

1. The *Umicinula Spiralis*, or Powdery Grape-vine Mildew, flourishes most in a dry atmosphere. It is not particularly destructive to the hardier varieties of grapes, and is easily controlled by the use of sulphur. It develops chiefly on the upper side of the leaf, and produces simple ovoid summer spores, and more complex and ciliate winter spores which are found upon both the leaf and the cane. According to the most trustworthy evidence it was introduced into Europe many years ago. It is only known there in the conidial form as *Oidium Tucherii*, and works more injury in Europe than it does with us in America.

2. The *Peronospora Viticola*, or Downy Grape-vine Mildew, which ramifies its mycelium in the substance of the leaf, and even of the fruit, develops most readily in moist or wet weather. It produces its summer spores on the under side of the leaf, and a winter spore in the tissues of the dry and fallen leaves. It is not amenable to sulphur, but is checked by a dilute kerosene emulsion, in which a small amount of carbolic acid is mixed; but is far more effectively checked, and even prevented, by a mixture of slaked lime and sulphate of copper. This should be applied early in the season, say June, so as to act as a preventive; while the gathering and burning of the old leaves in winter time is important. This species is more injurious than the other, and is especially troublesome on the European vines. It was introduced into Europe in 1877, when it was found in Hungary, and has since spread through the greater portion of France, Italy, Switzerland, and Austria.

This last variety (*Peronospora Viticola*) appears first as a whitish down, sending its mycelium into the adjacent tissues of the leaf, destroying it parts, which scorches and turns brown as if sunburnt. Sulphate of copper will prevent mildew on grape vines (1 per cent. solution). A 10 per cent. solution in water, with enough lime added to make a thin whitewash, if applied after the mildew has appeared on the vines (foliage), the progress will be stayed and the spores of the fungi destroyed."

The foregoing is gleaned from an able article by Dr. C. V. Riley. I would venture to recommend the use of iron sulphate applied in compost or other fertilizer as a preventive to the development and growth of the mildew, since the iron and sulphur are both useful to plant growth, and the compound has proven an effectual preventive to the growth of similar fungi. It has also been used successfully on