

# The Dahlia: An Early History

In 1934 Marshall Howe, of the New York Botanical Garden, compiled a list of *Dahlia* cultivars containing more than 14,000 names. This number represents an astonishing average of over 100 newly named cultivars during each of the 143 years since 1791, when dahlias were first brought into cultivation in the gardens of Spain following their arrival from Mexico. Today dahlias are among the most familiar and cherished subjects of gardens in all parts of the globe. Interest in the garden dahlia has, in its brief modern history, generated the founding of dahlia societies on both sides of the Atlantic, with memberships in the thousands; produced an industry with annual revenues in the millions of dollars resulting from the sale and exchange of living plants and seeds; spawned horticultural shows designed exclusively around home-grown and professionally grown dahlias on the local, regional, national, and even international levels; and created scores of books and hundreds of published articles covering dahlia history, cultivation, and the classification of the garden forms as well as the more formal taxonomy of the wild species.

Despite such intense interest and attention, the history of our garden dahlia has been treated in a sketchy and piecemeal manner. At the present time no definitive history exists which spans the entire period for which records are known. Many errors and much fiction lie scattered in the literature of the past and present, relating to the dahlia. Some of these have been picked up and repeated as fact by subsequent authors who have failed to authenticate their information by going to original source materials. Some writers of the past have made sweeping judgments of the validity of certain facts and details of dahlia history while providing not a word of reasoning in support of their conclusions.

During the past several years I have been concerned with preparing a treatise on the systematics and classification of the genus *Dahlia* as a whole, with particular emphasis upon the data from the wild species.<sup>1</sup> While principally a "botanical" project, this effort has involved extensive reading in both the

botanical literature as well as in that literature otherwise deemed horticultural. Such a survey became necessary because there were times in the past when a careful distinction was not made between the naming and classification of wild and domesticated plants. Thus, I became inadvertently aware of many facts concerning the history of the *Dahlia* in cultivation. In several instances the sources of some of the errors alluded to above became apparent to me, and some interesting new facts were brought to light, which proved worthwhile in clearing up our view of the origin of *Dahlia* cultivation.

One may, for the sake of convenience, divide *Dahlia* history arbitrarily into several periods, each of which serves to focus attention upon one or a few major developments:

- 1) Prehistorical and early historical period (c. 1552–1790)
- 2) Period of early scientific description (1790–1796)
- 3) Early introduction and distribution of first modern cultivars and species (1796–1804)
- 4) Early breeding period (1804–1814)
- 5) Controlled breeding period (1814–1929)
- 6) Genetic breeding period (1929–present)
- 7) Period when nutritional control in cultivation was applied (? – present)

The present account is devoted to consideration of the first three periods. The first of these, as we shall see, concerns developments which took place in the dahlia's native land, Mexico, while the second and third periods belong to Europe, as do the remaining periods. One must keep in mind that at times the dahlia has had a dual history, one relating primarily to botanical endeavors and the other to horticultural. The above periods emphasize the horticultural side of the genus.

Formal *Dahlia* history begins in the late 18th century in Spain, where Antonio José Cavanilles gave the genus its Latin name in commemoration of Andreas Dahl, a Swedish botanist and pupil of Linnaeus. Cavanilles, then a senior member of the staff of the Royal Botanic Garden in Madrid (not its director as often stated<sup>2</sup>), had received seeds of Mexican plants.<sup>3</sup> Plants grown from these seeds were cultivated in Madrid and comprised the materials upon which Cavanilles based his description of the first "dahlia," *Dahlia pinnata*. Thus, even from the earliest days of the scientific period of its history, the dahlia was a cultivated plant. As we shall see, the cultivation of dahlias really begins much earlier. At the appropriate time I shall come back to further discussion of Cavanilles' dahlias.



*Fig. 1* Our garden dahlia seems so familiar that few among us are aware of its nativity in Mexico. Most persons learning this for the first time express considerable surprise, usually having thought the dahlia to have originated in Europe (which, in a certain sense, it did, inasmuch as the great majority of our horticultural forms were created through various kinds of plant breeding in Europe by European plantsmen). But all of the species known of the genus are native within the borders of Mexico and adjacent countries of Central America. Long before Cavanilles described the genus, these species — there are now twenty-seven known — existed as unmolested members of the flora occupying mostly the great central plateau or highlands of Mexico. Even today one can see them during the months of August and September in profusion along the highways, growing out of cliffs, among boulders, in cultivated fields alongside the *milpa* or maize which we call corn, and on open slopes of the volcanic mountains. If dahlias grew in New England and behaved here as they do in Mexico, we would surely regard them as weeds. These weeds of Mexico are the progenitors of our garden dahlias, and the early history of these garden plants is closely linked to the history of Mexico, especially that period which passed before and soon after the Spanish conquest.

Our interest centers on the Aztecs and Moctezuma.\* This young prince gained the throne in 1502 and ruled for eighteen years before his fall when he was made a captive of the Spanish conquerors led by Hernán Cortés in 1520.<sup>4</sup> A few extant eyewitness accounts indicate that the Aztecs of this period engaged in horticultural practices. Recently, Zelia Nuttall has written about the gardens of Mexico.<sup>5</sup> In her review we learn that the construction of gardens was one of the principal activities to which the ruling classes devoted themselves. As in our own society, Aztec gardens were each specialized to fulfill a single purpose. There were gardens for ornamental plants, special

\* The name has several variations, including the more familiar Montezuma.

ones for plants which gave off a pleasing fragrance, gardens for medicinal plants, some for cut flowers, orchards, and vegetable gardens. Gardening in Aztec society was an activity conducted solely at the behest and pleasure of the noblemen, the labor being carried on by slaves. Moctezuma himself owned many gardens. Hernán Cortés, in a letter to his Emperor, Charles V, describes one of Moctezuma's gardens at Iztapalapa, a town several miles from the capital, Tenochtitlán: "There are . . . very refreshing gardens with many trees and sweet-scented flowers, bathing places of fresh water . . . He also has a large orchard . . . Toward the wall of the garden are hedges of lattice work made of cane, behind which are all sorts of plantations of trees and aromatic herbs." Bernal Diaz, Lieutenant of Cortés, wrote about Iztapalapa saying: "The garden and orchard are most admirable. I saw and walked about in them and could not satiate myself sufficiently looking at the many trees and enjoying the perfume of each. And there were walks bordered with the roses of this country and flowers and many fruit trees and flowering shrubs."

The most wonderful of all Moctezuma's gardens was the tropical one at Huaxtepec. It was with the use of this garden that Moctezuma's father instituted an elaborate program of plant introduction. Huaxtepec lay in the tropical valley south of the Valley of Mexico and occupied an elevation 2,000 feet lower, with a climate somewhat ameliorated from that of the capital, which was about 7,400 feet above sea level. It made an ideal place in which to try out the cultivation of introduced plants. Requests were dispatched to all the lords of the empire, especially to those who ruled settlements along the coasts, that they send a selection of plants from their regions for cultivation in Huaxtepec. Great ceremony accompanied the planting of each introduction, which arrived "balled and burlapped!" their roots enclosed in earth and the whole wrapped with richly decorated mantles. Priests were summoned to make animal sacrifices for each planting, spilling blood of the offering as well as some drawn from their own ears onto the soil prepared for the plant.

Cortés visited the garden in Huaxtepec and reckoned its size at two leagues, or six and one-half miles, in circumference — roughly two times the size of the Arnold Arboretum in Jamaica Plain. When he and others in his company saw it "and promenaded in it for a while they were filled with admiration and said that even in Spain they had never seen a finer kind of pleasure garden." It's a pity that precious little remains of this

horticultural splendor. At Huaxtepec there could be seen, as recently as 1925, a few aging monarchs of *Taxodium*, or cypress trees, which had been planted in long colonnades. By now even these may be gone.

As a natural corollary to developing skills in the horticultural arts, the Aztecs also devoted much effort to the practice of medicine utilizing remedies prepared from plants.

In the years following the Spanish conquest of Mexico, which was completed in 1552, many Europeans came to the New World from the monastic schools of Spain and France to teach in the new convents and schools which had been established for the education of the sons of Aztec noblemen. Some of the friars recognized that Aztec medical arts contained many remedies superior to those they had learned in Europe. Some of them endeavored to study the uses of native medicines and to acquire the skills of the Aztecs in their preparation. Others became engaged in learning the Aztec language, Nahuatl, and eventually they contrived a Nahuatl grammar which greatly aided in their grasp of Aztec culture. At the same time the development of a Nahuatl grammar had the result of hastening the instruction of Aztec pupils in their study of Latin and Spanish. With this the stage was set for an important event which relates to our review of dahlia history.

*The Earliest Record of a "Dahlia"*. One of the earliest institutions of learning in the New World dedicated to improving the education of Aztec boys was established in 1536. The college of Santa Cruz was constructed in the native quarter of the ancient city of Mexico at the Convent of Tlaltelulco. It attracted many gifted teachers. An Aztec pupil at the college, given the name Martinus de la Cruz, there learned to write his native Nahuatl and, through his interest in medicine, eventually rose to become "Physician of the College" and to give instruction in medicine to other native sons. Also among the Indian boys who distinguished themselves by their ability was a young man from Xochimilco, a place which then, as today, was a horticultural and agricultural center. This young man had been given the name Juannes Badianus. He had mastered Latin sufficiently to be made a "Reader of Latin" at the college.

Having been reared in the region of the horticulturally important Xochimilco, an area south of the city of Mexico, Juannes Badianus brought to the college an intimate familiarity with the plants cultivated by the Aztecs. Badianus and Martinus — the one skilled in the cultivation of plants and fluent in the Latin



*Fig. 2: The Cohuanepilli found in The Badianus Manuscript. Reproduced from the facsimile edition by Emmart. This represents the world's first illustration of a dahlia.*

language, the other trained in medical knowledge and practices — co-authored an illustrated herbal, considered the first book written about the medicinal plants of the New World, *The Badianus Manuscript, An Aztec Herbal of 1552*. This important manuscript was written first in Nahuatl by Martinus de la Cruz and then translated into Latin by Juannes Badianus. It lay forgotten and unknown for nearly 400 years until its rediscovery at the Vatican Library in 1931. The fascinating historical events attending the writing of this simple little book have been fully investigated by Emily Emmart and published in her detailed introduction to the facsimile edition of the manuscript.<sup>6</sup> *The Badianus Manuscript* contains what may be taken as the earliest illustration of a *Dahlia* that has thus far come down to us. We are doubly fortunate that this *Dahlia* illustration is in full color in the facsimile, assisting greatly in our recognition of the plant (see Fig. 2, reproduced here from Pl. 59 of the facsimile). As will be shown later, nearly 300 years intervene before a colored picture of a *Dahlia* again appears in botanical literature.

The Martinus-Badianus illustration of the dahlia is somewhat contrived and stylized in a manner typifying most of the drawings in their book. Because of this it would be presumptive to assert its correspondence with any of the wild species as we

know them today. That it is a *Dahlia* at all is a matter of judgment. In *The Badianus Manuscript* we are shown a picture of a plant with three flowering heads, each producing eight ligulate or ray florets and each borne singly at the end of a branch. The pinnately compound leaves are opposite each other across the stem (though some are shown arranged alternately). Except for the few alternate leaves, the other characteristics displayed are all those one usually associates with the genus *Dahlia*. It is unfortunate the best known and probably most characteristic feature of the genus, namely the tuberous root, is poorly drawn and rather non-descript. The generalized portrayal of the roots may be a reflection of the emphasis the authors have placed upon the stems as the most important part of the plant. Only the stems are used in the medicinal preparations they describe. One should, perhaps, not search too deeply for any significance in the authors' omission of the tuberous roots. Emmart has pointed out that the manner in which roots are portrayed in the manuscript is intended to convey in symbolic form the respective natural habitats of each plant. Thus the roots of their dahlia are shown penetrating the symbol for *rocks* or *stones*, thereby accurately asserting the plant is to be found among the rocks of nearby mountain slopes.

The color of the rays as reproduced in the facsimile is of such a tint that one cannot determine whether it represents a shade of purple or a shade of scarlet. The same color appears in the illustrations of other plants throughout the book and is also used by the writers for the lettering of all the names and subtitles. If pressed for a specific determination of this *Dahlia*, I should likely choose to call it *Dahlia coccinea*. In so doing I can scarcely avoid taking into consideration that *D. coccinea* is the most widespread of the species. One finds it particularly abundant on the mountain slopes surrounding the Valley of Mexico. Other species occur in this region as well, but these tend to have more restricted ranges and would be less well known.

Regarding medicinal properties, it is worthwhile to note briefly the early uses Aztec physicians found for dahlias as revealed in *The Badianus Manuscript*. Emmart<sup>7</sup> has carefully analyzed the Latin text and offered her own English translation and commentary. Stems of the dahlia, in combination with extracts and ground up seeds of other plants, were used principally in a preparation for the treatment of a disorder called the "closed urinary meatus." According to Martinus de la Cruz, the Aztec's name for the dahlia used in this way was "Cohuanenepilli,"

which means “serpent tongue.” Emmart explains that nothing about a dahila resembles a serpent’s tongue, rather the name is a reference to the *use* of the plant. Other species with this vernacular name were used in the treatment of the same disorder. One such, recognized as a *Passiflora* and identified by Martinez<sup>8</sup> as *P. jorullensis*, bears leaves vaguely suggestive of a snake’s forked tongue.

These early Aztec herbalists provide us with a record of the medicinal plants of Ancient Mexico but tell us nothing about their cultivation. At best we can only guess that in a culture where medicinal plants were grown in special gardens, as those created by Moctezuma for his court physicians, the dahlia would have been a likely subject.

*The “Dahlias” of Francisco Hernandez.* Interestingly, our second historical encounter with a dahlia is in a source similar to that of *The Badianus Manuscript* — a medical book. By the middle of the 16th Century Europeans regularly received reports from the fabulous lands the Spanish had colonized across the Atlantic. Woodcuts of the period reveal the exaggerations of some tales told about the New World. Such excessiveness aroused curiosity among Europeans and undoubtedly hastened further exploration. His interest perhaps awakened by such reports, King Phillip II of Spain commissioned his personal physician, Francisco Hernandez, to travel to Nueva España and prepare an account of “the natural history of the land.” King Phillip honored Hernandez with the title “Protomedico of the Indies” and provided a generous sum of money to support his work. Hernandez sailed from Spain in 1570 with five years allotted him to complete his task.

The salient facts of Hernandez’ travels have been recorded by Standley,<sup>9</sup> where we read that five years were scarcely enough to complete his work. By 1575 he had sixteen folio volumes ready for publication, but he remained in Mexico two more years, continually engaged with the objects of his commission. In September 1577 he returned to Spain hoping to address himself immediately to the problem of publishing his book. Difficulties arose to thwart his efforts, and he died in 1578 without seeing his work in print.

Nearly a century elapsed before work again began on publishing the manuscript. Meanwhile, other persons had extracted from it certain portions which they thought important, and these received further attention from students and scholars who added their annotations. When at last the book did appear,

published in Rome about 1651, one wonders how much of it was the work of Hernandez and how much that of others.

The title of Hernandez' book is *Rerum Medicarum Novae Hispaniae Thesaurus seu Plantarum, Animalium, Mineralium Mexicanorum Historia* (happily, often abbreviated simply *Thesaurus*). It contains the enormous quantity of detailed observations he made as well as the sketches he produced of the landscape, plants, and animals. Considering the magnitude of the task, it was a very complete work for that period, and at times has been called the world's first natural history.

Our interest here with Hernandez' *Thesaurus* is that in it are found sketches of three dahlias, introduced by their vernacular Nahuatl names, *acocotli* and *cocoxochitl*, which Safford<sup>10</sup> translates as follows: "... [the names are] derived from *cocotli*, signifying the word 'syringa' a hollow-stemmed plant; *acocotli* literally translated becoming 'water-cane' or 'water-pipe'; *cocoxochitl*, 'cane-flower' or 'hollow-stem-flower.'" Of particular significance are the characteristics of the dahlias revealed in these sketches. On page 372 of the *Thesaurus* (redrawn here in Fig. 3) is a dahlia essentially like many contemporary cultivars, in that the capitula or heads are shown with multiple whorls of ligulate florets. Such heads are called, in the terminology of today's horticultural trade, "double-flowered." Wild individuals of *Dahlia* species do not normally produce such heads but rather produce heads with a uniform single whorl of eight ligulate florets or rays (Fig. 1). Double-flowered forms seem to be extremely common among cultivated genera of Compositae, the plant family to which *Dahlia* belongs. Strains producing double-flowered heads are usually derived through selection from variants, of which some or all of the tubular shaped disc florets occupying the center of the heads are abnormally modified into florets developing an elongate ray or strap-shaped ligule composed of the fused petals of the corolla. Many of the common cultivated genera of Compositae are known to modern gardeners only in their double-flowered form, but this type is rare among wild populations. During the course of two 8,000-mile collecting trips by auto through Mexico and Central America, I visited and collected from hundreds of wild populations of *Dahlia* species without seeing a single individual bearing double-flowered heads. Moreover, of the more than 2,000 herbarium specimens which I examined for my studies of the genus, the only double-flowered specimens were those of cultivars collected from garden-grown plants, mostly from Europe and the United States.

In Hernandez' *Thesaurus* there appear, in all, three separate illustrations of dahlias. These figures were reproduced by woodcuts, worked from the original sketches made by Hernandez. The quality of the figures varies somewhat. For example, the illustration reproduced here in Fig. 3 has very well drawn heads which show the principal diagnostic features of the dahlia capitulum. First of all the heads show clearly their degree of doubleness, and in this regard they may be compared to many of those produced on our modern cultivars. More importantly, or of more diagnostic value, are the reflexed outer involucre bracts. The position of these bracts is a trait present in well over half the wild species and all of the modern cultivars. These bracts, usually five in number, but ranging within the genus from four to six (rarely to seven or more), surround the capitulum tightly in the young bud. As the buds near anthesis the bracts begin to be reflexed and remain so during the flowering period and later. Ultimately, as the fruits or achenes reach maturity, the inner whorl of bracts subtending the non-functional ovaries of the ligulate florets also become reflexed. When this happens the ripe achenes dislodge and are dispersed short distances by the wind.

The leaves on this illustration are not clearly drawn. It is difficult to relate the plant in the figure to any known species of the genus solely on the characteristics of the leaves as they are portrayed. The accompanying description may only be misleading in this respect. Hernandez, in reference to the leaves, writes, "*Folia Aquilegiae*." On first appearances this would seem to mean the leaves resemble those of *Aquilegia*, but one ought not assume this too readily as this description was written in 1570 — long before a uniform usage of generic names was in practice. Nor do the leaves in the woodcut resemble those of *Aquilegia* in the present application of that name. It must be recalled that this woodcut is a "second-hand" interpretation of the original sketches which Hernandez made. Indeed, even the description may be the interpretation or annotation of one of the compilers.

The reverse problem of identification is true for the two figures which appear on page 31 of the *Thesaurus* (see Fig. 4). In this pair of woodcuts the leaves are quite clearly drawn, but the characteristics of the double-flowered heads are obscure. Payne,<sup>11</sup> has made it clear he does not believe there are in these illustrations sufficient details to assert their specific — or even their generic — identity. I would agree that one might justifiably retain some skepticism concerning their relationships to

Fig. 3: A "double-flowered" dahlia, called *Acocoxochitl*. Redrawn from Hernandez' *Thesaurus*, p. 372.



known *Dahlia* species. However, there are at least three extant species of the genus which bear leaves roughly corresponding to those in the figures. These are *Dahlia coccinea*, *D. pinnata*, and *D. brevis*. Also, in the remarks about the figures the brief description states “*stellatos flores e pallido rubiscentes*,” or “flowers star-shaped, from pale [i.e. yellow] to red,” and “*Radix gustu odorata, amara, & acris est*,” or “the root is sweet-smelling, bitter, and sharp in taste.” The description of the root is apt and agrees with my own reaction to the taste and odor of the tubers of the more widely distributed species such as *Dahlia coccinea*. On the other hand, the description of the flowers (meaning head) “from pale to red,” may be interpreted in two ways, each of which can relate the description to *Dahlia coccinea*. First: Hernandez may have been considering the two-colored nature of the heads in which the centrally placed yellow disc florets are surrounded by the red ligulate florets; or he might have been referring to the color of the ligules themselves which, in different individuals, often within the same population, ranges from yellow to scarlet, frequently with parti-colored intermediates. Second: Hernandez mentions the geographic location of the plants he observed. He calls them “*De acocotli Quauhnhuacensi & Tepoztlanensi*,” or “The *acocotli* of Cuernavaca and Tepoztlán.” These cities, located in the present-day State of Morelos and known to have been well-established pueblos in pre-Hispanic times, are 18 kilometers apart and are situated in the midst of rich *Dahlia* country, where frequently one encounters, from mid- or late July through September, entire hillsides given over to large populations of these striking plants.

In the foregoing assessment of the *Dahlia* sketches which appear in Hernandez’ *Thesaurus*, I have referred to the comparisons one may draw between them and the wild species of the genus. The question remains, were the plants Hernandez observed wild or domesticated? Did he sketch them from spontaneous natural populations or did he use as his subjects individuals found under cultivation in an Aztec garden? In the text accompanying the figures of *acocotli* Hernandez makes no mention of the cultivation of the plants he sketched.

I have found no direct evidence that Hernandez’ dahlias were of garden origin. Most authors who have offered summaries of dahlia history state that Hernandez’ plants *were* from an Aztec garden. One early writer came to the conclusion that Hernandez wrote about garden plants; since then all writers have repeated this conclusion without further substantiation. On the other hand, the conclusion that Hernandez described dahlias from



*Fig. 4. Two double-flowered dahlias, called Acoctoli and Cocoxochitl. Redrawn from Hernandez' Thesaurus, p. 31.*

gardens has a sound basis. Hernandez may very well have seen his *acocotli* in an Aztec garden, for it is known he spent the bulk of the time devoted to his writing at the Convent of Huaxtepec where, as described earlier, one of Ancient Mexico's largest and most elaborate gardens was located. When the first double-flowered *acocotli* was discovered by the pre-Hispanic people of Mexico or Central America, either among the spontaneous plants in the mountains or among offspring of plants the early gardeners had brought into cultivation, it must have been at once treasured and given careful protection. To a people who derived medicine from these plants, the rare occurrence of an abnormal double-flowered form surely aroused enormous interest and was considered a phenomenon of grave significance. Might one not guess that an Aztec apothecary, seeing a double-flowered dahlia for the first time, would have reasoned its healing powers to be also "doubled?"

Every society has had its panacea. Remembering that Hernandez was a physician, we note he has taken cognizance of many Aztec remedies. About the use of dahlias he writes, "[The tuber] when consumed in a weight of one ounce, alleviates stomach pain, dissipates blowing, draws forth urine, invokes perspiration, drives out coldness, strengthens the stomach weak because of the cold, turns aside choleric, opens what has been blocked, and when moved to the swellings, disperses them."

*The "Aster" of Thiery de Menonville.* Nicolas Joseph Thiery de Menonville served the King of France as a thief. This French botanist and pupil of de Jussieu lived in the colony of Santo Domingo whence he was commissioned to perform a secret service in Mexico in 1777. His mission: to secure living specimens of the jealously guarded cochineal insect and the Nopal cactus on which the insect lived. He was to smuggle these to the French islands in the Caribbean, where it was hoped a dye industry would flourish. Whereas Hernandez was a physician who regarded plants from the viewpoint of their medicinal properties, Thiery de Menonville was a botanist whose orientation was scientific and esthetic. Once in Mexico he traveled from the city of Veracruz to the city of Oaxaca and, in a very interesting written account of his travels, describes the plants and the vegetation he observed, both in the wild and under domestication. He writes of a visit to a local merchant's garden in the mountains where he had gone to observe the Nopal: "I was struck at once by a double violet aster, as large as those of France, but produced on a shrub resembling, by its pinnate

leaves, that of our Elder, and which created a very good effect. . . .”<sup>12</sup> Here is a clear reference to the early cultivation of an “improved” plant which roughly describes *Dahlia tenuicaulis*, a species native to Cerro de San Felipe, which towers over the city of Oaxaca.

Some authors have credited Thiery de Menonville with the introduction of dahlia seeds into France,<sup>13</sup> but I find this accreditation wholly obscure. The only plant materials he mentions carrying with him on his departure from Oaxaca were cuttings of the Nopal cactus, which he carefully concealed. Thiery de Menonville died in Santo Domingo in 1780 and may never have returned to France. There seems to be no record that dahlias, in fact, reached the Old World until about 1788 or 1789, when an event occurred to awaken Europeans to the ornamental possibilities of the genus.

*Dahlias Reach Europe.* Late in the eighteenth century, Vincente Cervantes, a man associated with a Mexican botanic garden, consigned to Antonio José Cavanilles, in Madrid, a shipment of seeds of Mexican plants. Cavanilles, who was then Professor and later Director of the Royal Botanic Gardens of Spain, raised from among these seeds the plants he used to describe the first three species of the genus *Dahlia*.<sup>\*</sup> He published his finding in six books called *Icones et Descriptiones Plantarum*. The first volume (1791) contains his drawing and description of *Dahlia pinnata*.<sup>14</sup> The importance of this first scientifically recognized species of the genus *Dahlia* warrants further comment.

The precise origin of *Dahlia pinnata* is not known. Cavanilles, in his remarks on the nativity of the species, states merely that it grows in Mexico. Knowledge of its origin would be very revealing to us because this early record *is also of a double-flowered form*. Could it be this plant was discovered in the wild by Cervantes or someone in his employ? Perhaps Cervantes gathered the seeds from plants cultivated in an Aztec garden. More likely, the seeds were gathered from plants in a botanic garden of Mexico City where the Spanish had undoubtedly assembled many of the wild and domesticated plants of the land during the 200 years of colonial occupation.

In a later volume (1796) of his *Icones*, Cavanilles described and illustrated two additional species of *Dahlia*, *D. rosea* and *D. coccinea*. The flowering heads of both these species as seen in the plates drawn of them bore ligulate florets in a *single*

<sup>\*</sup> It is unlikely tubers could have survived the voyage.

whorl.<sup>15</sup> The origin of the seeds from which these plants grew is equally as obscure as the origin of the seeds of *Dahlia pinnata*. They could as well have come from wild populations as from a garden, since their single-flowered heads indicate they had not undergone selection for "improvement."

During the latter half of the eighteenth century Europeans developed a great enthusiasm for plants of the New World. Because of Spain's role as a colonial power, botanists and plantmen of other European countries were eager to maintain correspondence with the Royal Botanic Garden in Madrid, where each returning vessel delivered an increasing and bewildering number of new and unusual plants from the floras of Nueva Hispania. Regular exchanges of plant materials between individuals and institutions were established so that, in a short time, new introductions of plants with particular merit received a wide distribution.

As reported in an article by Thouin, Cavanilles sent seeds of his three dahlias to M. Thibaud of France in the year 1802.<sup>16</sup> Thibaud conveyed these seeds to the botanists of the Paris Museum of Natural History where they were grown and tested. For his article, believed to be the first ever dealing with the modern procedures for the cultivation of dahlias, Thouin provided the world's first published colored portrait of these plants. This portrait created a great interest in itself, for it was soon reproduced in several other European journals and horticultural magazines, and undoubtedly helped to create further enthusiasm for these new garden plants.

Exactly how widely seeds of dahlias were disseminated from Madrid is not fully known. What is known is that dahlia seeds were received at Montpellier, in Berlin, in St. Petersburg, and at Kensington, England. No doubt other places — such as the horticultural capitals of Brussels, Leiden, Copenhagen, Edinburgh, and Kew — were not neglected in this distribution. In Montpellier, the French botanist, Alphonse de Candolle, received seeds in 1802 from Cavanilles.<sup>17</sup> Seeds were also received in Berlin about 1802, and there, in the following year, Willdenow prepared a revision of the genus for the fourth edition of Linnaeus' *Species Plantarum*. With this revision Willdenow introduced the genus under a new name, that of *Georgina*, believing that the name *Dahlia* (Cavanilles, 1791) had already been used for a genus of the Hamamelidaceae described by Thunberg in 1792. This error in dates, and the substitution of the name *Georgina* for *Dahlia*, took many years to correct. The name *Georgina* became firmly established in the literature and horti-

culture of the countries east of the Rhine, where even today it persists as a common name for the garden dahlia.

For many years it was thought that dahlias were first introduced into Great Britain in 1789 through the auspices of one Lady Bute. Few stopped to consider that the genus had not even been described until 1791. An enthusiastic "detective" by the name of C. Harman Payne, of England — about the time of what was thought to be the 100th anniversary of the arrival of dahlias in England — grappled with this problem.<sup>18</sup> He studied the events and records of the 18th century and discovered that the error could be traced to an edition of *Hortus Kewensis* by Aiton (1813), in which the date of introduction was given as 1789. This turned out to be an error of the printer who had transposed the last two digits of 1798. The error had been noted and corrected in a supplement to this work published a few years later, but the correction went unnoticed. Payne also deduced that *living* plants had not been introduced in 1798; rather, what had been received in England, at Kew, were three herbarium specimens of dahlias. These had been sent to the (by then) Marchioness of Bute by Dr. Ortega, Director of the Royal Botanic Gardens, Madrid. The Marchioness in turn gave them to the herbarium at Kew.

The first authenticated introduction of *living* dahlia materials into England occurred in 1803 — and on this date many authors agree. The source of the information is volume 6, plate 408, dated November 1804, of *Andrew's Botanist's Repository*, where the world's second published colored portrait of a dahlia appears. The accompanying text states that the illustration was made from a plant grown from seeds sent from Madrid *the year before* to Lady Holland of Holland House, Kensington. The picture is that of *Dahlia pinnata*.

Having placed living dahlias in the hands of plant breeders in the horticultural centers of Europe, the portents of a new floral industry were assured. The results of the flourishing period which followed are some we all still share and enjoy.

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## NOTES

<sup>1</sup> Sorensen, Paul D., "Revision of the genus *Dahlia* (Compositae, Heliantheae — Coreopsidinae)," *Rhodora* 71: 309–416, 1969.

<sup>2</sup> Colmeiro, Miguel, *Bosquejo Histórico y Estadístico del Jardín Botánico de Madrid*, Madrid, 1875, p. 79.

- <sup>3</sup> Cavanilles, Antonio José, *Icones et Descriptiones Plantarum*, Preface to vol. 1. 1791.
- <sup>4</sup> McHenry, J. Patrick, *A Short History of Mexico*, New York: Doubleday (Dolphin), 1970, p. 22.
- <sup>5</sup> Nuttall, Zelia, "The Gardens of Ancient Mexico," *Smithsonian Reports for 1923, 1925*, pp. 453–464. Publication 2776.
- <sup>6</sup> Emmart, Emily W., *The Badianus Manuscript, an Aztec Herbal of 1552* (a facsimile edition of the Codex Barberini, Latin 241, Vatican Library), Baltimore: Johns Hopkins Press, 1940, Introduction pp. 1–81.
- <sup>7</sup> *Ibid.* pp. 263–264.
- <sup>8</sup> Martínez, Máximo, *Las Plantas Medicinales de México*, Mexico, 1933, p. 372.
- <sup>9</sup> Standley, Paul C., "Trees and Shrubs of Mexico." *Contributions of the U.S. National Herbarium* 23(1): 9–19, 1920.
- <sup>10</sup> Safford, W. E., "Notes on the genus *Dahlia* with descriptions of two new species from Guatemala," *Journal of the Washington Academy* 9: 364–373, 1919.
- <sup>11</sup> Payne, C. Harman, "When was the *Dahlia* first introduced into England?" *Gardener's Chronicle Series* 3, 60: 143–144, 1916.
- <sup>12</sup> Thiery de Menonville, Nicholas Joseph, *Traité de la Culture du Nopal et de l'Education de la Cochenille dans les Colonies Françaises de l'Amérique; Précédé d'un Voyage a Guaxaca*, Santo Domingo, Haiti, 1787, p. 132.
- <sup>13</sup> Sherff, E. E., "Dahlias — new facts about these garden favorites," *Chicago Natural History Museum Bulletin* 22(6): 5–7, 1951; "The native dahlias of Mexico," *Bulletin of the Louisiana Society for Horticultural Research* 2(2): 62–76, 1962.
- <sup>14</sup> Cavanilles, *op. cit.* 1: 57, *tab.* 80, 1791.
- <sup>15</sup> Cavanilles, *op. cit.* 3: 33, *tab.* 265 & 266, 1796.
- <sup>16</sup> Thouin, Andre, "Memoire sur la culture des *Dahlia*," *Annales du Muséum National d'Histoire Naturelle, Paris* 3: 420–423, *illus.*, 1804.
- <sup>17</sup> André, Edouard, "Le centenaire du *Dahlia*," *Revue Horticole*, 61; 523–524, 1889.
- <sup>18</sup> Payne, C. Harman, *loc. cit.*

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Mr. Heman A. Howard, Assistant Horticulturist, will resign from the staff on August 31st of this year. Mr. Howard, who came to the Arboretum in 1929, has been responsible for a multitude of duties — labeling, mapping, checking, and photographing the plants on the grounds for the past several years. Needless to say, the staff will miss his hard work and good humor. We wish him well in his new position as Horticulturist at the Heritage Plantation, Sandwich, Mass.