action of the acid will produce no further improvement of the file but will produce a gradually progressing deterioration. The radius of curvature of the convex areas remains zero indefinitely, but the angle at which the concave areas meet gradually approaches 180°. This gradual "resmoothing" of the file is in sharp contrast to the formation of fluted rocks which, as years or centuries pass, always progresses, never recedes. The ridges on the file, in contradistinction to the ridges on the fluted rocks, are exposed to the action of the acid for the same length of time as the grooves.

*"Dish formation" in old avalanche snow.* When, during the winter, an avalanche has come down a mountain slope it frequently remains strongly compacted in the bed of a small creek for a considerable part of the following summer. In this case it is likely that the creek will again find its way along the bottom of its old bed, deep under the old avalanche snow. Soon warm air, too, will find its way along the water and will form a tunnel under the avalanche. When this tunnel is open at both ends of the snow field a considerable air flow takes place downward through this tunnel whenever the temperature of the outside atmospheric air is above freezing. This air drift produces a rapid melting of the old snow, and toward the middle of the summer a sizable tunnel has been formed. Tunnels of this sort are frequently 5 to 10 ft high, and it is easy to follow the creek for considerable distances under the snow mass.

It is quite evident that under these conditions the melting is done entirely or almost entirely by the flow of warm air. The sun never reaches the ceiling of these caves, and the radiation by the bottom of the cave which itself is near freezing, seems to be negligible.

"Dish formation" on remnant of old avalanche, Simplon Pass, Switzerland, May 1954.

Under the described conditions we invariably see a very striking phenomenon on the ceiling of the cave as well as on the walls. The whole surface of the snow is composed of a multitude of concave spherical surfaces or "dishes" forming sharp ridges at the place where two of these surfaces meet. The borderline of each dish is, therefore, polygonal. The dishes often reach 1 ft in diameter. There is little doubt that these ridges are formed in the same manner as the sharp ridges of the old file dipped into hydrochloric acid. It is, however, rather surprising that the phenomenon does not come to an end. Apparently there are always enough irregularities in the snow to prevent the theoretically possible formation of an entirely smooth surface. It may be noted that the formation of dishes is not confined to the inside of the caves; it is also seen, although less well pronounced, on the upper surface of the snow field.

# Sophia H. Eckerson, Plant Microchemist

FOLLOWING a week's illness, Sophia Hennion Eckerson, retired plant microchemist at Boyce Thompson Institute for Plant Research, died on 19 July 1954. Born in Old Tappan, N. J., Dr. Eckerson had an inheritance of old Dutch and French blood from her parents, Albert Bogert and Ann (Hennion) Eckerson.

Entering Smith College as a mature student, after helping younger brothers establish themselves in their chosen fields of medicine and art, she received her A.B. degree in 1905 and her A.M. degree in 1907. In 1911, she received her Ph.D. at the University of Chicago, where she continued on the staff until 1920, although the school was not then noted for its liberal attitude toward women on its scientific staff. Her ability as a microchemist led to appointment under that title for a term at Washington State College in 1914; with the Bureau of Plant Industry, USDA, Washington, D.C., 1919; with Cereals Division, 1921–22; with the University of Wisconsin, 1921–23. Becoming plant microchemist at Boyce Thompson Institute when it was organized in 1924, she continued in this position until retirement in 1940.

A versatile person with wide interest in letters and art as well as science, Dr. Eckerson showed the effect of her early training in plant physiology with William Francis Ganong, an outstanding teacher. Her earliest publications are cited in the second edition of *The Teaching Botanist,* which he was then preparing. Throughout her life, she influenced young scientists, whether as aspirants for the doctoral degree, with a thesis to develop and write, or as members of formal classes or informal groups, organized to take advantage of her ability to teach them the special methods she had developed for following metabolic processes in plants by detection of the products through crystallization or by color reactions. Indeed her many students used the mimeographed copies of her "Outlines of plant microchemistry" as a class textbook, so that although she was too much of a perfectionist to publish the last draft of a book designed for class use, her methods have been widely disseminated and incorporated into the textbooks of others.

Throughout her career, she gave generously and enthusiastically of her time and experience to many in organizing and pursuing botanical problems as well as

in the careful presentation of the finished work. The list of her publications gives evidence of her wide interests—in such diverse special fields as microchemistry, germination, mineral nutrition, reduction of nitrates by plants, nitrate reducase, cell walls, endophytic fungi, starch grains. Possibly outstanding in their effect are "Microchemical studies of the progressive development of the wheat plant," "A physiological and chemical study of after-ripening," and her contributions on the structure of cellulose membranes and starch grains.

Never a "joiner," she nevertheless gave good support to Sigma Delta Epsilon in its youthful days. Her academic standing was evidenced by membership in Phi Beta Kappa and Sigma Xi, and the esteem in which her fellow-botanists held her resulted in election to the chairmanship of the Physiological Section of the Botanical Society of America, a rare position for a woman. Her name was in the starred list of outstanding scientists in *American Men of Science* in 1938. Quite outside of organizations, a host of former students and associates feel the loss of the quiet, reserved friend who spent her last years of retirement with her hobbies of reading, handwork, and a real garden in Pleasant Valley, Connecticut.

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# *News and Notes*

## Botanical Congress in Paris

An exceptionally cool summer provided an excellent atmosphere for the sessions of the 8th International Botanical Congress in Paris, 2–14 July. Almost 3000 participants were registered. Several special sessions preceded the general meetings. One was that of the Nomenclature Commission, which spent several days in stormy discussion of proposed amendments. A very controversial item was the always resurgent *nomina specifica conservanda*. The good humor of the chairman, Jacques Rousseau (Montreal), rescued the proceedings from pandemonium many times. Another initiative was a "colloque" (symposium) on the "ecological divisions of the world." This, like all such undertakings, was very uneven in content, coverage, and level. The French schools (Toulouse and Montpellier) gave a brilliant account of their methods and their achievements. An exhibition of maps was held concurrently, which showed the excellent work in the past 15 yr of Gaussen (Toulouse) and his collaborators. Other exhibits were by Hueck (São Paulo), Küchler (Kansas), Tüxen (Stolzenau), and Schmid (Zürich).

After the official opening of the congress on 2 July, the participants in the preliminary meetings joined one or another of the 37 sections in which symposiums and miscellaneous papers were being presented. The program was very full and all sections were well attended. As at all such meetings, much time was unavoidably wasted in walking from one section to another and much frustration was experienced because of time conflicts. It is unfortunate that the time restriction for each paper cannot be enforced, but perhaps this requires more fortitude than section chairmen are able to muster. It is, of course, quite impossible to give an account, section by section, of the proceedings and to cite even the most interesting features in each one. I have, however, obtained the collaboration of my colleagues, W. Randolph Taylor, Rogers McVaugh, Chester A. Arnold, and Volney H. Jones, who, respectively, provided notes on phycology, taxonomy, paleobotany, and ethnobotany, whereas I attended the ecology, phytosociology, and protection of nature sections myself. This coverage leaves much that is of equal importance unmentioned.

*Phycology.* The section of phycology held 17 of the scheduled 18 sessions. One joint session with geology was eliminated because of the death of F. E. Fritsch and the absence of the other chief phycological speaker. About 10 unscheduled papers were added to the program, so that the total of papers was about 120, but several were omitted because of absence of the authors. The attendance varied from 30 persons to 90 or 100 but averaged more than 50 at all times.

The subjects that attracted the most contributors dealt with phytogeography and marine ecology, the vegetation of Africa having been especially favored. A meeting on this last brought together several people long interested in African algae and resulted in an important contribution on the structure of cilia by I. Manton of Leeds. This paper, with the balance of the program, led to very active discussion. So did the program on life-cycles of algae, opened by K. M. Drew Baker, in which various opposing viewpoints were vigorously presented. Programs previously initiated at Stockholm dealing with electron-microscopic structure of diatom cell walls were extended at Paris to other diatoms and to Coccolithophondae, showing astonishing degrees of submicroscopic complexity. The section dealing with biochemistry of marine algae was opened by F. N. Woodward and was an exceedingly crowded one. Although the field was outside the competence of most of the members of the section, the attendance was large and the discussion, especially from visiting physiologists, was as active as the limited time permitted.

In the section dealing with cytology of algae the remarkable studies on chromosome number of *Spirogyra* by Godward were extended and, as indicated by a first communication by C. G. King, desmids have been added to the algal groups that are being inten-