

The Botany Dept.— A Short History

By John R. Millar

With this article we complete our presentation of the histories of the four scientific departments. John R. Millar, former Deputy Director of the Museum and Chief Curator of Botany, has often been considered the Museum's unofficial historian because his tenure began before the Museum moved to its present home in 1921. In fact, all indications are that the initials of the "young preparator" he mentions who used roller skates to help in the move were J. R. M. Millar is now enjoying his retirement in Florida.

The Department of Botany, like the Museum itself, arose Phoenix-like from the ashes of the World Columbian Exposition in 1893. It was the composition of those ashes that determined the nature of the Museum at first. Never before that time had any museum considered botany as a major division of its organization. Men of diverse interests and backgrounds were the prime movers in promoting and organizing the exposition. In 1885 the directors of the Chicago Industrial Expositions met and passed a resolution, "that it is the sense of this meeting that a Great World's Fair should be held in Chicago in 1892, the four hundredth anniversary of the landing of Columbus in America." It is safe to assume that the authors of the resolution were thinking in terms of industrial enterprise and materials to sustain it. However, there were at the same time in Chicago a number of wealthy, traveled persons who were collectors of art and cultural things who recognized the merit of an international exposition and the

opportunity it afforded to establish a great museum with selected exposition exhibits.

An oft-mentioned article by Professor F. W. Putnam of Cambridge, Massachusetts, printed in the *Chicago Tribune* of May 31, 1890, is generally regarded as the first published account advocating the creating of Field Museum. Actually, he, being an anthropologist, proposed the establishment of a great ethnological museum that would be a world center for the study of native peoples of the western hemisphere. Other persons of other interests also envisioned a permanent museum as an aftermath of the exposition. Three directors of the exposition took it upon themselves to call a meeting of leading Chicagoans for the purpose of incorporating a museum. This was accomplished in September 1893 just before the close of the exposition. It triggered energetic efforts to solicit gifts of materials from various nations and individuals exhibiting at the fair.

Dr. Frederick J. V. Skiff, in the Museum's first published report in Volume I of the Historical Series, said, "... while no great public acts nor unified labor were apparent, many men, each in his own field, largely by his own volition, were sincerely enlisted; [to the end] that there was generous and energetic cooperation in gathering material, making purchases and securing funds."

Collecting begins

Dr. Charles F. Millspaugh, a homeopathic physician by formal training but an avid botanist and naturalist by avocation, who in 1887 published his work on American medicinal plants, served as superintendent of the West Virginia exhibits at the fair and also on its jury of awards. W. G. Buchanan, chief of the exposition's departments of agriculture and forestry, which included the West Virginia exhibits, appointed Dr. Millspaugh to solicit donations of collections to the Museum. The response was most gratifying. Collections of gums, resins, fibers, oils, waxes, tannins, dyes, starches, cereals, sugars, spices, medicinal plants, timbers and cabinet woods were generously offered by twenty or more countries. Many artifacts and industrial products were included. In some instances exhibitors had made earlier commitments to give others "portions at least" of certain valuable timbers. Dr. Millspaugh saved the situation by obtaining a bandsaw to divide the logs so that promises to all could be kept. In this manner the Department of Botany began with one of the largest and finest collections of woods and forest products extant anywhere. This resourcefulness and energy characterized Dr. Millspaugh's subsequent activities when he became the first appointee to the scientific staff of the Museum as Curator of Botany. Donated and purchased materials were moved to the Palace of Fine Arts building as they were released by exhibitors.

Museum organization at first included not only the present-day departments of anthropology, botany, geology, and zoology but also ornithology, as separate from zoology, and industrial arts, including transportation and the Department of Columbus Memorial. The Department of Botany was assigned space on the galleries, or balcony, that extended around the great courts on the second floor level. The

courts can be visualized as two Stanley Field Halls intersecting at right angles, the midpoint marked by a large domed rotunda. It was on these second floor galleries that Dr. Millspaugh quickly installed his exposition loot, much of it still in the cases in which it had been exhibited at the fair. Many large items, timbers and artifacts were on open display. Because gifts of botanical specimens had been donated by particular countries, it was most expedient to arrange exhibits on a geographical basis. This led to much duplication of specimens because the same kind of thing occurred in, and was exhibited by, each of several countries. After the rush to open the Museum on June 2, 1894 was over, it became evident that an arrangement based on plant family relationships and by category of material would be preferable, but not much could be done about effecting the change until 1900. In the interval three styles of exhibition case had been designed by Dr. Millspaugh to meet his by then experienced approach to the problems of botanical exhibition. A few

prototypes were delivered for use in the first revision of botanical exhibits, a process that keeps repeating. These are the kinds of cases in which botanical exhibits are now housed; strong, well-built, solid birch furniture intended to last forever to accommodate exhibits in the fashion in vogue in the early 1900s. The original natural blond birch finish was to be changed a score of years later after the move to the present building.

Inherent problems

Exhibition cases were only one of a multitude of difficulties that confronted the Department of Botany. The building had no heat during the winter of 1893-94, when exhibition materials were being moved in, since it was never intended to be a permanent structure. Before the next winter set in, three 100-horsepower steam boilers, seventy radiators, and electric generators capable of operating forty 1,200-candle-power arc lamps were installed—the last intended only for use in patrolling the building at night.

Dr. Skiff noted in the Museum's first Annual Report, for the year 1894-1895: "It was found impossible to heat the four great courts with their height of seventy-eight feet and it was an almost hopeless undertaking to warm the eighty spacious doorless halls. But necessity compelled a means. The entrances to the halls leading from the courts and leading in and out of the long narrow annex passages were fitted with large movable partitions filling the entire space in which doors were constructed. By this means all the exhibition halls were enclosed, and being provided in each case with ample radiation, a minimum temperature of 55 degrees was ordinarily maintained throughout the building. The courts are treated as streets and visitors seem to readily adapt themselves to this condition of affairs. This arrangement practically closes the Department of Botany during the colder months of the winter season; it is impossible to view the collections there with any satisfaction."

Adapting a temporary structure to



The excellent wooden herbarium cases designed by Dr. Millspaugh are still in use. This 1909 photo was taken in the Museum's first home, the Palace of Fine Arts of the 1893 Columbian Exposition.



The Museum's first herbarium specimens were collected by Dr. Millspaugh during an 1894 expedition to the Yucatan. This mode of transportation is still necessary today in some otherwise inaccessible parts of the world.



In 1918 the author (left, eating sugarcane) and three other members of the Mrs. Stanley Field Plant Reproduction Laboratory, spent the winter in Florida among subtropical exotic plants. Others making the trip in this 1917 Model T touring car were Homer A. V. Geib (center), Museum Preparator; Mr. Charlesworth, a glassblower; and the man who snapped this rare photograph, Dr. B. E. Dahlgren, then the Museum's Assistant Curator of Economic Botony.



The coconut palm from which the Museum's model in Hall 28 was made was collected by Millar during the expedition in Florida in 1918.

permanent use as a museum brought to the surface another chronic and incurable museum ailment—lack of space where and when it is needed. "The small rooms . . . in the second galleries [third floor] of the courts have by force of circumstances been preempted by the Curators of Botany, Zoology and Ornithology for laboratories, by a poisoning and disinfecting laboratory, by guards and by departments of printing and photography. These twelve rooms are already inadequate . . . and more room for working is already one of the great needs of the Museum." At this time a warehouse was acquired at the corner of 56th Street and Jefferson Avenue "to provide room for storage and for carpentry, modeling, plaster work, and for taxidermy, three kinds of labor which could not be permitted within the Museum building as at present arranged."

Early field trips

Although no herbarium specimens were included in material received from the exposition, no time was lost

in starting a collection. The first specimens were collected by Dr. Millspaugh on a trip to Yucatan as the guest of Allison V. Armour in 1894. How the herbarium grew to become one of the world's major collections of Central and South American plants was related last year in the April issue of the *Bulletin*. I will add here only the following statement from the Museum's Annual Report for 1899-1900 because it records a prophecy that has turned out to be all too true: ". . . Preparator Lansing . . . has continued his collection of plants of the Chicago Basin. This work is particularly important as not many years hence nearly the whole distinctive plant life of the section . . . will become extinct through drainage and reclaiming of land and the extension of the City of Chicago and surrounding suburban towns." Such changes are now recognized as national and international concerns; both plant and animal species are vanishing at an accelerating rate.

Displays of dried plant materials can be most uninteresting and dreary if they are not relieved by some

semblance of realism and life. This is especially true when characteristics of a plant family are to be portrayed. Dr. B. E. Dahlgren, a doctor of medical dentistry, gave up a practice in orthodontia to become Assistant Curator of Invertebrates at the American Museum of Natural History, where his superior skill in making models of lower invertebrates, insects, and plants earned high praise. In 1909, he was induced to join the staff of the Department of Botany to undertake to illustrate each of the major plant families by means of life-like models of representative plants and enlarged models of their flowers to show important anatomical details. This enterprise, which was largely financed by Museum President Stanley Field, eventually produced what is often acclaimed as the world's finest botanical exhibition in a museum.

Money problems caused a hiatus in the program for about three years prior to 1917. In 1918, a year after operations resumed, a shortage of coal during World War I required the Museum to curtail its use. So in October the Mrs. Stanley Field Plant

Reproduction Laboratory staff of four persons moved to Miami, Florida in a Ford touring car. Dr. Dahlgren, the leader, had by then acquired the title of Assistant Curator of Economic Botany. Sleeping and working quarters were provided by the Bureau of Plant Introduction of the U. S. Department of Agriculture at its station and garden on Brickel Avenue, since sold and now occupied by residences. The sojourn in a winter vacation land was sheer delight for the four Chicagoans but living on the job resulted in a greatly lengthened work day and week which made the escape from frigid working quarters highly productive of useful studies, molds, finished models, and pickled plants for later use. Subtropical exotic plants such as the banana, pineapple, coconut, natal plum, silk cotton tree, and many others were obtained for exhibition purposes.

Moving to new quarters

On return to Chicago at the end of May 1919, the immediate task of the staff was to prepare or pack all exhibition material for moving to the new Museum building. Procedures were carefully worked out to assure that all items were identified and designated as to placement in their new home. This included exhibition cases, which because of their great size and weight required four-man moving teams and hopefully, therefore, could be placed precisely in their permanent positions to avoid later moves. Martin Kennelley, later to become Mayor of Chicago, was a partner in the firm that was given the moving contract. In the actual move botany exhibition cases were lowered from the second floor gallery to the main floor by means of an inclined tramway powered by windlass and muscle. From there they were loaded into freight cars on a spur track of the Illinois Central Railroad and taken to the new building where another spur track had been constructed. Botanical exhibits were to occupy five halls on the east half of the second floor, which

required the use of the freight elevator on the south side of the building to get them there. Unrecorded history has it that the young preparator who was given the task of meeting teams of movers coming up the elevator with cases, directing them to the proper hall, then going to the hall and indicating the exact location, used roller skates to go back and forth quickly. Elaboration of this circumstance had the young man speed around a corner, bump into the director, who was on a tour of inspection, and nearly knock him down. This was supposed to have resulted in an official order to cease the use of roller skates in the Museum. Actually the cases had all been placed before, and the order was issued because of a lack of confidence in the skill of the skater and the danger of breaking glass in exhibition cases through collision.

Early in the development of botanical exhibits the question of properly labeling the economic collections was resolved and led to a unification of



"... It was decided that the best background to form a general setting for the contents of a case should be dead black and the label the same, printed in some ink just off the contrast that white would make. This ink proved to be aluminum." It took years of effort to overcome administrative opposition to a change to more cheerful background colors.

style throughout the botanical section and eventually the entire Museum. Dr. Millspaugh said, "From observation at various times of the movements of people who were examining the collections, it would seem the first impulse . . . is that of curiosity, the second of interest and the third, a desire for education. It was decided that the installation of a case should be such as to attract attention to it as a whole. The principles in such an installation are, as I take it, a neat and well ordered arrangement of specimens. . . . It is important that labels should be of such character as to invite reading; plainly typed and condensed; comprehensible to the average citizen rather than abtrusely scientific; short, pithy and direct. Having arrived at these conclusions . . . it was decided that the best background to form a general setting for the contents of a case should be dead black and the label the same, printed in some ink just off the contrast that white would make. This ink proved to be aluminum."

When the botanical exhibits were placed in their bright, clean, new home it became very apparent that case interiors and labels were in truth "dead black" and contributed greatly to what has been called the "gloom of the museum." Stanley Field in later years said that the decision to adopt black for case interiors and label stock throughout the Museum had been reached at a conference of the heads of departments and the Museum architect in his office in spite of his misgivings about the matter. However, the move to change to more cheerful background colors met with administrative opposition and trial revised installations had to be made surreptitiously with materials obtained at personal expense. When the merit of less somber installations was finally recognized and approval given, it took a tremendous amount of time and labor to effect the change.

Firm establishment in permanent, new, uncramped quarters seemed to motivate the staff to meet the challenge

of a bright future. The next few years saw growth and development in all phases of departmental operations. Expeditions to collect material for exhibition went to British Guiana (now Guyana), to Brazil, to the Rockies, to the eastern seaboard, the Pacific Coast States, to Florida and to Michigan. Outstanding habitat groups showing alpine flowers, midwest forest plants, intertidal marine vegetation, and some Amazon River plants were produced with material thus obtained. In addition many models of individual plants such as the cannonball tree were made to represent certain plant families in the systematic series.

The early collectors

These were accomplishments that could be seen and appreciated by Museum visitors, but perhaps the most important achievements of the department have been in the field of taxonomy and floristics. From the very first year of its existence, members of the staff seized every opportunity to collect plants for study and deposit in the herbarium. Beginning with Dr. Millspaugh's collections from Yucatan, and the persistent work of O. E. Lansing in collecting plants of the Chicago area, each member of the staff made his contribution according to his own talents and special interests. Dr. Jesse M. Greenman left the Gray Herbarium of Harvard University to become Assistant Curator of Botany. From 1904 to 1912 he collected extensively in Mexico and Central America and published in the *Fieldiana: Botany* series. He resigned to join the staff of the Missouri Botanical Garden. Huron H. Smith, who from 1911 to 1914 diligently photographed and collected North American trees from the southeastern United States to the Pacific Northwest, did most to create the Museum's fine exhibit contained in Hall 26. J. Francis Macbride joined the staff in 1922. He, too, came from an internship at the Gray Herbarium. His field work in Peru led to one of the department's



Backed by the old herbarium cases, Dr. Paul C. Standley makes notations on recently mounted specimens. Photo was taken about 1940.

major floristic works, the *Flora of Peru*, which already consists of several thousand printed pages and will have many more when completed by others. (Macbride retired in 1963.) As mentioned elsewhere, he also selected and supervised the photographing of type specimens of American plants in European herbaria. His bibliography lists more than fifty titles.

Dr. Paul C. Standley came from the U. S. National Herbarium in 1928 to join the staff as Associate Curator of the Herbarium. His extensive field work in Mexico and Central America resulted in a number of Museum publications. Among the more notable are the *Flora of Lacandon Valley* (Honduras), *Flora of Costa Rica*, *Studies of American Plants*, *The Rubiaceae of Colombia*, also of *Ecuador*, of *Bolivia*, and of *Venezuela* for a total of 2,881 printed pages. Then in 1946 he began the *Flora of Guatemala*, which, by the time of his retirement in 1950, had been issued in four parts totaling 1,868 pages. A prolific author, Standley's bibliography lists more than 250 titles. The energy,

competence and productiveness of Standley is almost legendary. It earned him the profound respect of his colleagues and an enduring place in the history of American Botany. He was small, thin, a chain smoker, quick in his movements, incisive in his thinking and decisive in his work. He died in 1963 at age eighty in Tegucigalpa, Honduras, where he had gone to live after his retirement. Dr. Julian A. Steyermark joined the staff as Assistant Curator of the Herbarium in 1937. He did extensive field work in Missouri and later wrote the *Spring Flora of Missouri*. Further field work in Guatemala and Venezuela led to his collaboration with Dr. Standley on the *Flora of Guatemala* and later to his 1,195-page work *Contributions to the Flora of Venezuela*. In 1959 he joined the faculty of the Instituto Botanico of the Ministerio Agricultura y Cria at Curacas, Venezuela.

These were staff members of the Department of Botany who in their time made important contributions to our knowledge of plants of the New World tropics. There were others who for shorter periods and in different ways used their special talents to make the department a viable, effective part of the Museum organization. One of these, Dr. Theodor Just, Chief Curator of the Department from 1947 until his death in 1960, was especially well known for his numerous publications in the field of paleobotany.

This leads us up to the present staff of equal competence who are continuing to focus attention on the neotropics. Why? one may ask. The answer seems to be because of the challenge of the unknown, because our ignorance of the vegetation of that part of the world was abysmal and is less so now because of the Museum's research program. Nevertheless, it still remains great. It is also believed that some of the larger problems of plant systematics, phylogeny, and evolution may find answers as our study of particular plants progresses.



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