

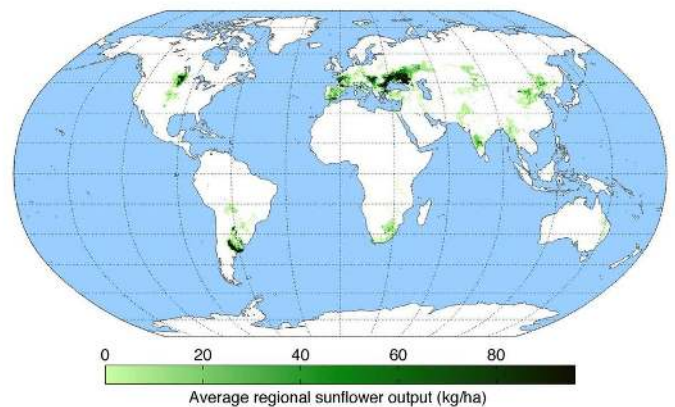


Sunflower: Knowledge, Myth, and Meaning

Kristan M. Hanson

A Giant among Us

Helianthus annuus, the common sunflower, is an annual herb that includes wild, weed, and cultivated varieties.¹ Cultivated *Helianthus annuus* holds a special status in the plant world: it is among a small number of crop plants first domesticated in North America thousands of years ago and is the only one still widely used today.² Indeed, the domesticated sunflower is grown primarily as an edible oilseed crop, having been introduced from its native range of temperate North America nearly worldwide. The cultivated sunflower is also a popular ornamental, renowned for its yellow flower head, large disk, heart-shaped or ovate leaves, unbranched stem, and imposing height. Remarkably, the plant can grow freestanding up to 16 feet and [nearly twice that](#) with a support.



⋮ Sunflower sky backdrop ⌂ ⋮ Helianthus annuu... ⌂ ⋮ SunflowerYield

⌂

While the domesticated sunflower is an imposing presence in nature, its aesthetic portrayals also hold powerful and enduring visual appeal. Like the supersized flower in this [botanical illustration,] (<https://www.rct.uk/collection/search#/1/collection/924404/common-sunflower-and-greyhound>) cultivated *Helianthus annuus* looms large in many cultural imaginaries. So large, in fact, that we may be more familiar with sunflower imagery than with the actual flower. Its proliferation in European art since the late sixteenth century was due partly to the aesthetic appeal of traits artificially selected to increase seed production—a single composite flower head with a large disk—and partly to the timing of its introduction to Europe just prior to the blossoming of a new genre of botanical treatise, called the [florilegium](#) (collection of flowers), in the early 1600s. The transplanting of the flower and the cultural excitement surrounding its foreign provenance were also fueled by the European exploration and colonization of North America prior to and during this period.

A cultural history of the sunflower that attends to the circulation and significance of images can provide rich historical information about the plant and the role of visual culture in communicating the knowledge, myth, and meaning related to it. Artists working in Europe from the late sixteenth to the late nineteenth centuries produced many likenesses of the sunflower, which served aesthetic, imperial, scientific, commercial, and other functions. In doing so, they developed conventions for representing specific characteristics that were tailored to those aims. By tracking changes in this [iconography](#) over time, we can learn about the historical significance of sunflowers in specific temporal and geographic contexts, as well as shifts in the ways that humans have represented, encountered, used, studied, and valued them. Close visual analysis of works of botanical art and other sorts of floral imagery can also help us cultivate and bring greater attentiveness to our encounters with plants.

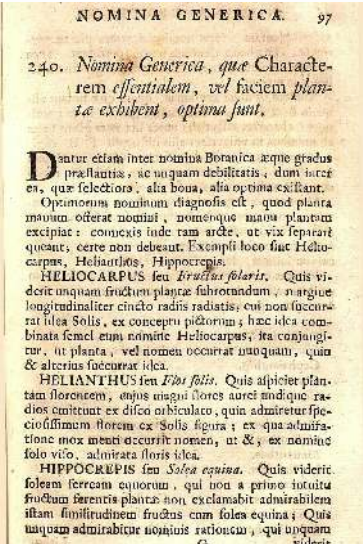


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Naming the Iconic Flower

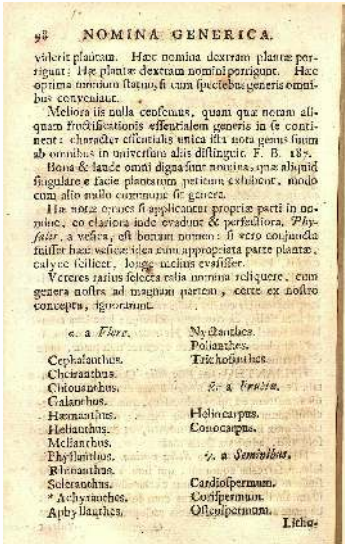
The genus *Helianthus*—a Latin compound derived from the Greek words *helios* (sun) and *anthos* (flower)—and the species *Helianthus annuus* were named by the prominent Swedish naturalist Carolus Linnaeus in the eighteenth century, by which time the domesticated sunflower was already a beloved garden flower in Europe.³ Although it may be hard for us to imagine the extraordinary admiration for the sunflower at that time, Linnaeus's exuberant description of the plant in *Critica botanica*, from 1737, offers some insights.⁴ He writes, "Who can see this plant in flower, whose great golden blossoms send out rays in every direction from the circular disk, without admiring the handsome flower modeled on the sun's shape?"⁵ His encomium on the splendor of a mature inflorescence and its formal resemblance to the sun demonstrates traits that eighteenth-century Europeans prized and that make the flower, both real and represented, so iconic today.



: Carolus Linnaeus,...



: Carolus Linnaeus,...



: Carolus Linnaeus,...

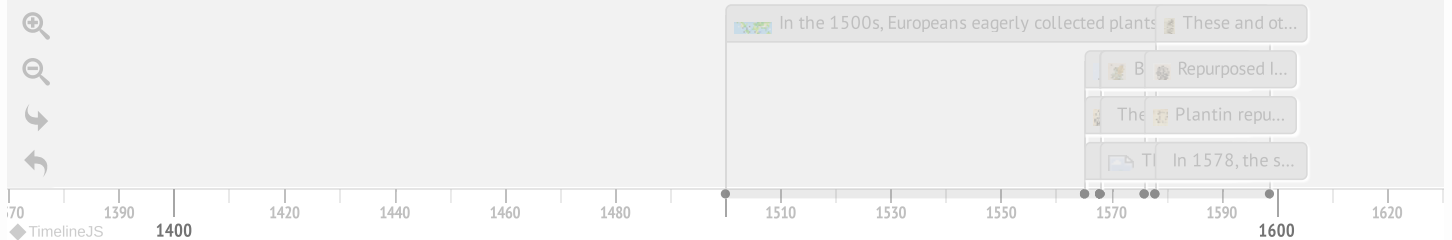
Plant Mobility and Early Printed Books

The first known pictures of domesticated sunflowers produced by Europeans were printed in herbals in the late 1560s.⁶ These illustrations of tall, hearty plants with thick stocks, giant leaves, and ponderous sun-shaped flowers provide a foundation for studying later sunflower iconography. Such visual descriptions along with textual ones also help us to chart the plant's mobility from North America to Europe. Yet, it is important to acknowledge that herbals present incomplete and sanitized histories of the plant world during the age of colonization. The treatises typically omit any information about plant harvesting and the impact of such exploitative practices, now termed [extraction colonialism](#), on Indigenous peoples and local habitats. For this and other reasons, questions persist about who first collected sunflowers, when and from where they did so, and what global circumstances permitted that type of bioprospecting.

PLANT MOBILITY AND EARLY PRINTED BOOKS



PIANTA
MASSIMA,
PIETRO
ANDREA
MATTHIOLI,
I
DISCORSI,
1568



Once introduced to Spain, the domesticated sunflower quickly migrated to parts of Italy and the Low Countries via transregional trade routes, as did images of it.⁷ Networks of wealthy and privileged Europeans, most of whom were men, exchanged plant materials for cultivating *Helianthus annuus* and instructions for doing so in letters and drawings. Physician and botanist Pietro Andrea Mattioli acknowledged his receipt of such correspondence in a late edition of his herbal *I Discorsi*, from 1568, as did Flemish physician and botanist Rembert Dodoens in his precursor to a florilegium, *Florum, et coronariarum*, of the same year.⁸ This model visualizes some of their connections with a group of botanists, patrons, publishers, artists, and members of royal courts who exchanged information about sunflowers that was then recounted in herbals produced in the 1560s and 1570s.



⋮ Network of botanists who authored or translated... 📐

Sunflower Aesthetics in Full Bloom

The advent of the florilegium in the 1610s was integral to the blossoming of sunflower aesthetics, as is evidenced in the sumptuous prints contained in *Hortus Eystettensis*.⁹ The 1613 book was commissioned from apothecary and botanist Basilius Besler by the Prince Bishop of Eichstätt, who wished to document rare and foreign flora then growing in his garden in Bavaria. As part of the project, Besler oversaw the production of this hand-colored engraving of a domesticated sunflower shown life-sized. The image's impact derives not only from its impressive dimensions but also from its bold cruciform composition, both of which imbue the full flower head and stem with a sense of power and religious reverence for nature. A symmetrical design makes the flower's disk spiral a focal point around which irregular ray florets lend rhythm and heart-shaped leaves a decorative flourish. These formal strategies were innovative for the time because they celebrated the sunflower's beauty above its use value, unlike most economical illustrations then found in herbals. Consequently, Besler's *Flos Solis maior* (large flower of the sun) became an influential model for visualizing *Helianthus annuus* that anticipated modern visual stereotypes for the plant, perhaps best epitomized by [this tiny sunflower emoji](#).



⋮ 🌻

Mythic Encounters and Scientific Debates

The migration of sunflower iconography from one source to another is evidenced in the pages of Francisco Hernández's *Nova plantarum*, published posthumously in 1651.¹⁰ The book purports to document plants and animals that the naturalist and physician and his team, which included several Indigenous artists, observed during a three-year expedition through New Spain (present-day Mexico) in the 1570s.¹¹ However, its illustrations of sunflowers, shown here, were not drawn on site from local flora but rather borrowed from European models. The [upper illustration](#) was adapted directly or through intermediary sources from Besler's *Flos Solis maior*. The [lower image](#) repurposes a design from a [florilegium](#) that was itself republished in an [herbal](#).¹² These appropriations have been interpreted as evidence that Hernández's team of artists or those working on his manuscript at a later date had to copy existing imagery because the sunflower was not established in New Spain at the time of his expedition.¹³ If that is so, as several modern-day botanists argue, Hernández's discussion of the sunflower implied a mythic encounter with the plant that reproduced European misconceptions about its range.



⋮ Nova...



⋮ *Flos Solis maior*, in Basilius Besler, Hortus...

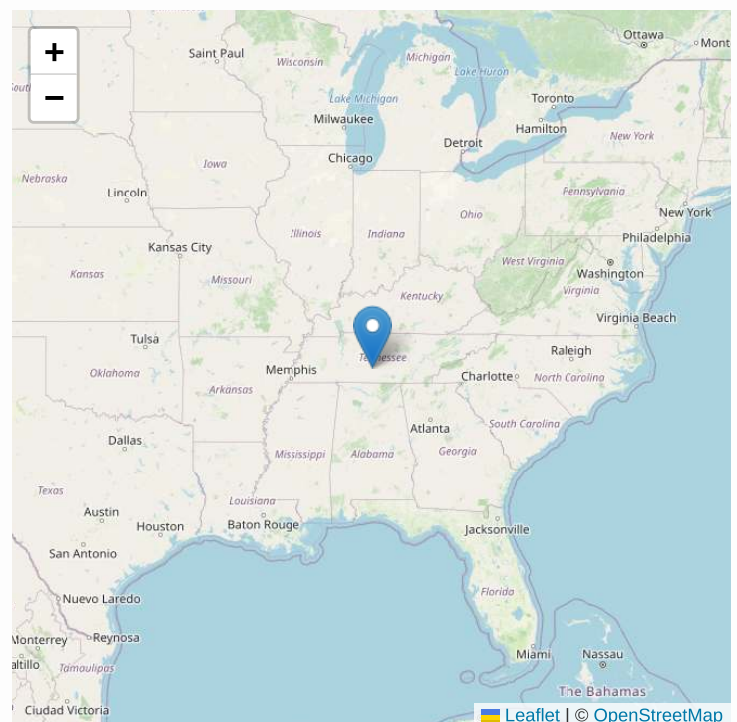


⋮ Adriaen...



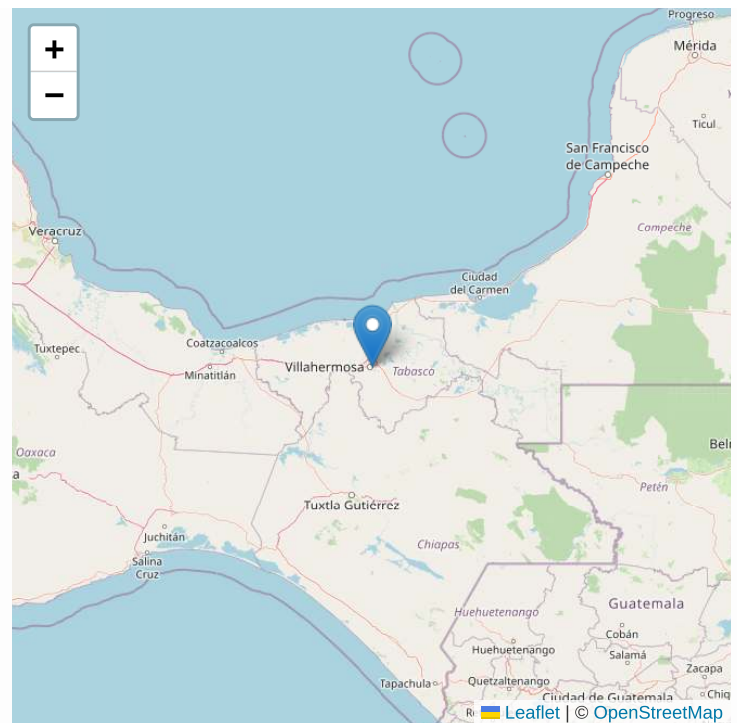
⋮ Histoire de...

Although European herbals such as Hernández's perpetuated cultural myths that the domesticated sunflower was present in Mexico prior to colonization or originated in Peru, botanists have since debunked these ideas by using distribution maps and fossilized remains to study the plant's origin and range.¹⁴ The earliest known cultivated sunflower remains—charred seeds—tell us that humans used *Helianthus annuus* at Hayes shelter in central Tennessee by 5000 BP ([Before Present](#)) and parts of eastern North America by 3000 BP.¹⁵ It is likely that, in the pre-5000 BP context, Indigenous peoples transported wild sunflowers to their campsites, where the plants became stabilized and later cultivated to possess desirable traits, namely large flower heads with more seeds.¹⁶



⋮ Hayes Shelter prehistoric site, Marshall County,...

Yet scientists still disagree about when humans first used domesticated sunflowers in parts of the southwestern United States and Mexico, and whether such plants were cultivated independently there.¹⁷ An ongoing source of debate is the origin of a charred seed that was recovered at San Andrés archaeological site in Tabasco, Mexico. Although some scientists identified the seed as coming from cultivated *Helianthus annuus*, others argued that it most likely came from a bottle gourd.¹⁸ Expanding on this archeological research, genomic studies of modern domesticated and wild sunflowers have linked the plants to a single common ancestor, which was cultivated at an independent domestication center, along with pepo squash, marsh elder, and chenopod, in central Tennessee and other parts of eastern North America.¹⁹ Citing that evidence, botanists have argued that domesticated *Helianthus annuus* was brought to Mexico via North American trade routes, possibly by Spanish colonizers.²⁰



San Antonio cave, Tabasco, Mexico

“I’ll Follow the Sun”: Heliotropism as Metaphor and Myth

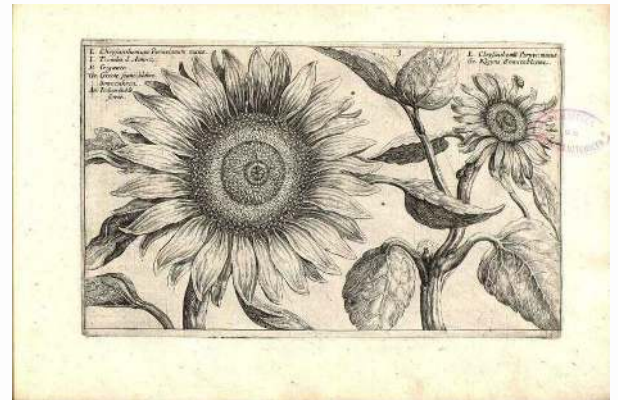
By the early 1630s, when Anthony van Dyck painted *Self-Portrait with Sunflower*, there was a well-established iconography in Europe for representing the aesthetic qualities of sunflowers with botanical specificity. Van Dyck, a Flemish artist working for Charles I of England, surely had numerous models to consult.²¹ That imagery was known to artists through emblems and [florilegia](#), such as the ones produced by Crispijn van de Passe and Adriaen Collaert. Regardless of which sources were used, Van Dyck’s painting presents a lively image of the artist, who appears to have just turned his head to face us, as though we spontaneously discovered him admiring a sunflower unawares in a pleasure garden. With one hand, the painter fingers an opulent gold chain, gifted by the King, that identifies his position as official portraitist of the court. With the other, he directs our attention to the pert head and robust foliage of a golden sunflower—a glorious floral manifestation of his loyalty to his patron.



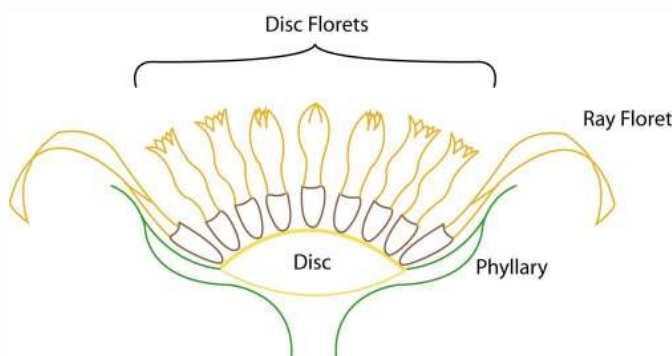
⋮ Self-portrait with a sunflower



⋮ Jan van...



⋮ Crispijn van de Passe, Hortus floridus,...



⋮ Jose L. Panero, Capitulum cross section...

Europeans associated sunflowers with the human sentiments of loyalty and constancy because the plant's heliotropic phase (growing toward the light) of development recalled how, in an ancient Greek myth, the sea nymph Clytie expressed her devotion to the sun god Helios.²² According to the story, Clytie competed unsuccessfully for Helios's affections. Scorned by him and shunned by her fellow nymphs, Clytie wasted away, wholly consumed with gazing upon his chariot as it traversed the sky. Her suffering ended with her metamorphosis into a heliotrope, so named for its flowers' movement toward the sun's rays. Heliotropism was associated with *Heliotropium* in ancient Rome and later with *Calendula*, or the marigold, in medieval Europe.²³ Yet, as this print shows, European artists of the late sixteenth through the eighteenth centuries portrayed Clytie's attribute as a sunflower.²⁴ That floral inventiveness demonstrates the fashionability of the sunflower as a motif and the degree to which it was entangled not only with beliefs about the flower's formal resemblance to the sun but also with misconceptions about the mature plant being heliotropic.



⋮ Francesco Bartolozzi, after Annibale Carracci, Clyti...

There is a longstanding cultural assumption that sunflowers are heliotropic throughout their lives. In actuality, the plant only tracks the movement of the sun during an early phase of its development and once mature, faces the east. Scientists recently examined the physiological processes that are responsible for these phenomena.²⁵ Their study reveals that the stems of immature plants elongate on opposite sides in a circadian rhythm: the east side elongates to produce heliotropism during the day and the west side does so to reorient eastward at night.

This growth pattern results from different genes that are expressed in response to an internal clock or external light, and they also regulate the cessation of movement. These amazing adaptations have ecological advantages too—whereas heliotropism enhances the growth of the immature sunflower, the fixed eastward position of the blooming sunflower elevates its temperature and contributes to an increase in pollinator visitation. Needless to say, these exciting findings generated a media buzz!



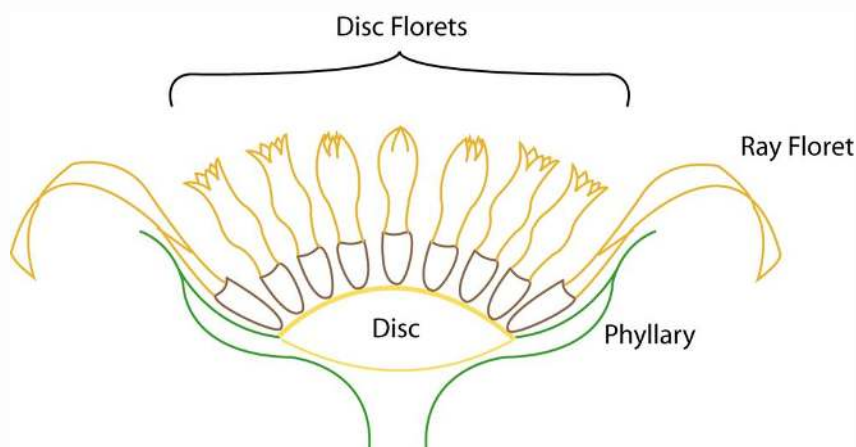
⋮ Why and How Sunflowers Follow the Sun

Out of One, Many

In the eighteenth and early nineteenth centuries, botanical illustrators developed a refined iconography for representing cultivated sunflowers that allowed them to communicate scientific knowledge about the plant. This hand-colored print *Anatomy of the Sunflower*, designed by the British artist [Peter Henderson](#), exemplifies a mode of artistic engagement with plants tailored to the needs of botanists.²⁶ Henderson's image shows a partial view of two mature specimens—facing opposite directions—to communicate valuable information about their dorsal (back) and ventral (front) morphological structures. Yet his design takes some aesthetic liberties to imbue the flower heads with a sense of movement and vitality, expanding the appeal of the illustration beyond scientists to plant and art collectors as well. At the center of the [left flower](#), a series of green scallop-like shapes describe how its bracts (leaves) grow in concentric layers. Their slight curvature contrasts with a leaf that curls exuberantly away from the plant's stem, leading the eye to the [opposite flower](#). Rust-orange “petals,” some with gold highlights, radiate outward from its dark-brown disk. A close look at the [disk](#) reveals a circular band composed of stylized representations of yellow, five-petaled florets.



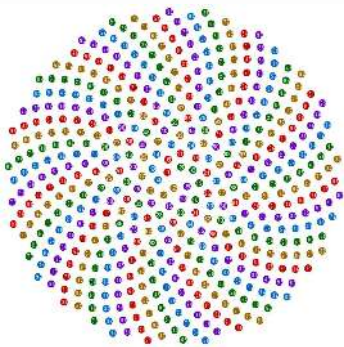
Henderson's botanical illustration highlights a trait of sunflowers that we may overlook due to our casual familiarity with the plant. Its flower heads are not single blossoms. *Helianthus*, like other members of the aster family, Asteraceae, produces a special kind of inflorescence: a composite of many tiny flowers known as florets.²⁷ This diagram of a mature flower head shows that what we generally call "petals" are actually ray florets; they are sterile and serve to attract pollinators to disk florets. The disk florets, which can number in the hundreds or thousands, grow in a spiral pattern and each one can develop its own fruit after pollination. Perceiving such floral traits and examining their functions require a process of direct observation and visual analysis that is practiced by scientists and artists alike.



⋮ Jose L. Panero, Capitulum cross section diagram_, © Creativ... ⌂



⋮ Helianthus whorl ⌂



⋮ SunflowerModel ⌂

Henderson's design for *Anatomy of the Sunflower* models an attentiveness to the plant world while also articulating Linnaeus's contributions to botany as they relate to *Helianthus annuus*. Linnaeus developed a plant taxonomy that he based on the number, arrangement, and similarities of reproductive organs: stamen(s) and pistil(s). The tremendous influence of this system on the production of knowledge about plants, as well as their ordering, archiving, comparing, and circulation, is evident in the [lower right corner](#) of *Anatomy of the Sunflower*, where there are precise depictions of such organs. This series of details was essential to the function of the picture; it was commissioned by Dr. Robert John Thornton for his book [New illustration of the sexual system of Carolus von Linnaeus](#).²⁸



⋮ ⌘ ⋮ harvard-436574052 10 ⌘ ⋮ ⌘

Sun-Shaped though Not Necessarily Golden

In the late nineteenth century, some European painters embraced the genre of still life to explore the expressive capacities of paint, plants, and floral forms. Perhaps best known is Vincent van Gogh, who cultivated a signature style of representing domesticated sunflowers. In his 1888 painting, *Sunflowers*, he uses a striking range of intense yellows to depict an arrangement of more than a dozen blooms. The disparate hues and shapes of their radiant ocher, mustard, and golden-orange flower heads portray two different types of cultivated *Helianthus annuus* that were harvested at different stages of their life cycles. The sunflower, at center left, has shed its ray florets and started to wilt, whereas one of its plush counterparts—a double-flowered variety known as the “Teddy Bear”—is still vibrant.²⁹ Van Gogh painted these sunflowers directly from life during the summer of 1888, after moving from Paris to Arles, France, the previous winter.³⁰ We can read his golden palette and radiant bouquet as metaphorically evoking the bright warm light of southern France that rejuvenated his painting practice and nurtured the growth of flowers like the ones shown here.



⋮ While living in Arles, Va...⌂



⋮ Helianthus annuus (cultivar) 02



⌂ ⋮ Vincent van Gogh,... ⌂

Contrary to what is most often portrayed in visual and verbal descriptions of sunflowers, the palette of *Helianthus annuus* is not limited to yellow. There are many *Helianthus annuus* cultivars with flowers whose colors range from gold to orange to red to dark purple, and even an unexpected shade of pink. There are also more than 50 accepted species grouped under *Helianthus* and they vary in size and the number and shape of their leaves and flower heads. The differences among specimens of *Helianthus annuus* (common sunflower), *Helianthus giganteus* (giant or tall sunflower), and *Helianthus tuberosus* (Jerusalem artichoke or sunchoke), mounted on these herbarium sheets, also dispel the notion that all sunflowers possess a single large blossom per stem. That trait, as we now know, is unique to the domesticated sunflower and due to human selection.



⋮ Sunflower "Strawber... ⌂



⋮ Holotype of Helianthu... ⌂



⋮ Holotype of Helianthu... ⌂



⋮ Holotype of Inula... ⌂

Sunflower seeds also exhibit variations in size, color, and markings. Whole seeds—comprising a kernel and a husk—can be solid black or gray and have a stripe pattern. For hundreds of years, the Native American Hopi tribe in the southwest has cultivated [sunflowers with deep purple seeds](#) that appear black and shiny.³¹ They use the seeds to create dark blue and purple dyes for coloring wools and vegetal fibers that are in turn used to make [weavings or baskets](#). The processes of cultivating, harvesting, and boiling seeds to produce dye for basketry exemplify a rich tradition of tribal plant knowledge that is interwoven with cultural and spiritual beliefs. Indigenous peoples of North America also [use\(d\) sunflowers in a variety of ways](#) including as a source of food, fuel, pigment, and medicine, as well as ceremonially.



⋮ Sunflower Seeds Kaldari



⌂ ⋮ Sunflower with black... ⌂



⋮ ⌂

Gone to Seed

Cultivated *Helianthus annuus* is a fast-growing, sun-loving plant that blooms during the summer months. At this stage of growth, the mature flower faces east, and its warmth and radiant yellow ray florets together attract insect pollinators. Once pollinated and fertilized, the plant develops seeds that slowly ripen. They are ready for harvesting when the flower head sheds its petals, droops, and turns yellow and then brown. That final stage of the annual's lifecycle is poignantly evoked in Van Gogh's *Sunflowers*. The left and center sections of the picture show a dried flower head with exposed kernels. Its dark-brown, rust-orange, and aqua disk nestles against the desiccated yellow husk of a second once-vibrant flower. The

plant portrait radically departs from the visual conventions for representing the domesticated sunflower at the height of its beauty, as a mature golden flower poised atop a thick vertical stem adorned with robust leaves. Instead, Van Gogh defamiliarizes the plant on the left by portraying it with a few wilted rays, lying flat and inert. That withered floral imagery unsettles our tendency to appreciate the sunflower primarily for its beauty or utility, while also challenging a deeply held assumption that such natural resources are infinitely replenishable. In all of these ways, Van Gogh's [memento mori](#) invites us to bring greater attentiveness, care, and gratitude to our relationships with all plants, though none more so than the glorious sunflower.



⋮ Vincent van Gogh, *Sunflowers*, 1887, The...



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