Insects and Agriculture

Waldemar Klassen

USDA–ARS, Beltsville Agricultural Research Center, Beltsville, MD 20705

Biological Control

Until 100 years ago, only a few entomologists were aware that the insect parasites and predators that attack insect pests are of tremendous importance in protecting our food supply and in holding in check diseases such as malaria, encephalitis, typhoid, and bubonic plague (see Gossard 1909). However, in 1889 a dramatic event occurred that greatly increased the popular understanding of beneficial insects and demonstrated that they are invaluable allies of the human race.

In 1868, a devasting pest of citrus, the cottony cushion scale, had been introduced inadvertently into California from abroad. The cottony cushion scale spread rapidly throughout the citrus-growing areas of California. In a matter of a few years, it was killing hundreds of thousands of citrus trees and forcing citrus growers out of production of oranges. The chief entomologist of USDA, Charles Valentine Riley, proposed that the problem might be solved by sending an entomologist to the original home of the cottony cushion scale to collect the insect enemies of the scale and to establish them in California (Howard 1930).

The Californians believed that the original home of the cottony cushion scale was Australia. Therefore, Riley arranged for an entomologist, Albert Koebele, to travel to Australia in August 1888. Koebele found a lady-bird beetle feeding on the cottony cushion scale in a garden near Adelaide. This lady-bird beetle has the name "vedalia."

Koebele shipped a total of 514 vedalias to Los Angeles. These beetles were caged on orange trees heavily infested with the cottony