

reaction with  $\text{CaCO}_3$  of the substratum, thus forming  $\text{Na}_2\text{CO}_3$ . Extensive studies of this sort can add much to our knowledge of the absorption of salts by plants and the intereffects of salts upon each other as regards absorption.—WM. CROCKER.

**Calcium compounds of the soil.**—Under this title<sup>35</sup> E. C. SHOREY, W. H. FRY, and W. HAZEN, members of the Bureau of Soils, have analyzed 63 soil samples of 23 types from 24 locations of 19 states. They have calculated the percentage of calcium combined with humus compound, calcium carbonate, calcium sulphate, and calcium as difficultly and easily decomposed silicates. They find a wide variation in total calcium content and in calcium carbonate and the two classes of silicates, and there was no constant relation between the total calcium content and the percentage of any of the calcium compounds. Calcium combined with humus compounds was absent in 29 soils. One type which is recognized as a good alfalfa soil is characterized by high calcium content, but low content of calcium carbonate. This indicates, as does other evidence, that alfalfa requires a rather high content of calcium ion as a nutrient or balancer of the soil solution, rather than merely calcium carbonate as a neutralizer of acidity.—WM. CROCKER.

**Phylogeny of ferns.**—BOWER,<sup>36</sup> in continuation of his phylogenetic studies of the ferns, has developed some interesting conclusions in reference to what he calls the “acrostichoid condition,” meaning the spreading of exposed sporangia “uniformly over a considerable area of the sporophyll.” This fact was the basis of the old genus *Acrostichum*, which BOWER has come to regard not as a natural genus, but as a state or condition which may have been attained along a number of phyletic lines. In the present paper he has presented a number of genera which he regards as “dipterid derivatives,” that is, derived from a phyletic stock characterized by *Dipteris*, which show various stages of advance toward the acrostichoid condition. According to this view, a number of so-called genera of ferns are form genera, not being what BOWER calls “phyletic unities.” The increasing evidence of parallelism in evolution is raising the question of “phyletic unity” in connection with all of our larger genera.—J. M. C.

**Pine forests of Virginia and the Carolinas.**—HARPER<sup>37</sup> recently devised a method for securing a rough quantitative analysis of vegetation from notes taken at frequent intervals from the car window or while walking through the country. He made such notes during 53 hours of railroad travel and 21 hours

<sup>35</sup> Jour. Agric. Research 8:57-77. 1917.

<sup>36</sup> BOWER, F. O., Studies in the phylogeny of the Filicales. VI. Ferns showing the “acrostichoid” condition, with special reference to dipterid derivatives. Ann. Botany 31:1-39. pls. 1, 2. figs. 15. 1917.

<sup>37</sup> HARPER, R. M., Geography and vegetation of northern Florida. Ann. Rep. Fla. Geol. Survey 6:163-437. 1914.





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<https://doi.org/10.1086/332148>.

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