

the studies made as to the methods of distribution of the Gypsy moth, and the measures practised for the destruction of the insect in its different stages; spraying apparatus; and particularly the care of spraying machinery; methods of pruning; and some charming observations upon insect-eating birds.

The scientific work contained in Professor Fernald's report is of great value and contains a record of most painstaking and patient work. Probably one of the most interesting sections is that which deals with Natural Enemies, in which most excellent work has been done. Prof. Fernald has been aided in this work by efficient assistants, and the whole information so gained has been pieced together by a master hand.

With regard to spraying, some surprising results have been obtained. In the first place, the caterpillar of the Gypsy moth seems to be little affected by applications of Paris green when applied of the strength ordinarily used for other mandibulate insects. Mr. Forbush says: "It became evident before the end of the season of 1891, that spraying, while reducing the numbers of the moth, could not be relied upon as a means of extermination, for many caterpillars survived its effects."

The following conclusion, on page 139, will show entomologists that the matter of controlling mandibulate insects, by means of active poisons, is still a fertile field for careful work, in which useful and laurel-bearing results are still to be reaped:—

"Every effort was made during the spraying season to determine why the results of spraying were not uniform and satisfactory. The feeding caterpillars were watched day and night by many observers. The spraying was most carefully superintended, and the conclusion finally arrived at was that, under ordinary conditions, spraying with Paris green for the Gypsy moth was ineffective and unsatisfactory."

Paris green was on the whole the most fatal insecticide, and when used in the proportion of one pound to 150 gallons of water, did not burn foliage; but with larger proportions, did considerable harm. The injury developed so rapidly that within a short time the leaves were all killed and the surviving larvæ had to go elsewhere to feed. "Therefore, a strong Paris green mixture had little better effect than a weak one. Lime was then used with the Paris green, with a view of neutralizing the burning; but considerable injury to the foliage still continued."

Probably one of the most remarkable facts discovered by the entomologists is related by Prof. Fernald, on page 476, where he says: "One