

spores (Greek, teleute, the conclusion.) A part of one of these dark lines magnified twenty-five times is shewn by Fig. 2030. The black portion is composed entirely of teleutospores, which appear only as a black mass, but, when magnified 175 times, their form becomes more distinct as shewn in Fig. 2031. Two teleutospores, separated from the mass and magnified 300 times, are represented by Fig. 2032.



FIG. 2032.

When the "winter is past, the snow melted and gone, flowers appear on the earth, and the time of the singing of birds is come," then the teleutospores put forth slender filaments upon which are formed small bodies called *sporidia*; into these the contents, the protoplasm, of the teleutospores is transferred. The sporidia are very easily detached, and, borne on the wings of the wind, are carried far from the place of their birth. Such of them as happen in the course of their aerial journey to be dropped upon growing asparagus plants, when the requisite temperature and moisture are present, throw out thread-like growths called *hyphae* which enter into the stalk and there grow, ramifying into a network to which has been

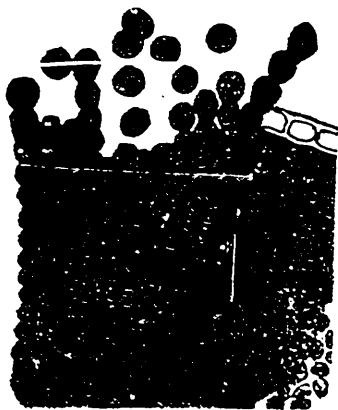


FIG. 2033.

given the distinctive appellation *mycelium*. This is the vegetative portion of the fungus, here in the tissues of the asparagus it feeds on the food which the asparagus has elaborated for its own use. When the parasites have attained a certain state of maturity the organs of reproduction appear upon the surface of their host plant, often the first intimation to the cultivator of their presence.

In the case of this Asparagus Rust we are informed that in America it usually omits the second stage, known as the aecidial stage; yet it sometimes is seen upon asparagus growing in uncultivated places, and in beds not cut. It is also known as the cluster-cup form—Fig. 2033 is a representation of part of a section of the cluster-cup form of this rust magnified 175 times showing the rows of decidual spores; Fig. 2034 shows the spores after they have been taken from the cup magnified 300 times.

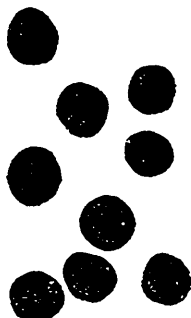


FIG. 2034.

When the cluster-cup stage is present the spores shown in Figs. 2033 and 2034 are distributed by the wind, and, becoming deposited on asparagus, penetrate the epidermis, rob the plant in the same manner as the sporidia formed from the teleutospores, and, throwing up the reproductive organs, present to the observer the uredospores, the rust, (*ureda*, Latin, the blasting of plants). When the aecidial stage is omitted then the fruit, borne by the reproductive organs of the teleutospore sporidia, is the Rust, the uredospores. These as shown by Fig. 2035 as they appear to the naked eye, are seemingly mere lines on the surface of the stalk. A part of one of these lines is represented in Fig. 2036 as it appears when magnified 25 times, and in Fig. 2037 when magnified 175 times. A few of the uredospores magnified