Fig. 1. Mummied sawfly larvae *in situ* on the partly devoured seagrape leaves. [Photograph by Roldán]

a common pest on seagrape, *Coccoloba uvifera* (L.) Jacq., and the only sawfly in Puerto Rico, appears to have no natural enemies; no specific parasites and no previously recorded entomogenous fungi had attacked it. On 30 November extensive occurrence of partly eaten leaves of seagrape was noted on the beach at Islote (between Arecibo and Barceloneta), with all sawfly larvae, from smallest to largest, killed by the attack of a chalky white fungus, with only the chitinized yellowish head remaining uncovered to indicate the identity of the insect (Fig. 1). Paul Lentz of the National Fungus Collections at Beltsville, Maryland, and Edward A. Steinhaus of Berkeley, California, are agreed that the entomogenous fungus responsible is *Beauveria bassiana* (Balsamo) Vuillemin.

Vera K. Charles in her "Preliminary check list of the entomogenous fungi of North America" (*1*) records *Beauveria globulifera* from Puerto Rico only as attacking the pentatomid bug *Thyanta custator* (F.) and the coreid bug *Corecoris batatas* (F.), and specifically no sawfly anywhere. Presumably this was quite a different strain of the fungus on these stinkbugs from that now found on the caterpillars of sawflies. Even D. M. MacLeod, reporting on the most recent "Investigations on the genera *Beauveria* Vuill. and *Tritirachium* Limber" (*2*) lists many Lepidoptera attacked by this fungus in Canada, but only four sawflies.

Mass destruction of heavy infestations of the guava whitefly, *Metaleurodicus minimus* (Quaintance) by *Aschersonia* spp. is so conspicuous—the bright red, orange, and yellow fruiting bodies bulking enormously on the comparatively insignificant bodies of the insects—and it is so well known that little attention was paid to the extensive collections of material brought by Felix Arróstegui from the Isabela Substation early in December.

On 9 December a heavy infestation of *Coccus viridis* (Green) on citrus leaves, collected in Pennock's Gardens, Río Piedras, was so thickly covered with *Aschersonia goldiana* Sacc. & Ell. (det. Lentz) that only with difficulty was it possible to identify the insect. On 19 December in the mountains at Cidra, mass infestations of *Myzus persicae* (Sulzer) on the underside of the leaves of flowering plants of wild mustard, *Brassica integrifolia* (West) O. E. Schultz, had been entirely eliminated by *Acrostalagmus aphidum* Oud., which was identified by Lentz. Material subsequently collected at Orocovis was identified as *Empusa aphidis* Hoff. by C. G. Thompson of the Insect Pathology Laboratory at Beltsville.

Within less than a month, four different genera of entomogenous fungi, on four groups of insects (sawflies, whiteflies, scale insects and aphids) had been noted at widely separated localities in Puerto Rico, within 6 to 8 wk after exceptionally heavy rains, but not at the localities experiencing the heaviest rainfall. Was this merely a coincidence, or were conditions after the rainfall optimum for the development of the entomogenous fungi?

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18 April 1955.

Activity in 1953–54 of Mihara Yama, O Shima, Japan

Mihara Yama, the central cone of O Shima Volcano on O Shima, an island 110 km south-southwest of Tokyo, Japan, has been active repeatedly in historical times. The major eruptions that occurred in 1950 and 1951 have been described (*1*); this supplement (*2*) describes the smaller eruptions that followed in 1953 and 1954.

At the end of the 1951 eruption, subsidence in the crater at the site of the preeruption inner pit formed a depression that enlarged until it measured about 400 m east-west, 250 m north-south, and 50 m deep. Just south of this an adjacent depression about 150 m in diameter and 50 m deep was formed when collapse enlarged the crater of the principal 1951 cone. No further conspicuous topographic changes occurred until October 1953. Steam and other gas emission were slight during this period, and the crater area was relatively cool.

Renewal of activity was first indicated when the Wiechert seismograph recorded minor earth tremors at the O Shima Meteorological Observatory, beginning about 7 P.M. on 4 October 1953. Rumbling was heard later. At 8 : 32 A.M. on 5 October 1953, an explosion opened a new vent about 1.5 m in diameter

on the southwest side of the inner wall of the 1951 cone. Explosions continued at intervals of a few minutes to a few hours. Volcanic bombs were hurled as high as 50 to 60 m. On 12 October two small vents approximately 4 m apart were active in a crater about 6 m in diameter; one vent emitted incandescent lava clots and occasional small lava flows and the other, lava clots and black ash (*3*). Steam and gases only were emitted from the new vents from 13 October to 11 November.

Small eruptions recommenced at a point about 40 m to the south on 11 November. Another vent formed on 12 November, and intermittent eruptions continued until the morning of 14 November. Ejecta were thrown as high as 60 m, a cone 3 m high was built, and lava flows 50 m long formed. Steam and gases only were emitted from the various vents from 14 November to 1 December.

On 1 December escaping gas formed a fire pillar 3 m high, and the blast ascended 50 m, carrying small amounts of ejecta with it. From 1 December to midnight 18 December, incandescent ejecta, small lava flows, and gas blasts were emitted from the October, November, and other temporary vents.

Explosions began again at 3 : 27 A.M. on 29 December 1953 and continued intermittently into February 1954. Both the October and November vents were active, and about 12 January an additional vent opened a few meters north of the November vents, and a cinder cone about 40 m high was built by 19 January. The most violent of the 1953–54 eruptions occurred on 27 January 1954, ending at 4 : 30 P.M. Volcanic bombs reportedly were hurled 800 m high and fell as far as 500 m from the vent. For the first time during the 1953–54 eruption, lava overflowed the 1951 cinder cone crater and partly filled the adjacent larger depression, the depth of which was reduced to about 15 m. The northeast remnant of the 1951 cinder cone was covered thickly by ejecta. Small explosions occurred on 31 January. On 1 February, ejecta were thrown 150 m from the vent, and more lava flowed. Minor activity continued intermittently until about 11 February, and gas outblasts and volcanic tremors continued a few days more. By the end of February, only a little gas issued.

Mihara Yama remained quiescent throughout the remainder of 1954, although steam and other gases in varying amounts were emitted continuously from various parts of the crater. At times steam and gas emission was marked, and billowing clouds rose 100 to 300 m high. Volcanic tremors were recorded at intervals in March, April, June, September, and November. In the first week in November, steam and gas emission increased greatly, and ground temperatures rose in the crater area. Increased amounts of sublimates were deposited in many places in the crater, mostly on or within the 1951 cinder cone. New fissures opened in the remnants of this cone, and some old fissures reopened or widened and began issuing steam. The small cinder cone that was formed in January 1954 was broken by fissures and partly collapsed. On 9 November volcanic tremors ceased and steam and gas emission decreased.

The activity of Mihara Yama in 1953 and 1954 was on a small scale compared with the eruptions of 1950 and 1951. Only small quantities of lava were emitted. The 1953–54 lava was an augite-hypersthene basalt essentially of the same composition as that of the 1950 and 1951 eruptions (*4*).

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Effect of Reserpine on the Melanophores of Fish

As part of a study of the effects of reserpine (*1*), the drug was tested for its action on Siamese fighting fish (*Betta splendens*). Abramson and Evans (*2*) have reported that this fish shows a specific response to LSD-25, and it was our interest to ascertain whether reserpine might inhibit the LSD-25 effect. It can be said at once that, not only did it fail in this, but it acted, in higher dosage levels, as a sedative to *Betta splendens*.

The fish were immersed in 100 ml of aqueous solution of the drug, as Abramson and Evans had done. When the concentration was about 12 μg percent the sedative effect became evident. In this first testing the rather colorless juvenile *Betta splendens* developed within a few hours of immersion a spectacular color display. We have since found this phenomenon to be fairly general, and the effect has been especially studied on several species of fish: *Brachydanio reria* (zebra fish), *Aequidens portalegrensis* (one of the "acaras"), several *Trichogaster* (gouramies), *Micropodus viridi auratus* (paradise fish), and *Corydoras leopardus* (leopard catfish).

When young fish (2 to 4 cm long) were immersed in the test solution for 6 hr, *Ae. portalegrensis* and *C. leopardus* were clearly distinguishable from untreated controls at a reserpine concentration of 0.4 μg percent. *Ae. portalegrensis* tended to darken when it was left undisturbed but it usually blanched within 30 sec of being excited. Excitement of reserpine-treated fish no longer led to blanching. The effect was still evident but not complete, and somewhat variable, as low as 0.1 μg percent. The effect wore off slowly; traces of coloration more intense than that of the controls were visible in the pectoral fins, sometimes for weeks. The