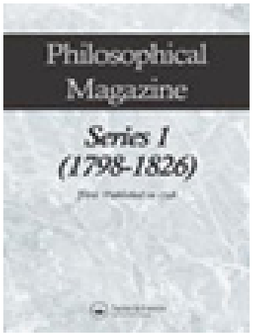

Philosophical Magazine Series 1

ISSN: 1941-5796 (Print) 1941-580X (Online) Journal homepage: http://www.tandfonline.com/loi/tphm12

VII. Experiments respecting the effects of quicksilver on vegetable life

Von Deimann , Paats Van Trostwyk & Lauwerenburgh

To cite this article: Von Deimann , Paats Van Trostwyk & Lauwerenburgh (1799) VII. Experiments respecting the effects of quicksilver on vegetable life , Philosophical Magazine Series 1, 4:14, 161-163, DOI: 10.1080/14786449908677048

To link to this article: http://dx.doi.org/10.1080/14786449908677048

Published online: 18 May 2009.

VII. *Experiments reſpecting the Effects of Quickſilver on Vegetable Life.* By Von Deimann, Paats Van Trostwyk and Lauwerenburgh*.

EXPER. I. A plant of the ſmall garden bean, which had grown in the open fields, was placed in water cloſe to a flaſk filled with quickſilver one inch in diameter, and the water was covered by a bell twelve inches in height and ſix in diameter.

II. A plant of curled mint, the root of which ſtood in water, was placed with quickſilver under a bell eight inches in height and four and a half in diameter.

III. The firſt experiment was repeated, with this variation; that the bell, inſtead of ſtanding over water, was placed on a diſh, and ſupported by pieces of cork.

IV. The ſame experiment as the ſecond, with this difference; that pieces of leaf gold were ſuſpended in the bell.

V. A flaſk filled with quickſilver was placed cloſe to ſome young plants of the *ſpiræa ſalicifolia*, which ſtill adhered to the parent root, and the whole was covered with a bell.

VI. The ſecond experiment was repeated, and a little ſulphur was applied to the interior ſides of the bell.

VII. The ſecond experiment again repeated, with this difference; that the quickſilver was covered with a little water.

VIII. A plant of the curled mint was placed in a baſon of water with a little quickſilver, in ſuch a manner that the roots were in contact with the metal.

IX. The roots of a bean plant, which had ſhot out through holes made in the pot in which it had been reared, were placed in a flat diſh filled with quickſilver.

X. Some beans were planted in earth mixed with quickſilver.

XI. A plant of the curled mint was placed in a baſon with water, and red oxyd of mercury prepared with the

* From Scherer's *Allgemeines Journal der Chemie*, Vol. I. No. 6.

nitrous acid which had been waſhed firſt with an alcaline ſolution and then with pure water, the roots being immerſed in the oxyd.

XII. The ſame as the ſecond, with this variation; that inſtead of quickſilver the oxyd was uſed.

XIII. Beans were planted in a mixture of earth and the red oxyd of quickſilver.

XIV. The ſame planted in earth mixed with the oxyd of lead.

XV. Of three plants of the curled mint, one was placed, in the ſame manner as in the 11th experiment, in a phial which contained water and the oxyd of manganeſe; the ſecond in another, containing water and the oxyd of copper; and the third in one containing water and the oxyd of lead.

The leaves and ſtems in the experiments 1, 2, 3, 4, and 5, were on the third day covered with black ſpots; and on the fourth, fifth, and at moſt the ſixth, had become entirely black. The young tree in the 5th experiment could not hold out the whole ſummer, though it ſtood connected with the parent plant. The plants died ſo completely that the leaves frequently dropped off, and the ſtem ſunk down the very moment the bell was removed. The plants in the 6th experiment remained without any change, which ſhews that ſulphur prevents the bad effects of the quickſilver. In the 7th experiment the effect of the quickſilver was deſtroyed, on account of the water by which it was covered.

The experiments 8, 9, and 10, prove that the quickſilver, when mixed with earth or water, or when it ſtands in contact with the roots of plants, is in no manner prejudicial to them.

The 11th experiment, which we repeated ſeveral times, ſhewed us that the oxyd of quickſilver, placed in contact with the roots of a plant, is deſtructive to it. This oxyd, however, did not produce the ſame effect when it was placed as the metallic quickſilver, near to the plant; as was proved by the 12th experiment, in which the plant did not experience the leaſt change.

In the 15th experiment the plants were not in the leaſt affected by the different oxyds; which proves that plants, like animals, ſeem capable of being accuſtomed to things pernicious to them, provided they begin at infancy. The beans planted in earth mixed with the oxyd of quickſilver grew up, but ſo weak and ſtunted that they could ſcarcely be known. Thoſe, however, which had been planted at the ſame time as the former in a mixture of earth and the oxyd of lead, ſhot up as uſual, and exceeded them in ſtrength and weight more than four times.

In theſe reſearches we were at great pains to make ſome comparative experiments, and we found that the plants in thoſe where no quickſilver was employed, lived a conſiderable time in a ſtate of perfect vegetation. Theſe reſults we give merely as facts, without attempting at preſent to explain them. A conſiderable quantity of quickſilver placed in a very confined atmoſphere may be equally pernicious to animal exiſtence, as we think ourſelves authoriſed to infer from ſeveral experiments, the courſe of which the late ſeaſon of the year obliged us to ſuſpend, and from which it appears that, in one point of view, things hurtful to animals are hurtful alſo to plants.

VIII. *Obſervations on Animal Electricity; being the Subſtance of two Letters from* A. VOLTA *to* Profeſſor GREN.

[Concluded from Page 68.]

THE very conſiderable difference in regard to the quantity of effect in the before-mentioned experiments already ſhews, that if the electric ſtream excited by contact is ſtrongeſt towards a certain metal, when that metal is placed between a certain fluid on the one ſide, and another fluid on the other, there are other fluids which produce a greater effect with another kind of metal; ſo that it will be neceſſary to diſcover by experiment the particular arrangement of