

Of the writers on the structure and development of these mildews, Dr. Thomas Taylor was one of the earliest in this country, and found the perithecium of the *Uncinula* on the European vine. His chief articles are contained in the reports of the Department of Agriculture for 1871 and 1874, but are marred by confusion in both text and plates. For accurate details the student should more particularly consult the following:

W. G. Farlow (whom I have mostly followed) "Notes on Some Common Diseases Caused by Fungi," (Bull. Bussey Inst. Vol. II., part II., 1877, pp. 106-114); also, "On the American Grape-vine Mildew" (Ibid. for 1876, pp. 415-425); Maxime Cornu, "Le Peronospora des Vignes," Paris, 1882; B. D. Halsted, "The White Mildews" (Proc. 19th Session Am. Pom. Soc., for 1883, p. 87); and Wm. Trelease, "The Grape Rot" (Trans. Wis. Hort. Soc., 1885, pp. 196-199).

SUMMARY.

We thus have, indigenous to this country, two mildews that are more particularly destructive to the grape-vine:

1. The *Uncinula spiralis*, or the Powdery Grape-vine Mildew, flourishing most in a dry atmosphere, not particularly destructive to our hardier native grapes, and easily controlled by 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. Introduced into Europe many years ago, according to trustworthy evidence, it is only known there in the conidial form as *Odium Tuckeri*, and works more injury than it does with us.

2. The *Peronospora viticola*, or the Downy Grape-vine Mildew, which ramifies its mycelium in the substance of the leaf, and even of the fruit, and develops most in moist or wet weather. It produces its summer spores on the underside 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 diluted kerosene emulsion, in which a small amount of carbolic acid is mixed, but far more effectually checked, and even prevented, by a mixture of slacked lime and sulphate of copper. This should be applied early in the season, say in June, so as to act as a preventive, while the gathering and burning of the old leaves in winter time will assist. This species is more injurious with us than the other, and is especially troublesome on the European vines. It was first introduced into Europe in 1877, when it was found in Hungary, and has since spread through the greater portion of France, Italy, Switzerland, Austria, etc.

ARBOR DAY.

Believing that the following from Bulletin No. 33, of the Agricultural College of Michigan may be of service to our high and public schools in making the exercises of Arbor Day more interesting, the secretary includes it in this appendix, with the remark that a similar exercise was performed with much success on last Arbor Day at the Grimsby High School, Mr. C. W. Mulloy, B.A., head master.

The exercise presented below was first given by the pupils of the Grand Rapids schools on the evening of January the 26th, 1888, in connection with the Forestry Convention in that city. Though no trees were planted, the presentation of a literary programme designed to be suitable for adoption by the schools of the State was very creditable.

The exercises assumed the nature of a convention of trees. The meeting was called to order by Norway Pine, who moved the election of a chairman and secretary. After the election followed general speech-making, interspersed with music and songs. Each tree set forth in a few brief sentences his characteristics, properties, uses and various values. The exercises lasted nearly an hour, enlisting much applause, and all agreeing with one accord, at the finish, that they were only "too short."