the irregular corky scabs. The leaves become twisted and warped. The disease is usually severe on lemons and sour oranges. Satsumas are often badly attacked, but only occasionally is grapefruit affected.

HISTORY OF SCAB

Scab, or Verrucosis, appears to have been unknown until about 1885 (1), when it appeared (probably near Ocala) in what was then the heart of the citrus-growing region, and spread rapidly to all parts of this (3). The first account of the disease was published by F. Lamson Scribner in October, 1886 (1). A fuller account (2), with a colored plate, appeared in the annual report of the U. S. Commissioner of Agriculture for 1886 (pp. 120-121). Scribner described the fungus as *Cladosporium* sp. L. M. Underwood (4), writing in 1891, speaks of it as a widespread disease. A detailed account of the disease and of the fungus was published by W. T. Swingle and H. J. Webber in 1896 (7). They said:

> The introduction of this disease into the United States is comparatively recent. It first appeared in Florida about the year 1884, and spread rapidly over the State and to Louisiana. Although many thousands of trees affected with scab have been sent to California, it seems that the disease is unable to exist there permanently * * * The malady also occurs in Australia and Japan, from which latter country it was undoubtedly introduced into America.

Their investigations with lemon showed that the disease could be controlled by the use of Bordeaux mixture or ammoniacal solution of copper carbonate. They also found that the removal of all infected fruits before the blooming season was highly important.

In Tubeuf and Smith's *Diseases of Plants,* published in 1897, reference is made (p. 509) to Scribner's publication under *Cladosporium elegans* Penz. This is evidently an error (23), as may be seen by examination of Penzig's description and figures in *Studi Botanici sugli Agrumi,* published in 1887. The dimensions of the spores of *C. elegans* are too large and the pathological effects on the leaf as figured by Penzig are not the same as those described by Scribner. The spores of *C. elegans* are given as 18 to 20 by 5 to 6, while those of the Scab fungus are 8 to 9 by 2.5 to 4 microns.

G. Massee, in his *Text-book of Plant Diseases,* published in 1899 (10), described both fungi. On page 310, he described the scab under the name of *Cladosporium citri* "pro tem." and says: "This Cladosporium species is evidently quite distinct from *Cladosporium elegans* Penz. which forms arid brown spots on living leaves of oranges in Italy."

W. T. Swingle in 1897 (8) (then recently back from a trip to Mediterranean countries) said before the Florida State Horticul-