

SCIENCE

FRIDAY, JANUARY 6, 1922

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THE SIGNIFICANCE OF CALCIUM FOR HIGHER GREEN PLANTS¹

In view of the time limit reasonably set for this paper, I shall not attempt to review the very extensive literature that in one way or another deals with the relation of calcium to the plant world, but shall content myself with pointing out certain of the land marks that occur at certain intervals along this oft-traveled road. And, at the beginning, I may as well give Jost's summing up of the situation as he saw it in 1906, ²when he says, "We are bound to admit that its function has not yet been discovered."

To Salm-Horstmar³ seems to belong the credit of proving in 1856 that calcium is necessary for phanerogams and is distinctly not replaceable by magnesium.

Almost simultaneously in 1869 Adolph Mayer⁴ and Raulin⁵ showed that this rule was not of general application since certain non-chlorophyllose types were found to thrive without it.

Mayer grew yeast normally in media from which calcium was lacking and Raulin did the same with *Aspergillus*. It remained for Molisch⁶ in 1895 to demonstrate that not all green plants require calcium by cultivating

¹Address of the Vice-President and Chairman of Section G, Botanical Sciences, American Association for the Advancement of Science, Toronto, December, 1921.

²Jost, Ludwig, "Lectures on Plant Physiology," Gibson's transl. Oxford, 1907: 85.

³Salm-Horstmar, "Versuche und Resultate über die Nahrung der Pflanzen, Braunschweig." 1856.

⁴Mayer, Adolph, "Untersuchungen über Alkoholgährung." 1869: 44.

⁵Raulin, *Ann. d. Sci. Nat.*, V, Ser. I, 11: 224, 1869.

⁶Molisch, *Stizb. d. Wien. Akad.*, Abt. I, 104: 733. 1895.