

Scribner's report of 1886, represents the filaments growing out through the stomatum or breathing pore of a leaf, and bearing the summer spores (*Conidia*) upon their summit, all of course greatly magnified. The number of such spores which may be produced upon a single vine is estimated to vary from two to ten millions; a fact which clearly explains how quickly a whole vineyard may be "struck" with mildew. One of these spores, falling upon a moist grape leaf, will germinate in a couple of hours, by dividing into distinct particles of naked protoplasm; these swim about for about twenty minutes by means of fine hair-like cilia attached to one side, and then settle down at rest and push out a germinal tube which penetrates the leaf and develops into a new mycelium.

The two remedies which have proved most effective in destroying this fungus are (1) the copper mixture of Gironde (or Bordeaux mixture) and (2) blue water (or Eau celeste).

The *Bordeaux mixture* has already been recommended in our reports, but we give the most approved formula, viz: Dissolve in a wooden vessel 8lbs of sulphate of copper in fifteen gallons of water; and in another vessel slake 10lbs of lime in 5 gallons of water. When both are cooled pour the latter slowly into the former, mixing the fluids thoroughly.

The *Eau celeste* is prepared by dissolving 1lb of sulphate of copper in 3 or 4 gallons of hot water. When dissolved and the solution cooled, add 1 pint of liquid commercial ammonia. Dilute to 22 gallons.

Both these remedies are proved to be an absolute remedy for mildew; but

to be effective three treatments are necessary, the first during last half of May, the second during the last half of June, and the third during the first half of August. To avoid injury to the foliage it may be necessary to use a weaker solution for the first treatment than for the second or third.

For applying these solutions the French have perfected excellent spraying machines of moderate cost. We copy an illustration of the Japy machine, which will give our readers a better idea of it than a written description.



FIG. 62.—JAPY SPRAYING MACHINE.

With this machine it is claimed that a single workman can treat ten or fifteen acres per day.

We hope our Canadian vineyardists will not be left behind by French or American growers. Negligent growers will be discouraged and driven out of the business by fungi and insects; while the enterprising and industrious vineyardist will have all the advantage of an improved market thereby, and succeed in cultivating varieties of special excellence, otherwise rejected because of the difficulties attending their culture.