



THE
PHYSICAL GARDEN

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Image: Maria Sibylla Merian, *Metamorphosis Insectorum Surinamensium*. (1730). Plate 45: Flos Pavonis/Orange Peacock Flowers.

In the hills near Cyrene, an ancient Greek city-state in North Africa, there once grew a plant of such economic importance that its image was carried on Cyrenian coins. Bundles of the plant, which was called silphion by the Greeks and silphium by the Romans, were shipped throughout the Mediterranean trading area, where they commanded a price that was said to exceed the plant's weight in silver. Farmers in Greece and Syria tried in vain to cultivate it, but silphion would grow only in Cyrene, where it was finally harvested to extinction. The loss of silphion was a blow not only to the economy of Cyrene, but quite possibly to medicine. Its great value apparently derived from a singular use of the plant: Silphion's sap may have been the ancient world's most effective antifertility drug.

Riddle, John M., & Estes, J Worth. (1992). Oral Contraceptives in Ancient and Medieval Times. *American Scientist*, 80(3), pp 226–233. Retrieved November 15, 2016 from <http://www.jstor.org/stable/29774642> p 226.

We know that silphion was a valued contraceptive from both objects and writings of the day. On the face of a Cyrenian four-drachma coin, and the leaves of the silphion plant just touch the right hand of a woman, who is seated with her left hand pointing to her genital area. The iconography suggests a connection between the plant and reproduction. Both the Greek comedy writer Aristophanes and the naturalist Pliny the Elder mention silphion's high cost, and Hippocrates recorded the failed efforts to cultivate it in Syria and Greece. The reason for the plant's high value was best explained by Soranus, who said that the sap of silphion, taken by mouth, prevented conception. Soranus provided several prescriptions for “Cyrenaic juice,” which he said would either prevent or halt a pregnancy.

Riddle, John M., & Estes, J Worth. (1992). Oral Contraceptives in Ancient and Medieval Times. *American Scientist*, 80(3). Retrieved November 15, 2016 from <http://www.jstor.org/stable/29774642>, p 230.

Silphium has also left its mark in modern society in a way that has not previously been recognized. Have you ever wondered why the human heart—the repository and the embodiment of romantic love—is always drawn ♥ instead of in the shape of the human heart?

Favorito, Emilio N. and Bary Kurt. The Silphium Connection. *The Celator*, Vol. 9, No. 2, Feb 1995, pp 6–8.

Some believe the iconic pictogram is derived from the shape of ivy leaves, which are associated with fidelity, while others contend it was modeled after breasts, buttocks or other parts of the human anatomy. Perhaps the most unusual theory concerns silphium ... Silphium's seedpod bore a striking resemblance to the modern Valentine's heart, leading many to speculate that the herb's associations with love and sex may have been what first helped popularize the symbol.

Andrews, Evan. (2016). *What Is The Origin Of The Heart Symbol?* Retrieved November 15, 2016 from <http://www.history.com/news/sk-history/what-is-the-origin-of-the-heart-symbol>

The use of plant contraceptives is complex and requires an introduction. In recent years, the physiology of reproduction has undergone careful scrutiny by medical research to show that the onset of female ovulation is controlled by hormones secreted in the hypothalamus and pituitary.

Riddle, John M. (1992). *Contraception And Abortion From The Ancient World To The Renaissance*. Cambridge, Massachusetts: Harvard University Press, p 33.

Estrogens were long thought to be produced only by animals; it was assumed that plants do not synthesize compounds with estrogenic properties. But this assumption was challenged in the 1930s and 1940s as improved techniques of chemical analysis became available. Two studies published in 1933 offered the first clues. Boleslaw Skarzynski reported to the Polish Science Academy that he had obtained from the willow a substance, trihydroxyoestrin, that resembled a human female sex hormone in its physico-chemical properties.

Riddle, John M., & Estes, J Worth. (1992). *Oral Contraceptives in Ancient and Medieval Times*. *American Scientist*, 80(3). Retrieved from <http://www.jstor.org/stable/29774642> p 229.

[Maria Sibylla] Merian, a leading naturalist, was bold to travel to Surinam, then a Dutch colony, in 1699 at the age of fifty-two in search of exotic plants and insects. Merian was one of the few—and perhaps the only European woman—who voyaged exclusively in pursuit of her science in the seventeenth or eighteenth centuries.

Merian, Maria Sibylla. (2008). *Complete Dictionary of Scientific Biography*. Retrieved November 12, 2016 from <http://www.encyclopedia.com/people/literature-and-arts/european-art-1600-present/biographies/maria-sibylla-merian/2830945916>

Maria Sibylla Merian recorded how the African slave [EDITOR'S NOTE: ENSLAVED AFRICAN] and Indian populations in Surinam, a Dutch colony, used the seeds of a plant she identified as the *flos pavonis*, literally “peacock flower”, as an abortifacient.

Schiebinger, Londa L. (2004). *Plants And Empire: Colonial Bioprospecting in the Atlantic World*. Cambridge, Massachusetts: Harvard University Press, p 1.

Merian's peacock flower (*Poinciana pulcherrima*), is not a heroic plant of the historical stature of chocolate, the potato, quinine, coffee, tea, or even rhubarb, much used in the eighteenth century as a laxative. Nonetheless it was a highly political plant, deployed in the struggle against slavery throughout the eighteenth century by slave [EDITOR'S NOTE: ENSLAVED] women who used it to abort offspring who would otherwise be born into bondage ... Each observed Amerindians or slave women [EDITOR'S NOTE: AMERICAN INDIAN AND ENSLAVED WOMEN] employ the plant effectively, and recorded their knowledge ... Even though the peacock flower itself moved easily into Europe, knowledge of its use as an abortifacient did not.

Schiebinger, Londa L. (2004). *Plants And Empire: Colonial Bioprospecting in the Atlantic World*. Cambridge, Massachusetts: Harvard University Press, p 4.

Petiveria was not only known as an abortifacient in the Americas, but its contraceptive properties were well known among European scholars and physician-botanists of the early eighteenth century onward. As the chain of knowledge about contraceptive plant properties was broken and medicine was professionalized in Europe in the same century, early modern medical and botanical publications either show restraint upon divulging birth control information or omitted it altogether, as the writings on Petiveria suggest. The largest change during this period seems to have occurred in the late eighteenth century, when anything explicitly causing abortion is extremely limited in official botanical publications. Discussions of menstrual regulators and stimulators and more subtle descriptions of abortifacient plants were sharply reduced in botanical and pharmaceutical publications. Herbals almost disappeared.

O'Donnell, Rachel. (2016). Politics of Natural Knowing: Contraceptive Plant Properties in the Caribbean. *Journal of International Women's Studies*, 17(3). Retrieved November 15, 2016 from <http://vc.bridgew.edu/jiws/vol17/iss3/6> p 71.

Many types of [t]histle seem to be useful in inhibiting fertilization. The Quinault Indians used [t]histles to induce temporary sterility by preparing an infusion of the entire plant in boiling water and drinking the resulting strong, bitter liquid.

Weed, Susan S. (1985). *Wise Woman Herbal For The Childbearing Year*. Woodstock, NY: Ash Tree Pub.

The ancient Greeks named the plant *apsinthos*, sometimes referring to it as “*Artemisia*” after the goddess of medicine, Artemis ... Looking to the plants around them almost as we would a vast supermarket or drugstore, early civilizations believed every plant was put on earth with a purpose, that often being to help humankind.

Largo, Michael. (2014). *The Big, Bad Book Of Botany: The World's Most Fascinating Flora*. New York, NY: William Morrow, pp 3–4.

Fennel is cultivated all over the world, mostly for its edible, intensely flavoured leaves and fruits, which contain the strong aromatic compound anethole ... Fennel seeds have traditionally been used to alleviate bloating, heartburn, loss of appetite, intestinal gas, and colic, but the plant is also useful for fighting respiratory infections, backache, coughs, bronchitis, visual problems, and bedwetting; it is even used against cholera. Native Americans used fennel poultices against snakebites. In some regions, women use this herb to increase the quantity of their breast milk, to bring about menstruation, and even to increase their sex drive.

Largo, Michael. (2014). *The Big, Bad Book Of Botany: The World's Most Fascinating Flora*. New York, NY: William Morrow, pp 138–9.

How strange! Both fennel and sorghum ... are so flimsy as to be virtually harmless: as weapons they would be as effective as the proverbial ten lashes with a wet noodle. The fennel became the symbol of the do-gooders, probably because this herb was thought to ward off witches and witchcraft. Fennel, too, was thought to hinder abortions. In the Lorsch manuscript (ca. 800 A.C.E.), however, it was used to cause an abortion ... Also, fennel was used in eye medicines; perhaps it came to be believed that it could help one see a witch.

Riddle, John M. (1997). *Eve's Herbs: A History of Contraception and Abortion in the West*. Cambridge, Massachusetts: Harvard University Press, p 120.

There have been a number of anecdotal reports of contemporary women in the Appalachian mountains and Watauga County, North Carolina, using *Daucus Carota* seeds for their anti-fertility activity.



WEIGHING SILPHIUM IN PRESENCE OF KING ARKESILAS.

Rappoport A. S., Maspero G., McClure M. L., King, L. W., Hall, H. R. (1901–1906) *History of Egypt, Chaldea, Syria, Babylonia and Assyria*. London, Grollier Society, p 444. Retrieved November 12, 2016 from <https://archive.org/details/historyofegyptch08rappooft>

The confusion regarding the origins, applications and identification of DC (*Daucus Carota*) has not been helped by the great loss of herbal knowledge believed to have occurred in the Middle Ages. It is widely accepted that information regarding birth control was orally transmitted and therefore, as a consequence of the persecution of ‘witches’, who were often female midwives, herbalists and healers, much of this information was lost.

Jansen, G. C., & Wohlmueth, H. (2014). Carrot Seed For Contraception: A Review. *Australian Journal of Herbal Medicine*, 26(1), p 13.

Māori women used poroporo (*Solanum laciniatum* and *S. aviculare*) shrubs as contraceptives. They boiled leaves and drank the broth about a week before menstruation. The efficacy of the decoction as a method of birth control is not known. In Taranaki in the late 1970s and early 1980s, poroporo shrubs were grown for solasodine, a steroid used in contraceptives. When it proved cheaper to raise such plants overseas or use synthetic substitutes, poroporo was no longer cultivated in New Zealand.

Tolerton, Jana. (2011). ‘Contraception and sterilisation—19th-century contraception’, Te Ara—the Encyclopedia of New Zealand, Retrieved November 15, 2016 from <http://www.TeAra.gov.nz/en/arkwork/26966/poroporo-plant>

... ginger is very effective at promoting menstruation (and possibly abortion) in early pregnancy, and is used for this purpose in China. One prominent herbalist, [Susan] Weed, notes Asian ginger is quick to act and strong as a menstrual promoter. In experiments on rats, ginger tea caused increased early pregnancy embryo loss.

Sage-Femme Collective. (2008). *Natural Liberty: Rediscovering Self-Induced Abortion Methods*. Las Vegas, Nevada. Sage-Femmel, p 177.

Dioscorides named fourteen of the fifteen drugs specified by Soranus as emmenagogues/abortifacients: *Artemisia* (*Artemisia* sp.), cardamom, fenugreek, iris, laurel, lupine, myrrh, opopanax (*Ferula*), pepper, rocket rue, silphium, wallflower/stock (*Matthiola incana* and/or *Cheiranthus cheiri*), and wormwood.

Riddle, John M. (1992). *Contraception And Abortion From The Ancient World To The Renaissance*. Cambridge Massachusetts: Harvard University Press, p 66.

As well as the medicinal culture of its indigenous peoples, the American East Coast was a repository for Old World plant mythology and folklore. In the redoubts of the Appalachian mountains especially, herbal nostrums, folk recipes, fundamentalist beliefs and outright plant magic had been packed as cultural baggage with the cows and cooking pots by early settlers, and survived intact in isolated mountain communities well into the twentieth century ... But a core of ancient plant magic persists.

Mabey, Richard. (2015). *The Cabaret Of Plants: Botany and the Imagination*. London: Profile Books, p 145.

It's odd that we haven't regained our ancient sense of wonder, especially now we understand how crucial the plant world is to our own survival. Perhaps that is partly the answer: we find it hard to accept that plants don't need us in the way we need them. The UN has described 300,000-plus species which make up the earth's flora as ‘the economy's primary producer ... photosynthetic cells capture a proportion of the sun's radiant energy and from that silent diurnal act comes everything we have: air to breathe, water to drink, food to eat, fibres to wear, medicines to take, timber for shelter’.

Mabey, Richard. (2015). *The Cabaret Of Plants: Botany and the Imagination*. London: Profile Books, p 5.

Today, the World Health Organization estimates that about 80 per cent of the planet's population relies mainly on natural plant, or more rarely animal-derived, medicines. In industrialised countries, where modern Western scientific medicine is widely available, about 40 per cent of all pharmaceuticals are derived, at some stage, from natural sources.

Stuart, David C. (2004). *Dangerous Garden: The Quest for Plants to Change Our Lives*. Cambridge, Massachusetts: Harvard University Press, p 6.

It is estimated that about ten thousand plant species have been used in some medicinal way, in some place or at some time in the past.

Stuart, David C. (2004). *Dangerous Garden: The Quest for Plants to Change Our Lives*. Cambridge, Massachusetts: Harvard University Press, p 10.

Cultural bias and societal hubris have long clouded the vision of scholars, rendering most unwilling to even consider—never mind acknowledge—that ancient cultures possessed the means and the knowledge to do what, until very recently, was beyond the capabilities of “modern” medicine. As a result, for centuries scholars have dismissed ancient accounts, such as Soranus' *Gynaeciorium*, that claimed certain plants provided an effective means of birth control.

Favorito, Emilio N. and Baty Kurt. The Silphium Connection. *The Celator*, Vol. 9, No. 2, Feb 1995, pp 6–8.

Never had the old herbal knowledge entirely left this world, despite the medicalization of birth control. In the last part of the twentieth century, anthropologists and ethnopharmacists report folk usage of contraceptive and abortifacient plant drugs. One recent survey found plants used as contraceptives among the peoples of New Guinea, the Eddystone Islands, the Peruvian jungles, and in the southwestern United States (among Navaljos). Studies conducted in Nigeria, China, Korea, the Soviet Union, Haiti, New Mexico, Paraguay, Egypt, Malaysia, and India reveal that contemporary traditional societies employ a variety of antifertility agents. Some are new, such as the papaya ... Even when the plants are not still used to limit fertility, a faint echo of ancient practices is heard still: in modern Lithuania a mother gives a pot of rue to her daughter on her wedding day. The reason has been forgotten, but the custom remains.

Riddle, John M. (1997). *Eve's Herbs: A History of Contraception and Abortion in the West*. Cambridge, Massachusetts: Harvard University Press, p 254.

In 2015, “how to have a miscarriage” was searched 119,000 times in the United States. Overall, more than 700,000 US Google searches related to DIY abortions that year, while Americans searched specifically for abortion clinics 3.4 million times. The Guttmacher Institute estimates that about one million legal abortions are performed annually in the US.

Abril, L. (2018). *On Abortions: and the Repercussions of Lack of Access*. Manchester, England: Dewi Lewis Publishing. See also Barnes, Zahra. (2016). *Google Searches for DIY Abortions Are On The Rise*. Retrieved April 11, 2019 from <https://www.sell.com/story/google-searches-for-diy-abortions-are-on-the-rise>

According to new research by the nonprofit group National Advocates for Pregnant Women (NAPW), since *Roe v. Wade* more than a dozen women have been charged with illegal abortion or manslaughter for attempting to end a pregnancy ... In 2011, 20-year-old New Yorker Yari-bely Almonte was arrested for inducing an abortion at home with herbs. The charges were ultimately dropped. Some of these women have been charged with murder in the wake of a miscarriage or stillbirth; others ... have been charged with violating the abortion laws in their state.

Calhoun, Ada. (2012). *The Rise Of DIY Abortions*. Retrieved April 10, 2019 from <https://newrepublic.com/article/111368/the-rise-diy-abortions>

Before the guild of doctors and surgeons monopolized obstetrics, wise women and midwives delivered the baby and attended both mother and child. In traditional societies, the midwife has a sacred status. No one would lay hands on her, she is the carrier of magic knowledge, the link between the generations connecting future generations with their ancestors. Like the shaman she can cross the border to the world of the unborn.

Storl, W. (2012). *The Herbal Lore of Wise Women and Worcunners: The Healing Power of Medicinal Plants*. Berkeley, California: North Atlantic Books.

Before recorded history, all cultures collected, used, and admired flowers not only for utilitarian purposes, but for their elusive fragrances and ephemeral forms that, ironically, symbolized recurring vigor and even immortality. They have enthralled and seduced us, exploiting entire civilizations to enhance their sex lives and spread their seeds. We give and receive flowers as tributes, and to commemorate life's many triumphs and everyday events. Flowers accompany us from cradle to grave. As spices, they flavor our foods and beverages. We harvest their delicate scents, combining them into extravagantly expensive mixtures, for perfuming our bodies to evoke passion and intrigue.

Buchmann, S. (2015). Preface, *The Reason for Flowers: Their History, Culture, Biology, and How They Change Our Lives*. Simon and Schuster: New York, p ix.

A flower's fragrance declares to all the world that it is fertile, available, and desirable, its sex organs oozing with nectar. Its smell reminds us in vestigial ways of fertility, vigor, life-force, all the optimism, expectancy, and passionate bloom of youth. We inhale its ardent aroma and, no matter what our ages, we feel young and nubile in a world aflame with desire.

Ackerman, D. (1990). *A Natural History of the Senses*. New York: Vintage Books, p 13.

Plants in the twenty-first century have been largely reduced to the status of utilitarian and decorative objects. They don't provoke the curiosity shown to, say, dolphins or birds of prey or tigers—the charismatic celebrities of television shows and conservation campaigns. We tend not to ask questions about how they behave, cope with life's challenges, communicate both with each other and, metaphorically, with us. They have come to be seen as the furniture of the planet, necessary, useful, attractive, but ‘just there’, passively vegetating. They are certainly not regarded as ‘beings’ in the sense that animals are.

Mabey, Richard. (2015). *The Cabaret Of Plants: Botany and the Imagination*. London: Profile Books, p 4.

In its relationship with human beings, the plant kingdom has always locked itself closely into our virtues and our vices ... There is therefore no reason to believe that future developments in the interaction between man and plants will be all beneficial. Man's future with plants, like the past, will be filled with contradictions and threats. Plants, whether from rainforest, steppe, back yard or the hands of genetic engineers, will continue to produce commodities we have never dreamed of, new trade routes, new wealth and, no doubt, great dangers too.

Stuart, David C. (2004). *Dangerous Garden: The Quest for Plants to Change Our Lives*. Cambridge, Massachusetts: Harvard University Press, p 203.