work and whose financial resources are so limited that they can not reach the goal toward which they started.

May I add here that I am not appealing for fellowships in any particular branch of science but for *fellowships available in any field of science.* Too often when a fellowship is available only for chemistry, the recipient may be inferior in potential ability to some one who aspires to be a physicist when no fellowship is available in that field. Neither am I appealing necessarily for fellowships at Minnesota, for the student should be permitted to select the *men* under whom he wishes to work and not be limited to a university which will grant an assistantship permitting work toward a Ph.D. degree, for, after all, graduate schools are known by their works, by the *men* on the faculty and not by the name of the university or by the ornateness of the buildings. There may be only one man in America who stands preeminent in the field in which the student wishes to do major work, in which case the fellowship should permit the student to work with this man rather than waste his time on a second-rate instructor in another university where a fellowship happens to be available.

The Graduate Group Committee for Agriculture at Minnesota awards the three available fellowships, as nearly as is possible, solely on the basis of merit of the individual and not on the basis of departments. Such a committee having similar duties could well function in our sister institutions and would be a necessity in the event that additional funds for any considerable number of fellowships became available.

In closing may I add that while I rejoice at the increasing number of $1,500 to $2,500 fellowships which are being provided for *post-doctorate* fellowships, nevertheless I can not help wondering whether *five* $500 post-baccalaureate fellowships, to assist talented students to begin post-graduate work, might not yield greater scientific dividends than does a single $2,500 post-doctorate fellowship. In any event, I'd like to see the experiment tried, for I believe I can predict the results.

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CONE-IN-CONE ON CONCRETIONS FROM THE DEVONIAN OF NEW YORK

THE fact that the concretions occurring in the Devonian of New York[1] contain a well-preserved fauna and flora is in keeping with similar occurrences both in this country and abroad. This feature of fossiliferous concretions was pointed out in my article on concretions in the "Treatise on Sedimentations" (p. 514).

[1] A. Emil Alexander, "Devonian Concretions of Western and Central New York," SCIENCE, 68: 85, 1928.

Mr. Alexander notes that some of these concretions have "the peculiar cone-in-cone structure *for which no explanation has as yet been offered.*"[2]

I should like to call Mr. Alexander's attention to the fact that the occurrence of cone-in-cone on and in concretions is mentioned in the article referred to above (p. 502), and that the origin of this interesting structure is discussed in an article on cone-in-cone in the same volume (pp. 515–518). The origin is discussed in more detail in my paper on "Cone-in-Cone," in volume 4 of the *American Journal of Science* (pp. 199–213), where there is also another list of references in addition to those on page 515 of the "Treatise on Sedimentations." I think Mr. Alexander will find that an explanation for this structure has been offered.

Attention should also be called to the statement: "In the marcasite nodules, the iron pyrite has replaced the organic, as the case may be, by its silver white metal." It is not "iron pyrite" (for pyrite is a mineral separate and distinct from marcasite), but *iron disulphide,* that has replaced the organic material.

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WINTER ROOT GROWTH OF PLANTS

IN a series of investigations at the Boyce Thompson Southwestern Arboretum, it has been found that the roots of certain plants, generally thought to be dormant in winter, make definite, continuous growth at this season. This is true of both deciduous and evergreen species and embraces cultivated and wild forms. Notable examples are *Prunus persica, Prunus armeniaca, Covillea tridentata, Simmondsia californica, Cupressus arizonica* and *Opuntia laevis.* The rate of root elongation per day, of the species under observation, was found to vary from 9 mm in November, as the maximum, to .5 mm in February, as the minimum. Growth was evidently affected by change in the seasonal temperature of the soil, but there appeared to be no direct or close correlation between daily growth and soil temperature.

In the study of individual species the average daily root elongation of the peach (*Prunus persica*), covering the winter period between November 4, 1927, and March 31, 1928, was 2.10 mm. The average daily growth for November was 5.55 mm, December 2.01 mm, January 1.65 mm, February .90 mm, and March 1.16 mm.

In contrast to this group of plants showing decided growth in winter, other plants were found which, under the same environmental conditions, make no

[2] Italics mine. W. A. T.