Peony: Pretty and Powerful

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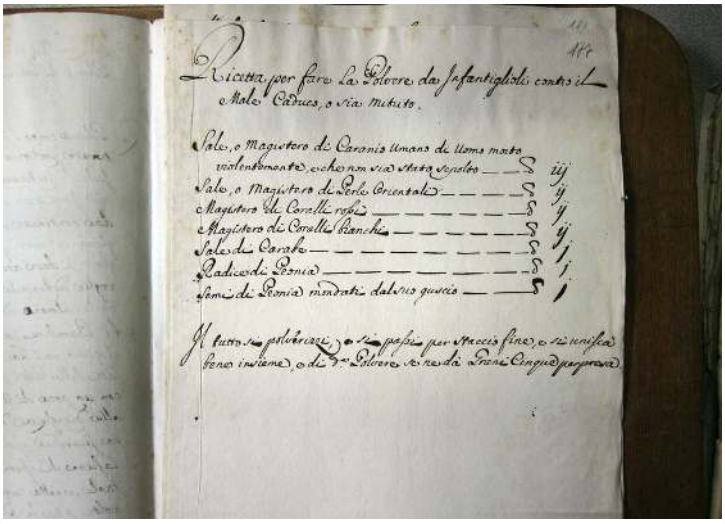
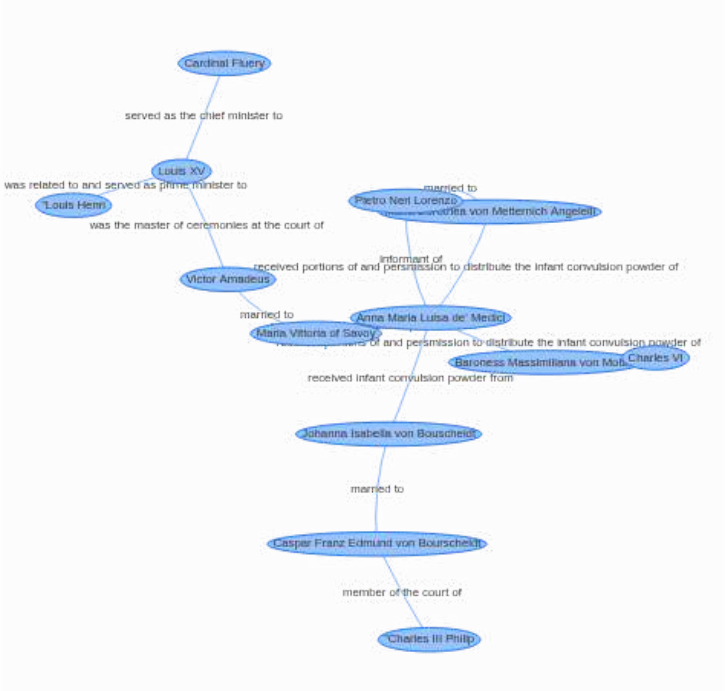
The Secret Ingredient

In 1735, a Viennese baroness wrote to the last Medici princess, Anna Maria Luisa de Medici (1669—1743), to thank her for sending a miraculous infant convulsion powder. Anna Maria Luisa's recipe for infant convulsion powder contained a precipitation of a human skull (of "a man who died violently but was never buried"), a precipitation of "Oriental pearls," a precipitation of red coral and white coral, as well as yellow amber and peony roots and seeds. While the more outrageous ingredients—the skull and Oriental pearls—stand out, it was actually the use of peony that made Anna Maria Luisa's powder effective.



Archivio di Stato di Firenze (ASF), Miscellanea...

In her letter to Anna Maria Luisa, the baroness praised the powder's effectiveness, stating that the children she treated with it had been so violently taken by convulsions that the attending physicians had "given up on them." Not only had the "miraculous powder" cured the children, but they remained in perfect health several months later. Well known for her miraculous powder, Anna Maria Luisa strategically distributed it to influential individuals and courts across Europe. As a result, she created valuable socio-political alliances to protect The Grand Duchy of Tuscany as the end of the Medici dynasty neared.



Anna Maria Luisa de Medici's Network

The Popularity of Peonies

Peonies are not typically associated with medicine, since they have long been coveted for their beauty. In fact, peonies were first cultivated for their attractiveness and fragrance in China more than 1,400 years ago and became especially popular under the Tang Dynasty (618–907 CE). In the Tang imperial gardens, tree (or moutan) peonies reigned as the “king of flowers” and symbolized happiness, wealth, and prosperity. We can see the association of peonies with wealth and class in a rare Tang scroll painting that depicts five ladies of the court and one maidservant. The rank and prestige of each lady is shown by their scale relative to one another as well as by the lavish peonies that adorn their hair. As the popularity of peonies grew in China, so too did their varieties, as horticulturalists selected, hybridized, bred, and eventually grafted peonies for their fragrance, petal color, petal number, and size.[1]

Zhou Fang, Court Ladies Adorning Their Hair with Flowers, late 8th–early 9th century CE, Liaoning Provincial...

The center of imperial peony cultivation was in Luoyang, where there were peony festivals and competitions, gardens devoted solely to peonies, and even a peony research center. This led to a plethora of ornamental peony cultivars as peony breeding became an artform. More than 200 peony cultivars were described during the Song Dynasty (960–1279 CE); today, China has more than 1,000 cultivars.

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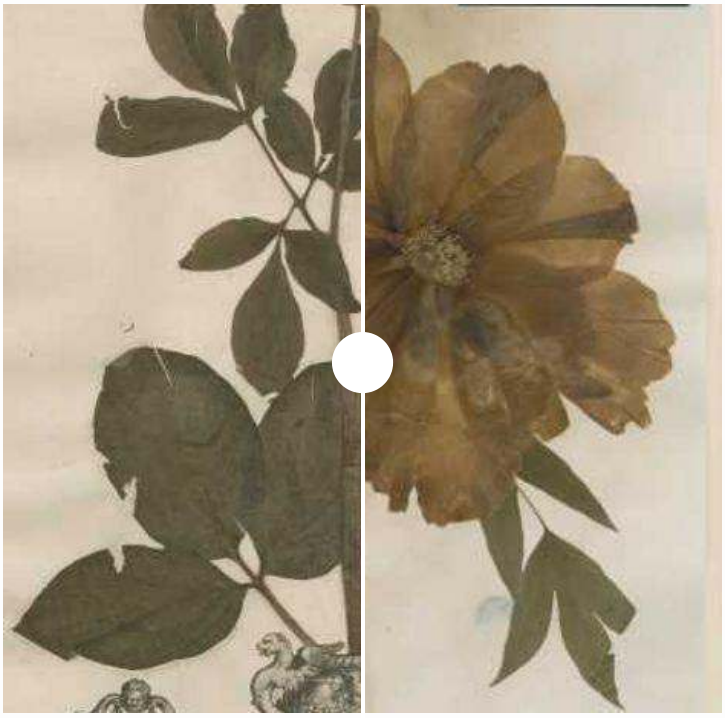
Luoyang

While peonies have a long history of appreciation and cultivation as ornamental garden plants in Chinese as well as Islamic gardens, in western Europe they mainly were valued for their utility. Over the course of the sixteenth century that changed, when Ottoman floriculture introduced numerous ornamental flowers to the gardens of Europe, including hyacinths, narcissi, peonies, and most famously, tulips.[2] It was not until the end of the eighteenth century, that Europeans would begin intensively breeding ornamental peonies.

Folio from a *Haft Awrang* (Sev...

In 1789, famed British naturalist Sir Joseph Banks acquired a “moutan peony tree” (*Paeonia lactiflora*, left) from Canton, China, through his connections with the British East India Company. Surviving the arduous journey to Britain, it was planted in the Royal Botanic Garden, Kew. Other peonies from China soon followed, ushering in something of a peony craze in Europe as, thanks to centuries of cultivation, Chinese peonies were larger, fuller, and more fragrant than native European varieties. Peonies became increasingly popular as French, English, and American horticulturists began developing ornamental varieties of their own from these exotic imported peony cultivars.[3]



As a Chinese botanical export, eastern ornamental peonies, as well as the new herbaceous and tree hybrids created from them in Europe, carried connotations of the “exotic Orient” and became a popular subject in nineteenth-century art. The depiction of peonies in nineteenth-century French paintings, however, does more than simply signify the exotic or differentiate Occident and Orient.[4] For example, in Frédéric Bazille’s *Young Woman with Peonies*, the foreign provenance of ornamental peonies is emphasized by the Black model who arranges the blooms in an “Oriental” vase. Noteably, Bazille pairs the peonies with irises, France’s national flower. Once new and exotic, ornamental peony cultivars had become a product of cultural hybridity, simultaneously signaling the plant’s eastern origin as well as the new varieties that were being developed in France.[5]

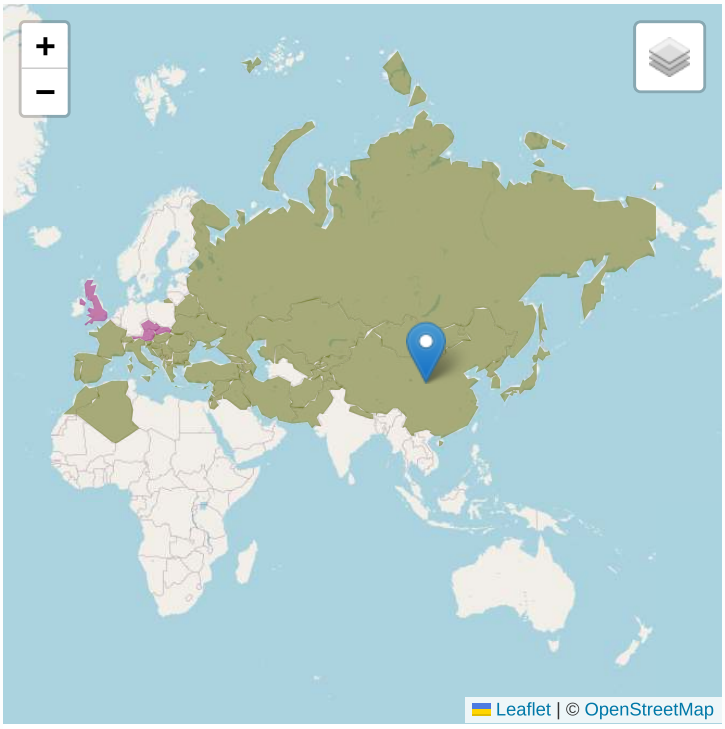
Frédéric Bazille, Young Woman with Peonies, 1870,...

Today, peonies remain one of the most sought-after ornamental flowers in the world. Thanks to their abundant delicate petals, peonies often adorn gardens and homes, and are popular for wedding bouquets and floral arrangements. While peonies have long been, and continue to be, a coveted ornamental plant, what may surprise you is that they also have an equally long history—over two millennia—as a powerful medicinal therapeutic.

Camille Pissarro, A Bouquet of...

Shaoyao: The Medicine Made from Peony

Peony is the single genus in the Paeoniaceae family, which has about 30 species found in western North America, northwest Africa, and temperate Eurasia. China, with 15 species, 10 of which are endemic, is the center of the family's bio-geographic distribution.



Two species of *Paeonia* were particularly important in ancient Chinese medical practice, *Paeonia lactiflora*, which was the primary source of both white peony and red peony, and *Paeonia suffruticosa*, commonly known as the tree peony or moutan. The earliest record of the use of peony in Chinese medicine was discovered in an imperial Chinese Han tomb (25–220 CE). Writings within the tomb tell that peony root (called "danpi"), likely *P. suffruticosa*, was used to treat blood stasis nearly 2,000 years ago.[6]

Paeonia lactiflora

Paeonia suffruticosa

In 1644, and a testament to peony's long history as an important medicinal simple, a high Ming illustrated herbal, *Bencao tupu* 本草圖譜, beautifully depicted *P. lactiflora*, also known as common Chinese garden peony. *P. lactiflora* is the source of both red and white Chinese garden peony and both were (and remain) important medicinal herbs in traditional Chinese medicine. According to the herbal, *P. lactiflora* was used to treat gynecological symptoms including hot flashes and irregular menstrual cycles. It was also used in the treatment of high blood pressure and inflammation.[7] The compound Chinese characters for white peony, "Shaoyao," and the variant for red peony, "Hongyao," (written in the top right corner of the illustration) reveal the plant's importance in medicine. The first character of both, "shao" and "hong," refer to the peony plant, while the second character "yao" means medicine. And so, both mean "the medicine made from peony."[8]

Ming herbal (painting): Chines...

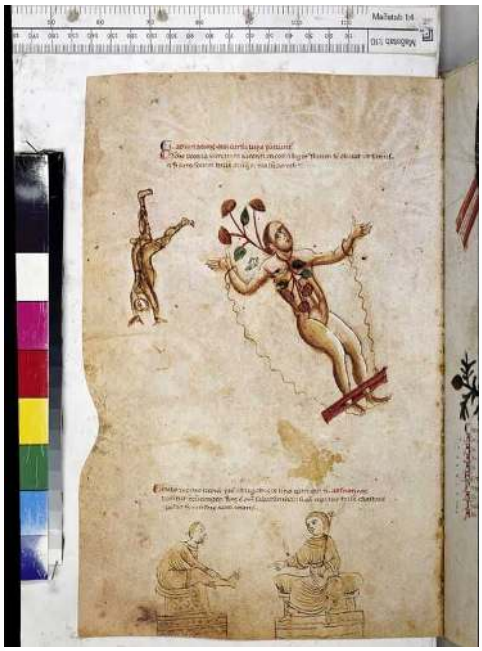
Peony in Western Medicine

Peony has an equally long history of medicinal use in Europe. In his herbal, *de Materia Medica*, the Greek physician Dioscorides identified two types of peonies used in medicine: the male and female peony. Today these are identified as *Paeonia mascula* and *Paeonia officinalis*, respectively. According to Pietro Andrea Mattioli's 16th century commentary on *de Materia Medica*, Dioscorides prescribed giving the dry root of *P. officinalis* to women to provoke menstruation (an emmenagogue) and to treat kidney and bladder discomfort, among several other gynecological ailments. The Roman naturalist, Pliny the Elder, also recommended *P. officinalis* for "female diseases," stating, "One great remedy for all female diseases in common, is the black seed of the herbaceous plant pæonia."

Mattioli, i discorsi, pg. 964

Mattioli, i discorsi, pg....

In addition to the cleansing and purgative properties associated with peony and women's health, the Roman physician Galen recommended tying peony root around the necks of children as an effective remedy for "the falling sickness," which was a common pre-modern phrase for epilepsy.[9] Throughout the middle ages, peony was used as a medicinal simple for the treatment of epilepsy or convulsions. For example, the female medieval healer and Benedictine abbess, Hildegard von Bingen (1098—1179) instructed "When one falls with epilepsy, place in his mouth [peony] while he lies there, and do this every time he falls with this disease, and he will be finally cured."[10] In addition to treating epilepsy, fits, and convulsions, peony was also used as a cure for lunacy and sciatica.



Curing lunacy with spring of...

European printed herbals of the sixteenth century continued to prescribe peony for seizures and epilepsy. While many of these herbals referenced Galen's recommendation to tie the root around the necks of children, they also prescribed more powerful peony therapeutics in the form of distilled waters, powders, syrups, and compound medicines to be taken internally. For example, Castore Durante's popular 1585 Italian herbal described how distilled water of female peony root and flowers relieved children who suffered from "mal caduco" (epilepsy or seizures). He also noted that it benefited apoplectics and paralytics as well. Similarly, in his 1597 herbal, English naturalist John Gerard noted that a syrup made from peony "helpeth greatly the falling sickness, likewise the extraction of the rootes doth the same."

Durante, pg. 341

Gerard, pg. 980

Nature’s Pharmaceuticals

For more than 2,000 years, numerous peony species were used as a powerful herbal therapeutic across societies in Europe and Asia. Herbal medicine in the western tradition, however, changed dramatically over the course of the late-eighteenth and nineteenth centuries as European chemists, botanists, and physicians began favoring the creation of standardized and systematic medical experimentation to assess the efficacy of plant medicines and identify and isolate their active chemical compounds. This led to an emphasis on the individual organic compounds within plants and the organic chemical synthesis of these compounds to produce more effective drugs. It also marked the birth of modern pharmaceuticals, many of which are derived or synthetic analogues of naturally occurring chemical structures. The ability to isolate, purify, and synthesize chemical structures created highly efficacious and powerful drugs. And so, herbal simples and compound herbal medicines were replaced and increasingly viewed as outdated, crude, ineffectual, and, in some cases, even dangerous.

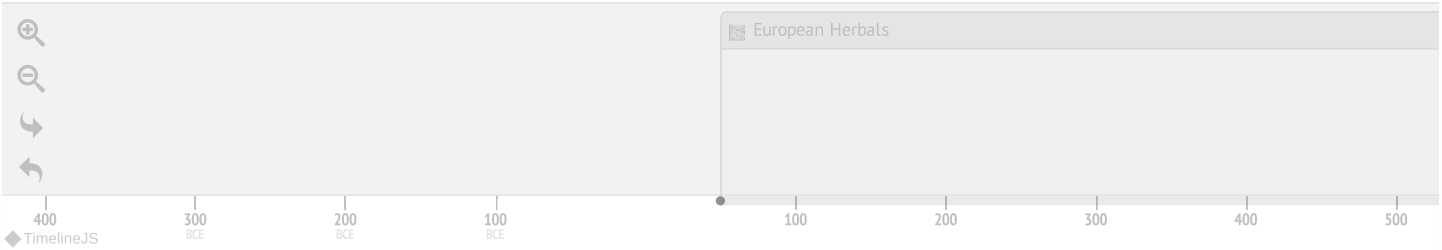
Papyrus Ebers, column 41 via Wikimedia Commons

The Ebers Papyrus (c. 1550 BC) from Ancient Egypt describes the use of hundreds of plant medicines.

BRIEF HISTORY OF THERAPEUTICS

Throughout history and across the globe societies have used plants, animals, and minerals as therapeutics. Herbal, or plant, remedies were particularly important and made up the bulk of ancient and medieval medicines.

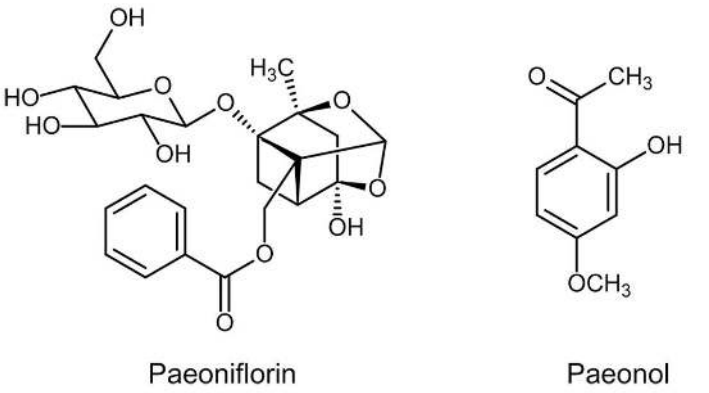
EUROPEAN HERBALS



Despite modern western medicine tending to dismiss early therapeutics like Anna Maria Luisa de Medici's infant convulsion powder, numerous scientific studies on several species of peony used medically in East Asia have revealed isolated compounds that possess anti-tumor, anti-oxidant, anti-inflammatory, hepatoprotective, and anti-diabetic properties.[11] Peony roots and flowers continue to be used as a medicinal simple in Traditional Chinese and Ayurvedic medicine. While fewer studies have been conducted on European species of peony used medicinally, several studies have tested for the bioactive compounds responsible for *P. officinalis's* effect on seizures.

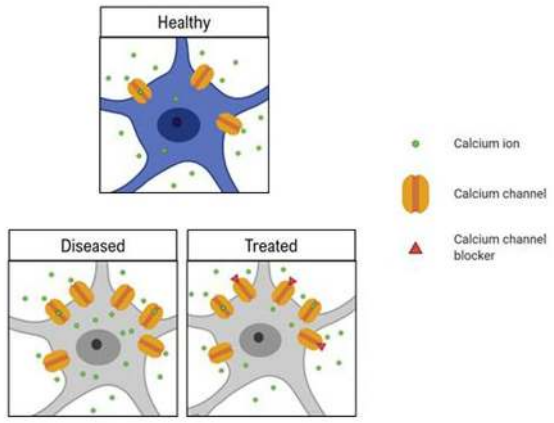
Theory of diseases treated wit...

One such study conducted in 1991 on the water extract of *P. officinalis* concluded that there are several chemical compounds found in the root, including paeoniflorin, albiflorin, oxypaeoniflorin, and gallotannins, which have documented anticonvulsant properties.[12] And, when isolated, the compounds albiflorin and gallotannin were proven to block extracellular calcium, which is linked to intracellular seizure-related phenomena. Paeoniflorin fractions also showed inhibition, but to a weaker extent. Another study, which administered peony root extract (from *P. officinalis*) to rats, concluded that it was "a potent in vitro inhibitor of neuron damage in the CA1 area of the hippocampus."[13] The study also determined that peony root extract had protective effects on damaged neurons as well as anticonvulsant action when administered orally.[14] And so, the early administration of anti-epileptic drugs has the potential to alter the long-term course of epilepsy with the possibility of preventing it from becoming an "intractable disorder."



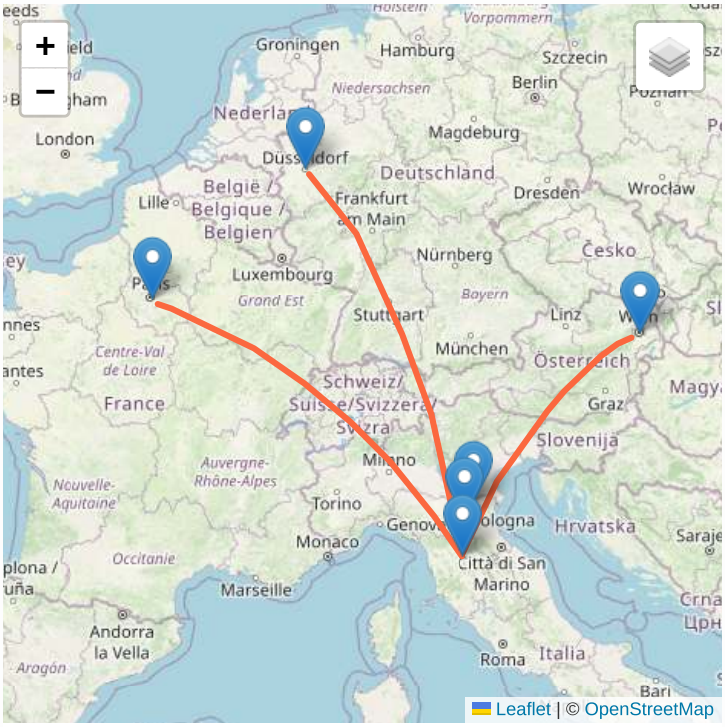
Chemical structures of main components in total...

Today’s primary approach to treating epilepsy and suppressing seizures is to alter the neural network’s excitability or inhibition by regulating chemical compounds such as sodium and calcium. Drugs like ethosuximide, for example, reduce abnormal electrical activity in the brain by regulating calcium influx in cells. As a result, contemporary western medicine has little motivation to further investigate the peony root’s similar biochemical compounds or potential pharmaceutical applications. This lack of current interest, however, does not make the biochemical activity of peony insignificant historically. The identification of active biochemical compounds suggest that Anna Maria Luisa de Medici’s powder might have actually improved the health of the children who received it!



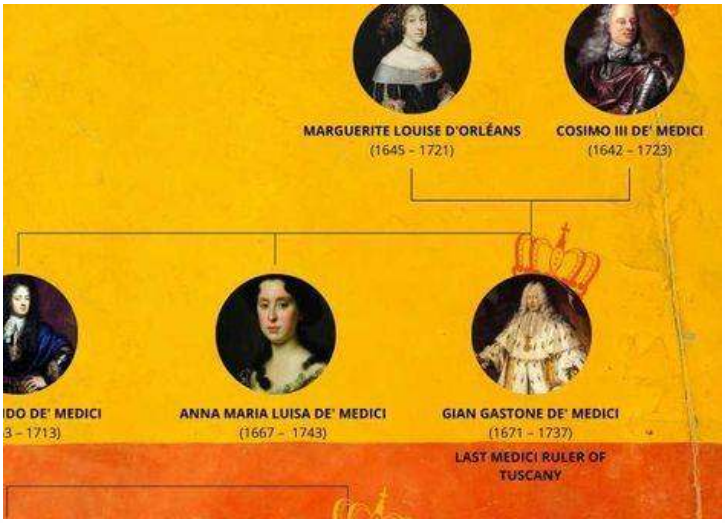
Treating diseased brain cells with calcium channel...

The seeming effectiveness of her infant convulsion powder increased Anna Maria Luisa’s socio-political influence. In fact, several letters preserved in the Florence State Archive attest to the powder’s efficacy and popularity. One, from the Viennese baroness, asks Anna Maria Luisa for additional portions of powder given the “extraordinary effects they had on three children from the most important families of Vienna.” Anna Maria Luisa replied that she would send the baroness as much of the powder as she desired to distribute to her friends, considering that she had “put the powder to such good use.”



Recipients of Anna Maria Luisa's Infant Convulsion...

The gift of “miraculous” medicine to the Viennese court was not simply altruistic. As a woman, Anna Maria Luisa was barred from inheriting and ruling Tuscany on the death of her brother, the last Medici Grand Duke. Although she lacked official power, Anna Maria Luisa fashioned influence through the gift of her infant convulsion powder, which allowed her to ingratiate herself with some of Vienna’s most important and powerful families. This ensured goodwill and communication between the Grand Duchy of Tuscany and the court that would decide its fate. By the end of the Medici dynasty, the Viennese court was the headquarters of the Habsburg dynasty and the center of its imperial politics. In 1737, Francis of Lorraine, future head of the Holy Roman Empire, which controlled much of Europe at this time, became the Grand Duke of Tuscany and ruled Florence from the imperial court in Vienna—a court much indebted to Anna Maria Luisa de Medici’s infant convulsion powder and the power of peony.



Line of Sucession for the Grand Duchy of Tuscany

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