

ness to the diploid Dd. The tetraploid Dd<sub>3</sub> has flowers with at most only a few extra petals. If segregation is in accord with random assortment of 4 chromosomes the plant-breeder could guarantee that all the seeds from selfing a D<sub>3</sub>d parent would be high-grade doubles. If segregation followed random assortment of 8 chromatids, there should be not over 0.13 per cent. singles. In certain races, red flecks occur on white flowers, due to dominant somatic mutations. In diploids the number of flecks per petal is from 2 to 6 times as frequent as in what appears to be comparable tetraploid material. Since there are twice as many chromosomes per cell in tetraploids one would expect twice as many mutations leading to an increased number of flecks per flower. This appears not to be the case, even if account is taken of the fact that there are slightly fewer cells per tetraploid flower. Our present interpretation is that tetraploidy in some way reduces the mutation rate in individual chromosomes.

*The genera of the Boletaceae:* WALTER H. SNELL (introduced by Charles Thom). The classification of the Boletaceae most widely accepted in Europe and America has contained four genera: *Strobilomyces*, *Boletinus*, *Boletus* and *Gyrodon*, with *Boletus* containing all but 14 of the species arranged in 13 subgroups. The genera and the subgroups of *Boletus* are separated on the basis of gross morphological features of the carpophore. Some of the subgroups of *Boletus* as now constituted differ more from one another than *Boletus* does from the other genera, especially *Boletinus*. In the belief that spore characters are more fundamental as a basis for classification and that the use of them will provide a more natural and usable arrangement of the species in this family, it is proposed to adopt the scheme of Gilbert with certain modifications and made up as follows: subfamily Boleteae, with smooth spores containing the following genera—*Phylloporus*, *Boletinellus* (a segregate from *Boletinus*), *Boletinus*, *Ixocomus* (the present *Viscipelles*), *Pulveroboletus* (the *Pulverulenti*), *Xerocomus* (the present *Subpruinosi* and *Subtomentosi*), *Boletus* (including the *Calopodes*, *Edules* and *Luridi*), *Tylopilus* (the *Hyporhoidii*), *Trachypus* (the *Versipelles*), *Porphyrellus* (containing two pilose, reddish-spored species), *Gyroporus* (the *Cariosi*), *Gyrodon*, and a new genus for three species

with very small spores; subfamily Strobilomycetaceae, with ornamented spores, containing the genera *Strobilomyces* (with globose, reticulate spores), *Boletellus* (with large, elliptical spores longitudinally striated or verrucose spores), and *Polyporoletus* (with spherical, warted spores).

*Cytogenetic strains in certain species of grasses:* GEORGE L. CHURCH (introduced by Charles Thom). In studies correlating polyploidy with species differentiation and geographic distribution in three genera of grasses, some cases of cytological differences are found within the limits of the species. Most of the forms of *Spartina patens* (Ait.) Muhl. are hexaploids, as well as two allied varieties that are usually recognized as distinct species; i.e., *Spartina caespitosa* A. A. Eaton and *Spartina bakeri* Merr. However, a tetraploid form is occasionally found in Massachusetts and a tall, robust, octoploid type is reported from Florida. Coastal specimens of *Spartina pectinata* Link. are hexaploid, but a Nebraska strain is dodecaploid. It is thought that in New England the hexaploid *S. caespitosa* could arise as a cross between *S. pectinata* and *S. patens*. The early-flowering, strand forms of *Spartina alterniflora* Lois. are octoploid, while the taller, robust, late-flowering forms of tidal lagoons are decaploid. The widely distributed *Panicum virgatum* L. is tetraploid, but a smaller strain with pilose leaves from Oklahoma is octoploid. The latter occurred in a planting of a large tetraploid strain. In the genus *Andropogon*, western strains of *A. hallii* Hack. and *A. provincialis* Lam. are hexaploid, but specimens with an extra monoploid complement are found. The lack of polyploidy in the southern strains of *A. virginicus* L. thus far studied is attributed to the fact that the probable parents, typical *A. virginicus* L. and *A. glomeratus* (Walt.) B.S.P. are both diploids.

*Biographical memoir of Julius Stieglitz:* W. A. NOYES.  
*Biographical memoir of Graham Lusk:* E. F. DUBOIS.  
*Biographical memoir of Elihu Thomson:* K. T. COMPTON.  
*Biographical memoir of Ernest William Brown:* FRANK SCHLESINGER and DIRK BROUWER.

*Biographical memoir of George Ellery Hale:* WALTER S. ADAMS.

## SCIENTIFIC EVENTS

### THE EXPOSITION OF CHEMICAL INDUSTRIES

THE seventeenth Exposition of Chemical Industries will be held at Grand Central Palace, New York, from December 4 to 9. Three floors have been reserved for the exhibit, and nearly 300 exhibitors, representing over forty industries, have engaged space.

Chemicals, chemical raw materials and fabricated materials will be shown in terms of their manufacture and use. One exhibit will be devoted to carbon monoxide and its use as a reagent in educational, industrial and commercial laboratories. In the field of drying agents a soluble anhydride, the result of research on

the fundamental nature and behavior of hydrates of calcium sulfate, will be demonstrated. Applications range from refrigeration to the drying of cable splices in the telephone and telegraph industries, also a new large-scale process for the dehydration of serums from the frozen state.

Materials of construction will include acid and corrosion proof linings for tanks, towers, process equipment, also for electrolytic refining tanks and for acid water and oil-proof linings which will be demonstrated in their uses for pickling tanks and acid disposal equipment, also for electrolytic refining tanks, and for acid sludge in petroleum refineries.

The field of precision instruments will include the latest types of temperature and pressure measuring devices. There will be a vibration proof potentiometer controller, a recorder controller pyrometer for throttling fuel heat and a new line of rectangular-case indicating recorders and controllers with nine-, ten- and twelve-inch charts for temperature and pressure. Other instruments of precision will include a machine to determine plasticity. Measurement by this instrument is said to provide an accurate index to changes in the material caused by different temperatures, addition of ingredients or fillers, breakdown action of catalysts, etc. A new recording viscosimeter offers a spiral drive thermometer, the first of its kind to be manufactured, which governs a constant speed temperature increase of the suspension to be measured.

One exhibit will display meters for measuring and integrating accurately the quantity of liquids passed through closed pipes—to permit knowledge of the cost of liquids metered, to facilitate control of the use of liquids and to assure accurate manufacture of products containing a liquid.

There will be a complete range of process equipment, including steam jacketed kettles and tanks, made from stainless steel, monel metal and pure nickel. Glass-lined steel equipment will be demonstrated, and especially acid-resistant units will be offered for high-pressure work.

#### THE TROPICAL FLOWER GARDEN OF THE NEW YORK BOTANICAL GARDEN

A NEW tropical flower garden in the main conservatories at the New York Botanical Garden will be opened to the public on the week-end of November 4. Members of the garden will attend a formal opening in a brief ceremony the preceding afternoon; on Saturday morning the public will have its first view of the completed garden, which, with the rest of the greenhouse, will be open daily without charge from 10 to 4.

Taking part in the ceremony will be Dr. William J. Robbins, director; Allyn R. Jennings, general superintendent of parks; Colonel Robert H. Montgomery, representing the board of managers of the garden, and Mrs. Elon Huntington Hooker, president of the advisory council.

The occasion will also mark the opening of the indoor floral displays for the 1939-40 season. These displays, in which from two to five thousand pots of flowering and foliage plants are used at a time, have brought nearly half a million people to the garden since the newly rebuilt conservatory range was opened less than a year ago.

The new tropical flower garden, which is one of fifteen units in the conservatory range, contains many plants with which travelers in the tropics are familiar, and also decorative plants which are rarely seen either in southern regions where they would grow outdoors or

in northern conservatories. A few are cultivated only at the New York Botanical Garden.

The tropical flower garden is the tenth specially planted house to be opened since the large greenhouse was rebuilt by the city during 1937 and 1938. First to be seen in their new quarters were the cacti and other succulent plants which are natives of the great deserts of the world. The Botanical Garden has more than 2,000 different kinds, the true cacti in one house, the other New World succulents (which are plants with fleshy leaves or stems) in another, and the succulents of the Old World in a third.

Last year at Christmas time a tropical rain forest house was opened, and adjoining it a tropical fern house, both naturalistically planted. A special house, which was opened in the spring, contains plants of the Aroid family, including the spectacular genus *Amorphophallus*, one of whose members bears the flower known as the largest in the world. Adjoining it is the aquatic house, where a specimen of the royal water-lily, *Victoria regia*, now is in bloom. Other houses, containing palms, economic plants, begonias and other subjects, are open to the public, although the planting arrangement in them is not yet complete.

#### REORGANIZATION OF LABORATORY DIRECTORS' CONFERENCE

A REORGANIZATION of the Conference of State Laboratory Directors was effected at its nineteenth annual meeting in Pittsburgh on October 16, when a constitution and by-laws were adopted changing the name and expanding the organization into a Conference of State and Provincial Public Health Laboratory Directors with full membership privileges limited to directors of official state and provincial public health laboratories. The committee on reorganization which proposed the constitutional changes was composed of the following members representing laboratories widely scattered geographically throughout the United States and Canada: E. M. Bramhall, Utah; L. F. Ey, Ohio; M. H. McCrady, Quebec; Dr. C. A. Perry, Maryland; Dr. E. S. Robinson, Massachusetts; Dr. T. F. Sellers, Georgia; Dr. H. J. Shaughnessy, Illinois; Dr. A. B. Wadsworth, New York, and Dr. Friend Lee Mickle, Connecticut, *chairman*.

Associate membership was made available to the responsible assistants of directors of state and provincial laboratories and to the directors and responsible assistants in municipal and other official public health laboratories in the two countries.

In the newly adopted constitution it is stated that the purposes and objects of the conference shall be to promote the development, improvement and effectiveness of public health laboratory service; to coordinate public health laboratory activities; to stimulate the interchange of experience among directors of official public health laboratories; to develop and maintain