NOTE ON A NEW TREATMENT FOR SILVER-LEAF DISEASE IN FRUIT TREES.—The well-known phenomenon of ‘auto-digestion’ shown by the fruit bodies of most species of *Coprinus* forms the theoretical basis for the treatment to be described. From the specific nature of enzyme action it is to be expected that a parasitic fungus has evolved tissues which are not destroyed by the enzymes used to dissolve the tissues of its host, and conversely that an enzyme which destroys the fungal mycelium will leave the host untouched. It seems probable, from the researches of Buller¹ and others, that a very powerful enzyme, capable of destroying the fungal mycelium, exists in the fruit bodies of *Coprinus*. The work which has been begun on Silver-leaf Disease is an attempt to use this enzyme as a curative agent. The disease is particularly well adapted to test the treatment because of the marked silvered appearance of the leaves of affected parts; and also because the symptoms appear in the living branches before their invasion by the fungal mycelium, and so they can be fortified from attack before the tissues have become disorganized. This disease is supposed by most observers² to be due to *Stereum purpureum*, the mycelium of which is found in the dead branches of diseased trees, and which will reproduce the disease in healthy trees. The actual silvering of the leaves has been shown by Percival to be due to air cavities in certain of the walls of the epidermal cells, and may be due to the action of an enzyme secreted by the fungus; but the fungal mycelium does not appear in the living tissues until a short time before death takes place.

The treatment consists in hypodermic injections of a concentrated water extract from the ‘diliquescing’ fruit bodies of various species of *Coprinus*. Besides the injections, there is external application of the same extract, after the manner of a poultice, at the points of the dead wood where fruit bodies of *Stereum* make their appearance. The effect of the treatment is fairly well marked. A ‘poultice’ causes the fungal fruit body to become greyish in colour and to peel off by degrees on to the soaked fabric of the ‘poultice’. One Victoria Plum tree, which has been treated with injections for two years, showed no silvering on the leaves of the upper parts of the branch in the autumn of 1912. When treatment was commenced, this branch, the last survivor of the five main branches of the tree, was badly affected throughout: it has now borne fruit in the two successive seasons, after a sterility of three years’ standing, and has produced remarkably vigorous new growth. The lower parts of the branch, near the infected dead wood, still showed slight silvering on the leaves last autumn.

As the results so far seem encouraging, it is proposed to continue the experiments on a larger scale, to extend the treatment to other fungal diseases of plants and animals, and to investigate in the laboratory the precise nature of the enzyme in *Coprinus* and its effects.

SARAH M. BAKER.

UNIVERSITY COLLEGE, LONDON.

¹ Buller: Researches on Fungi, London, 1909, chap. xix.

² Percival: Journ. Linn. Soc., Bot., 1902, vol. xxxv. Spencer Pickering: Report of the Woburn Experimental Fruit Farm. F. T. Brookes: Brit. Assoc. Reports, 1910, p. 776.

Baker, Sarah Martha. 1913. "Note on a new treatment for silver-leaf disease in fruit tress." *Annals of botany* 27, 172–172.

<https://doi.org/10.1093/oxfordjournals.aob.a089451>.

View This Item Online: <https://www.biodiversitylibrary.org/item/237410>

DOI: <https://doi.org/10.1093/oxfordjournals.aob.a089451>

Permalink: <https://www.biodiversitylibrary.org/partpdf/319967>

Holding Institution

Smithsonian Libraries

Sponsored by

Biodiversity Heritage Library

Copyright & Reuse

Copyright Status: Not in copyright. The BHL knows of no copyright restrictions on this item.

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.