

be only paid for 5,000 trees of two years old which were "*planted in a suitable form and at proper distances for permanent silk culture.*" But what is a suitable form and what a proper distance, it may be asked? Upon this point the "Pioneer Silk-Growers' Association of California" lay down the following rules:—

"A plantation of mulberry trees in California should be so regulated as to general location and distances between the trees as to secure plenty of air and sun to perfect the foliage. Such a plantation of trees of the age of two years should not be nearer together than from three to four feet one way, and from one to two the other, or the equivalent of these distances. After that they should be thinned out to adapt them to the location and growth of trees." It will thus be seen that trees must be laid out in plantation form, and at the distances just stated, so as to come under the provisions of the Act.

Disease amongst the Silkworms of 1869.

Such, briefly, is the history of silk culture in the State of California up to the year 1869. In the beginning of that year, more than ordinary interest was evinced in its further development, not only by agriculturists but by business men, and the outside public generally. The course of events, perhaps, warranted this interest. A general decline in the production of silk had been taking place in European countries for some time previously, and the quantity produced was of an inferior quality also. The disease amongst the worms, which caused this falling off in quantity and quality, caused also a greater demand for healthy eggs. Of late years a large portion of these had been procured in Japan, the export in 1858 averaging about £4,000,000 sterling. But here too the disease had broken out amongst the worms, and large orders, which could not be attended to, were sent to California from France, Italy, and Mexico. The industry, however, was by no means successful throughout the State during the year 1869. Then, for the first time, the production of the worm ended in partial failure, in many localities.

That this unhealthiness of the worms of 1869 was local, the result of circumstances easily explainable, I have little doubt in my own mind. I have looked carefully into the matter, and think the presence of disease may be explained in the following way:—The season of 1869 was a most unfavourable one. Again, artificial processes injurious to the worms had been adopted, with the view of checking their early hatching. Let us examine both of these reasons a little more minutely. The spring of last year was cold, and the growth retarded beyond the usual time; and not only was the vegetation backward, but the leaves of the trees were found to contain a large quantity of watery fluid. Now, one of the great characteristics of Californian vegetation is the absence of such moisture, and it is this fact, amongst others, that makes the State so admirably adapted to the pursuit of silk culture; for the more gluten and the less acid contained in the mulberry leaves, the stronger and healthier are the silkworms. There was yet another reason. The coldness of the latter portion of the spring had been preceded by some hot, sultry weather, and it was found that many of the eggs had begun to be hatched before the supply of food was ready. To prevent this, the eggs, in many cases, were placed in ice boxes, and where this was done the failure was almost universal. Everybody knows, that to engage successfully in the culture of silk, the health of the eggs is a matter of the first importance. They must be healthy eggs, the produce, that is to say, of healthy worms; but they must also be preserved in a healthy condition. For nine or ten months of the year, therefore, the eggs of the animal are kept in some *dry, cool* place,—generally in a cellar free from damp. But the mistake made last year, to which in a great measure may be attributed the severe loss amongst the silkworms of the season, was this placing the eggs in refrigerators, *after* the hatching had once commenced. The experience gained by the silk-growers was, however, dearly bought. With a little caution and some consideration they might have known, that once the embryo was formed in the eggs, the exposure of these afterwards to a very low degree of temperature was certain either to impair the strength or destroy the life of the young worms. It is needless, perhaps, to pursue the inquiry further; I have, I think, said sufficient to show that the disease of last year was local—the result of exceptional causes. I may, however, add, as confirming this view, that I have just returned from a visit I paid to the largest silk cultivation in this State, where I saw upwards of three millions of silkworms in their several stages,—from that of hatching to the spinning of cocoons—and all were healthy, vigorous, and free from disease of any kind.

Climate and Soil.

The climate and soil are, of course, deserving of our first and greatest consideration. If the climate is unfavourable and the soil unsuitable, to attempt the culture of silk would be mere folly, and end in a complete failure. As a general rule it may be laid down, that the dryer the climate the better. The less rain there is, in moderation of course, the healthier will the leaves of the mulberry be—the more gluten and sustenance will they give the worms. The mulberry, when subjected to excessive rain or moisture, secretes in its leaves a sort of watery poisonous fluid, and this affects the worms with a kind of diarrhoea, which is most fatal to them. But wherever the mulberry thrives, the worms thrive also. The mulberry thrives wherever vines grow well; indeed, it has been found that the cultivation of the former is pretty well limited by that of the latter. Both grow well where the average temperature does not fall below 49°. Perhaps the best temperature for the worms during the periods of hatching, feeding, and spinning, is from 65° to 75°. When the thermometer falls to 50° they then refuse all food. But let it be understood that in these latter remarks I refer to two, or, at most, three months of the year, the remaining nine or ten being comparatively unimportant. For instance, in Canton I find the winter averages about 44°, and the summer 80°; again, in Milan the winter is only 36°, and the summer 72°. But the great desideratum is the absence of electricity. From the time of hatching to the third age, thunder or lightning proves very injurious; but in the last stage, when the worm is about to spin the cocoon, electricity in any quantity proves fatal.

Soil.

In California, as elsewhere indeed, a stiff clay or a gravelly soil is not well adapted to the growth of the mulberry tree, the best soil being a rich, loose, dry loam. The rich low bottom lands, too, have