

the skin, and feed on and injure the growing tissue of the citrus tree. In consequence of the presence of these minute filaments, the tissues of the plant become swollen around the point of infection, breaking the skin and causing projecting warts or scabs (Figs. 24, 25 and 26). During the growth of these little scabs, the fungus filaments multiply in them, and send short branches outward from the surface on which are formed thousands of spores like the one from which the fungus originated. These spores may be blown or carried by insects to the vigorous young leaves and fruit of healthy trees and infect them in turn. All this goes on unseen by the unaided eye, and can only be detected by the aid of a compound microscope.

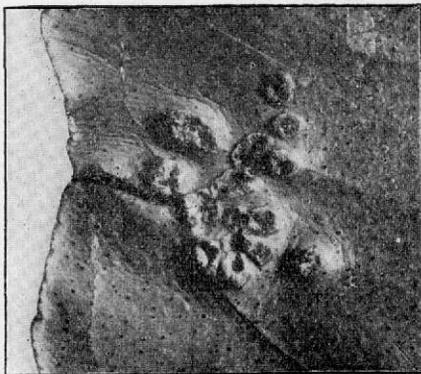


Fig. 26.—Early stage of pustules of Scab on sour orange leaf. Magnified three times.

This fungus causes sour orange and lemon fruits (and sometimes Satsumas) to grow misshapen and unsightly. In severe attacks, corky projections of a dark gray to tan color extend from the surface. Between these warts the skin is usually of a normal color. These irregular corky projections often grow together into a large raised corky scab. In less severe attacks, especially when scab occurs on grapefruit and on tangerines (or rarely on sweet oranges), in

place of the warty irregular projections there are seen more or less raised flat patches of variable shape and size. The surface of the raised portion is finely scabbed or lightly scurfed. This milder form of the disease can usually be distinguished from "thrips marks," or other forms of scurf, by the patches being raised; but it can be distinguished with certainty only by the use of the compound microscope.

The injury caused by the disease is nearly always confined to the visible areas of infection. There appears to be little indication of any poisoning effect on distant tissue. The earliest infections appear on either surface of leaves just unfolding, as minute light-brown points. These spots become depressed on one side and raised on the other. Older spots become dark brown and sometimes pinkish. The spots grow together as they enlarge, forming