Of Dahlia Myths and Aztec Mythology
The Dahlia in History

By **Martin Král**

This work is an expanded and updated version of a series of articles that appeared between 2001 and 2008 in Dahlias of Today, an annual publication of the Puget Sound Dahlia Association, Seattle, Washington . The author had access to a large volume of primary and secondary source material, as well as the assistance of prominent dahlia scientists and experts on early history and the ethnobotany of Mesoamerica. However, the stated conclusions are his own.

Cover Illustration: Zina Deretsky (National Science Foundation)
Cover Photos: Stellar variety AC Rooster by Martin Král; portrait of Alexander v. Humboldt

OF DAHLIA MYTHS AND AZTEC MYTHOLOGY - THE DAHLIA IN HISTORY

What a myth never contains is the critical power to separate its truths from its errors
Walter Lippman, Public Opinion (1922)

Stop me if you already have heard this one: The dahlia, an important source of food and medicine for the Aztecs (who also used the hollow stem for irrigation and water supply) arrived in Spain in 1789. Once worshipped and considered Montezuma's favorite flower, it also took Europe by storm. The director of the Royal Botanic Garden in Madrid, Abbé José Cavanilles, assisted by botanist Dr. Anders Dahl, began hybridizing the new arrival immediately. Having classified the genus, Cavanilles then named the first species for his Swedish friend, who in turn continued breeding these new dahlias upon his return to Scandinavia. After publishing a description of the first species, now named *Dahlia pinnata,* Cavanilles sent seed and tubers to other botanic gardens. The dahlia was embraced by Napoleon's Empress Josephine, who held the fanciful flower in such high regard that she made her gardeners swear (on the pain of death) never to reveal its existence. One unfaithful servant, however, did spirit away plant material, and the secret was no more.

Soon French peasants, desperate in the wake of the French Revolution, began cultivating dahlias for food and cattle feed. However, they quickly learned that the dahlia tuber, while edible, was unpalatable. Dahlias also had been sent to the court at St. Petersburg, where the respected Russian botanist Georgi also developed new cultivars. Tubers were introduced to England by Lady Bute in 1798; her husband had been ambassador to the Spanish *Corte*. However, because the Kew Gardens staff was under the impression that dahlias were tender plants, this first raising failed: the sub-tropical environment the plants were kept in caused rot and disease. A more successful effort by Chelsea's John Fraser in 1802 led to a reintroduction of dahlias by other gardeners. Most notably among them was Lady Holland who sent seeds to England from Madrid in May 1804. That same year the famous explorer and scientist Alexander v. Humboldt . . .

Many of these assertions, repeatedly copied and embellished in dahlia literature for the past hundred years, are - simply put - faction: fiction writing wrapped around a kernel of truth. There is an understandable desire among gardeners to embellish their favorite plant's record. It's a love affair, after all, and - thin body of supportive evidence notwithstanding - to the romantic only the ringing praises reach the ear. For other garden plants, the historic record speaks volumes: think of Tulip Mania, or the obsession with roses and lilies in art or literature. The New World discovery of food and medicinal plants gave us tomatoes ("the love apple") and Chili Madness. Why not then also the dahlia? Easy - because thoughtful examination of the historical record and a more academic approach to available evidence leads to far different conclusions.

Two years before the arrival of the Spaniards, the Aztec emperor Moctezuma II was alerted to the latest sign from the gods - a passing comet: "It was that in the sky a tongue of fire of notable size and brightness appeared. When the people saw this flame emerge they would cry out, sensing that it was an omen of some great evil to come." This recollection, recorded by Fray Bernardino de Sahagún decades later, was supported by illustrations in the *Codex Florentino*, one of the two dozen remaining Aztec codices that survived the Spanish conquest. When, in November 1519, Hernán Cortés stood at the banks of Lake Texcoco to look at the island city of Tenochtitlán, he also faced an Aztec Empire at the height of its transient period of glory.

The Aztecs (who called themselves Mexica) had long been nomadic people, arriving from the north into the Valley of Mexico in the 1200s. They took their place among the Toltecs, whom they emulated, and Mixtecs, whom they battled. In time, the aggressive and cunning Aztecs conquered or allied with all other city-state cultures in the Valley. Their civilization similarly flourished: Aztec practices had been honed while they were vassals and slaves of stronger tribes. Living as they did at the edge of physical existence, the Aztecs were resourceful food gatherers, skilled in herbal medicine, and utterly merciless in warfare. They also had a pantheon of 1,600 gods, foremost among them Huitzilopochtli, god of the sun and of war. This was a god who required regular blood sacrifice to maintain his strength. Another creator god, Quetzalcoatl (the Plumed Serpent, responsible for wisdom and farming) abhorred human sacrifice. Through divine intrigue, Quetzalcoatl had been banished from his people and sent east. According to legend, it was Huitzilopochtli who would lead the Aztecs to glory and the middle of Lake Texcoco.

Under Moctezuma I (1440-68), the empire had reached its apex. Allied with two other powerful pueblos, the Aztecs' influence was felt across Central Mexico. Arts and culture thrived, enormous temples were erected in the center of the capital, and gardens were constructed on the outskirts of Tenochtitlán that held plant collections from throughout the Mexican heartland. Described in the *Codex Magliabechiano*, the Aztecs even had a mythological legend of the origin of flowers involving Quetzlcoatl. It allegorized the process of what we now call pollenization.

The accession of Moctezuma's nephew to '*huey tlatoani*' - chief spokesman or emperor - in 1502 led to further conquests. This Moctezuma II also soon became absorbed with religion and astrology. When word came that strangers were coming from the east - a horde of pale-faced, bearded warriors on horseback - Moctezuma II was unnerved. These arrivals had been predicted in Aztec mythology. The omens had confirmed it: Quetzalcoatl was returning to overthrow the dynasty.

What followed then is well-documented. Against insurmountable odds, Cortés twice fought his way into the capital and had the indecisive emperor thrown from his palace roof. The Spaniards crushed whatever resistance the Aztecs managed to put together under their last emperor Cuauhtémoc. By 1521, the Aztec Empire was finished.

The destruction of everything native that followed the Spanish conquest also led to a fragmentary and quite contradictory historical record. The new lords loathed all the Aztec religious practices and systematically destroyed statuary, temples, customs, and codices. The Aztecs, decimated by warfare and smallpox, were enslaved. Some of the early descriptions of life in New Spain included first-hand accounts of Aztec farming and medical practices, compiled by Franciscan friars like Sahagún. These reports were often accompanied by crude drawings done by newly-converted Indian servants. Explorers crisscrossed the territory just behind the treasure-seekers to begin recording Mexico's natural world. Unfortunately, some of the most valuable early accounts were lost or not published for decades.

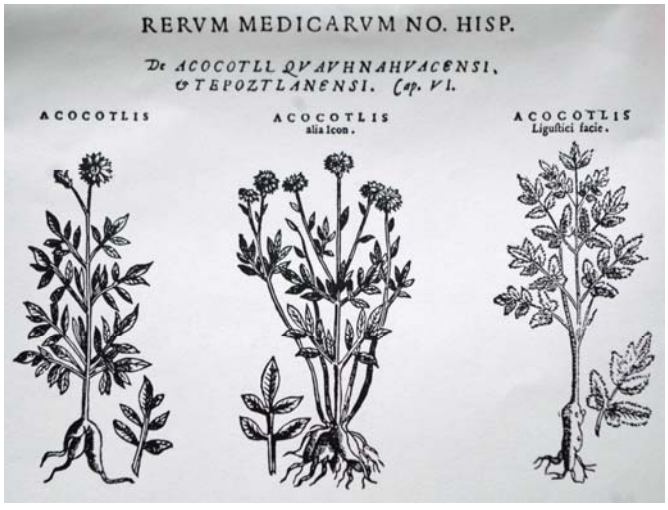
Xochipilli—Aztec flower god

With that background, it is difficult to sift through the evidence in looking for the dahlia's importance in Aztec life. What *is* clear, though, is that - while Aztecs had a marvelous agricultural system and held certain plants in high esteem - the dahlia was not among them. Moctezuma II was a poet, and his gardens in Huaxtepec dumbfounded the visiting Spaniards. The gardens held an astonishing number of carefully tended native and tropical plants, nourished by a sophisticated irrigation system. However, the weedy dahlia was not featured in ceremonies (as marigolds are to this day in Mexico), and in any case the Plumed Serpent wore feathers, not flower petals.

So let's lay that canard to rest, once and for all: the dahlia was emphatically NOT Moctezuma's flower. If the emperor favored any flower over his 200-plus wives, history is silent on this point. In fact, the only reason that the dahlia was named Mexico's national flower (on May 13, 1963) was to celebrate the *Floricultura Nacional* exposition. Organizers urged Mexican president Adolfo Lopéz Mateo to do so. Large plantings of dahlias in parks and along the famous Avenida Reforma appeared. Regrettably, subsequent administrations gave little attention to dahlia culture. Mexicans have not embraced this floricultural symbol as the declaration had hoped. To this day, dahlias in Mexican gardens tend to be the hybridized modern varieties.

Early Identification

The first recorded illustrations of what some botanists believe is a dahlia (likely *D. coccinea*, the most widely-distributed and varied species) are contained in Francisco Hernández' work , which was compiled during his 1570-77 expeditions. Because of a royal decree forbidding publications of works on New Spain, the fragmentary Spanish manuscripts were not published until nearly a century later, having been translated to Latin and then revised in 1651 by Italian scholars. (They also rearranged and altered the illustrations, hence the different artistic interpretations). The complete set of original manuscripts was lost in the great Escorial fire of 1671.



Hernandez illustrations - note differing drawing styles

They describe a semi-double plant. This form is rare in nature. There is no clear indication in the illustrations attributed to Hernández' companion Francisco Dominguez that the plant labeled 'Acocotlis' is a dahlia. In Mexico closely-related asteraceae like coreopsis, cosmos, and bidens also thrive. These widely distributed

woodblock prints show composite-flowering plants with fleshy roots. A botanist at the University of Mexico explains that "many of the original illustrations of Hernández' work do not appear in the published versions. Many of the illustrations that are published in his books were made in Europe and may not represent the plants he wrote about." The Nahuatl-language plant name 'Acocotl' - alternatively 'Acocoxochitl' - was in use for other plants, some not even members of the Compositae family. The suffix 'xochitl' identifies a flower. Incidentally, the root 'Cocotli' refers to a bird, not a plant.

The controversial Badianus Manuscript illustration

Earlier attributions, such as those of Fra Bernardino Sahagún and a citation in the Badianus Manuscript, are similarly vexing. In his richly illustrated *Florentine Codex* (which appeared in the late 1500s) the similarly-named Acocoxochitl is described thus: "Its foliage emerges from the ground. Its foliage and the stems are ruddy. They are hollow. Its blossoms are spreading and slender. The leaves are serrated; they are chili-red, very chili-red." No picture is provided. And the entry is not what one would be able to claim as a dead-on identification.

The Badianus Manuscript (*Codex Barberini* - published in 1552) was a long-forgotten herbal compendium - probably the first produced in the Americas. Rediscovered in Vatican archives in the 1930s, it has been republished extensively, most lately as a CD-ROM. One of its 184 plates of Aztec herbal plants is purported to illustrate a dahlia: Plate 59 (see illustration) depicts a red-flowering plant with slender roots and given the Aztec name of "Couanenepilli". Since Nahuatl is a well-structured language, this designation is puzzling. No explanation has ever been offered for the vastly different local names ascribed to the dahlia.

In other works, the terms Chichicpatli, Cocoxochitl, Jicamita or Xicamatl, and even Xicamaxochitl are offered as alternate appellations for Acocotl. The latter terms make colloquial reference to the bulbous-rooted jicama, whereas the first two names are alternative dialectical synonyms for the plant Acocotl. Chichicpatli has since been ascribed to the plant *Guaiacum arboreum*. Consulting the dictionary accompanying the modern edition of the *Florentine Codex*, we find that "Acocotica" refers to gourd tubes (not water tubes as has been reported). "Chichic" is translated as 'bitter, acid', "Chichipatic" as 'very bitter', and "Cococ" as 'hot, burning'. Something of a trend is developing here.

Medicinal Use

Much is made in the popular literature of the dahlia's early application in herbal medicine, in which the Aztecs had developed considerable skill and a wealth of treatments. The Badianus Manuscript is a fine example. Written in 1552 to help apply local medical remedies to the native population, the Nahuatl and Latin manuscript is richly illustrated with rather rudimentary oil/watercolor drawings in a modified Aztec style. Of the 204 plants depicted, none can clearly be claimed for the dahlia world. Several of the plates describe what probably are compositae, such as Plate 46 – Tzitzicton, a yellow-flowering plant with clearly marked disc and ray florets. However, the only plant that has the appearance of a red-flowering dahlia with orange fleshy roots (Plate 47 - Nonocthton) turns out not to be a compositae at all. The Aztec scholars who created the herbal under the direction of the Spanish drew for their people, not for European botanists.

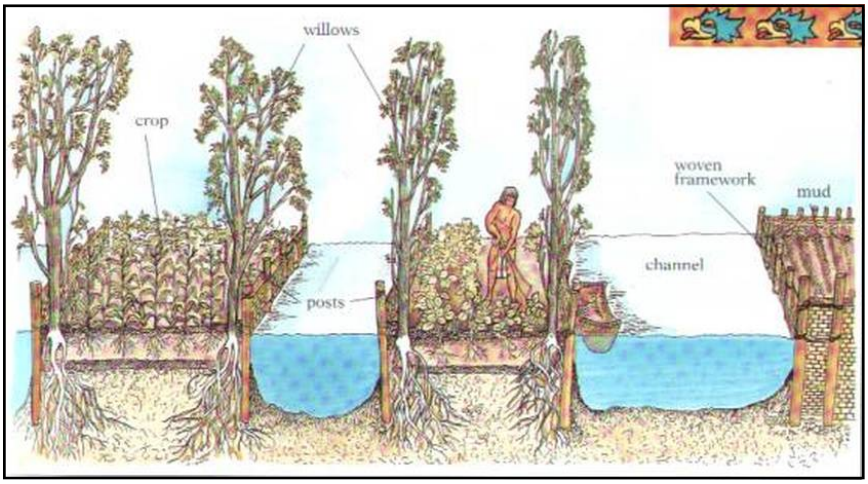
Hernández also offers medical uses for the Acocotl plant. One can be sure, though, that if that medicinal aspect had involved the dahlia, we would have seen a swift import of dahlia tubers to the Old World. In fact, though, it was more than 200 years later - when anything of medical value had been harvested, catalogued, and exported to European apothecaries - that the dahlia made its appearance in Spain. Even today there is no demonstrable medicinal benefit for this plant, notwithstanding first ADS president Richard Vincent's efforts to popularize the extraction of inulin from dahlia tubers. The dahlia's place in medicine? As we say out West: "That dog don't hunt."

Food Source

A popular anecdote in dahlia circles is that of the 19th century French nobleman who desired to make dahlias a food crop, since the tuberous roots were supposed to contain starch aplenty to feed man and cattle alike. The Aztecs, who were truly omnivorous as a result of their long journeys and early hardships, supposedly had a history of dahlia cultivation. The record speaks otherwise: Sahagún's Florentine Codex does not mention this plant in the section dealing with important edible roots. The Aztecs raised amaranth and sage, avocado, beans, squash, peppers, maguey, nopal cactus, but above all maize. The rain god Tlaloc was nearly as important to appease as Huitzilopochtli, and for good reason. The Valley of Mexico was rich in many ways, but the absence of rain at certain times brought famine if the corn crop was affected by drought. Aztec corn tamales were stuffed with a variety of vegetables and meats, including snails, flies, tadpoles and frogs. They also hunted a variety of birds and game and had domesticated a small barkless dog and turkeys for food. Lake Texcoco scum yielded fish, spirulina algae, insect and frog eggs. Why go after bitter roots in the hills when food sources were so varied and plentiful in the Valley?

In Northern Mexico there have been reports that some natives from time to time consume dahlia roots. The Tarahumara Indians of arid Chihuahua State eat tubers of *D. sherffii*, and an earlier on-site visit by an American dahlia fancier affirmed that locals in the Northern states of Durango and Sinaloa occasionally dig tubers for a snack.

Aztec Gardeners



The sophisticated gardening practices of the Aztecs surely caused Cortés and his men to marvel. Not only did Moctezuma maintain his large plant collection at Huaxtepec, but also the chinampas - floating gardens on Lake Texcoco (these days still found at Xochimilco, the 'Fields of Flowers' - were a remarkable adaptation of swampy terrain to agriculture. They offered year-round food production when over-dependence on corn from time to time threatened the Aztecs with widespread starvation. At the same time, flower gardens were not a common feature in Aztec communities. Large quantities of ceremonial flowers, like marigold, zinnias, cosmos and tithonias, were indeed planted for harvest. Dahlias, however, had no religious significance. It is likely that when the Spanish overlords took control of the Huaxtepec gardens, the dahlia had been raised there for some time. The early illustrations noted above show semi-double forms; hybridization probably was accidental. When the first dahlias were grown in Spain in 1789, the stock most likely came from those historic Aztec gardens.

Aztec farmers were sophisticated users of terrace farming, aqueducts and irrigation, needed in the often-arid highlands basin. From the available evidence, there is no clear link to the use of hollow dahlia stems for water supply lines, as has been suggested by writers misinterpreting Acocotli to mean 'water tube flower'. Even dry dahlia stalks make poor water lines.

Textile Material

One recent account earnestly asserted that dahlia fibers were woven into cloaks and blankets by the Aztecs. This is wild speculation: the Aztecs raised cotton in lower elevations and also used every part of the maguey plant. Status was often denoted by elaborate embroidery on loin cloth and cloak. While quite fibrous, the dahlia's stalk and tuber yield little usable raw material that would compete with durable cotton and agave fiber. To this day, there has been no serious consideration to raise dahlias commercially for producing fiber, even for paper pulp.

Arts and Design

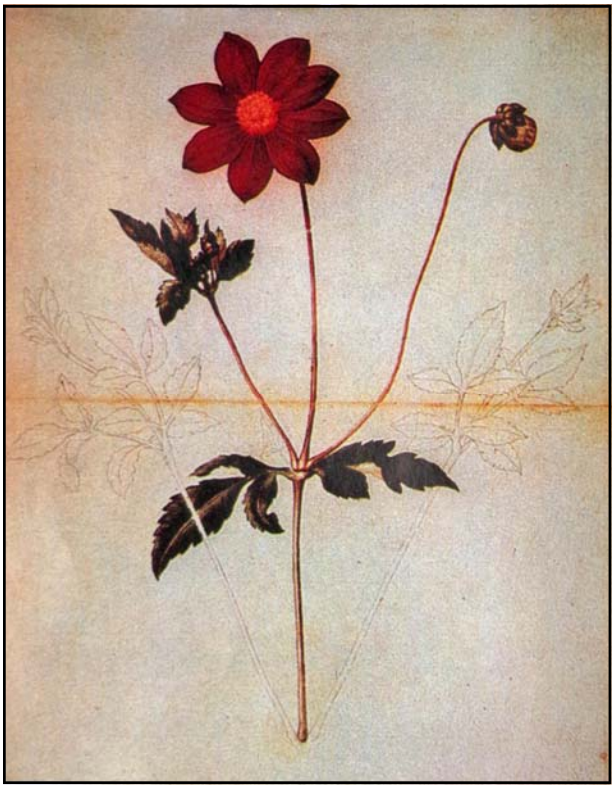
Many Aztec glyphs and codices show decorative elements that appear to have their origin in floral design. The radiating, segmented design found on shields, clothing, and other items may appear to have the dahlia for inspiration. Not necessarily so: The designs usually are quite generalized; if they do stem from flowers, these may also be linked with ceremonially significant plants. The designs also may be based upon other sources, such as a geometric pattern, the Aztec interpretation of the sun, and may have cosmological importance. Quetzalcoatl appears as a feathered serpent. The circular collar this deity wears is made of feathers, an important indicator of status in Aztec society. At this time, there no evidence that would link the use of a flower of low esteem with exalted design.

So, if the dahlia was neither Moctezuma's favorite flower *nor* important to the Aztecs in medicine, food, or ceremonial traditions, what then should we do with the hagiography that has been compiled for the past 200 years? Remember that all important New Spain finds had been brought to the Old World soon after the Mexican conquest. The dahlia arrived as part of a large 18th century expeditionary plant collection. Judge for yourself.

CAVANILLES AND DAHL

The Eighteenth century marked the transition of the divine right of kings and absolutist government and the emergence of popular rule in Europe and North America. What would become known as the Age of Enlightenment not only affected the American and French revolutions, but the eagerness with which knowledge was pursued also had immediate consequences for the body of science that would become botany. The period coincided with an age of exploration unprecedented in human history. Discovery of new regions to satisfy colonial aspirations and commercial exploitation was, of course, the primary aim. Along with the soldiers, traders, and missionaries came also the discoverers of the natural world, busily examining and cataloging the exotic setting. Zoos and herbaria across Europe filled with the treasure trove sent back to the capitals, and the nobility engaged in furious (if unfocused) collecting of the flora and fauna from abroad. This in turn spawned an entirely new approach to scholarship and opened the debate over challenges to traditional theories in science.

Two scientists caught up in this transition would forever be prominently linked to the history of the dahlia: Dom Antonio José Cavanilles y Palop and Anders Dahl. It is to the credit of the former that the latter has achieved in death what for so long was denied him in life. However, the story of Cavanilles and Dahl is more complex than the simple establishment of a personal relationship as has often been stated in popular dahlia publications. In fact, the early years of dahlias in cultivation actually involved the interrelationship of *four* scientists - two Spanish and two Swedish. Their efforts were directly influenced by the groundbreaking classification approach of the famous taxonomer Linnaeus, while the dirty work of collection and cataloguing fell to others. The evidentiary record at last speaks for itself: in the end one is forced to conclude that the close relationship between Dahl and Cavanilles may very well have been no relationship at all.



D. coccinea (from the Sessé/Mociño expedition?)

VICENTE CERVANTES AND THE SPANISH EXPEDITIONS

By the mid-1700s, the Spanish had thoroughly explored all their territories but for New Spain (Mexico). In 1786, Don Martin de Sessé y Lacasta arrived in Mexico City with an entourage of scientists. He was given royal authority to form an expedition that would complete Francisco Hernández' work undertaken 200 years earlier. In assembling this Royal Botanical Expedition, Sessé initially relied on fellow Spaniards like Vicente Cervantes. The expedition into the interior began August 4, 1787, but soon it was beset by personality conflicts and financial squabbles. Several expedition members abandoned the quest. Others fell ill (most probably from Montezuma's Revenge). Sessé yearned for the comforts of Mexico City, where he had founded a botanical garden in a swampy area called "El Sapo". Indeed, the plant collecting had proved to be more arduous than initially thought.

Meanwhile, Vicente Cervantes (a member of the Spanish Royal College of Pharmacy) remained behind. He was appointed "catedrático" (professor) to teach at the garden that had Sessé as its titular director. A native of Safra, this Estremaduran apothecary held regular lectures on wide-ranging scientific topics, including Linnaeus and his classification of the living world. One of Cervantes' most outstanding students was a native Mexican, José Mociño. While Mociño intensively studied natural science and learned to make botanical drawings, his professor busied himself with cataloguing and shipping plant material to Spain. In one of these plant material collections, the first dahlia seeds were sent to the Royal Botanical Garden in Madrid sometime before 1789.

Cervantes oversaw the relocation of the Mexico City garden to a more promising spot near the Zocalo "where Aztec priests had once torn the living hearts from their thousands of victims and tumbled their quivering bodies down the steps of the great pyramid." He remained as chair of the botanical garden until Martin Sessé's return to Spain in 1803, whereupon Cervantes at last became director. In the interim, Sessé and Mociño undertook several expeditions into Central and Southern Mexico, with Mociño at one time traveling separately along the Pacific Coast past Vancouver Island and up to Alaska's Nootka Sound. The Sessé y Mociño expeditions yielded a richness of botanical materials, including observations, illustrations, and specimens, that was unmatched (and for too long underappreciated) by the scientific community. Expedition member Athanasio Echeverria's drawings are simply fine art, and his pupil Mociño brought more than 1,400 exquisite illustrations back to Spain. After an adventurous journey, they now are held at the Hunt Institute in Pittsburgh, Pennsylvania.

Cavanilles statue in the Royal Botanical Garden, Madrid

ANTONIO JOSÉ CAVANILLES Y PALOP

One academic who was eager to analyze the riches from the New World was Antonio José Cavanilles. Born in Valencia in 1745, the young Cavanilles studied math and physics but ultimately settled for a clerical career. He received his doctorate in theology from the University of Gandia in 1766, but he never entered church work. Instead, he became a well-regarded progressive tutor and guardian to the sons of the Duke of Infantado. On June 24, 1777, the duke took his retinue on a cultural trip to Paris. As was the custom, the adults took in the sights and began attending several classes on experimental physics, chemistry, and natural history. They were fortunate in having as professors renowned scientists such as Lamarck and Jussieu. Cavanilles was an apt (and avid) pupil.

While the rest of the duke's entourage returned to Spain, Cavanilles remained behind and studied botany with a passion. He was an eager supporter of the Linnaean taxonomy espoused by Jussieu, and the two began a relationship that was to last twenty years. Among his friends also were other prominent botanists: Michel Adanson, André Thouin, and fellow Spaniard D. Viera. Cavanilles was allowed to travel to Thouin's exclusive *Jardin du Roi* of the French king (now *Jardin des Plantes)* and to plant collections and gardens in the vicinity of Paris. In 1785, the research resulted in the first of ten books of the "Monadelphiae" series. Two years later, Cavanilles made a visit to his homeland. Returning in 1788 to a Paris in crisis, Cavanilles was much disturbed. As the French Revolution swept through the capital, Cavanilles found himself a captive in his own home. A servant of the hated nobility (and a cleric no less) he feared the mob. In October 1789 Cavanilles escaped Paris in disguise and returned to Madrid.

At its Royal Botanical Garden (*Real Jardin Botánico Matritense*), he started examining and classifying the wealth of plant material sent by Sessé and Cervantes, organizing the field observations according to Linnean principles. Undoubtedly, the species dahlias described in Cavanilles' works were among them (although it is not clear whether any seeds had been planted in the garden prior to 1790). At the same time, Cavanilles was involved in a rivalry with the garden's director, Casimiro Gómez Ortega, and another envious botanist. In 1791 the taxonomer was ordered to travel throughout Spain to obtain data for a natural history (and to keep him away from Madrid). That year, Cavanilles published the first volume of "Icones et Descriptiones plantarum . . .", a work he had begun in September 1790. Included in the description and the author's finely detailed drawings is the first mention of the dahlia, *D. pinnata*. Inexplicably, Vicente Cervantes had misidentified the seeds as belonging to a known genus, coreopsis. Other well-known plants found in the volume are the closely related cosmos and also the vine *Cobaea scandens*.