of the leaves, but often, as in the case of roses, they may be found feeding inside the flower.
4. What are the best natural conditions for its increase?
   Presence of sod land (lawns, golf courses, pastures), irrigation, and large variety of plants.
5. How many eggs does the female beetle lay?
   An average of 40 to 60. As many as 133 eggs have been counted from one beetle.
6. Where and when are the eggs laid?
   Egg laying starts shortly after the beetle emerges from the ground. The eggs are laid in the ground, the female laying one to three or four eggs about every three or four evenings over a period of three or four weeks.
7. What is the appearance of the egg?
   The eggs are elliptical, about one-sixteench inch in diameter, varying in color from translucent white to cream. The size and shape of the eggs vary. After about six or seven days they begin to enlarge and become spherical. By the eighth or ninth day the egg is nearly twice as large as originally.
8. What natural conditions tend to kill the eggs?
   Excessive and prolonged soil moisture, excessive and prolonged dry conditions, especially when accompanied by low temperatures.
9. What soil conditions are favorable for the egg development?
   Sod land, warm soil, moist but not wet.
10. When do the eggs hatch?
    Under favorable conditions in about 14 to 21 days. The time has varied from 9 to 40 days, depending upon the temperature and othe environmental conditions.
11. What is meant by the grub?
    The egg hatches into a small, whitish "worm" with three pairs of legs. This "worm" is called the grub or larva. When full grown it is about one inch long. It is only one of a number of "white grub worms." It is similar in general appearance to the grubs of our native June beetles. It can be distinguished from the latter only by experts.

12. Where is the grub found?
    In the soil, preferably sod land, such as golf courses, lawns, pastures, etc., though grubs may also be found in flower beds and even in cultivated land.

    During the summer the grubs are found near the surface of the soil. During the winter they are found deeper in the soil.
13. What does the grub feed on?
    Roots of living plants and disintegrated vegetable matter. Particular damage has been done to roots of grass, beans and other vegetable crops, strawberries and ornamentals.
14. Does the grub travel any distance in the soil?
    It may travel as much as two feet, but probably not more.
15. How are grubs distributed to new territory?
    In the soil around the roots of trees and other plants that are shipped to new territory. By the shipment of infested soil to new territory.
16. Where do grubs do most noticeable damage?
    In lawns and golf courses.
17. What are favorable conditions for grub development?
    Warm, moderately moist loamy soil, with plenty of organic matter and growth of tender grasses.
18. How plentiful can grubs become in the soil?
    As many as 1,531 grubs have been found in one square yard of golf green. As many as 717 have been found in one square yard of pasture.
19. What delays the development of the grubs?
    Low soil temperatures and wet soil.
20. Can the grubs be killed by plowing and harrowing?
    A very small percent are killed.
21. Will grubs live in acid or alkaline soils?
    Grubs will live in almost any soil in which plants will live.
22. Are grubs found in plowed ground?
    They are, but in much smaller numbers than in sod lands.
23. How long does the grub stage last?
    Ten months or more. Generally from July to the next June.
24. What does the grub change into?
    The grub changes into a resting and transitional stage called the pupa.
25. When does the grub change into a pupa?
    Generally in June.
26. Does the pupa feed or travel?
    It does not.
27. What does the pupa change into?
    The adult.
28. How can I make sure that the insect attacking my plants is or is not the Japanese beetle?
    By calling the County Agricultural Commissioner of Sacramento County at 361-2685.
29. Does the adult beetle grow in size?
    No.
30. When do the adults emerge from the ground?
    Normally from June to August.
31. What do the adults do after they emerge?
    They feed and mate.
32. Do the adults feed or fly at night?
    They do not fly at night. They may do some slight feeding.
33. When are the beetles most active?
    On hot, sunshiny days, generally between 9 A.M. and 3 P.M.

34. How heavily can beetles infect plants?
    Thousands can be found on one tree or vine. As many as 278 beetles have been collected on a single fruit (apple). They can be so plentiful as to completely cover the fruit.
35. How do beetles spread?
    By flight, aided by the wind. With freight or in passenger vehicles.
36. What conditions favor the spread?
    Sunny days between 70-95°F and below 60% RH.
37. What natural conditions delay the spread?
    Cold, rainy weather. High winds.
38. How far can the beetles fly?
    Ordinarily, the flights are short. There is evidence that at times, they can cover up to 5 miles in sustained flight.
39. Normally how long does the individual adult beetle live?
    Males and females average 30-45 days.
40. How many generations are there a year?
    One.
41. When do the adults disappear?
    They begin to decrease in numbers about the middle of August. All are gone by the middle of October.
42. What happens to them?
    They die.
43. Do Japanese beetles bite or sting people or domestic animals?
    They do not.
44. What is meant by saying that the Japanese beetles are dangerous or injurious?
    The reference is to plants only, not to human beings or domestic animals.
45. In general, what are the food habits of the adult beetle?
    They attack leaves, blossoms and fruit of many plants. Leaves may be so badly eaten that only the veins are left. Certain species of plants are preferred as food, others are occasionally fed upon.
46. What common shade and ornamental trees are most often and most seriously attacked by the beetle?
    Common western trees include: cherry, plum, birch, elm, willow, and peach.
47. What part of the tree is generally first attacked?
    The top leaves. The outside leaves are next attacked.
48. What common ornamental shrubs are most often and most seriously attacked?
    Rose, althea, hibiscus, raspberry, ornamental cherry and plum.
49. What common garden ornamentals are most often and most seriously attacked?
    Aster, canna, dahlia (early varieties), hibiscus, hollyhock, rose.
50. What common fruit trees does the Japanese beetle attack?
    Apple, cherry, crabapple, peach, plum.
51. How serious have the beetles been on fruit and foliage?
    Injury to apple foliage has in some cases been as great as 80 percent, with an average observed over a number of trees as high as 30 percent. Peach fruit has shown as much as 30 percent injury, with an average in observed cases of 13 percent. Grape foliage has shown 60 percent injury, with an average as high as 20 percent. At times, individual trees or shrubs have shown 100 percent leaf injury.
52. Is the pear attacked?
    Only rarely.
53. What small fruits are attacked?
    Blackberry, blueberry, grape, huckleberry and raspberry are frequently attacked. Strawberry is occasionally attacked.
54. What truck crops are attacked by the Japanese Beetle?
    Beans, sweet corn and asparagus are frequently attacked, also okra and rhubarb.

55. What field crops are attacked?
    Field corn, red clover, alsike clover, white clover, corn and Timothy are attacked.
56. Are any related beetles found in California?
    Yes, several species or kinds - many about the same size and a few very much larger. Some are of agricultural importance locally.
57. Is there a good chance of success in this campaign?
    We feel that there is an excellent chance.
58. How long will the program be carried on?
    A minimum of 2 years if no live beetles are found in 1984.
59. Where have most of the beetles been found?
    In the Orangevale area.
60. What official agencies are involved in the program?
    The United States Department of Agriculture, the California Department of Food and Agriculture and the Sacramento County Agricultural Commissioner's Office.
61. Will the eradication program include pesticide sprays?
    Yes, both foliar and soil treatments will be used. The foliar sprays will kill the adults, and the soil treatments will kill the larvae.
62. What pesticides are recommended?
    Sevin (Carbaryl) for the foliar sprays and Oftanol for the soil treatment are recommended by the Science Advisory Panel.
63. Are these materials safe?
    Carbaryl is a commonly used spray around the house and yard. It has been used against the gypsy moth in California since 1982 without problems. Oftanol is used to treat home lawns, parks, and public areas in most eastern states for Japanese beetle without any reported problems.
64. Are there any other options beside pesticides for eradication?
    According to the Science Advisory Panel, there are no options besides pesticides for eradication.
65. What forms will the pesticide treatments take?
    The Carbaryl is a foliar spray, and the Oftanol will be put on as a granular form to the turf and breeding areas and watered in.

Gypsy moth - *Lymantria dispar* -(A)- The following information on gypsy moth has been modified slightly from Detection Advisory Reports written by John Pozzi:

"The first gypsy moth adult for 1983 was trapped in San Diego, San Diego county. The find was approximately 1/2 mile from the original one in 1982.

State trapper Nancy Dwyer made the discovery while inspecting fypsy moth traps in a high density trapping area. The trap was located in a eucalyptus and the last servicing was on 6/8/83. The specimen was dry but appeared to be a valid find. Additional traps were added to bring the density up to protocol levels.

Five gypsy moth adults were found in San Diego county last year with the first being detected on 7/13/82. A total of 104 adults were trapped last year in California."

On June 22, State trapper David Asakawa collected a gypsy moth in a trap in a California pepper tree at Santa Barbara. On June 30 a second gypsy moth was trapped in the city of Santa Barbara. "County trapper David Chang made the discovery while inspecting a gypsy moth trap at 23 Padre Street. The trap was in a pineapple guava tree and was last serviced on 6/22/83. The trap location is approximately two miles northwest of the first 1983 gypsy moth trap find and is about three blocks from where a gypsy moth was trapped in 1981."

Meanwhile, three more gypsy moth adults were trapped in San Diego county. "County trapper Tom Johnson found a single gypsy moth while inspecting gypsy moth traps in Poway on June 23, 1983. The trap was placed in a pine tree that had last been serviced on June 16, 1983. The find is approximately 15 miles north of the location where a gypsy moth was trapped in the city of San Diego earlier this year and where State trapper Nancy Dwyer had trapped two more gypsy moth adults. The moths were trapped at separate locations near the Rancho Mission Road site. One moth was recovered from a gypsy moth trap placed in a sycamore tree about 700 feet east of the original trap on Rancho Mission. The second was trapped only 1,200 feet east of the original detection. The trap was in an alder tree. Both moths were found on June 24, 1983 and the traps had last been serviced on June 22, 1983.

Four additional gypsy moths were [later] trapped in the city of San Diego which [raised] tne number found in San Diego County to eight. The finds were made at two locations where gypsy moths had been trapped earlier this year.

State trapper Nancy Dwyer found a single gypsy moth in a trap at 5885 Ward Road and three more in a gypsy moth trap located at 5906 Caminito De Porte. Both were found on June 28, 1983. The trap was last serviced on June 24, 1983.

Nine gypsy moths were trapped at five trap locations in south San Jose. On June 29, 1983 state trapper Sandra Graham discovered five moths while inspecting a gypsy moth trap at 6275 Tillamook Drive and a single moth in an adjacent gypsy moth location at 6207 Sager Way. Additional single gypsy moths were found by state trapper James Stamm the next day in traps located at 618 Colleen Drive, 672 Colleen Court and 634 Cayuga Court.

All of the 1983 [Santa Clara county] gypsy moth trap finds are within at least 400 yards of one another and are approximately one-quarter of a mile from a 1982 gypsy moth find. None were within any of the 1982 treatment zones. A total of 17 gypsy moths were trapped in Santa Clara county last year."

At the time of this writing, trapped adult gypsy moths were still being submitted for confirmation, many from localities not mentioned here. However, as of July 1, the 1983 gypsy moth trap catches can be summarized as follows:

Summary

1983 Gypsy Moths Trapped

County	No.
Los Angeles	1
San Diego	8
Santa Barbara	2
Santa Clara	9
TOTAL	20

(Summary by John Pozzi)

Cotton Boll Weevil - *Anthonomus grandis* -(A)- Activity of this pest in the cotton growing areas of southern California is still low because of the cotton plow down. The following data will give an indication of the number of weevils collected from mid December through mid May. These figures are in addition to that data reported in the May 1983 CPPDR (2(3):76).

LOCATION	ADULTS
Riverside County	
Palo Verde	5
Blythe	438
San Bernardino County	
Vidal	25
Imperial County	
Winterhaven	227
Imperial	1
Holtville	1
Westmoreland	1
Palo Verde	19

NEW STATE RECORDS

A new aphid and a new psyllid were collected during this period which are not only new state records but new North American records as well.

Japanese zelkova aphid - *Tinocallis nirecola* -(Q)- The following report by Tokuwo Kono of the Systematic Entomology laboratory, Analysis and Identification, Sacramento summarized the facts about this aphid new to California.

A Japanese Zelkova Aphid new to the U.S.A.

An aphid new to California and to the U.S.A.was submitted for identification by two very alert gypsy moth project personnel, Kevin O'Day and Dorthea Zadig.

The aphid was collected on the lower leaf surface of *Zelkova serrata* (Thunb.), Japanese zelkova, in Cupertino, Santa Clara county, California, on June 10, 1983. The aphid population consisted of a few winged adults and many nymphs (S3F13-36).

The name of the aphid is *Tinocallis nirecola* (Shinji), according to Eastop and Hille Ris Lambers (1976). It is a native of Japan, where its host plants are various species of zelkova. Detailed reviews of this aphid were published by Richards (1967), Higuchi (1972), and Stroyan (1979).

Prior (1974) reported that this aphid was introduced to Britain as eggs on imported zelkova bonsai trees. He also reported that this aphid causes "progressive yellowing of the leaves and fouls the plants with honeydew, resulting in leaf drop."

Tinocallis nirecola (Shinji) is a tiny aphid, about 1.5 mm long. It is pale yellow to yellow. Dark areas on the body in dorsal aspect that can be seen with a hand lens are the tips of the antennal segments, a fine median line on the head and pronotum, and ten to fifteen small spots on the abdomen.

Some of the important microscopic characters are the number of narrow, transverse sensory organs on antennal segment three, and the two short tubercles on the first and second abdominal terga.

The aphid was identified by Tokuwo Kono (CDFA) and confirmed by Manya Stoetzel and Louise Russell (USDA, ARS).

References

Eastop, V.F. and Hille Ris Lambers, D. 1976. Survey of the World's Aphids. W. Junk Publishers, The Hague 1976:573.

Higuchi, H. 1972. A taxonomic study of the subfamily Callipterinae in Japan (Homoptera: Aphididae). Insecta Matsumurana 35:19-126; Figs. 1-42.

Prior, R.N.B. 1974. Three Japanese aphids introduced to Britain on imported 'bonsai' trees. Plant Pathology 23:48.

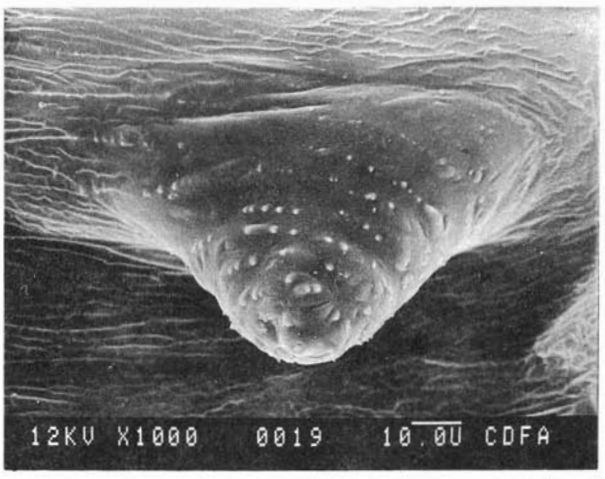
Richards, W.R. 1967. A review of the *Tinocallis* of the world (Homoptera: Aphididae). Can. Entomol. 99:536-553; Figs. 1-42.

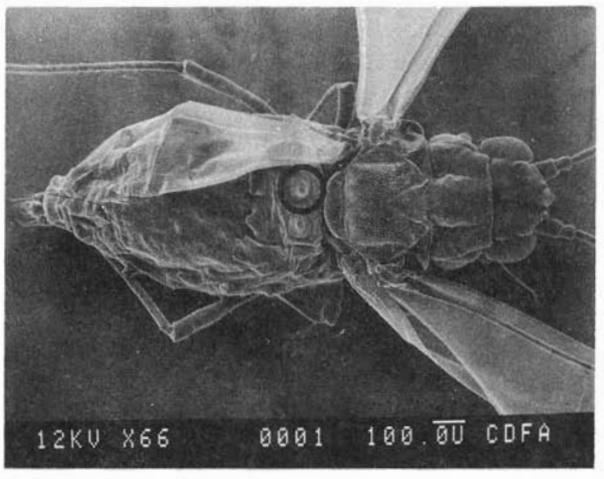
Stroyan, H.L.G. 1979. Additions to the British aphid fauna (Homoptera: Aphidoidea). Zool. J. Linn. Soc. 65:1-54.

As stated above, the identification of this aphid was originally made by Tokuwo Kono of CDFA. It was confirmed by Louise Russell, Cooperating Scientist at the USDA Systematic Entomology Laboratory in Beltsville Maryland. The following is Louise Russell's report on the new aphid:

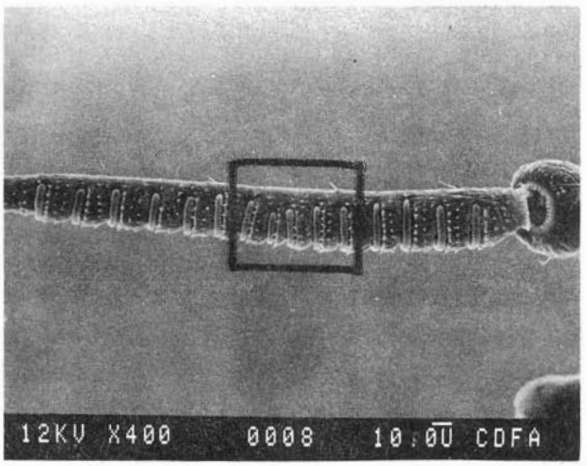
> "*Tinocallis nirecola* (Shinji) - first collection in America; collected on *Zelkova*, Cupertino, Santa Clara Co., CA, 6/10/83; submitted by T. Kono, CA, 83 F 13-36-2, IIBIII 83-6439.
>
> *T. nirecola* was described as *Lutaphis nirecola* (Dobutsuga Zasshi) (Zool. Mag.) 36:347, 1924, from *Ulmus parviflora*. The species was known as *Tinocallis zelkowae* (Takahashi) (Proc. Entomol. Soc. Wash. 21:173-174, 1919) until recently. Takahashi described *zelkowae* from *Zelkova keaki* and cultivated beans. Eastop and hille Ris Lambers (Survey of the World's Aphids, 1976 p. 428) showed that Takahashi had confused two species under the name *zelkowae* and they indicated that the species on *Zelkova* should be known as *nirecola*. Stroyan (Zool. J. Linnean Soc. 65:10, 1979) agreed with Eastop and Hille Ris Lambers. *Tinocallis nirecola* is known from Japan, Korea, and Great Britian. It has been reported from Formosa but that report probably is erroneous. Its hosts, in addition to those given above, are reported by Higuchi (Insecta Matsumurana 35 (pt. 2): 46, 1972) as *Alnus japonica, Corylus sieboldiana, Robinia pseudoacacia, Ulmus davidiana, Zelkova serrata*. *Tinocallis nirecola* is not known to be of economic importance. It was introduced into Britain on "bonsai plants" and may have reached California the same way."

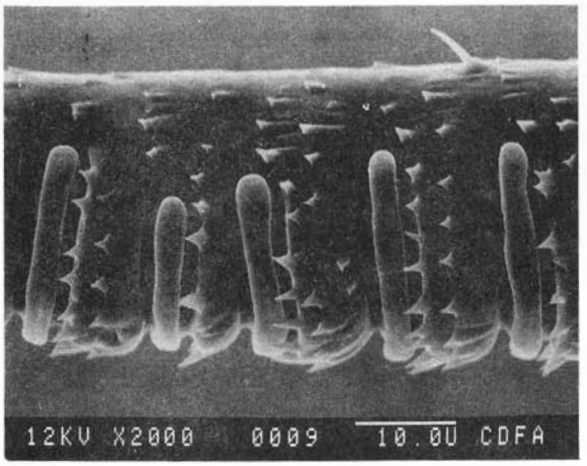
The above host data involves literature citations and the hosts other than *Zelkova* may be accidental.





Dorsal body tubercle of zelkova aphid (shorter than in most other species of *Tinocallis*). Circle indicates area magnified.





Sensorial pits of antennal segment III of zelkova aphid (usually circular in other species). Square indicates area magnified.

A eucalyptus psyllid - *Ctenarytaina* sp. -(Q)- This psyllid is the second species of eucalyptus - feeding psyllid to be found in California and in the U.S. this year. The species turned up during a routine delimitation survey for the first eucalyptus psyllid (see the next article and the previous issue of CDDPR 1983, 2(3):77). This psyllid was collected at Claremont, San Diego county by Lee Guidry of the County Agricultural Commissioner's staff on May 19. Further delimitation surveys are in progress.

Again, as in the first species of psyllid (coded species #1 or "APC"), information necessary for the identification to species was not available in California or in the U.S. Dr. Douglass Miller, psyllid identification specialist at the Systematic Entomology Laboratory at Beltsville, Maryland sent specimens for identification to Australian psyllid specialist Dr. Keith Taylor, working for CSIRO in Hobart, Tasmania. The following is a quote from Dr. Miller's letter and it explains the current problems with the identification of this new California find:

> "In the survey to delimit the extent of the infestation of "APC" in California another species has been discovered. This one appears to be a member of *Ctenarytaina* close to *C. eucalypti*. Characteristics of the wings and genitalia of the adults set it apart from *C. eucalypti* (Maskell) but differences in the immatures seem to be the most striking. Perhaps it is *Ctenarytaina obscura* (Froggatt) or *C. gracilis* (Froggatt). Unfortunately we lack material of either of these species. Based on the descriptions of the wings, the unidentified U.S. species does not appear to be the same as *C. obscura* or *C. gracilis*."

A delphacid planthopper - *Delphacodes fulvidorsum* -(C)- found in Indio, Riverside county in light trap material collected by Dr. Dale Meyerdirk of the USDA Boyden Research Laboratory at U.C. Riverside. The specimens were collected in October and November of 1982 as part of a survey for possible vectors of lethal yellowing of palms, a disease capable of causing economic losses to date orchards in that area.

Plant hoppers in this genus are almost exclusively grass and sedge feeders. Some of the species in this group are detrimental to grass crops such as rice and sugarcane, although this species is not known to cause economic injury.

It is apparently native to North America and was previously known from Georgia, Florida, Missouri and Texas. Its presence in California is probably due to natural spread from Texas via New Mexico, Arizona and northern Mexico.

Adult specimens are 2.5 to 3.0 mm long, dark brown and usually have shortened forewings. Identification by R.J. Gill, CDFA; confirmation by Dr. Stephen Wilson, Central Missouri State University.

NEW COUNTY RECORDS

A Eucalyptus psyllid - undescribed genus and species -(Q)- This species was first recorded in California and North America at Sylmar, Los Angeles county (see the May 1983 issue of CPPDR, 2(3):77). It was collected on eucalyptus nursery stock by Karen Cornett of the Los Angeles County Agricultural Department. Since that time it has been recorded from 15 species of *Eucalyptus* including *araria, camaldulensis, citriodora, cladocalyx, cosmophylla, erythrocorys, globulus, lehmanii, maculata, nicholii, polyanthemos, rudis, sideroxylon, spathulata* and *torquata*.

It has been collected for the first time in San Diego, Ventura, San Bernardino, Orange, Santa Barbara and Alameda counties. The following data indicate the areas collected.

Location	County	Date	Collector	Situation
Sunol	Alameda	5/10	Henning, Curtner	Nursery
Trabuco Cyn.	Orange	4/27	Bennett	Nursery
Yorba Linda	Orange	4/27	Robertson	Nursery
Cucamonga	S. Brdno	5/2	Cruzen	Nursery
Etiwanda	S. Brdno	5/6	Lampman	Roadside
Balboa Park	San Diego	5/6	Ginsky, Blocker	Urban
La Jolla	San Diego	5/6	Guidry	Urban
Mission Beach	San Diego	5/12	Guidry	Urban
Santa Barbara	S. Barb.	5/18	Wurster,Penrose	Urban
Ventura	Ventura	5/13	Hollis,Penrose	Nursery
Ventura	Ventura	5/13	Hollis,Penrose	Urban
Moorpark	Ventura	5/13	Hollis,Penrose	Nursery
Ventura	Ventura	5/24	Hagy	Urban
Fillmore	Ventura	5/23	Buettner,Hazel	Urban

In Los Angeles county the psyllid has now been recorded from the cities of Sylmar, Long Beach, Gardena, El Monte and Arcata.

The species could not be identified by specialists in California or Washington, D.C. Samples were sent to specialists in Australia and Britain. They ended up with the Australia Psyllid specialist Dr. Keith Taylor, currently working for the Australian CSIRO at Hobart, Tasmania. The following is part of a letter from Dr. Taylor to Douglass R. Miller at the USDA Systematics Laboratory in Beltsville, Maryland which explains the taxonomic status and provides economic information for the new psyllid:

"Dear Dr. Miller,

As you know, Dr. T.C.R. White sent me your specimens of a psyllid which is infesting *Eucalyptus* in California. Also I have just received a letter from Ian Hodkinson on the same subject.

The species is undescribed, and it belongs to a new genus for which I am preparing a description for publication. It will be one of about five new genera, in a paper covering the psyllids on *Eucalyptus* which do not build lerps, including *Ctenarytaina*; and two of Froggatt's genera, *Syncarpiolyma* and *Eriopsylla*. Although I have done most of the necessary groundwork (illustrations, measurements etc.), it will probably be some months before it appears in print. Meanwhile I refer to this particular genus by a code name ("APC").

I am reasonably sure that I have specimens of the same species from Western Australia (*Eucalyptus spathulata Hook* is a West Australian species) and also that it is the same as one that was sent to me from New Zealand. There are several new species to be described in the genus, but this one seems to be the most common and a description of it (already drafted) will appear in my paper defining the genus.

Is there any evidence as to how this species could have reached California? Like *Ctenarytaina*, it feeds on succulent growing tips, and I think both genera must have been introduced to other countries on seedling plants. With increasing awareness of the need for quarantine in recent years, I expect the transfer of potted plants must have occurred a long time ago and it is surprising that they have not been noticed earlier. Although this and related species are common in Australia, they do not appear to cause any damage to the host trees."

Miscellaneous Finds of Significance

Carob moth - *Ectomyelois ceratoniae* -(Q)- Continued collections of this new pest are being made in Riverside, San Diego and Los Angeles counties. To Los Angeles county add the communities of Monrovia, Arcadia, Sierra Madre, South Pasadena, Rosemead, San Gabriel, Alhambra and El Monte. Collections were by Dick Penrose. Also of interest is the fact that adults have been reared from tangerine fruit collected on January 6 by Michael Cochrane at Indio, Riverside county. All identifications by Tom Eichlin and Ron Somerby.

Magnolia white scale - *Pseudaulacaspis cockerelli* -(A)- Collected from *Phoenix roebelenii* at a nursery in Ontario, San Bernardino county on May 19 by Cohen and Cruzen of the County Agricultural Department. This is a serious ornamental pest in Florida (Ident. by R. Gill).

A mealybug - near *Nipaecoccus* sp. -(Q)- found in the bromeliads *Tillandsia vicentina, T. utriculata* and *T. meridianalis* at a nursery in Gardena, Los Angeles county by Nancy Kellam on June 13. This is an undescribed species of unknown economic potential (ID by R. Gill).

Red wax scale - *Ceroplastes rubens* -(A)- found in two separate nurseries in Los Angeles county - at Chatsworth on January 27 by K. Shimoda and at Torrance on May 24 by N. Kellam. This scale is a serious pest of ornamentals and possibly of citrus in many parts of the world except for the U.S. However, it has recently been found infesting a large residential area in Dade and Broword counties near Miami, Florida (ID by R. Gill).

Chaff scale - *Parlatoria pergandii* -(B)- This pest of citrus trees is not known to occur in California outside of San Diego county where it has not been officially collected for many years. A. Sixtus collected specimens from an orange tree at Escondido, San Diego county on April 14 (ID by R. Gill).

Fuchsia mite - *Aculops fuchsiae* -(B)- two collections of this destructive mite have been made during this period at Richmond, Contra Costa county by R. Case on February 8 and at Manteca, San Joaquin county by Moretto on May 11 (ID by T. Kono).

So far, 1983 has been a very good year for several insect species. The following two accounts are typical of what insect populations have done this year.

Variegate leafhopper - *Euscelidius variegatus* -(C)- adult leafhoppers of this species have occurred in large populations all over northern and central California this summer. So far the worst problem with these insects is the fact that they are attracted to the lights of houses at night. Such large numbers means that they are inadvertantly also getting into houses and are of concern to many home owners. They are of course harmless to humans or pets, but they are nonetheless a nusance. Controls are probably not feasible around houses because of the widespread nature of the infestation.

The hoppers have also been known by the scientific names of *Athysanus schenckii* and *Euscelidius maculipennis*. It is a species which has been introduced from the Old World. It is probably primarily a grass feeder, particularly on turf grasses, but it is known from many other hosts. It is a minor vector of North American aster yellows virus. The following is a summary of facts about this species taken from "The Leafhopper Vectors of Phytopathogenic Viruses; Taxonomy, Biology and Virus Transmission by M.W.Nielson, 1968 in USDA Tec. Bull. #1382:

Description - Medium size, robust species. Length of male 3.90-4.50 mm, female 4.10-5.50 mm.

General color light brown to black with numerous fuscous markings on body. Crown tan with black markings; pronotum tan with numerous somewhat transverse black markings; scutellum with black markings; elytra with numerous black spots bordering cells, veins whitish tan.

Pygofer in lateral aspect nearly twice as long as wide, caudoventral margin produced posteriorly to long, curved, fingerlike lobe; aedeagus in lateral aspect curved, narrow, tubelike, slightly attenuated apically with tiny hooked process at apex, process bifurcate; gonopore subterminal; style in dorsal aspect simple, apex narrowed, small spines on lateral margin of apices; female seventh sternum in ventral aspect with caudal margin concave at middle, small spatulate process arising from base of concavity.

Comparative Note - This is the only species in the genus *Euscelidus* that is a vector of a plant virus, and it can be distinguished from other vector species by the key to the genera.

American authors have confused this species with *Euscelis maculipennis* DeLong & Davidson and *Euscelidius schenkii* (Kirschbaum). According to Young, the illustrations of the genitalia of DeLong and Severin labeled "*Euscelis maculipennis*" are those of *Euscelidius schenkii*, which were evidently based on specimens from Idaho and not material that Severin used in his virus transmission tests. Oman synonymized the DeLong and Davidson name under *schenkii*. Young examined material from the same locality in California from which specimens had been collected and used in virus transmission tests and determined them as *Euscelidius variegatus*.

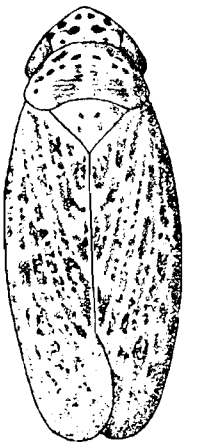
Distribution - It has been recorded from numerous localities in Europe, Asia, northern Africa, and the Western United States. According to Young the species was introduced into North America and now occurs in California, Oregon, Utah and Washington. Ribaut examined specimens from Europe, France, Siberia, Caucasia, Azores, and northern Africa. Lindberg recorded it from the Canary Islands and the Mediterranean subregion.

Biology - The biology of this species is not well known in Europe, but some information has been gathered in the United States. Ribaut mentioned its presence in uncultivated areas in France without giving specific food plants. In the United States, DeLong and Severin found nymphs and adult populations in depleted grassy alfalfa fields in California. Adults were collected on celery, common dandelion, endive, lettuce, red beets, Swiss chard, spinach, and *Artemisia vulgaris* L. Nymphs and adults were found on narrowleaf sage, rosemary, and sweet marjoram.

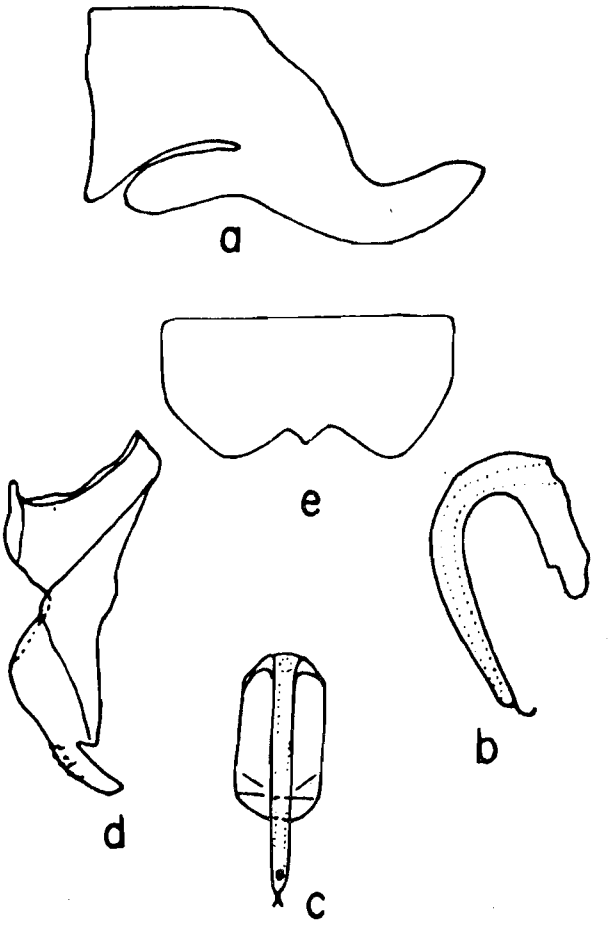
Swenson and Nielson (unpublished data) reared the species on barley in the greenhouse in Oregon. The nymphal stage was completed on diseased aster but not on healthy aster (Severin). Longevity of adults ranged from 1 to 35 days, but with an average of only 3.5 days.

Virus Transmission - This species is a vector of the western strain of North American aster yellows virus. Severin was first to report transmission by this species under the name "*Euscelis maculipennis* DeLong and Davidson." A high percentage of transmission from diseased celery to healthy celery was effected. About 78 percent of males and 76 percent of females transmitted the virus. No transmissions were effected from diseased celery to healthy aster. Males retained the virus from 2 to 59 days and females from 3 to 13 days. The species failed to transmit curly top virus of sugarbeets and Pierce's disease virus of grape.

Remarks - This species is not considered an important vector in the natural spread of this virus. It should be investigated as a possible vector of European aster yellows.



Euscelidius variegatus - Adult (from Beirne 1956, Leafhoppers of Canada and Alaska)



Euscelidius variegatus - A, Male pygofer, lateral aspect; B, aedeagus, lateral aspect; C, aedeagus, ventral aspect; D, right style, dorsal aspect; E, female seventh sternum, ventral aspect. (From Nielson, 1968.)

A pine budworm - *Choristoneura lambertiana* "complex" -(C)- This Tortricid moth occurred in very high populations in Yreka, Siskiyou county over the July 4th weekend. These observations were made by Doug Horn, retired Siskiyou county entomologist: "Tremendous hatch last night. Literally millions at Mobil Station this morning. Almost three inches of these tiny moths were piled up dead under the lights of the station. It was also heavy at the Siskiyou county museum and other places. One lady at a residence had a fluorescent "bug zapper" light trap and she reported a pyramid shaped pile of dead bugworms around the trap." Economic effects on local pines, if any, had not as yet been ascertained.

Quarantine and Exclusion
Pest Interceptions - Insects

A large number of ants were intercepted in quarantine during this period. The following chart summarizes these collections.

Rating	Species	Date	Origin	County	Host	Collector
Q	*Paratrechina fulva*	2-16	Florida	LA	*Rhapis* palm	Kellam
		2-17	Florida	SD	*Schefflera*	Ginsky/Blocker
		2-22	Florida	LA	*Chamaedorea*	Kellam
		3- 8	Hawaii	SD	*Brassia*	Blocker
		4-22	Florida	LA	*Areca* palm	Murase/Adams
		4-22	Florida	LA	*Dracaena*	Murase/Adams
		4-26	Florida	CC	*Schefflera*	Kean/Case
		4-26	Florida	CC	*Areca* palm	Kean/Case
		4-27	Florida	LA	*Areca* palm	Kellam
		4-27	Florida	LA	*Ficus* (2 spp.)	Smice
		4-28	Florida	SD	*Schefflera*	Sixtas
		4-28	Florida	SD	*Schefflera*	Walsh
		4-29	Florida	SD	*Schefflera*	Ginsky
		4-29	Florida	LA	*Chrysalidocarpus*	Cornett/Smice
		5- 4	Florida	LA	*Areca* palm	Kellam
		5-17	Florida	CC	*Areca* palm	Case/Kean
B	*Paratrechina longicornis*	2-25	Florida	StCz	*Caladium*	Bergman
		5- 6	Hawaii	V	*Protea*	Mitchell
Q	*Pheidole megacephala*	2-23	Florida	SD	Yucca	Johnson/Stotz
		2-25	Hawaii	Mer	Cut flowers	Watkins
		3- 4	Hawaii	O	Ginger, Bird of Paradise	McRoberts/ Lyman
		5- 5	Hawaii	STB	Cut flowers	Pritchard
Q	*Tapinoma melanocephalum*	2-16	Florida	STB	*Ficus robusta*	Cheesman
Q	*Technomyrex albipes*	5- 9	Hawaii	STN	Cut flowers	Watkins
Q	*Wasmannia auropunctata*	2-22	Florida	LA	*Chamaedorea*	Kellam

Determinations by M. Wasbauer and F. Andrews

Gypsy moth - *Lymantria dispar* -(A)- Twenty-nine interceptions were made between January 25 and June 9 on outdoor furniture shipped from New York, Connecticut, Massachusetts, New Jersey, and Pennsylvania (det. by T.D. Eichlin and R.E. Somerby).

The following scale insects and mealybugs were intercepted in quarantine (det. by R.J. Gill and J.T. Sorensen):

Rating	Species	Common Name	Origin	County	Host	Collector
A	*Pseudaulacaspis cockerelli*	magnolia white scale	Hawaii	H	coconut	Spadoni
			Hawaii	LA	ti	Eisenhart
			Florida*	LA	*Areca* palm	Adams, Shimoda, Murase
			*Three separate collections			
			Hawaii	LA	*Areca* palm	Watanabe
			Hawaii	LA	litchee	Connelly
			Florida	V	*Areca* palm	Van Epp
			Hawaii	V	ginger	Van Epp
			Hawaii	STB	coconut	Pitchard
			Hawaii	STB	jasmine	Mitchell
			Hawaii	O	*Areca* palm	Smith
Q	*Rhizoecus americanus*	a soil mealybug	Florida*	LA	*Ficus benjamina*	Cornett
			*Two separate collections			
			Florida*	LA	*Areca* palm	Shimoda,Miller, Murase,Adams, Kellam,Rawald, Sulentich,Lynch, Cornett
			*Sixteen separate collections			
			Florida	LA	*Schefflera arboricola*	Sulentich
Q	*Geococcus coffeae*	a soil mealybug	Hawaii	LA	*Chamaedorea elegans*	Kellam
			Hawaii	LA	*Philodendron wendeimbe*	Sulentich
			Hawaii	LA	*Areca* palm	Rawald
			Hawaii	LA	*Caryota* sp.	Rawald
			Hawaii	LA	*Chamaedorea seifrizii*	Kellam
			Hawaii	LA	*Caryota* sp.	Shimoda
			Hawaii	SD	Norfolk Island pine	Nielsen
			Hawaii	STB	*Chamaedorea* sp.	Cheesman,Piper
A	*Pulvinaria psidii*	green shield scale	Florida*	LA	*Ficus benjamina*	Shimoda,Miller Rawald,Olson
			Hawaii*	LA	ginger	Eisenhart
			Hawaii*	SD	*Ficus benjamina*	Smith
			Hawaii*	V	ginger	Hixson,Van Epp
			*Two separate collections			
			Hawaii	LA	miscellaneous	Connelly
			Hawaii	V	miscellaneous	Mitchell
			Hawaii	STB	anthurium	Wurster
			Hawaii	STB	ti	Pitchard
			Hawaii	SBO	*Syngonium* sp.	Cohen

Rating	Species	Common Name	Origin	County	Host	Collector
A	*Pinnaspis strachani*	lesser snow scale	Hawaii*	LA	*Areca* palm	Cornett
			*Three separate collections			
			Texas	LA	*Chamaedorea*	Sulentich
			Hawaii*	SLO	coconut	Smithback
			*Two separate collections			
			Florida	O	*Chamaedorea*	Danker
Q	*Pseudococcus* sp. near *lycopodii*	a mealybug	Hawaii*	V	*Lycopodium*	Mitchell,Van Epp
			*Five separate collections			
			Hawaii	H	*Lycopodium*	Haggard
B	*Parlatoria pergandii*	chaff scale	Taiwan	H	tangerine	Spadoni
			Israel?	SD	orange	Ginsky
			Taiwan	SF	orange	Brown
			Japan	Ala	unshu orange	Brown
A	*Kilifia acuminata*	acuminate scale	Florida*	SM	*Philodendron pertusum*	Struffenegger, Buerer
			*Two separate collections			
			Hawaii	SD	*Tupidanthus*	Bertrand
			Hawaii	STB	jasmine	Mitchell
Q	*Pseudococcus elisae*	Elisa mealybug	Honduras	SD	*Aglaonema*	Boch
			Ecuador	LA	banana	Eisenhart
Q	*Aleurotulus* sp.	a whitefly	Hawaii*	V	Anthurium	Van Epp
			*Two separate collections			
Q	*Unaspis yanonensis*	yanon scale	Japan	Ala	unshu orange	Brown
A	*Lopholeucaspis cockerelli*	Cockerell scale	Hawaii	LA	---------	Sulentich
Q	*Lepidosaphes tokionis*	Croton scale	Puerto Rico*	SJ	*Croton*	Croce
			*Two separate collections			
Q	*Philephedra* sp.	a soft scale	Puerto Rico	SJ	*Croton*	Croce
Q	*Crenidorsum* sp.	a whitefly	Hawaii	V	Anthurium	Van Epp
B	*Protopulvinaria pyriformis*	pyriform scale	Florida	STB	*Schefflera*	Pitchard
Q	*Pinnaspis buxi*	boxwood scale	Hawaii	STCZ	ti	Kovarik
B	*Ferrisia virgata*	striped mealybug	Costa Rica	SD	*Dracaena marginata*	Stotz,Walsh
Q	*Hemiberlesia ocellata*	an armored scale	Ecuador	LA	banana	Eisenhart
Q	*Aonidiella orientalis*	Oriental scale	Florida	LA	*Chrysalidocarpus lutescens*	Cornett,Smice
Q	*Coccus viridis*	green scale	Hawaii	LA	red ginger	Eisenhart
Q	*Palmiculator palmarum*	palm mealybug	Hawaii	LA	miscellaneous	Connelly
A	*Aspidiotus destructor*	coconut scale	Hawaii*	LA	*Areca* palm	Cornett, Watanabe
			*Two separate collections			
Q	*Aleurodicus dispersus*	spiraling whitefly	Hawaii	LA	miscellaneous	Connelly
			Hawaii	LA	ti	Eisenhart
A	*Ischnaspis longirostris*	black thread scale	Hawaii	LA	ti	Eisenhart

Miscellaneous insects and molluscs intercepted in quarantine

Rating	Specific Name or Family	Common Name	Host	Origin	Date	Collector	County
Q	*Corcyra cephalonica*	rice moth	rice		2/16	Brown	Ala.
Q	*Orgyia leucostigma*	a tussock moth	outdoor furn.	Virginia	6/08	Krogh/Krainer	LA
Q	*Malacosoma americanum*	eastern tent caterpillar	outdoor furn.	Pennsylv.	6/21	Cruikshank	CC
A	*Coptotermes formosanus*	formosan termite	*Dieffenbachia*	Hawaii	6/03	Willson	SJ
Q	*Elixothrips brevisetis*	a thrips	ti & orchid	Hawaii	5/20	Ginsky	SD
Q	*Diocalandra taitensis*	Tahitian coconut weevil	coconut	Hawaii	4/26	Smithback	SLO
Q	*Subulina octona*	a snail	palm	Florida	5/17	Kean/Case	CC
Q	" "	a snail	palm	Florida	2/22	Kellam	LA
B	*Bradybaena similaris*	a snail	palm	Florida	2/22	Kellam	LA
B	" "	a snail	palm	Florida	2/18	Parker	SD
B	" "	a snail	*Ficus*	Hawaii	5/26	Stotz/Walsh	SD

The following insects and molluscs are "A" or "Q" rated pests intercepted in quarantine which were not immediately identifiable to species because of life stage, condition or lack of comprehensive taxonomic studies of the groups.

Q	*Opeas* sp.	a snail	palm	Florida	2/16	Kellam	LA
Q	*Argyrotaenia* sp.	a tortricid moth	crown vetch	Michigan	5/26	Burns	STB
Q	Noctuidae	a cutworm moth	*Ligustrum*	Florida	6/03	Eisenhart	LA
Q	*Anomala* sp.	a scarab beetle	strychnine alkaloid	India - New York	5/12	Pierve	Son
Q	*Phyllophaga* sp.	a scarab beetle	*Pothos*	Costa Rica	5/13	Piper	STB
Q	Tortricidae	a tortricid moth	*Aglaonema commutatum*	Costa Rica	5/05	Adams	LA
Q	Lygaeidae	a lygaeid bug	Spanish moss	Florida	5/09	Walsh	SD
Q	probably *Choristoneura parallela*	a tortricid moth	peonies & *Cerasena*	Texas	5/12	Eisenhart/ Connelly	LA
Q	*Malacosoma* sp.	a tent caterpillar	patio table	New Hampshire	5/31	Ellis	O
Q	" "	" "	yard chair	Rhode Island	5/09	------	SD
Q	Subulinidae	a snail	soil	Hawaii	5/04	Brown	Ala.
Q	Tortricidae	a tortricid moth	coconut	Hawaii	4/26	Smithback	SLO
Q	*Nysius* sp.	a lygaeid bug	*Protea*	Hawaii	3/04	Hixson	V
A	*Graphognathus* sp.	a weevil	blackberries	New Zealand	3/02	Hamilton	LA
Q	prob. *Amorbia emigratella*	a tortricid moth	orchids	Hawaii	2/22	Piper	STB
Q	Noctuidae	a noctuid moth	picnic table	Virginia	2/22	Smith	SD
Q	*Pseudaletia* sp.	a noctuid moth	car	Hawaii	2/09	Brown	Ala.
Q	Blattidae	a cockroach	beans	Canada/Alaska U.S./China	1/23	Spadoni	H

BORDER STATION INTERCEPTIONS
(Since April 1983)

A WOOLLY BEAR CATERPILLAR	(Arctiidae)	-Q-	6
EASTERN TENT CATERPILLAR	(*Malacosoma* sp.)	-Q-	27
PURPLE SCALE	(*Lepidosaphes beckii*)	-B-	24
A FRUIT FLY	(*Anastrepha* sp.)	-A-	1
WHITE-MARKED TUSSOCK MOTH	(*Orgyia leucostigma*)	-Q-	5
ORIENTAL SCALE	(*Aonidiella orientalis*)	-Q-	4
GYPSY MOTH	(*Lymantria dispar*)	-A-	50
CHAFF SCALE	(*Parlatoria pergandii*)	-B-	16
CALIFORNIA RED SCALE	(*Aonidiella aurantii*)	-B-	11
CRAZY ANT	(*Paratrechina longicornis*)	-B-	1
A TORTRICID MOTH	(*Tortricidae*)	-Q-	1
A MEALYBUG	(*Pseudococcidae*)	-Q-	2
A SCARAB BEETLE	(*Phyllophaga* sp.)	-Q-	3
RUFOUS SCALE	(*Selenaspidus articulatus*)	-A-	2
AN ANT	(*Paratrechina fulva*)	-Q-	4
A LEAFHOPPER	(*Cicadellidae*)	-Q-	1
MEXICAN BEAN BEETLE	(*Epilachna varivestris*)	-A-	1
HICKORY SHUCKWORM	(*Laspeyresia caryana*)	-A-	1
SOUTHWESTERN CORN BORER	(*Diatraea saccharalis*)	-A-	1
A LEAFHOPPER	(*Homalodisca* sp.)	-Q-	1
GLOVER SCALE	(*Lepidosaphes gloverii*)	-B-	6
A LACEBUG	(Tingidae)	-Q-	1
A WEEVIL	(*Conotrachelus* sp.)	-Q-	1
IMPORTED FIRE ANT	(*Solenopsis invicta*)	-Q-	2
EUROPEAN CORN BORER	(*Ostrinia nubilalis*)	-A-	2
WESTERN CHERRY FRUIT FLY	(*Rhagoletis indifferens*)	-A-	86
TEA SCALE	(*Fiorinia theae*)	-A-	1
LITTLE FIRE ANT	(*Ochetomyrmex auropunctata*)	-Q-	1
A SNAIL	(*Bradybaena similaris*)	-B-	1
A SNAIL	(*Lamellaxis gracilis*)	-B-	1
STRIPED MEALYBUG	(*Ferrisia virgata*)	-B-	1
AN ANT	(*Tapinoma melanocephalum*)	-Q-	1
HOWARD SCALE	(*Abgrallaspis howardi*)	-B-	1
PAPAYA FRUIT FLY	(*Toxotrypana curvicauda*)	-A-	1
A PYRALID MOTH	(Pyralidae)	-Q-	1
OLIVE SCALE	(*Parlatoria oleae*)	-B-	1
ASIATIC GARDEN BEETLE	(*Maladera castanea*)	-Q-	1
AN OWLET MOTH	(Noctuidae)	-Q-	1
A SCARAB BEETLE	(*Anomala* sp.)	-Q-	1

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	4-17-83	4-17-83	4-17 to 4-19-83	4-24-83	4-25-83	4-25 to 4-26-83
LOCATION	Bellota	Manteca	Roberts Island	Bellota	Manteca	Roberts Island
TEMPERATURE	50°Rain 70°	50°Rain 70°	Rain/ Clear	Rain	40°Rain 70°	Rain
ALFALFA LOOPER *Autographa californica*	3	1	8	3		
ARMYWORM *Pseudaletia unipuncta*	1		1	2	1	6
BEET ARMYWORM *Spodoptera exigua*			3			
BLACK CUTWORM *Agrotis ipsilon*			1	1		5
CABBAGE LOOPER *Trichoplusia ni*						
CLOVER CUTWORM *Scotogramma trifolii*		8	1	1		
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*						
FALSE CELERY LEAFTIER *Udea profundalis*	1		15	1	4	6
GRANULATE CUTWORM *Feltia subterranea*						
GRAPE LEAFFOLDER *Desmia funeralis*						
NAVEL ORANGEWORM *Amyelois transitella*						
OMNIVOROUS LEAFROLLER *Platynota stultana*						
PEACH TWIG BORER *Anarsia lineatella*						
ROUGH SKINNED CUTWORM *Proxenus mindara*			5			3
SALTMARSH CATERPILLAR *Estigmene acrea*						
SPOTTED CUTWORM *Amathes c-nigrum*	2	3	10			25
SUGARBEET WEBWORM *Loxostege sticticalis*						
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*		5	2			
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*						
A NOCTUID MOTH *Dargida procincta*			1			

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	5-1-83	5-4-83	5-8-83	5-8-83	5-10-83	
LOCATION	Bellota	Manteca	Bellota	Roberts Island	Manteca	
TEMPERATURE	Rain	49 - 67			47 - 73	
ALFALFA LOOPER *Autographa californica*				7		
ARMYWORM *Pseudaletia unipuncta*	5	3	2	32	3	
BEET ARMYWORM *Spodoptera exigua*						
BLACK CUTWORM *Agrotis ipsilon*		1		8	2	
CABBAGE LOOPER *Trichoplusia ni*						
CLOVER CUTWORM *Scotogramma trifolii*			2	1	1	
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*						
FALSE CELERY LEAFTIER *Udea profundalis*	4		2		2	
GRANULATE CUTWORM *Feltia subterranea*						
GRAPE LEAFFOLDER *Desmia funeralis*						
NAVEL ORANGEWORM *Amyelois transitella*					2	
OMNIVOROUS LEAFROLLER *Platynota stultana*		1				
PEACH TWIG BORER *Anarsia lineatella*		1			48	
ROUGH SKINNED CUTWORM *Proxenus mindara*	1					
SALTMARSH CATERPILLAR *Estigmene acrea*						
SPOTTED CUTWORM *Amathes c-nigrum*	18	2	12	58	4	
SUGARBEET WEBWORM *Loxostege sticticalis*						
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*	2	1	1			
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*						

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	5-16-83	5-17-83	5-17 to 5-18-83	5-22-83	5-23-83	5-25-83
LOCATION	Manteca	Bellota	Roberts Island	Roberts Island	Bellota	Manteca
TEMPERATURE	50 - 82	48 - 76	47 - 83	48 - 80	50 - 90	47 84
ALFALFA LOOPER Autographa californica			4			1
ARMYWORM Pseudaletia unipuncta	3		24	9		2
BEET ARMYWORM Spodoptera exigua				1		
BLACK CUTWORM Agrotis ipsilon		2	3	2	1	1
CABBAGE LOOPER Trichoplusia ni						
CLOVER CUTWORM Scotogramma trifolii	1	4	1		4	2
CODLING MOTH Laspeyresia pomonella						1
CORN EARWORM, (ETC.) Heliothis zea				2	1	
FALSE CELERY LEAFTIER Udea profundalis	2	4	1	3	2	1
GRANULATE CUTWORM Feltia subterranea	1			1	1	1
GRAPE LEAFFOLDER Desmia funeralis	2					
NAVEL ORANGEWORM Amyelois transitella	5					2
OMNIVOROUS LEAFROLLER Platynota stultana					1	1
PEACH TWIG BORER Anarsia lineatella	154					214
ROUGH SKINNED CUTWORM Proxenus mindara		3	1	5		
SALTMARSH CATERPILLAR Estigmene acrea						
SPOTTED CUTWORM Amathes c-nigrum	1	20	39	11	12	5
SUGARBEET WEBWORM Loxostege sticticalis						
TOBACCO BUDWORM Heliothis virescens						
VARIEGATED CUTWORM Peridroma saucia	1		1		2	2
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica	1			1		

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	5-30-83	5-30-83	5-30 6-1-83	6-5-83	6-5-83	
LOCATION	Bellota	Manteca	Roberts Island	Manteca	Bellota	
TEMPERATURE	55-85	55-85	52-76			
ALFALFA LOOPER Autographa californica		1	3		1	
ARMYWORM Pseudaletia unipuncta		1	37	2		
BEET ARMYWORM Spodoptera exigua				1	2	
BLACK CUTWORM Agrotis ipsilon		5	5			
CABBAGE LOOPER Trichoplusia ni						
CLOVER CUTWORM Scotogramma trifolii					1	
CODLING MOTH Laspeyresia pomonella						
CORN EARWORM, (ETC.) Heliothis zea		2		1		
FAISE CELERY LEAFTIER Udea profundalis			1		1	
GRANULATE CUTWORM Feltia subterranea		2		1		
GRAPE LEAFFOLDER Desmia funeralis				2		
NAVEL ORANGEWORM Amyelois transitella				2		
OMNIVOROUS LEAFROLLER Platynota stultana	2	5		11	4	
PEACH TWIG BORER Anarsia lineatella		76		512		
ROUGH SKINNED CUTWORM Proxenus mindara	2			1	1	
SALTMARSH CATERPILLAR Estigmene acrea		1				
SPOTTED CUTWORM Amathes c-nigrum	4	1	4		3	
SUGARBEET WEBWORM Loxostege sticticalis						
TOBACCO BUDWORM Heliothis virescens						
VARIEGATED CUTWORM Peridroma saucia	1	6	7	12	2	
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica	1		1	2		

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	6-12-83	6-14-83	6-14-83 6-15-83			
LOCATION	Bellota	Manteca	Robert Island			
TEMPERATURE		56 - 90				
ALFALFA LOOPER Autographa californica		2	1			
ARMYWORM Pseudaletia unipuncta	2	2	28			
BEET ARMYWORM Spodoptera exigua						
BLACK CUTWORM Agrotis ipsilon		6	19			
CABBAGE LOOPER Trichoplusia ni						
CLOVER CUTWORM Scotogramma trifolii	1	1	8			
CODLING MOTH Laspeyresia pomonella						
CORN EARWORM, (ETC.) Heliothis zea						
FALSE CELERY LEAFTIER Udea profundalis	3	3	6			
GRANULATE CUTWORM Feltia subterranea						
GRAPE LEAFFOLDER Desmia funeralis						
NAVEL ORANGEWORM Amyelois transitella						
OMNIVOROUS LEAFROLLER Platynota stultana	1	6	11			
PEACH TWIG BORER Anarsia lineatella	1	16				
ROUGH SKINNED CUTWORM Proxenus mindara		3	11			
SALTMARSH CATERPILLAR Estigmene acrea			14			
SPOTTED CUTWORM Amathes c-nigrum			1			
SUGARBEET WEBWORM Loxostege sticticalis						
TOBACCO BUDWORM Heliothis virescens			9			
VARIEGATED CUTWORM Peridroma saucia		11				
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica						

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	6/19/83	6/19/83	6/19/83 6/20/83	6/26/83	6/26/83	
LOCATION	Manteca	Bellota	Roberts Is	Bellota	Manteca	
TEMPERATURE	68-92°			56°-91°		
ALFALFA LOOPER Autographa californica			1			
ARMYWORM Pseudaletia unipuncta	2	6	164	34	17	
BEET ARMYWORM Spodoptera exigua						
BLACK CUTWORM Agrotis ipsilon	6	4	139	15	6	
CABBAGE LOOPER Trichoplusia ni		1				
CLOVER CUTWORM Scotogramma trifolii	1		17			
CODLING MOTH Laspeyresia pomonella						
CORN EARWORM, (ETC.) Heliothis zea			1			
FALSE CELERY LEAFTIER Udea profundalis	15	5	10			
GRANULATE CUTWORM Feltia subterranea						
GRAPE LEAFFOLDER Desmia funeralis						
NAVEL ORANGEWORM Amyelois transitella						
OMNIVOROUS LEAFROLLER Platynota stultana						
PEACH TWIG BORER Anarsia lineatella	16				3	
ROUGH SKINNED CUTWORM Proxenus mindara	2	3	339	2	4	
SALTMARSH CATERPILLAR Estigmene acrea			61			
SPOTTED CUTWORM Amathes c-nigrum			11	2	5	
SUGARBEET WEBWORM Loxostege sticticalis						
TOBACCO BUDWORM Heliothis virescens						
VARIEGATED CUTWORM Peridroma saucia	8	2	17	3	6	
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica						

REVIEW OF NEW REFERENCE

Compendium of Rose Diseases

Compendium of Rose Diseases. 1983. By Kenneth Horst, American Phytopathological Society, St. Paul, MN. 50 pages.

This compendium is the tenth in the disease compendium series published by the American Phytopathological Society. Like the others in the series, the rose disease compendium is an excellent assortment of detailed descriptions of both infectious and non-infectious diseases/disorders. Written in very "practical" language, the compendium is laid out in a very useful format, grouping diseases and disorders according to causal agents. It is adequately illustrated with numerous color and black-and-white photographs of both symptoms and causal organisms, as well as line drawings and disease cycle diagrams. Especially helpful are the descriptions of physiological problems of roses, which are frequently so difficult to diagnose. Also included are references at the end of each disease description, an index, and a glossary. Anyone dealing with roses will find this to be a very practical and useful reference.

T. Tidwell

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