

presses some doubt, since, as he says, "aceto-arsenite of copper, as manufactured to-day, is instantaneously precipitated from complex solutions containing alkali and often excessive quantities of various acids." However this may be, we do know that Paris green often destroys foliage, and that it is likely due to free arsenious oxide. There is no sure and ready method by which the free arsenic content of Paris green can be ascertained. Reagents, such as ammonia, which dissolve Paris green also dissolve the oxide almost or quite as readily. The microscope has been highly recommended, especially for the detection of "white arsenic" which has been added as an adulterant, but not for that which has been retained in the process of manufacture. No doubt this is a valuable aid, still the actual amount present cannot be determined in this way, and the only way to decide whether this substance is present in injurious quantities or not is by chemical analysis.

Precautions in the Use of Paris Green. Since the method of estimating the free arsenious oxide of Paris green is not within the ready reach of all, it is well to assume that it is present in harmful quantities and to use something to alleviate the difficulty, if such there be. As before stated, arsenious oxide, or "white arsenic" may be combined with other substances which will neutralize or destroy its acid or burning property. Lime is one of these substances. *If an equal quantity of good, freshly slaked lime be added to the Paris green, in suspension in the water, some little time before spraying, it will combine with the free arsenious oxide and overcome its leaf-scorching power to a great extent.* It is well also to know that some kinds of foliage are much more susceptible to the destroying power of arsenious acid than others; thus the peach tree has foliage which is remarkably tender, whereas the foliage of the apple is very hardy.

From investigations carried on in 1902-3, the results of which are embodied in Bulletin 82 of the Bureau of Chemistry, Washington, D.C., J. K. Haywood was enabled to make out a schedule showing the amount of free arsenious oxide which the foliage of the more common fruit trees will withstand. His results, which also give figures showing the influence which lime exerts, and are thus doubly valuable, are summarized in the following table:

Average Percentages of Soluble Arsenious Acid Allowable.

	Apple	Pear	Peach	Plum
Without Lime	6	6	0	4
With Lime.....	7	7	4.5	6

This shows plainly that the orchardist must consider the kind of foliage he is spraying as carefully as the kind of Paris green he is using.