The Sensitive Plant: Meaning and Movement

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(Re)discovering the Sensitive Plant

Sensitive Plant at the US Botanical Garden

Mimosa pudica is a charismatic plant in the legume family whose leaves fold at night or when disturbed.[1] The movement of its leaves has fascinated herbalists, botanists, and storytellers around the world for centuries. And their culturally mediated beliefs about the sensitivity, responsiveness, and sentient life have resulted in a diversity of relationships to this plant. Brought from Latin America to Europe, botanists became fascinated with the plant's ability to move. There, the *Mimosa pudica* became a cultural symbol — fueling a scientific obsession with the intelligence of plants that continues today. *Mimosa pudica* specimens reside both at the New York Botanical Garden and United States Botanical Garden in Washington, DC, indicating the continued interest of scientific and botanical experts in cultivating this unique "weed" as an asset.[2] Consider the adjoining video from the US Botanical Garden as a reminder that even as we respond to this plant's legacy, it responds to us too.

Where contemporary scholarship surrounding the *Mimosa pudica* has emphasized the plant's ability to demonstrate intelligence and memory, the larger historical narrative explored here highlights how this very vitality has resulted in violent experimentation and objectification. By tracking perceptions of the *Mimosa pudica* throughout European scientific and popular work, we consider how colonial botany and bioprospecting produced culturally specific practices of engagement with plants. Rather than flatten the distinct and diverse knowledge systems that engage *Mimosa pudica*, by bringing them into direct comparison with this Eurocentric perspective, we want to emphasize the ways that these knowledge systems remain, on their own terms, despite the ongoing impacts of colonization.

Watercolor from Nathaniel Lord Britton's...

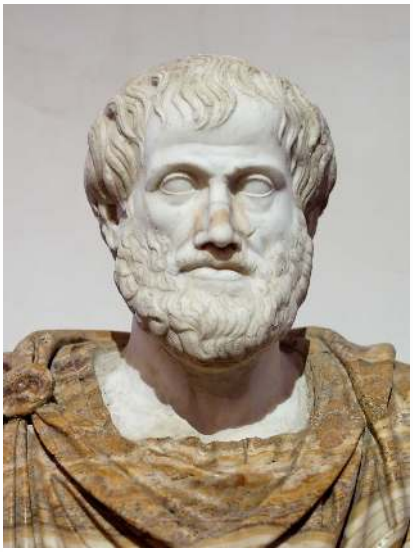
While referred to in the Western world as the Sensitive Plant, or by *Mimosa pudica*, across the globe there are proliferating names used to refer to this plant. As far back as the sixteenth century, there are records that show naming confusion. In 1578, in what we found to be the earliest mention of the plant, Christoval Acosta, a Portuguese doctor and natural historian who was one of the first to study plants in Asia, described and illustrated two plants that he called *Yerua Biua* and *Yerua mimosa*.[3] Though it is unclear whether those species are *Mimosa pudica* or just related, scholars think that the *Yerua viva*, another plant that Acosta identified, is indeed this mysterious plant.[4] In 1598, on an expedition to Puerto Rico, John Layfield found a plant that he identified with Acosta's *Yerua viva*, calling it *Yerva viva*.[5] When the Royal Society conducted its experiments in 1661 at the request of King Charles II, they called it "the Sensitive Plant." In 1633, John Gerard's *The Herbal*, a widely popular gardening and herbal book, called the plant *Herba mimosa*. It was Carl Linnaeus who, in his *Species Plantarum*, consistently used binomial nomenclature for the first time. He named the plant *Mimosa pudica*.[6] *Mimosa* comes from the Greek *mimikos*, meaning to mimic, and the Latin *pudica* means modest or bashful.[7] In addition to *Mimosa pudica* and the Sensitive Plant, the plant has many other names, used by botanists and the public alike: bashful plant, chaste plant, touch-me-not plant, and humble plant. The names are emblematic of the values humans attach to this plant. For example, because of its sentient character, the Sensitive Plant was often linked to ideas of female chastity.[8] Indigenous communities in regions where the Sensitive Plant is native have their own names. *Pinahuihuitztli* and *Cocochiatl* are two Nahautl names for the plant, recorded by Spanish naturalist and explorer Francisco Hernández in 1570.[9] In present-day Latin America, *dormidera*, which means sleeper, is used. Explore the word cloud to the right to discover more names and appreciate their abundance for this plant; our list is not exhaustive. For the remainder of this essay, we will refer to this plant as the Sensitive Plant.

Explore the word cloud to learn other names of...

The Sensitive Plant is a low-growing perennial plant that grows to between 15 and 100 centimeters tall.[10] Its leaves are alternate and bipinnate with the pinnae (primary divisions of the leaf) being subdigitate, or finger-like. Because the plant forms dense ground cover, it can prevent the reproduction of other species, which is why some consider it a weed. Yet, like many in the legume family, the Sensitive Plant is nitrogen fixing. It can convert atmospheric nitrogen, an essential nutrient that is unusable to most organisms in its atmospheric form, into ammonia, which can be readily absorbed by organisms, creating available nitrogen. The Sensitive Plant has many traditional medicinal uses across the world, including as a diuretic, antidepressant, aphrodisiac, and a sleep inducer.

Mimosa pudica lectotype specimen from the Natur...

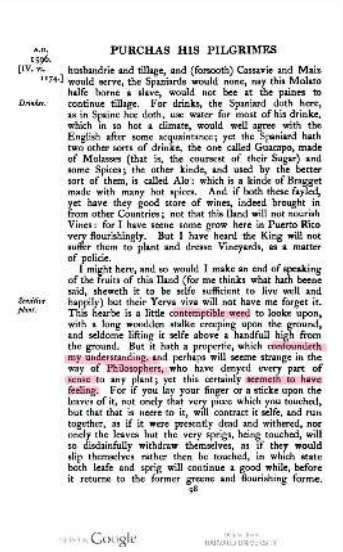
Fueled through literary, scientific, and artistic representations, European fascination with the Sensitive Plant has also been philosophical and scientific. The plant's movement in response to stimulus posed a problem for early European botanists—how could a plant display such sensitivity? For centuries, Hellenistic philosophy reigned supreme. Aristotle and Theophrastus both argued that plants were characterized by an "insensitive Vegetative soul," and animals by a "Sensitive Soul."[11] Animals could make active responses to external stimuli, but plants were supposed to be passive—their only faculties devoted to nutrient intake and reproduction. This philosophy, clearly differentiating plants from animals based on their sensitivity, held firm well into the seventeenth century. In 1661, in a dramatic and evocative study of the plant, the Royal Society burned the Sensitive Plant with acid, cut, and struck it in scientific trials. These violent manipulations were intended to elucidate the motivation and mechanism behind the plant's responses.[12] As European cultural associations with the Sensitive Plant developed, other scientists continued experimenting: in the late eighteenth century, the French botanist René-Louiche Desfontaines took the plant on a bumpy horse drawn carriage ride in Paris to see how it would react.[13]



Aristotle

Theophrastus

When John Layfield first encountered the Sensitive Plant in Puerto Rico in the late sixteenth century, he acknowledged how the plant challenged Hellenistic philosophy: “It hath a property, which confoundeth my understanding, and perhaps will seem strange in the way of the Philosophers, who have denied every part of sense to my plant; yet this certainly seemeth to have feeling.”[14] Many botanists attempted to come up with mechanical explanations for the plant’s movement, especially under the influence of Rene Descartes, the prominent philospher and scientist, who popularized the idea that all nature and organisms are machines. Descartes’ ideas of mechanism made it possible to explain plant movement “in terms of physical causes reducible to matter and movement,” avoiding the idea that plants could have feelings.[15] The Royal Society, in 1661, conducted experiments on the Sensitive Plant, theorizing that the circulation of some kind of sap allowed the plant to move. A century later, botanists were still grappling with whether the Sensitive Plant could feel. Abbe de Vallemont, a French scientist, declared that the “Sensitive Plant has no more sense than a cabbage,” demonstrating the prevalence of Hellenistic philosophy and mechanism.[16] Even in the early nineteenth century, British botanist Agnes Ibbetson disagreed with those who thought that the Sensitive Plant had inherent feeling or sensitivity. Instead, she wrote, the plants are “machines governed wholly by light and moisture; and dependent on these causes for motion.”[17]

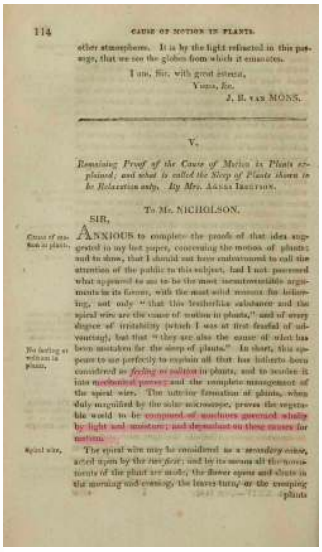


PURCHAS HIS PILGRIMES

husbandrie and tillage, and (forsooth) Cassavie and Maiz would serve, the Spaniards would none, say this Molato halfe borne a slave, would not bee at the paines to continue tillage. For drinks, the Spaniard doth here, as in Spaine hee doth, use water for most of his drinke, which in so hot a climate, would well agree with the English after some acquaintance; yet the Spaniard hath two other sorts of drinke, the one called Guacapo, made of Molasses (that is, the coursest of their Sugar) and some Spices; the other kinde, and used by the better sort of them, is called Alo: which is a kinde of Bragget made with many hot spices. And if both these fayled, yet have they good store of wines, indeed brought in from other Countries; not that this Iland will not nourish Vines: for I have seene some grow here in Puerto Rico very flourishingly. But I have heard the King will not suffer them to plant and dresse Vineyards, as a matter of policie.

I might here, and so would I make an end of speaking of the fruits of this Iland (for me thinks what hath beene said, sheweth it to be selfe sufficient to live well and happily) but their Yerva viva will not have me forget it. This hearbe is a little contemptible seed to looke upon, with a long woodden stalke creeping upon the ground, and seldome lifting it selfe above a handfull high from the ground. But it hath a propertie, which confoundeth my understanding, and perhaps will seeme strange in the way of Philosophers, who have denyed every part of sense to any plant; yet this certainly seemeth to have feeling. For if you lay your finger or a sticke upon the leaves of it, not onely that very pixie which you touched, but that that is neere to it, will contract it selfe, and run together, as if it were presently dead and withered, nor onely the leaves but the very sprigs, being touched, will so disdainfully withdraw themselves, as if they would slip themselves rather then be touched, in which state both leafe and sprig will continue a good while, before it returne to the former greene and flourishing forme.

Hakluytus...



114 CAUSE OF MOTION IN PLANTS.

other atmospheres. It is by the light refracted in this passage, that we see the globes from which it emanates.

I am, Sir, with great esteem,
Yours, &c.
J. R. VAN MONS.

V.

Remaining Proof of the Cause of Motion in Plants explained; and what is called the Sleep of Plants shown to be Relaxation only. By Mrs. Agnes Ibbetson.

To Mr. NICHOLSON.

SIR,

ANXIOUS to complete the proofs of that idea suggested in my last paper, concerning the motion of plants; and to show, that I should not have endeavoured to call the attention of the public to this subject, had I not perceived what appeared to me to be the most incontrovertible arguments in its favour, with the most solid reasons for believing, not only "that this featherlike substance and the spiral wire are the cause of motion in plants," and of every degree of irritability (which I was at first fearful of advancing), but that "they are also the cause of what has been mistaken for the sleep of plants." In short, this appears to me perfectly to explain all that has hitherto been considered as *feeling or volition* in plants, and to resolve it into mechanical power; and the complete management of the spiral wire. The interior formation of plants, when duly magnified by the solar microscope, proves the vegetable world to be composed of machines governed wholly by light and moisture; and dependent on these causes for motion.

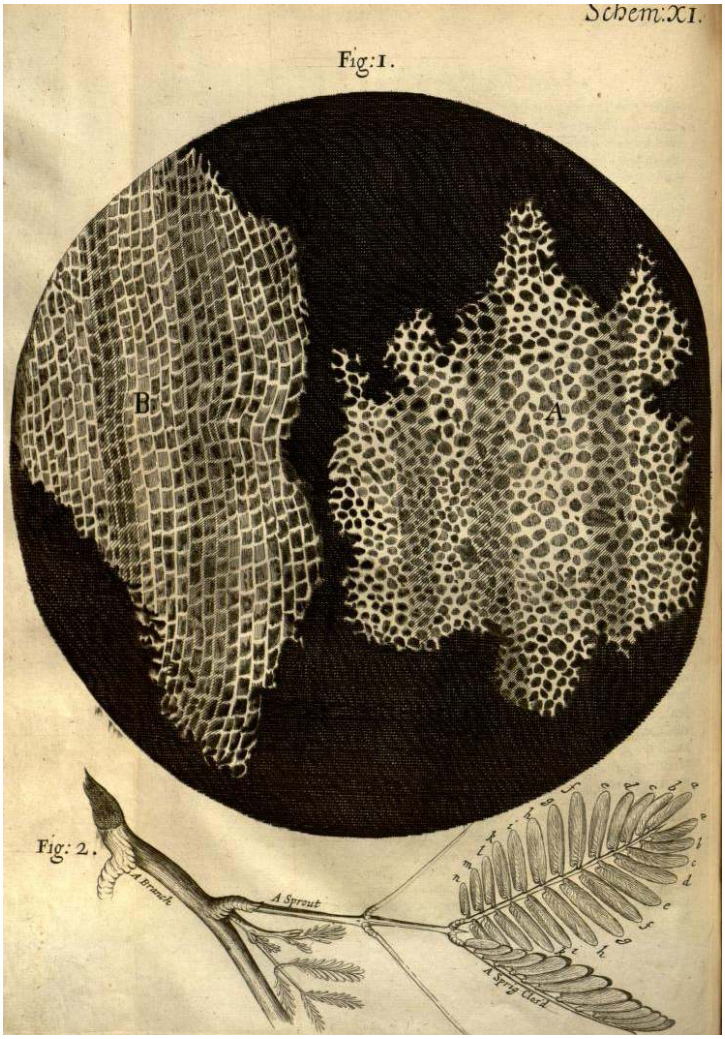
The spiral wire may be considered as a secondary cause, acted upon by the first; and by its means all the movements of the plant are made; the flower opens and shuts in the morning and evening; the leaves turn; or the creeping plants

Journal of Natural...

Integrating Science and Culture - European Botany and Figures of

Femininity

The Sensitive Plant's fascinating movements have made it a popular object of study for (typically male) botanists for centuries. The first experiments on the plant were performed by the Royal Society in 1661 at the request of King Charles II. Members of the Royal Society focused light on the plant, cut off some leaflets, and poured nitric acid onto it — forcing its leaves to close.[18] They found that the intensity of the plant's reaction was proportional to the intensity of each stimulus. They theorized that a "liquor" constantly circulated in the plant, akin to circulating blood in a human, and that upon stimulation, the liquor would move inside the plant tissue, and the leaflets close. Skeptic John Ray, a botanist, was not convinced that plants could be so similar to humans nor that plants could be sensitive. He argued that movement in plants could only be due to changes in moisture and temperature.[19] In 1757, John Hill, an English artist and botanist, experimented with the plant and claimed that light, rather than heat or moisture, caused the leaflets to close and droop. In the late eighteenth century, Jean-Jaques d'Ortous de Marian, a French natural philosopher, conducted experiments where he kept the plants in constant darkness. He concluded that the daily opening and closing of the leaves continued even without sunlight.[20]



Micrographia, or, Some physiological descriptions ...

Jean-Baptiste Pierre Antoine de Monet, Chevalier de Lamarck (1744–1829), or Lamarck, also studied the Sensitive Plant. He subjected it to repeated stimulation and noticed that eventually the plant would not respond, theorizing that it was fatigued from so much stimulation. However, he observed that the plant would sometimes stop closing its leaves well before having exhausted its energy, implying that there was more to this puzzling behavior than fatigue.[21] An experiment performed by Rene-Louiche Desfontaines (1750–1833), what has come to be the most well-known experiment on the plant and the experiment on which contemporary studies of the plant are based, provided insight as to whether the plant was fatigued or had simply gotten used to the stimulation. As mentioned earlier, Desfontaines (actually, one of his students) placed the Sensitive Plant in a moving cart and took it on a ride through Paris. Initially, the ride's bumpiness seemed to cause the leaves to fold, but as the ride continued, they reopened. Desfontaines and his student speculated that either the plant was tired of holding its leaves closed or it had gotten used to the jarring movement of the cart. When the carriage remained stationary for a while, the leaves would open, and upon resuming the ride, the plant would fold up its leaves, implying that, as Desfontaines' student wrote in his notebook, "the plants are getting used to it."[22] If the plant had run out of energy, it would not have been able to close its leaves once the ride started again. Ideas about what the plant could endure, as well as the need to test its endurance, were shaped by ideas about gender, colonialism, and sensibility, which will now be explored.

Jean-Baptiste Pierre...

Rene-Louiche Desfontaines

Late-eighteenth- and nineteenth-century depictions of gender by colonial powers were entangled with the treatment of plant matter that traveling botanists were extracting.[23] The Sensitive Plant, having had European male scientific figures describe it as responsive, was also used as a fashionable motif by European and American artists seeking to draw out associations between the plant's movement and a shyly genteel, vulnerable affect. After being introduced to Europe in the sixteenth century, the Sensitive Plant became popular in formal English gardens.[24] Depictions of white womanhood could be reinforced or challenged through the conflation and projection of social conventions onto the plant. American artist Maria Edgar's 1808 watercolor of a woman among foxgloves, roses, and a Sensitive Plant is described as "a symbol of modern womanhood" by the Metropolitan Museum of Art for depicting of "the nurturing power of the female touch."[25] As Edgar's figure reaches out to touch the potted Sensitive Plant, viewers can see the docility in how delicately both plant and woman react to their surroundings. A few decades prior, a late eighteenth-century stipple engraving entitled "Sensibility" showed British actor Emma Hamilton reaching toward a potted Sensitive Plant, even as its leaves closed. Both images play on an understanding of femininity that balances separation from and adjacency to the natural world — portraying an idealized white and European womanhood that yearns for the delicate.

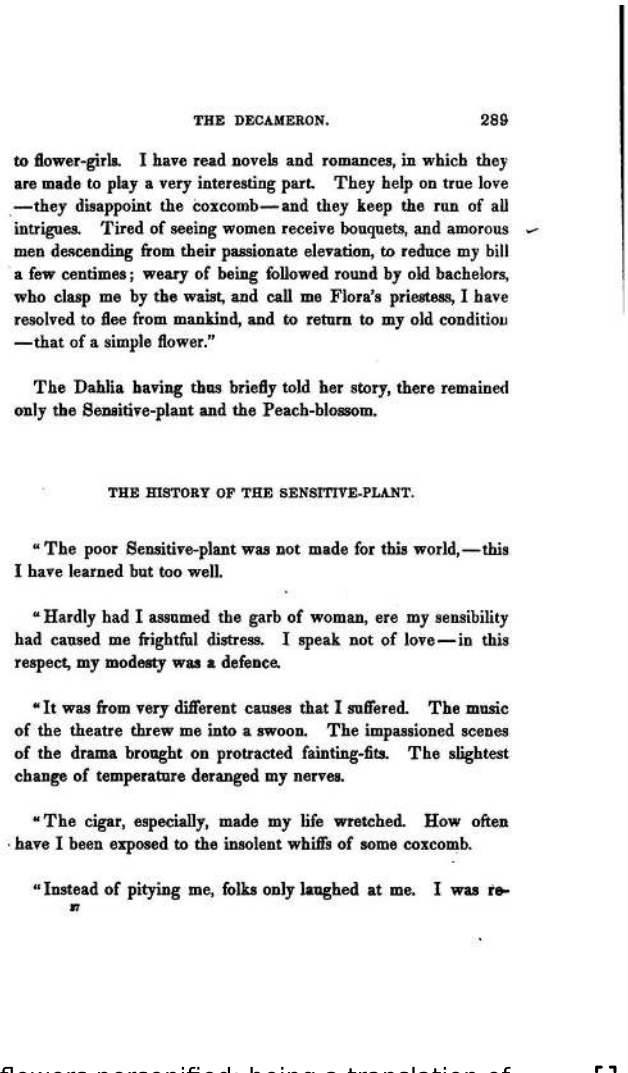
The Sensitive Plant by...

Emma Hamilton in an...

By the mid-nineteenth century, imperial Victorian Britain saw the regular use of transportation technologies like the Wardian case by botanists and curators, to more easily transport botanical samples from abroad, or from the colonies, as they allowed the plants to receive sunlight and moisture while remaining enclosed for transit.[26] Delicate and newly introduced plants like the Sensitive Plant could be made useful to colonial science in Europe as they could be added to a growing repertoire of flowers-as-messages, cultural icons in which specific flowers were said to communicate a corresponding symbol for a wearer or sender. German and French botanists also became “ardent users” of Wardian cases.[27] Taxile Delord’s 1847 French book of botanical stories, *Les Fleurs Animées*, illustrated by J.J. Grandville, is an example of how class, race, and gender were encoded into European imaginings about plants. Grandville’s anthropomorphized illustrations of flowers were both fanciful and instructive. The Sensitive Plant is personified by Grandville as a tall, slender white woman in a long gown adorned with *Mimosa* branches and white veil. Wearing an unhappy expression, she is shown shrinking away from contaminants: two darkly rendered garden creatures, a beetle and slug. As the woman lifts her skirt away from the ground, both she and the *Mimosa* branches on her skirt seem to shrink from the beetle’s smoking pipe. The plant’s fascinating and responsive movements, as recorded by scientists of the time, were embodied in Grandville’s depiction of a delicate woman fleeing. A particular set of European cultural values were thus not only projected onto plant life, but also imagined to be a part of its materiality and embodied sensibility.

Les fleurs animées

With Nehemiah Cleaveland's 1849 translation of *Les Fleurs Animées* into English, as *The Flowers Personified*, larger audiences could enjoy Grandville's illustrations alongside stories of flowers come to life.[28] One chapter, titled "The Decameron," features the Sensitive Plant in human form. She murmurs plaintively to her fellow flowers, sinks to the ground when overwhelmed, and testifies to the sensory overwhelm she has experienced from theatre music, scenes of drama, changes in temperature, and especially cigar smoke. The literary and visual imageries of the Sensitive Plant as chaste, delicate, and sensitive clarify the cultural contexts behind the book's later claim that the "beauties of the [French] empire were fond of being compared" with the Sensitive Plant. In another section of *The Flowers Personified*, a fictional young poet is told by the plants themselves which virtues they best represent; the Sensitive Plant is listed here as a symbol of bashfulness. Additionally, as in the original *Les Fleurs Animées*, the translation's illustrations and descriptions of plants like the sunflower reflected a fetishistic exotification of both peoples and plants new to the European world. The Sensitive Plant's responses to stimuli may have been a disruption to European perceptions of plant life, but they were also used to solidify hierarchies of race, class, and gender in France and Britain.



THE DECAMERON. 289

to flower-girls. I have read novels and romances, in which they are made to play a very interesting part. They help on true love —they disappoint the coxcomb—and they keep the run of all intrigues. Tired of seeing women receive bouquets, and amorous men descending from their passionate elevation, to reduce my bill a few centimes; weary of being followed round by old bachelors, who clasp me by the waist, and call me Flora's priestess, I have resolved to flee from mankind, and to return to my old condition —that of a simple flower."

The Dahlia having thus briefly told her story, there remained only the Sensitive-plant and the Peach-blossom.

THE HISTORY OF THE SENSITIVE-PLANT.

"The poor Sensitive-plant was not made for this world,—this I have learned but too well.

"Hardly had I assumed the garb of woman, ere my sensibility had caused me frightful distress. I speak not of love—in this respect, my modesty was a defence.

"It was from very different causes that I suffered. The music of the theatre threw me into a swoon. The impassioned scenes of the drama brought on protracted fainting-fits. The slightest change of temperature deranged my nerves.

"The cigar, especially, made my life wretched. How often have I been exposed to the insolent whiffs of some coxcomb.

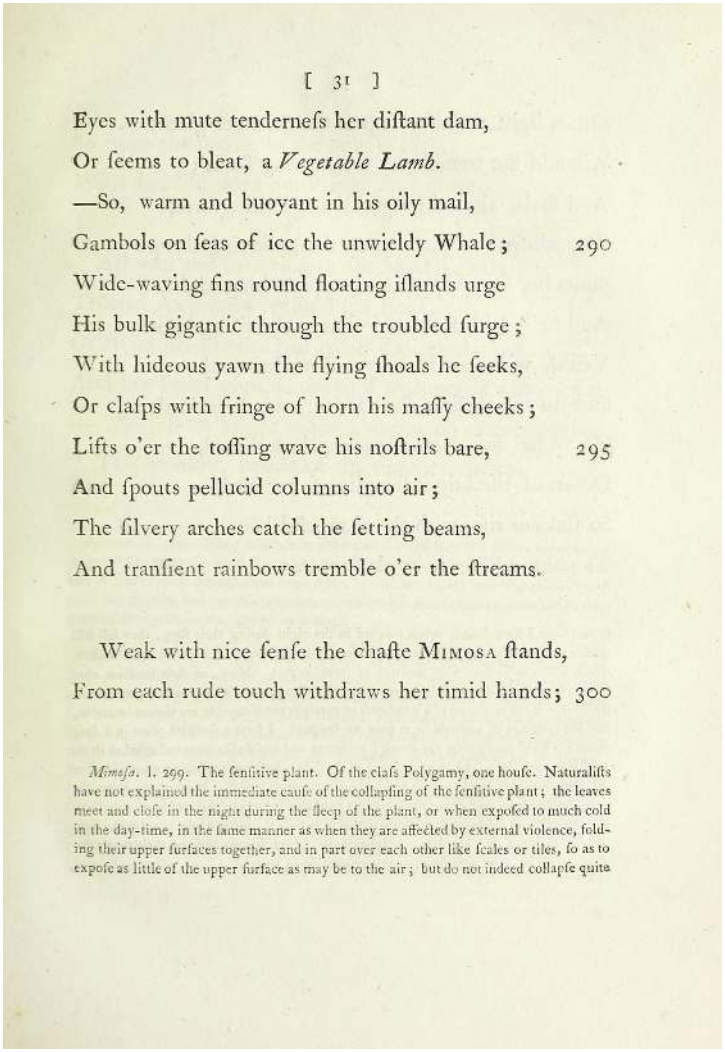
"Instead of pitying me, folks only laughed at me. I was re-

The flowers personified: being a translation of...

Visual representations of beauty, sensitivity, and class that use the Sensitive Plant show us how its cultural associations in Europe were entangled, from the start, with its scientific perceptions. Far from being separate realms, science influenced the European public's ideas of what the plant was. In the May 1829 issue of the French fashion magazine *Petit Courrier des Dames*, *Mimosa* leaves and branches are advertised as a potential accessory for muslin and tulle dresses. As the plant grew poorly or not at all in European outdoor climes, these branchy fragments would have been a challenging and costly acquisition for most European women. Nineteenth-century associations of the Sensitive Plant, including its racialization within cultural works, cannot be divorced from economic, class, and imperial contexts — particularly because of the plant's inaccessibility for any European without access to a hothouse, seeds, or samples of the plant from abroad.

Mimosa branches decorating a woman's hat in *Pet...*

The Sensitive Plant captured the attention of writers and storytellers in addition to scientists and artists. In 1791, Erasmus Darwin described the plant in his poem “The Loves of the Plants,” one of two poems aimed at educating the public in botany and taxonomy.[29] The poem animates Linnean classification by engaging anthropomorphized flowers. Because Linnean taxonomy relies on sexual difference and reproduction for classification, the anthropomorphized plants in the poem read as quite scandalous at times. The plant fascinated Darwin not only for its movement but also for its reproductive system: botanically it is a monoecious flower, meaning it carries both male and female reproductive organs and does not need a partner to reproduce. The combination of the plant’s movement and reproduction led Darwin to describe the plant as chaste, avoiding “rude touches” and “feels, alive through all her tender form.” The use of anthropomorphic language connects the poet to the plant’s many names and scientific descriptions. Darwin wrote about the sensitive plant outside of his poetry, describing his puzzlement and experimentation with the plant: “I have found, when touched in the night during their sleep, they fall still further; especially when touched on the foot-stalks between the stems and the leaflets, which seems to be their most sensitive or irritable part. Now as their situation after being exposed to external violence resembles their sleep, but with a greater degree of collapse, may it not be owing to a numbness or paralysis consequent to too violent irritation, like the faintings of animals from pain or fatigue?”[30] It is telling that Darwin describes the external stimuli toward the plant as violent, especially considering he had stimulated the “sensitive or irritable part” of the plant. When shown the plant’s capacity to feel, Darwin responded by experimenting how far and to what extent the plant could respond to external stimuli. This included keeping the plant in a dark room to observe its capacity for sleep. Darwin concluded that the plant felt, slept, and possibly fainted like an animal. Although the primary purpose of “The Loves of the Plants” was to make science accessible to the broader public through poetry, Darwin could not help but relay his own experimentation, highlighting the plant’s mesmerism.



[31]

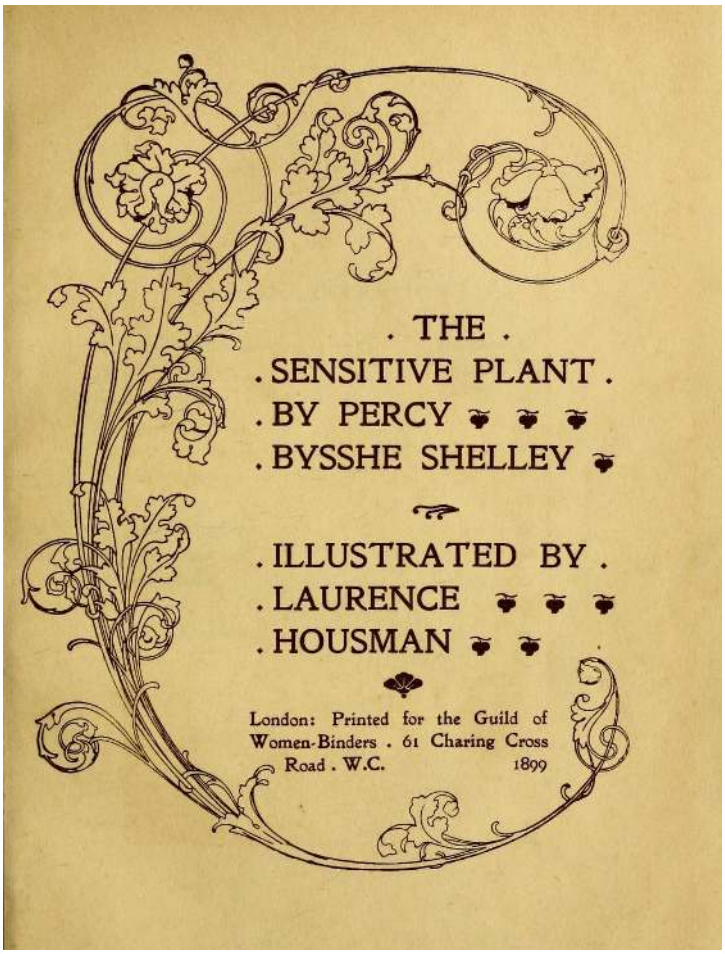
Eyes with mute tenderneſs her diſtant dam,
Or ſeems to bleat, a *Vegetable Lamb*.
—So, warm and buoyant in his oily mail,
Gambols on ſeas of ice the unwieldy Whale;
Wide-waving fins round floating iſlands urge
His bulk gigantic through the troubled ſurge;
With hideous yawn the flying ſhoals he ſeeks,
Or claſps with fringe of horn his maſſy cheeks;
Lifts o'er the toſſing wave his noſtrils bare,
And ſpouts pellucid columns into air;
The ſilvery arches catch the ſetting beams,
And tranſient rainbows tremble o'er the ſtreams.

Weak with nice ſenſe the chaſte MIMOSA ſtands,
From each rude touch withdraws her timid hands;

Mimoſa. l. 299. The ſenſitive plant. Of the claſs Polygamy, one houſe. Naturaliſts have not explained the immediate cauſe of the collapſing of the ſenſitive plant; the leaves meet and cloſe in the night during the ſleep of the plant, or when expoſed to much cold in the day-time, in the ſame manner as when they are affected by external violence, folding their upper ſurfaces together, and in part over each other like ſcales or tiles, ſo as to expoſe as little of the upper ſurface as may be to the air; but do not indeed collapſe quite

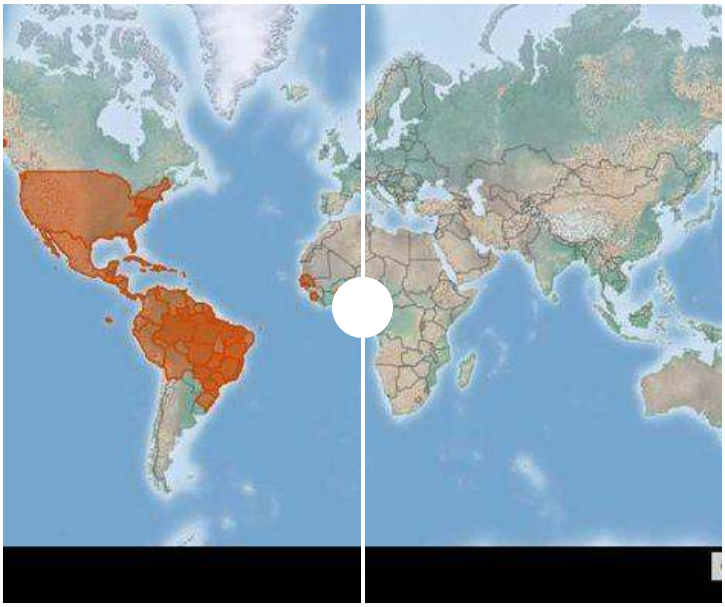
The botanic garden.

It is precisely the Sensitive Plant's otherworldly capacity to feel that captured Percy Bysshe Shelley's attention. In "The Sensitive Plant," one of his last works written in 1820, Shelley embraces the plant's all-consuming affect.[31] Told in three parts, the poem begins similarly to Darwin's "The Loves of the Plants," with the plant growing "companionless" in the garden. In the second part, Shelley introduces the gardener, a similarly solitary woman who dedicates herself to her plants. The gardener is adored by the garden. Shelley writes "I doubt not the flowers of that garden sweet / Rejoiced in the sound of her gentle feet; / I doubt not they felt the spirit that came / From her glowing fingers through all their frame."[32] Here Shelley is speculating that the flowers themselves cared for the women that tended to them. In return, she is so devoted to the garden that "If the flowers had been her own infants, she / Could never have nursed them more tenderly."[33] In the last line of this section, the woman suddenly dies, leaving the garden to mourn in the third part. Left alone, all the plants decay and die with the exception of the Sensitive Plant, which "Wept, and the tears within each lid / Of its folded leaves, which together grew, / Were changed to a blight of frozen glue."[34] The plant not only survived, a testament to its endurance, but it also weeps for its caretaker. Here the plant's lyrical power is precisely in the personification scientists sought to avoid. Theresa Kelley, reflecting on Shelley's departure from Erasmus Darwin's sexual classification, writes, "Shelley's Sensitive-plant is an 'it,' but it is an it that loves what it has not. In the language of Shelley's poem, requiring no sexual companion to reproduce is hardly if at all at issue. What matters is its capacity for feeling."[35] The Sensitive Plant is significant not as a scientific oddity but as something that has an otherworldly capacity to feel. This deep sense of affect is all the more moving when considering Shelley wrote the poem at a particularly devastating point in his life when he was chronically ill and mourning the loss of a child.



The sensitive plant

Mimosa Pudica as Medicine in a Diversity of Knowledge Systems



Mimosa pudica: Native Distribution vs. Current...

The adjoining map's slider tool reveals the Sensitive Plant's current distribution overlaid onto its recorded native distribution across Southern and Central America, as well as the Caribbean. A diversity of relationships with the Sensitive Plant occurs across the globe, shaped in no small part by legacies of capitalism, experimentation, and colonialism. Today in Europe, the Sensitive Plant is available as a houseplant and (more rarely) as a supplement, but it has also taken on gendered cultural connotations across diverse regions of the European continent.[36] Consider that its Dutch name (*Kruidje roer me niet*) has come to colloquially refer to an overly sensitive or touchy person. Although the Sensitive Plant was never adopted into mainstream medicinal practice in Europe, its presence advanced debates about what it meant to be alive and intelligent. Today, the plant maintains medicinal contexts in which it acts not just for human bodies, but also on human bodies — from commercialization as a supplement, to use in Ayurvedic medicine and in current propositions to expand healthcare coverage through herbalism in Brazil.[37]

Mimosa Seed Pods

Across herbalist traditions, various parts of the Sensitive Plant are used, including its leaves, seeds, flowers, and roots.[38] Transoceanic dispersal of the its seeds led to its "naturalization" throughout tropical and subtropical India. This resulted in Ayurvedic use of the plant under the Sanskrit name *lajjalu*, in addition to other locally specific herbal remedies in Suriname, Trinidad, and Tobago.[39] With the rise of online herbalist communities, the Sensitive Plant is lauded for its Ayurvedic uses, which range from cosmetic, digestive, and endocrine to neurological and psychospiritual. However, appropriation within online herbalist communities can mean that treatment information is sometimes shared without cultural context. While noncommercialized community herbalist approaches generally emphasize cultivating relationships with plants to understand their properties, this tradition has been disrupted by the mechanization of plants. Long (and ongoing) traditions of European bioprospecting and the reduction of plants into compounds have left many people with the impression that plants function medicinally as a kind of naturally occurring pill, rather than as part of a multispecies relationship with social and ethical responsibilities.[40]

Integrating herbalist knowledge into medical and scientific knowledge systems requires tending to plant-person relationships.[41] Critical interventions by scholars in Black Studies, Queer Theory, Women's Studies, and Indigenous Studies have brought new iterations and understandings of these relations explicitly into the academy and the sciences.[42] Still, lab-based studies and historical compendiums produced in the context of European colonialism remain more commonly cited as sources of legitimate knowledge on the relations and ecologies of plants. The Linnaean classification system shifted existing understandings of both race and sexuality with its ordering of plant life in a "fundamentally European system," which has both contributed to the erasure of existing Indigenous knowledge systems and offered one example of a universal ordering for ongoing scientific reference.[43] Many herbalists today cite a range of sources for plants like the Sensitive Plant, considering scientific, historical, social, and culturally specific accounts of plant usage. The Earth Medicine Institute, a Hawai'i-based center, cites the Sensitive Plant's common names, from China (*Han xiu cao*) to Borneo (*Sulinit*). By creating a more "global" profile of the plant, they are seeking to create a comprehensive overview that classifies it not only by its family name (*Fabaceae*), but also by its category (herbs that calm the spirit) and properties (sweet, astringent, slightly cold).[44] These approaches attempt to resist reductionist accounts of plant-person relations wherein the plant is reduced to a resource for capital or aesthetic value.

Mimosa pudica specimen from New Zealand's...

Ongoing Tensions

Close up of *Mimosa pudica* leaves

Since the sixteenth century, the Sensitive Plant has continually been challenging our understanding of what it means to be alive. Today's debates have expanded to address the questions of intelligence and memory. Monica Gagliano, an Australian ecologist who is interested in plant behavior, conducted an experiment on the Sensitive Plant that has brought it into discussions of plant intelligence and memory. Gagliano discovered the experiments of Lamarck and Desfontaines and decided to recreate their experiments, calling it "the Lamarck and Desfontaines experiment."[45] Gagliano had two goals. She wanted to test whether the Sensitive Plant could learn that stimuli were not dangerous, and therefore stop the protective behavior of closing its leaves. And she wanted to demonstrate that the plant could distinguish between two stimuli. Gagliano set up two experimental groups: one with high light conditions and one with low light. Plants in each group were repeatedly dropped from a height of about four inches every five seconds. After many repetitions, the plants stopped closing their leaves. Strikingly, the plants in low-light conditions learned to close their leaves more quickly, indicating that they were responding to nutrient-poor conditions by adapting to stimuli more quickly. Gagliano also set up a method to shake the plants and found that even after the plants left their leaves open after being dropped, they would quickly close when subjected to the new stimulus of shaking. Clearly, the Sensitive Plant can differentiate between the two stimuli (that of being dropped and of being shaken). Gagliano also tested the ability of the plants to remember previous stimuli they had been subjected to. After being left undisturbed for twenty-eight days, Gagliano dropped the plants once more. Not only did the plants leave their leaves open, but they were open to a greater degree, indicating that the plants were still habituated to the stimulus of being dropped.[46] The implications of Gagliano's experiment are profound — perhaps plants have a much greater degree of memory than scholars have previously thought.

Gagliano's experiments remind us of the ongoing — and fraught — ambiguities surrounding what it means to be a plant. Arguing that plants have intelligence and memory stands in stark contrast to the arguments advanced by Aristotle and Theophrastus that denied plants the ability to feel. However, the significance of Hellenistic philosophy is ever present in Gagliano's work. In the introduction to her paper, she writes that "This relatively long-lasting learned behavioral change… matches the persistence of habituation effects observed in many animals."[47] She continues, "[W]e have performed this test here by applying ecological theory for animals." The fact that Gagliano's work mentions animals shows the maintained prevalence of Hellenistic philosophy. Yet her experiments also add to the growing field of plant intelligence.

Mimosa pudica (Fabaceae) 09

In addition to scientific interest, the Sensitive Plant has continued to inspire literary interest. Poet and artist Crystal Z Campbell draws on the many-layered histories of the plant in their 2021 poem "Makahiya (How Do I Tell You I Remember)."[48] *Makahiya* (meaning shy in Tagalog) refers to the Filipino name for the Sensitive Plant. By placing this name alongside "How Do I Tell You I Remember," Campbell situates their poem in Filipino storytelling, where the Makahiya is a shy young girl transformed into a plant to protect her from invaders.[49] Building from this, the opening stanza reads: "Can a weed be humble/ bashful, sensitive, or shy/ to test for memory, drop it from its senses/ lean over the balcony/ with your camera/ telephoto a royal freefall/ repeat from increasing crowns, observe/ in bursts, freeze/ a mandrake's scream/ in frames/ (to survive, means you have mastered the art of feigning sleep.)"[50] Campbell rejects the Linnean name for the plant, referring to it exclusively as an invasive weed. Ecologists frequently identify the plant as an invasive species in tropical climates including the Philippines.[51] In this context, however, the nomenclature used highlights the evasive nature of the plant and draws attention to its many names. Campbell asks if a plant can be humble, bashful, sensitive, or shy, referring to the many different common names evoked to describe or explain its unique behavior. Additionally, Campbell alludes to the various scientific studies of repeatedly dropping the plant to test its alleged ability to remember and retain memory. In this short stanza, Campbell covers a lot of ground, paying homage to the vast history of this singular plant modestly referred to as a weed in the Philippines. Perhaps this is what Campbell is referring to when they describe survival as the ability to master the art of feigning sleep. As such, the poem speaks to the enduring fascination provoked by sensitive plant across scientific and literary realms.

The Sensitive Plant

Questions of knowledge legitimacy and cultural context are critical to any investigation of the Sensitive Plant. The tensions between the violence of colonial botany and the purportedly universal conclusions of scientific knowledge about the plant have animated contemporary art, literature, and herbalism, but they have not yet significantly impacted scientific discourse about the Sensitive Plant. As a plant that has been used to shape ideas about what it means to be alive and intelligent, the Sensitive Plant offers an opportunity for critical reflection on the ways that socio-cultural concepts influence the scientific construction of nature.[52]

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parents search the garden. In the garden they do not find their daughter but a small plant that retreats bashfully when touched. The parents immediately recognize the plant as Makahiya, finding safety in the garden. In some versions of the story, her parents' tears become the bright flowers that adorn the plant. ↩

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