tions indicates how great has been the need for such a journal, and by the same showing this journal is one which no cytologist can afford to be without.

E. G. Conklin

BOTANICAL NOTES

CYTOLOGY, EMBRYOLOGY AND HISTOLOGY

Dr. Miyake's studies of "The Development of Gametophytes and Embryogeny of Cunninghamia" (*Bot. Mag.*, March, 1908) leads him to the conclusion that there is a close affinity between this genus and *Taxodium* and *Cryptomeria*. He suggests that these genera should be placed with the Cupresseae, "and that *Sequoia* and *Sciadopytis* should each constitute a family by itself."

Helen Dorety in studying "The Embryo of Ceratozamia" (*Bot. Gaz.*, June, 1908) in which there is but one cotyledon, subjected the young ovules to the action of a klinostat (thus neutralizing the effect of gravitation) and found that embryos grown under these conditions developed two cotyledons. These studies are continued in a later paper, "The Seedling of Ceratozamia" (*Bot. Gaz.*, September, 1908).

Here may be mentioned R. J. Pool's "Histological Studies in the Artemisia Formation" (*Univ. Nebr. Studies*, Vol. 8, No. 4), in which further facts are recorded in regard to the relation between the physical environment of plants and their internal structure. Especial attention was given to *Artemisia tridentata*, the "sage brush" of the Rocky Mountain region, a perennial, woody xerophyte, although some attention was given to twenty-four other species of plants which occur in the formation. Eight plates, including forty-two figures, accompany the paper.

In R. H. Pond's studies of the "Emergence of Lateral Roots" (*Bot. Gaz.*, Vol. 46, pp. 410–12) the author concludes that in *Vicia faba* and *Lupinus albus* they "push out from the central cylinder mechanically, and do not have a digestive action upon the surrounding tissue."

In the same number of the *Gazette* W. H. Brown's paper on "The Nature of the Embryo-sac of Peperomia" contributes additional facts to our knowledge of a genus of interesting plants. Among his results are the heterotypic division of the embryo-sac nucleus, and the mature sac with sixteen nuclei. Three fine plates add to the value of the paper.

We may note, also, Dr. Swingle's "Embryology of *Myosurus minimus*" (*Am. Nat.*, September, 1908) and L. L. Burlingame's "Staminate Cone and Male Gametophyte of *Podocarpus*" (*Bot. Gaz.*, September, 1908), both of which add somewhat to our knowledge of the plants concerned.

THE GRAPES OF NEW YORK

Some years ago the New York Agricultural Experiment Station began the publication of a series of comprehensive treatises on the fruits of New York, the first, devoted to the apples, being the work of Professor S. A. Beach. Now we have from U. P. Hedrick and his four assistants a thick quarto volume of nearly six hundred pages, and 101 full-page color-plates. The latter are remarkably fine, and were made by a four-color process in which four photographic negatives were made of each specimen, and from these four copper plates were made, and in the printing each plate was used for one of the four colors used, viz., red, yellow, black and blue. It is by far the best work of this kind that we have seen.

The volume is of much more than horticultural interest, and will be consulted by botanists who wish to know something of the relationship of the various kinds of grapes more or less commonly grown in the northern states. There is first an interesting account of the old world grape (*Vitis vinifera*), and of the many futile attempts to introduce it into North America east of the Rocky Mountains. Then follows a similar, but longer account of the American grapes and their introduction into cultivation. The next chapter on Viticulture in New York is devoted to the practical horticultural aspects of the subject, and this is followed by one wholly botanical in which twenty-three American species are described with much particularity. References

to the literature and published accounts of each species are given with much fulness, and where the species has been brought under cultivation the history of such introduction is given. This chapter represents much prolonged and careful work on the part of the author and his assistants. The bulk of the book is taken up with descriptions of the leading varieties of American grapes, arranged in alphabetical order. The author's suggestions as to the specific origin of each variety are of interest to the botanist, who will be surprised to find that so many are of hybrid origin. In some cases the varieties are not simple hybrids, but combine the "blood" of three or even four species. On the other hand, not a few varieties are derived from a single original species. Thus the well-known "Concord" variety is considered to belong to the species *Vitis labrusca,* without any other admixture. The "Catawba" is regarded as a hybrid between *V. labrusca* and *V. vinifera* as is also the "Isabella." In order to produce the toothsome "Delaware" no less than three species have been blended, viz., *V. labrusca, V. bourquiniana* and *V. vinifera.*

Following this chapter is one enumerating the minor varieties of American grapes, and the volume ends with a bibliography and a good index. Altogether it is a most interesting and valuable volume for the horticulturist, while at the same time it is so well written from the scientific standpoint that it must become a valuable reference book for the botanist.

A BOTANICAL OPPORTUNITY

DURING his very active life the late Professor William A. Kellerman made large collections of plants amounting to many thousands of specimens, which are still the property of his estate. These are now for sale, and an unusual opportunity is thus opened to museums for securing a herbarium of great value. There are approximately 30,000 mounted specimens of flowering plants, with about as many more that are unmounted, and 40,000 mounted specimens of parasitic plants (fungi) and an equal number or perhaps more of unmounted specimens. Altogether there are thus not far from sixty thousand mounted specimens, and from sixty to seventy thousand that are unmounted.

The collections are said to be in good condition, care having been taken to use the best methods for their preservation by adequate protection against dust and moisture, while insect depredations have been guarded against by poisoning and other means.

The fact that Professor Kellerman collected much of this material while making his careful studies of the harmful fungi which affect cultivated plants gives to this collection great value for the plant pathologist. It would be invaluable for any one of our more scientific experiment stations. Since many of the specimens were collected in Central America, this fact will appeal to the curators of the large herbaria connected with the great universities. In fact a considerable collection of plants like this, which represents the life-work of an active botanist, must have a high value on that account, alone, to say nothing of its value for the species represented.

Mrs. Kellerman hopes to have these collections kept together, as indeed they should be, if possible, but they will be sold separately if necessary. Here is an opportunity for some one who wishes to help botanical science in this country by the purchase of these collections for some institution. They should be kept together if possible, as the "Kellerman Herbarium," but whether kept together or merged into some larger herbarium, they should be made available for the use of botanical students. There must be many men of scientific tastes who would be glad to render a service to science by the presentation of this herbarium to the botanical department of some university or to one of our botanical gardens. The editor of these notes hopes that what is here said may suggest to some of the readers of SCIENCE a use for a few thousand dollars that will render a lasting service to American botany. Moreover, the editor will be glad to aid in bringing about such a desirable scientific benevolence.

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