

comprehensiveness and perfection of its classifications let me offer the following from Prof. Youmans: "No other subjects compare with zoology and botany in these respects. Not only do they furnish inexhaustible material for the exercise of memory, but by the presentation of facts in their natural relations, they exercise it in its highest and most perfect form." * * "They open to us the broadest view of the relations and harmonies of organic nature, and are best fitted to discipline the mind in dealing with large co-ordinations, and the comprehensive arrangement of objects of thought, whether in the arts, the professions, business or science.

I have quoted freely the words of eminent men, hoping thereby to encourage young botanists to hold bravely to their preferences, who might have treated any argument advanced by myself as not worthy of consideration.—EMESBY.

American Grape Mildew in Europe.—The fact that our common grape mildew, *Peronospora viticola* B. & C. grows luxuriantly on cultivated varieties of *Vitis vinifera* in this country was noticed in the Bulletin of the Bussey Institution of March, 1876, and although owing to the dryness and short duration of our summers it was there stated that no great harm need be anticipated to the grape crop in the northeastern States, it was suggested that the case might be very different should the fungus be introduced into the vineyards of Central and Southern Europe, where the climatic conditions are very different from ours. In 1877 Dr. Cornu called attention, in the Comptes Rendus, to the danger of the introduction of the *Peronospora* into France by the importation of American vines; and, as is well known, his fears were soon realized. In 1878 the mildew was detected by Planchon in the southwest of France, and in the following year by Therry in the vicinity of Lyons, by Pirotta in Northern Italy, and in Switzerland. Since then the spread of the disease has been rapid and it has attacked the vineyards in the greater part of France and Italy and has extended as far eastward as Hungary and as far southward as Algiers.

As was natural, great alarm was excited by the appearance of the fungus in wine growing districts, and the agricultural journals of France and Italy especially have contained numerous articles on the disastrous effect of the mildew and the means of prevention. With reference to the injurious effect on the wine crop opinions vary considerably; some maintaining that the *Peronospora* is even more harmful to the vine than the *Phylloxera*, while others declare that the injury done is not great. Official investigations have been undertaken in Italy and France for the purpose of ascertaining the best way of combatting the disease.

The latest contribution on the subject is the Report of Prof. Prillieux in the Journal Officiel, Jan. 9th, 1882, who was appointed to study the mildew and its development in the vineyards of France

and Algiers. After giving an account of the morbid appearances produced in the vines and a sketch of the development of the *Peronospora* and its mode of propagation, he states that the evil effects of the *Peronospora* are much greater in Algiers than in France. In the former country the fungus makes its appearance in May, causes the leaves to wither, and exposes the young grapes to the burning sun. The activity of the disease disappears in July. In the region of Bordeaux the mildew also appears early in the season and sometimes with such virulence that the conidial tufts appear not only on the leaves and young stems but also on the flowers and young berries, on which parts, as far as I know, the fungus has never been observed in this country. Prof. Prillieux, however, does not think that the harm done by the *Peronospora* is very great to the wine crop, for the danger is not so much from injury to the grapes as from injury to the nutrition of the vines by the premature fall of the leaves. Admitting that in exceptionally moist years serious trouble might arise, he thinks that in ordinary years the dry weather of midsummer would prevent marked injury from the growth of the *Peronospora*.

The use of lime having been proposed by Prof. Garovaglio, of Pavia, as a remedy, M. Prillieux experimented with powdered lime sprinkled on the leaves, but he found no beneficial effects. Even when the spots on the leaves where the *Peronospora* appeared were cauterized new conidial tufts appeared on the margin of the spots. Experiments with antiseptic fluids sprinkled on the leaves were without satisfactory results. As a practical measure it is advised to burn the leaves affected, because the oospores contained in them carry the disease over to the next season. Oospores have been found by Millardet and Prillieux in grape leaves in France, and the latter thinks that they occur abundantly. It is not improbable that they are abundant in this country, but owing to the density and hairiness of the leaves of most of the varieties of grape cultivated in this country it is almost impossible to detect their presence with the naked eye or a hand lens, and, as far as my own experience goes, examinations with the compound microscope show oospores only in a comparatively small number of leaves. A continued observation of the disease as it occurs in New England has failed to convince me that any perceptible injury is done to the vines in that region where the short and unusually dry summers are unfavorable to the full development of the *Peronospora*. Dr. Engelmann, however, states that the fungus produces injury in some of the Western States. In Algiers, where the conditions are very different from those of New England and favor the appearance of the fungus early in the season, the disease, as might be expected, is most disastrous.—W. G. FARLOW.

Chrysogonum Virginianum, var. dentatum.—I wish to direct the attention of botanists in the lower Middle and Southern States



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