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MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

PHYSICAL CHEMISTRY IN THE SERVICE OF PHYTOGEOGRAPHY¹

BIOLOGISTS, grown in the present generation from a mere squad of determined scouts to a splendid army of disciplined investigators, increasing daily in rank and equipment, have as their greatest task the placing of biology alongside physics and chemistry in the ranks of the exact sciences.

In the title of this paper, *Phytogeography*, which even its most ardent disciples must confess is one of the least quantitative of the biological sciences, is coupled with *Physical Chemistry*, which is conceded by all to be one of the most precise of the physical sciences. This contrast has been made, not to magnify the chasm which conventionally has been assumed to separate the exact from the descriptive sciences, but to emphasize to biologists and to chemists and to physicists alike, the fact that the methods of the most advanced physical sciences can now be successfully employed in such a confessedly descriptive phase of biology as ecology and phytogeography.

In turning to the task of the moment, which is to consider how certain of the simplest physico-chemical methods may be of service in ecology and phytogeography, it is important to place the group of problems to be investigated in its proper biological setting, and to state these problems in such a form that their relationship to a physico-chemical method of investigation is quite obvious.

¹ A paper presented at the Symposium on Relations of Chemistry to Botany, before the joint session of Section G, American Association for the Advancement of Science, and the Botanical Society of America, December 27, 1916.

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