TABLE 1

OLDEST INSTITUTIONAL HERBARIA IN THE UNITED STATES

1812—The Academy of Natural Sciences, Philadelphia, Pa.
1826—The Darlington Herbarium, S.T.C., West Chester, Pa.
1829—Amherst College, Amherst, Mass.
1830—Boston Society of Natural History, Boston, Mass.
1836—The New York State Museum, Albany, N. Y.
1838—The University of Michigan, Ann Arbor, Mich.
1850—The Charleston Museum, Charleston, S. C.
1852—The Milwaukee Public Museum, Milwaukee, Wis.
1853—The California Academy of Sciences, San Francisco, Calif.
1856—The University of Missouri, Columbia, Mo.
1857—The Missouri Botanical Garden, St. Louis, Mo.

organization, including books, maps, pictures, and the herbarium of William Darlington, as well as the inevitable collection of stuffed birds, an alligator, birds' eggs, shells, "philosophical apparatus," and miscellaneous curios, was purchased by the West Chester Academy a hundred years ago (1850). In 1869, the State Normal School acquired all the property of the West Chester Academy (*4*). At present, most of the natural history specimens form the nucleus of the Science Museum at the State Teachers College. Since 1827, any local resident or interested visitor may have had access to the collections, although there were at least two periods when moving or renovations were in progress that made it difficult for people to make use of this opportunity.

Another early museum was that of the Delaware County Institute of Science, incorporated February 8, 1836. A two-story building was erected near Rose Tree, Pa., in 1837. At an organization meeting in Upper Providence on September 21, 1833, the parent institution was named the "Cabinet of Natural Science of Delaware County." Its incorporation as an Institute of Science no doubt became necessary when plans were made to erect the building. "Lectures were given in the hall and a museum was established, which received many specimens in every department of natural science" (*5*). It continues to meet in its present building, which was erected in Media, the county seat, in 1867. Its collection of local minerals and its scientific library are quite worthy of note.

In their recent listing of the institutional herbaria of the United States (*3*), Jones and Meadows have done a distinct service to their fellow-taxonomists. In the chronological list of herbaria the first section, including those founded before 1860, should contain two more institutional herbaria.

The Darlington Herbarium at West Chester, Pa., was established by William Darlington, M.D., who began in 1817 to collect a herbarium of the plants of Chester County (*6*). As noted above, he was a prominent figure also in the founding of the Chester County Cabinet of Natural Science (*7*), the first annual report of which was published in 1828 (*8*). Since the oldest specimens now found in the Darlington Herbarium bear the date 1826, there is sufficient evidence to show that it antedates that of the Boston Society of Natural History, which was founded in 1830 (*3*). Jones and Meadows may have omitted this herbarium because the Chester County Cabinet was later dissolved and its collections eventually became the property of the Pennsylvania State Teachers College at West Chester (*4, 9*).

"The question as to when an herbarium ceases to be a private one and when it becomes 'public' or 'institutional' is not always easily decided. For example, Asa Gray gave his herbarium to Harvard University in 1864, when it became an institutional herbarium. But the herbarium of Asa Gray is much older. It may be that the herbarium of the New York State Museum and the Darlington Herbarium are older 'institutionally' than we have listed them. We relied solely upon information submitted in the questionnaires" (*10*). The Herbarium of the New York State Museum at Albany should also appear in the earliest chronological group, as it was founded in 1836.

A revised chronological list of the oldest institutional herbaria in the United States is given in Table 1.

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A Modified Glass Filter Apparatus for Small Volumes

THE development of a practical UF (ultrafine) filter assembly was accomplished by Morton (*J. Bact.,* 47, (4), 379 [1944]). It combined the standard UF porosity sintered glass filter of Pyrex[1] with a mantle and joined them with a standard taper glass joint T-S 29/26 to a 250-ml Erlenmeyer-type flask. This was the first all-glass filter apparatus for bacteriological work. It has the advantages that it can be chemically cleaned and that it affords excellent protection from outside contamination by virtue of the glass mantle and standard taper joint closure. The glass joint closure also allows repeated use and sterilization without contamination from the rubber stopper. Frequent changes of the stopper necessitated by heat distortion and fusion to the glass are eliminated. The glass filters have offered a definite advantage over the Seitz or Berkefeld types of filters, which take up and hold

[1] Pyrex brand chemical glass #774, Corning Glass Works, Corning, N. Y.

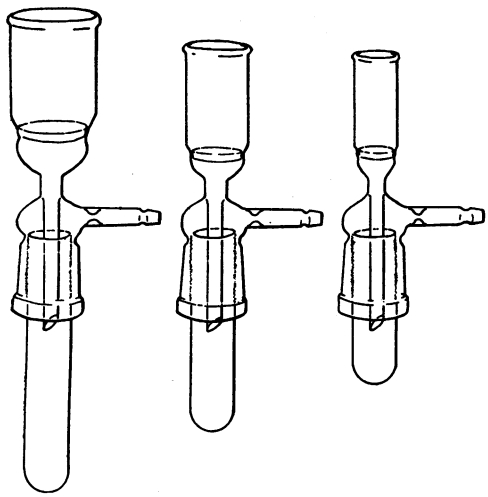

FIG. 1. Sketches of filter assemblies utilizing three sizes of UF filters and three sizes of receiving tubes.

comparatively large volumes by wetting or adsorption —volumes which are held and not passed through to the receiver flask.

The all-glass filter assembly has been widely accepted in bacteriological and other scientific laboratories. There have been some difficulties with the apparatus, which is slightly top-heavy, as well as fragile, especially at the side arm and at the neck between filter and mantle. More serious, however, is its unadaptibility for use with small quantities of fluids. Up to this time, only one size filter and flask combination has been available for all types of work. This model (Corning #3990) has a 40-mm filter disk, a 60-ml reservoir above it, and a 250-ml receiving flask. No other filters, flasks, bottles, or tubes have been available with the T-S 29/26 glass joint. The filter apparatus is unnecessarily cumbersome, and the receiving flask too large for many filtering procedures, such as sterilization of small volumes of sera, drug preparations, and antibiotics for *in vivo* testing or *in vitro* assay. The same problem exists in filter-sterilization of growth factors, amino acids, rare sugars, and other chemical solutions for microbiological nutrition work, when perhaps only 5–10-ml volumes are to be sterilized.

UF filters of 10-, 20-, and 30-mm size, holding corresponding volumes of 2, 15, and 30 ml, as well as the largest model (40 mm with a 60-ml volume), are available, but without the mantle and joint. We have found it practical to seal off T-S tubes to desired lengths to receive 5-, 10-, and 25-ml quantities, using the already available filter mantle. It has also been found practical to seal smaller filters on the available mantles from broken filters or on new mantles for use with small quantities of fluids (2–10 ml,[2] Fig. 1). With the round-bottom collecting tube as a base, the apparatus will not stand alone. In practice, we use a clamp and ring stand to hold it or place the whole apparatus in a small wire basket, with the side arm protruding through the wire mesh to fasten to the vacuum tubing.

An all-glass, chemically clean, sterilizing filter for small volumes of fluid has advantages of economy in original cost, smallness in size, ease of handling, and recovery of greater amounts of the original fluid following filtration.

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[2] Prepared by Scientific Glass Blowing Co., Houston, Texas.

Rare Yucca

SEVERAL years ago R. B. Corey and I announced the discovery of a bifurcated hydrogen bond in the crystal structure of the amino acid glycine (*J. Am. Chem. Soc.*, **61**, 1087 [1939]). Now I wish to announce that a bifurcated yucca (*Yucca Whipplei*) has been discovered at Chilao Flat in the San Gabriel Mountains near Los Angeles, at an altitude of 5300 feet. Mrs. Thomas, of the Loomis Ranch, discovered the freak yucca last spring, and I photographed it (Fig. 1).

FIG. 1. Rare aberration of *Yucca Whipplei*, Chilao Flat, Los Angeles Co., Calif.

I would be glad to send seeds, sections, and more information on the plant to interested botanists. (I seriously doubt that there is any connection between bifurcated hydrogen bonds and bifurcated yuccas.)

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