

Agnology and Exotic Abortifacients: The Cultural Production of Ignorance in the Eighteenth-Century Atlantic World

Londa Schiebinger

This is the history not of a great man or a great woman, but a great plant, one of the forgotten glories that deeply affected human lives for untold centuries, until about two hundred years ago. Historians, post-colonialists, even historians of science, rarely recognize the importance of plants to the processes that form and reform human societies and politics on a global scale. Plants seldom figure in the grand narratives of war, peace, or even everyday life in proportion to their actual importance to humans. Yet they are significant natural and cultural artifacts, often at the center of high intrigue, as in the nineteenth century when the Bolivian government tortured and executed Manuel Incra, an Aymará Indian, for his part in smuggling seeds to the British of the Cinchona officinalis (the source of alkaloid quinine), which cures malaria and other virulent fevers.¹

I present this story in light of a growing interest in plants in history: Alfred Crosby's Columbian Exchange emphasized European agency in transporting plants, people, and disease between the Old World and New, and Judith Carney's recent Black Rice has expanded Crosby's account by highlighting Africans' bringing rice to the New World, oral histories having it as sometimes hidden in their hair. James McClellan and Richard Drayton have discussed the strategic importance of Europe's sixteen hundred botanical gardens at the end of the eighteenth century connecting scientific enterprises, plant acclimatization, plant transfers, and experimentation around the world. And Richard Grove has rather outrageously argued that imperialism led to eighteenth-century environmental movements by making environmental

degradation visible.²

My remarks today form a part of my larger project on "Gender in the Voyages of Scientific Discovery" exploring the movement, mixing, and extinction of botanic knowledge in early modern encounters between Europeans and the peoples of the Caribbean.³ It discusses how gender relations in Europe and its West Indian colonies guided European naturalists as they selected particular plants and technologies for transport back to Europe. The plant whose history provides the leitmotif of this paper I call the "peacock flower" (the Poinciana pulcherrima), a nine-foot tall plant with flaming yellow and red blossoms, also known as Barbados Pride, the Red Bird-of-Paradise, Tsjétti-Mandáru--though it has dozens of other names specific to the particular cultures in which it has been cultivated, suggesting the time-depth of its uses. (Image: Maria Sibylla Merian's exquisite hand-colored rendering from her Metamorphosis insectorum Surinamensium (Amsterdam, 1705), plate 45.)

The Poinciana is not a heroic plant of the stature of chocolate, the potato plant, quinine, coffee, tea, or even rhubarb, the latter much used in the eighteenth century as a laxative.⁴ I lavish attention on the peacock flower not because it is exquisitely beautiful, growing in stunningly inviting places, but because it was a highly political plant, deployed, as we shall see, in the struggle against slavery throughout the eighteenth century by slave women in the West Indies, who used it to abort offspring who otherwise would be born into bondage. We know this from a number of sources, the most remarkable of which is a passage from Maria Sibylla Merian's 1705 Metamorphosis of the Insects of Surinam, recording how slave and Indian populations in Surinam used the seeds of this plant as an abortifacient:

The Indians and Africans, who are not treated well by their Dutch

masters, use the seeds [of this plant] to abort their children, so that their children will not become slaves like they are They told me this themselves.⁵

Merian's passage is remarkable for several reasons. First, it was written by a rarity: To my knowledge, she was the only woman who voyaged in pursuit of her science in the entirety of early modernity (from Europe at least, though there may be examples from other continents). Jeanne Baret in 1766 sailed with Louis-Antoine de Bougainville around the world, but she traveled not openly as a botanist but covertly, disguised as a male valet to the ship's botanist, Philibert Commerson.⁶ Other women, like Lady Ann Monson or Maria Riddell, collected botanical specimens, but only as colonial wives or daughters, traveling where their families happened to take them and not for the primary purpose of pursuing their own scientific interests.⁷

(Image: Major Botanical Collectors before 1732. Merian is noted as collecting in Surinam. From William Stearn, "Botanical Exploration to the Time of Linnaeus," Proceedings of the Linnean Society of London 169 (1958): 173-196, esp. 177.)

Historians have rightly focused on the explosion of knowledge associated with the scientific revolution and global expansion, and the frantic transfer of trade goods and plants between Europe and its colonies.⁸ While much literature on colonial science has focused on how knowledge is made and moved between continents and heterodox traditions, I explore here an important instance of the non-transfer of important bodies of knowledge from the New World into Europe. In doing so, I develop a methodological tool for both the history and philosophy of science called "agnotology"—the study of culturally-induced ignorances—that serves as a

counterweight to more traditional concerns for epistemology.⁹ Agnotology refocuses questions about "how we know" to include questions about what we do not know, and why not. Ignorance is often not merely the absence of knowledge but an outcome of cultural and political struggle. Nature, after all, is infinitely rich and variable. What we know or do not know at any one time or place is shaped by particular histories, local and global priorities, funding patterns, institutional and disciplinary hierarchies, personal and professional myopia, and much else as well. I am interested in understanding how bodies of knowledge were constructed,¹⁰ but more interested in analyzing culturally produced ignorances of nature's body. The historical case study presented here introduces ways of considering agnotology (see conclusion).

My larger project also challenges definitions of what we call "science" by looking at what some people call indigenous knowledges. "Indigenous" today often has the ring of something original and unsullied, and is used to refer to things non-Western. "Indigenous knowledges" are often set in opposition to "scientific knowledge" and sometimes even romanticized as panaceas for Western ills. As the eighteenth-century British physician Patrick Blair reminded his readers, however, "indigenous" means simply "home-bred."¹¹ Thus, the term appropriately describes domestic European knowledge as much as knowledges collected from far-away and romantic places.

This project also challenges how the history of botany has been written. A resilient and long-standing narrative in the history of science has envisioned the flowering of modern botany as the rise of taxonomy, nomenclature, and "pure" systems of classification. The eighteenth century did, indeed, witness major developments in systematics (nomenclature and taxonomy) in many fields, including botany. These developments have often been portrayed as the coming of

age of botany as a science when "knowledge about plants as plants [came to have] a value of its own apart from economic or medical considerations."¹² It is important, however, to see, as the great French naturalist Louis-Jean-Marie Daubenton emphasized in the eighteenth century, and as William Stearn stressed more recently, how the "science" of botany continued to inform and be informed by what we today would call "applied" botany. Botany in this period was big science and big business, an essential part of the projection of military might into the resource-rich East and West Indies. Empires lived or died, for example, by quinine; botany, in the words of Daubenton was why "kings financed academic Chairs of Natural History."¹³ It is in the commerce between the powerful gardens of Kings and "gardens of the dispossessed"--slave's plantation fields, women's dooryard gardens, and the like--that I locate the curious history of the peacock flower, to which we now turn.

Bio-prospecting in the West Indies

Maria Sibylla Merian was bold to travel to Surinam, then a Dutch colony, in 1699 at the age of 52 in search of exotic plants and insects. Moral and bodily imperatives kept the vast majority of Europe's women closer to home; medical doctors often warned that white women taken to warmer climes would succumb to "copious menstruation, which almost always ends in fatal hemorrhages."¹⁴ Image: Portrait of Maria Sibylla Merian by her son-in-law, Georg Gsell. She is surrounded by books, plants, a butterfly, and drawings of shells and flowers that call attention to her work in natural history. On the shelf behind her is a female genius kneeling before Athena, the Goddess of Wisdom.)

Despite warnings from the mayor of Amsterdam, who had lost four of his own daughters

in Surinam, Merian deposited her will and set sail for Surinam only a decade after upheavals in that colony left the governor dead, shot by his own soldiers Maria Sibylla was accompanied by her daughter, Dorothea, trained from an early age to work as her mother's assistant. For two years mother and daughter collected, studied, and drew the insects and plants of the region.¹⁵

Merian tells us that she learned about the abortive virtues of her peacock flower directly from the enslaved females of Surinam. When I started this project, I had assumed that abortion numbered among the many "women's secrets" in this period, and that male physicians and naturalists had only rudimentary knowledge of such things. My assumption, however, proved incorrect. It is true, that in Europe and on New World plantations, physicians or surgeons (all male) were typically called to attend female maladies only when things went wrong and a woman was in danger of dying. If a woman aborted without incident, physicians rarely knew anything about it. Interestingly, Hans Sloane (the future president of the Royal Society of London) working as a young man in Jamaica a decade before Merian's voyage, also reported the abortive qualities of a plant he called the "flour [sic] fence of Barbados." Later on he identified this plant as Merian's flos pavonis or peacock flower, and cited her work in an appendix to his book. Sloane compared his "flour fence" to savin (Juniperus sabina), the herbal abortifacient of choice in much of Europe, and wrote that "it provokes the Menstrua extremely, causes Abortion, etc. and does whatever Savin and powerful Emmenagogues will do." He was thinking of pennyroyal and rue, for example, both widely used in this period as menstrual regulators.¹⁶ (Image: Portrait of Sir Hans Sloane, President of the Royal Society of London, President of the College of Physicians in London, and Royal Physician, by Stephen Slaughter, 1736. Sloane holds a drawing of the leaves of a lace bark tree from his Voyage (1725), vol. 2, plate 168.)

One reason I chose this particular plant for close study is that naturalists from three separate European countries each independently discovered its use as an abortive in the West Indies: Merian reported its use for this purpose in Surinam; Hans Sloane reported it in Jamaica, and some time later Michel Descourtilz, a French naturalist, observed this same use in Saint Domingue, now Haiti.¹⁷ (Altogether these naturalists identified eight specific plants used for abortion in the West Indies.)

While Merian, Sloane, and Descourtilz all identified West Indian abortifacients, they placed the use of these plants in very different social contexts. Merian and Descourtilz located it within the colonial struggle (which I will discuss in a moment); Sloane, by contrast, placed the use of plants like the peacock flower within a context of the growing conflict imported into the colonies from Europe between doctors and women seeking abortion. Concerning his service as physician to the governor in Jamaica, he reminisced:

In case women, whom I suspected to be with Child, presented themselves ill, coming in the name of others, dissembling pains in their heads, sides, obstructions, etc. therby cunningly, as they think, designing to make the physician cause abortion by the medicines he may order for their cure. In such a case I used either to put them off with no medicines at all, or tell them Nature in time might relieve them without remedies.¹⁸

We don't know who the women were who approached Sloane for an abortion—they might have included the fashionable quadroon slaves, one of whom is shown in this image. Sloane did not discuss the ethnic or social status of the women he treated in Jamaica, whether they were

English, creole, or slave, for example. Rather he accused "dissembling women" in general of seeking abortions from unsuspecting doctors. His attitudes were shared by other European physicians at this time. The German physician Johann Storch, for example, "tricked" one pregnant woman whom he suspected of seeking an abortion by prescribing what he knew to be a laxative.¹⁹ Sloane himself noted that when an abortion was necessary to save the life of the mother (and therapeutic abortions were often indicated), "the hand" was preferable to herbal preparations, meaning the technique used in the third month of pregnancy, whereby the doctor pressed down on the abdomen with one hand while pushing through the cervix with a finger of the other, pulling out the embryo from the womb.²⁰ (Images left and right [below] from John Gabriel Stedman, Narrative of a Five years' Expedition against the Revolted Negroes of Surinam [London, 1796].)

Abortion in the West Indies

Merian and Descourtilz, by contrast to Sloane, viewed abortion within a context of colonial struggle. According to Merian, slave women killed the children in their wombs for the same reasons many of them committed suicide--to find release from the insufferable cruelty of Caribbean slave masters. Descourtilz, in turn, saw things from the planters' view, stressing the "ill intentions" of the "negresses" who aborted their offspring.

To what extent was abortion practiced by native and slave populations in the Caribbean? There is good evidence that the Tainos, Caribs, and Arawaks made extensive use of abortive herbs long before European contact. (I've asked the paleoethnobotanist Lee Newsom to look for traces of these plants and specifically to look for who was using the Poinciana--to see if it is

found, for example, in the stomachs of men or of women.) The first Spanish accounts from the New World describe how Taino women aborted in the face of extreme circumstances:

Bartolomé de Las Casas in 1502 recorded that the horrors of Spanish cruelty--the fierce attack dogs, the swords used to disembowel or to hack off women's breasts--caused at least some Taino mothers to drown their infants or to take "herbs to abort, so that [the fruit] was expelled stillborn."²¹ (Image: "The natural inhabitants of the Antilles of America, called savages" under a papaya tree. Note the water-tight basket, used to carry provisions in canoes, in the woman's left hand (the mélange of Caribs and Arawaks on Dominica still make such baskets); note the war club in the man's left hand. Du Tertre, Histoire (1667-1671), vol. 2, 356.)

Even Alexander von Humboldt deplored those young Amerindian wives who did not wish to become mothers and their "guilty practice . . . of preventing pregnancy by the use of herbs." He explicitly lamented the use of "drinks that cause abortion," and was very surprised that "these drinks do not destroy health." Typical of the learned men of his day, he assumed that all too often abortion ended in death; to his astonishment, the women he observed were still able to bear children, even after using these herbs.²² Further north in Virginia, Thomas Jefferson reported that the local natives--apparently the Mattaponis and Pamunkeys--"had learned the practice of procuring abortion by the use of some vegetable" because they attended their men in war and hunting, and child-birthing was inconvenient.²³

We actually know very little about how and why native Americans developed abortive techniques--Humboldt reported that women wished to time their pregnancies precisely, some apparently thinking it best to preserve their "freshness and beauty" when young and therefore to delay childbirth until late in life. Others preferred to become mothers when very young, thinking

this the best way to "fortify their health" and "attain a happier old age." (We need more research on this topic--the difficulty of working on questions of this nature in the Caribbean is that one must rely almost exclusively on European documents, though the possibility of there being archaeological evidence should not be ignored.)

In contrast to free Amerindians, the earliest Africans in the Caribbean practiced abortion within a colonial slave economy. Slave women practiced abortion, among other things, to resist slavery. Though many women must have miscarried spontaneously as a result of hard work, poor food, and corporeal cruelty, we can view induced abortion also as a deliberate act of resistance. Yet, when discussing slave resistance, contemporary observers and present-day historians have tended to emphasize male-led armed insurrections.²⁴ Stedman in 1796, for example, drew a vivid portrait of guerilla warfare in Surinam, where the Dutch employed 1,500 mercenary soldiers in the hopes of keeping in check the 75,000 slaves and to fight against the "maroons" who had escaped into the hinterlands, who were said to burn plantations, slice open the bellies of their former mistresses, and poison entire plantations with invisible substances carried under a single fingernail.²⁵ Other observers and historians have emphasized the daily resistance of slaves who shammed sicknesses, feigned inability to do simple tasks, were disruptively insolent or disobedient, or practiced some form of sabotage. We even have reports of slaves committing suicide to spite their masters and find deliverance from their suffering. Abortion, then, was one type of resistance among many. As historian Barbara Bush has emphasized, in an economy where planters sought to breed "Negroes" like horses and cattle, refusal to breed became a political act.²⁶

Marietta Morrissey and others counter that abortions of this sort, like poisonings, were

exaggerated. Plantation hospital records, especially from the latter half of the eighteenth century, record many things--the type and length of slave illnesses, for example--but they rarely record abortions. Consequently, we cannot calculate abortion rates with any precision. What is well known is the fact of population decline among slaves in the Caribbean. When abolition of the slave trade threatened in the late eighteenth century, planters became alarmed by their inability to "grow slaves." In testimony to government councils, plantation physicians listed abortion, along with ill treatment, poor nourishment, and hard labor, among the top causes of the decline.

Slave women's willingness to undergo the trials of abortion must be understood in this context. Abortion also resulted, though, from a sexual economy wherein slave women were used for European men's pleasure. In addition to his "flour fence," Hans Sloane highlighted a second Jamaican abortifacient: the Caraguata-acanga or "penguins" plant. "It is very diuretick," he noted in 1707, "and brings down the Catamenia very powerfully. It causes Abortion in Women with Child, of which Whores being not ignorant make frequent use . . . to make away their children."²⁷

Janet Schaw, a Scots woman who traveled with her kinfolk to Antigua in the 1770s, similarly denounced the "young black wenches" who, in her words, "lay themselves out for white lovers" and who in order to prevent a child from interrupting their pleasure, "have certain herbs and medicines, that free them from such an incumbrance."²⁸

The Scottish mercenary, John Stedman, commented extensively on the commerce in sex required of young black and mulatto girls in Surinam. His diary, ringing with the bravado of a young lieutenant, details the number of women offered to him: He was hardly off the ship from Amsterdam when "a Negro woman offer[ed] me the use of her daughter, while here, for a certain sum."²⁹ This practice was raised to a quasi-official institution known as the "Surinam marriage,"

an arrangement whereby a European man paid an agreed-upon price to a slave woman's master or even the slave woman's mother for her services during his residence in the colony. Stedman found European male planters dissolute, going to bed late and passing the night in the arms of one or another of his "sable sultanas."³⁰ Whether married to European women or not, masters often kept slave women for this purpose and offered them freely to male guests. Although this promiscuous heterosexuality has been much commented upon, research into homosexual subcultures in the colonies has yet to be undertaken. (Image: Dissolute Surinam Planter in Morning Dress, by the Poet William Blake. Note the elaborate headgear. He is served by one of his slaves, who is perhaps also his mistress. This is one of thirteen images Blake did for John Stedman's book about his experiences in Surinam. Stedman, Narrative [1796], vol. 2, 56.)

Abortion in Europe

I imagine that many of you may be thinking, yes, good, but abortion was illegal in Europe, or at least so morally distasteful that medical doctors and naturalists would not have collected abortifacients from abroad. We must, however, look at things from a seventeenth- and eighteenth-century perspective when discussing abortion. First of all, the terms abortion (abortus, avortement, Abtreibung) and miscarriage (aborsus, fausse-couche, Fehlgeburt) did not take on their modern meanings until sometime in the 19th century. The authors of d'Alembert and Diderot's Encyclopédie noted that surgeons reserved the term avortement for animals and fausse-couche for humans, but they also noted that physicians did not make this distinction. In German, Abtreiben referred to driving anything from the body, including stones and worms but also "the fruit" or unborn child.³¹ For the brothers Grimm as late as the 1850s, the first meaning

of "Abtreiben" was to drive a herd of cows from their summer grazing land in the alps to winter quarters. The term "criminal abortion" did not arise in any language until the late eighteenth century, and then most visibly in France after 1790.

One of the first questions asked in modern discussions of abortion is "what was the law?" This is a modern question (and arguably even a distinctly north American question) that obscures earlier practices and ways of thinking.

And by 1900, it is easy to say what the legal status of abortion was: It was illegal in most parts of Europe and the Americas. This was not, however, the case in the eighteenth century. No legal consensus governed early modern Europe concerning abortion or the use of antifertility agents. Many towns and rural areas had their own local laws and customs; many practices regulated in towns went unregulated in the countryside. In elite legal traditions, however, the consensus was that for legal purposes a woman was not really considered pregnant until the child "quickened," usually near the midpoint of gestation, late in the fourth or early in the fifth month (or, according to Aristotle, forty days after conception for a male child and ninety days for a female child).³² As Barbara Duden has emphasized, before quickening, the fetus was considered simply a part of the mother's own body (ein Theil mütterlicher Eingeweide).³³

Before the development of pregnancy tests in the early twentieth century women enjoyed considerable freedom to judge for themselves when quickening, or in church parlance "ensoulment," took place.³⁴ Beginning about 1780, physicians and legal authorities often discussed "signs of pregnancy," but had to conclude that "sure signs of pregnancy" were visible only in the fifth or sixth month. If physicians could not unequivocally declare a woman pregnant, she could not be tried for terminating a pregnancy.

Women, however, were to lose this freedom--of determining when they were truly with child--in the crackdown on abortion that took place in the nineteenth century. The 1794 Prussian Allgemeines Landrecht was one of the first to negate a woman's traditional prerogative to determine for herself when she was pregnant.³⁵ In the U.S., no state had a law against abortion prior to 1821; by 1850 seventeen states had criminalized abortion.³⁶ Abortion laws were passed in Britain in 1837, Austria in 1852, Denmark in 1866, Belgium in 1867, Spain in 1870, Mexico in 1871, the Netherlands in 1881, Norway in 1885, Italy in 1889, and so forth.³⁷

Conclusion: Agnotology

There is good evidence, then, that abortion was widely practiced by both Amerindian and African populations in the Caribbean. Did naturalists import this knowledge into Europe? Was trade in abortifacients considered medically useful and/or lucrative? One might have expected this, given that importing exotics from Europe's West Indian colonies was big business (botany, not Boyle, was the real big science at this time). Hans Sloane, for example, while in Jamaica invested "the greatest part of his fortune" in "the bark," containing the effective anti-malarial quinine, which he later promoted by prescription in his fashionable London practice. He did the same with chocolate--which he recommended for stomach upset and consumption. A number of medicinal plants from the West Indies--for example, jalapa, cinchona (or quinine), quassia, ipecacuanha, cacao, and sugar--became standard medicines in Europe.³⁸ Were abortifacients among those drugs viewed as valuable either medically or commercially for import into Europe? (Image left: Linnaeus' "Pharmacopoea"—meaning both the printed book describing drugs and their uses, and the medicaments approved for use in apothecary shops. The drawers of the

apothecary's cabinet are marked with drugs, several—jalap and ipecacuanha—from the New World. A plant that successfully entered into European drug therapies was generally tested according to the standards of the day and eventually became listed as an official simple in one of the Pharmacopoeia published in major cities around Europe. Carl Linnaeus, Materia medica [Amsterdam, 1749], frontispiece. Image right: Trade card featuring Hans Sloane's milk chocolate as a medicine good for consumption and stomach ailments.)

When analyzing whether the peacock flower moved into Europe, we need to distinguish clearly between movement of "knowledge" and of the plant itself. We find that the peacock flower itself did in fact move freely into Europe. Seeds and live plants were taken regularly into Europe, first from the East Indies and later from the West, "to enrich the researches of voyagers and diverse gardens."³⁹ From about 1666 onward, the plant was cultivated all across Europe, including in the Jardin du Roi in Paris and the famous Hortus in Leiden. Philip Miller at the Chelsea Physic Garden outside London noted that "the seeds of this plant are annually brought over in plenty from the West-Indies." With proper management, he wrote proudly, this plant would in fact grow much taller in England than in Barbadoes.⁴⁰

The peacock flower itself moved easily into Europe, but the knowledge of its use as an abortifacient did not. Merian's report of its abortive qualities, you will recall, was published in 1705. Caspar Commelin, director of the Hortus Medicus and professor of botany in Amsterdam, prepared elaborate bibliographical notes for her book and was clearly familiar with its contents; if he and others had valued knowledge of how to manage a woman's fertility, it would have quickly become known to botanists throughout Europe. But it did not. Hermann Boerhaave, professor of botany at Leiden and the leading authority on Europe's materia medica, in 1728 reported "no

known virtues" of the peacock flower.⁴¹ Boerhaave's ignorance of Merian's discovery is firm evidence that knowledge of abortifacients did not flow freely into Europe from America in the eighteenth century. There is no trace of it in the Pharmacopoeia, or the Materia medica of the period.⁴²

Europeans, then, chose to remain ignorant of West Indian abortifacients. Whose knowledge was it that did not transfer into Europe: Amerindian? African? A hybrid knowledge created by crossing African and Amerindian techniques? What produced Europeans' neglect of abortifacients from abroad and their gradual vilification of induced abortion in their own medical traditions?

There are many forms of ignorance. I am here not interested in the sequestering of knowledge produced through secrecy, such as guild or military secrets, or the secrets of the Spanish, who did not publish the intelligence gathered from their many royal expeditions into the New World so as to retain an advantage over their enemies, or even the secrets of the many colonial slaves who hid their medicines from Europeans.⁴³ Nor am I interested in ignorance produced by overtly suppressing knowledge considered worthless or dangerous, such as European witchcraft or West Indian obeah. What I am interested in is how in the eighteenth century a confluence of circumstances allowed the cultivation of certain types of knowledge over others. Funding priorities, global strategies, national policies, the structures of scientific institutions, trade patterns, and gender politics all pushed investigation toward certain parts of nature and away from others. Before turning to the case of abortifacients, let me discuss two other distinctive ignorances in eighteenth-century botany.

The distinguished English botanist William Stearn has drawn attention to a fundamental

distortion in eighteenth-century taxonomists' knowledge. A burning question for early modern European taxonomists was how similar were the plants of one continent to those of another. John Ray queried Hans Sloane in Jamaica, for instance, whether any species of plants were common to America and Europe, and for exact information concerning plants native to that island. Sloane himself, as we saw earlier, realized that much of the floral uniformity he observed across the Caribbean basin was human-made, a result of plants being carried (intentionally and unintentionally) from the South American mainland and elsewhere into the islands, first by the Tainos, then by the Spanish, Dutch, English, and enslaved Africans. The impression of floral uniformity in the tropics was further heightened by the fact that Europeans who collected in these areas before 1753 did so mostly in ports and along coasts, regions highly disturbed from over two-hundred years of European voyaging and trade. Sacks of produce standing in harbors before being shipped, for instance, often picked up soil and seeds of weedy species, which were then inadvertently transported to other countries and naturalized. The consequence: tropical ports around the globe soon came to host the same ruderal flora. A collector, unaware of this process, might find the same plant in both the East and the West Indies, and assume it to be indigenous to each area where it was found. This human-made uniformity led taxonomists erroneously to assume that tropical flora was highly uniform instead of being, as it was, regionally highly diverse.⁴⁴

Stearn's observation points to a particular type of ignorance: ignorance of the rich diversity in tropical flora produced by an unawareness that distinctive cultural practices had produced floral uniformity along European trade routes. What distinguishes this type of ignorance from that surrounding abortifacients is that once the error was discovered, it was

energetically corrected. Incorrect scientific conclusions were quickly revised when data from Humboldt, Bonpland, Cook, and Bank's voyages revealed the great variety in tropical flora. European botanists and taxonomists were not invested in the notion of uniformity; they accepted revisions as new information became available.

Other misconceptions were created by eighteenth-century technologies of conveyances. In Humboldt's day, for example, plants (and especially small varieties), were better known than stones and minerals. Plants were lighter and more easily transported. Among plants, voyagers gave preference to succulents and bulbs because these were more likely to survive successfully the long and expensive passage back to Europe.⁴⁵ To the extent that Europeans consciously made these choices, they were quickly reversed as ships became larger and speedier.

The ignorance surrounding abortifacients was of an entirely different kind. When discussing the agnotology of abortifacients, it is important to understand that knowledge of them was rarely suppressed by decree. Instructions to travelers did not warn bioprospectors against collecting this knowledge. Physicians often cautioned against the dangers of the use of this class of drugs in their practices in Europe, but at the same time they knew and used different abortive techniques. Indeed, the lives of many women depended on this knowledge. When new exotic abortifacients were discovered, as they were repeatedly by naturalists for over a century, knowledge of them was not cultivated. Unlike the two examples above, cultural forces closed Europe's borders to the importation of abortive techniques from abroad. When knowledge became available, it was not embraced.

Whose knowledge was it that was rebuffed? What characterized the chain of knowing and where was it broken? Maria Sibylla Merian reported that both Amerindians and African

slaves used the peacock flower as an abortifacient. We do not know where this plant originated, whether it was indigenous to the Caribbean or whether it drifted there by sea or sailed on board a merchant or slave ship. We also have no documents to pin down how the knowledge of the Poinciana's use as an abortifacient originally spread from person to person, culture to culture. We do know, however, that it was in use in Jamaica in 1687 when Sloane voyaged, in Surinam in 1699-1701 when Merian worked there, and in Barbados in the 1750s when Griffith Hughes observed its use as an emmenagogue. We also know that this plant grew in Saint Domingue as early as the 1640s and 1650s when General Philippe de Lonvilliers, Chevalier de Poincy, governor of the French Antilles from 1647-1660, first noted it, and that it was used there as an abortifacient as late as the 1790s, when Descourtilz wrote about it.

A number of scenarios might be developed to explain the presence of this plant and its abortive uses across the Caribbean basin. A first possibility is an unintentional transmission of the plant. The plant that has become known as the Poinciana may have been swept from the Guiana coast and Orinoco valley into the Caribbean by the flood waters that were strong enough to divert the South Equatorial current northward. This current is known to have often carried plants and small animals into the Windward Islands. The hardy pod and seeds would have had little trouble traveling on their own, and we know that seeds of this genus can tolerate salt water.⁴⁶

The plant might also have stolen away in the fodder of livestock or soils of plants transported for cultivation from one part of the globe to another. The spread of cultivated plants to new areas has been a constant feature of human history. Seeds and plants of various sorts were deliberately shipped for purposes of commerce, medicine, food, and curiosity. Dutch

botanists in Ceylon, for example, shipped chest loads of specimens (often in separate vessels to ensure safe arrival) to Dutch gardens in Holland and the East Indies beginning in the seventeenth century. Europeans carried seeds of dietary staples everywhere they settled; even their “revictualing” stations (at the Cape of Good Hope, Saint Helena, or Mauritius, for example) were often stocked with imported European plants and livestock. Opportunities were abundant for the intentional or unintentional spread of this particular flowering shrub.⁴⁷

Another scenario suggests that the Poinciana may be of African origins (or that it was naturalized there earlier via trade to the East) and was subsequently carried to the Caribbean by Europeans. Richard Ligon, voyaging in the seventeenth century, reported having brought seeds of the plant from Saint Jago, in the Cape Verde archipelago off the west coast of Africa, to Barbados in the West Indies. It should be kept in mind, however, that Cape Verde was a shipping crossroads and entrepôt in the seventeenth century. If Ligon carried the plant from Saint Jago, it could have come from anywhere in the world that the Europeans had ports. Moreover, Poincy found the Poinciana in Hispaniola at least a decade before Ligon carried seeds to Barbados. The eighteenth-century English master gardener Philip Miller cast further doubt on Ligon's report, saying that it was “very certain that the plant grows naturally in Jamaica, where the late Dr. Houstoun found it in the woods at a great distance from any settlements.” Houstoun also found it “growing naturally at La Vera Cruz, and at Campeachy [Compeche], where he also found the two varieties with red and yellow flowers.”⁴⁸

Alternatively, the plant might have had African origins and been carried to the Caribbean by slaves. In her Black Rice, Judith Carney has documented, for example, that Africans brought not only rice but also the technologies for its cultivation from Africa to the New World. Traders

and slaves often carried plant stocks used for foods or medicines with them from Africa.

Thomas Dancer, island botanist and keeper of the Bath Botanical Garden in Jamaica, for example, noted that the "Bichey" (an African fruit) had been introduced into Jamaica "by Negroes" before Sloane's time and that "Aka" (ackee, another African fruit) was introduced "by Negroes in some of Mr. Hibbert's ships."⁴⁹

Africans, who had long practiced abortion, may have brought the hearty seeds of the Poinciana with them when carried into slavery, though this is unlikely. The Poinciana grows in Western Africa, but it is not among the abortifacients widely used there. Slaves may, however, have found plants similar to those they had used back home already growing in the tropical Caribbean. A plant resembling Merian's peacock flower, the Caesalpinaceae swartzia madagascariensis, grows on the west coast of Africa. Its seeds are well known in Senegal (and also Zambia) as an abortifacient. However slaves came to use the Poinciana in Surinam, Saint Dominique, and Jamaica, it is clear they knew abortifacients before they entered the Caribbean's fraught sexual economy.⁵⁰

The nineteenth-century Swiss botanist Augustin-Pyrame de Candolle suggested yet another possibility, namely that the peacock flower had its origins in India and was subsequently transported by Europeans to the Caribbean. (A 1991 Flora of Ceylon states just the opposite, that it was brought to southwest Asia from the Americas.) The peacock flower grows profusely in India and surrounding areas, and was imported into Europe from the Dutch East Indies as early as the 1670s; Merian most likely saw it in Amsterdam before traveling to Surinam because she called it by its generic East Indian name: "peacock flower." If the peacock flower was used as an abortifacient in the East Indies in the seventeenth or eighteenth centuries, this knowledge was

not taken into Europe.⁵¹

Finally, one might postulate a tropical American origin of the flowering plant, and an aboriginal Amerindian knowledge of its abortive virtues. As we have seen, Spanish documents show that Amerindians were familiar with abortion before contact. By the seventeenth century, the Poinciana was used as an abortive throughout the Caribbean. This common usage from Surinam up through the French Antilles to Jamaica suggests that the plant and knowledge of its uses was known to the forebears of the Tainos, the Saladoid peoples, and followed their migration out of South America into the islands. Humboldt, writing at the end of the eighteenth century, was impressed by the extensive use of abortifacients (which he did not identify) that he found in the Orinoco basin. The Saladoid peoples expanded first from what is today northeastern Venezuela into the Guianas. As soon as they discovered Grenada, they moved quickly (in less than a century) through the Lesser Antilles and into Puerto Rico (the Greater Antilles show evidence of human habitation by about 4000 B.C.). This quick movement of peoples, knowledges, foods, customs, rituals, and technologies may account for the similarities in the uses of plants found in the region. While it is possible that displaced Africans taught the Tainos the use of the plant now known as the Poinciana, it is more likely that the Tainos and Arawaks taught its uses to the newly arrived Africans. Dancer listed the Poinciana among the "most rare indigenous plants" grown in Jamaica's Bath Botanical Garden. Arthur Broughton, who catalogued Hinton East's extensive private botanical garden in Jamaica, also noted that the Poinciana was indigenous to the Caribbean: a yellow variety was introduced into Jamaica by a Mr. Shakespeare from Honduras in 1782.⁵²

Whereas the Peruvian bark and the quinine it yields represents a technology of conquest

moving from America to Europe, we have here a technology of resistance moving from Amerindians to slaves--and only then to Europeans, with the wonderful twist that this latter technology which could have been of enormous value to women is suppressed. The suppression of abortifacients, though, was rarely overt. The archives of the Académie des Sciences in Paris yield only one report of an abortifacient--a plant known only as the "potato with two roots"--in 1763. Describing an experiment performed by a M. De la Ruë on a nanny goat, a European lady, and a slave woman on the Island of Bourbon, was stamped "supprimé attendu le danger de la publication," the document was never published.⁵³ This example of explicit and direct suppression seems, however, to have been the exception--more common was a kind of cultured apathy or cultivated disinterest. Trade winds of prevailing opinion impeded shiploads of New World abortifacients and knowledge of their use from ever reaching Europe.

What, then, were the agnotological fissures that impeded transport of the knowledge of abortifacients into Europe? What induced this form of cultural ignorance?

First, the desire to curb fertility ran counter to mercantilist pronatalist policies celebrating children as "the wealth of nations, the glory of kingdoms, and the nerve and good fortune of empires."⁵⁴ European physicians--empirically oriented and publicly engaged--promoted public health to increase the vigor, strength, wealth, and prosperity of the state. City hospitals, lying-in, and plantation hospitals were expanded in efforts to decrease morbidity and mortality among the poor working and slave populations. (Historians of colonial science today often invoke mercantilism as foundational to Europe's expansionism; I don't think, though, that we've paid enough attention to the role of slavery in that process.)

Abundant population, especially growth of slave population, was viewed as a key factor

in securing national prosperity. Slave women, whom planters had used primarily as "work units," became increasingly valuable to planters as "breeders" as abolitionists in Europe threatened to shut down the slave trade. Calculations of the cost of purchasing and transporting a slave from Africa vs. rearing one in the colonies, increasingly tipped in favor of breeding slaves in the Caribbean. Jean-Baptiste Dazille, French royal physician in Saint Domingue, expressed these sentiments in his book on the special illnesses of African slaves: It is especially a goodly number of "Negroes," he wrote, that enriches a colony; without which there is "no production, no harvest, and no riches."⁵⁵ In such a climate, agents of botanical exploration--trading companies, scientific academies, and governments--had little interest in expanding Europe's store of antifertility pharmacopoeia for use by women either at home or abroad. Colonial administrators were first and foremost interested in medicines to protect traders, planters, and Trading Company troops, among whom there were few women.

Within Europe, culturally induced ignorance of abortifacients resulted also from newly cantankerous disciplinary hierarchies and professional divides. Much knowledge of abortion was lost in the shift in the management of birthing in this period away from midwives to professionalized obstetricians. Abortion had traditionally belonged to the domain of midwives: as obstetricians sought professional standing, they pushed aside potentially tainted practices and knowledges.

The curious history of the flos pavonis shows, then, how voyagers selectively culled nature for knowledge responding to state policies, patterns of patronage and trade, and moral and professional imperatives. Gender politics both in Europe and its colonies gave recognizable contours to distinctive bodies of knowledge and of ignorance. The same forces feeding the

explosion of knowledge we associate with the Scientific Revolution and global expansion led to an implosion of knowledge of herbal abortifacients. There was no systematic attempt to introduce into Europe abortifacients gathered from cultures around the globe. European awareness of antifertility agents declined over the course of the eighteenth and nineteenth centuries. As development and testing of such agents (and my anachronistic language is deliberate) did not become part of academic medicine or pharmacology. Many drugs no doubt were dangerous because they were not submitted to rigorous and systematic testing. The notorious hazards of abortion in the twentieth century must be traced partly to this process of forgetting and failure to test.

Endnotes

1. Michael Balick and Paul Alan Cox, Plants, People, and Culture: The Science of Ethnobotany (New York: Scientific American Library, 1996), 29-30.
- ² Alfred Crosby, The Columbian Exchange: Biological and Cultural Consequences of 1492 (Westport, Conn.: Greenwood Pub. Co., 1972); Judith Carney, Black Rice: The African Origins of Rice Cultivation in the Americas (Cambridge, Mass.: Harvard University Press, 2001); James McClellan III, Colonialism and Science: Saint Domingue in the Old Regime (Baltimore: Johns Hopkins University Press, 1992), 148; Richard Drayton, Nature's Government: Science, Imperial Britain, and the Improvement' of the World (New Haven: Yale University Press, 2000); Richard Grove, Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860 (Cambridge: Cambridge University Press, 1995). See also Roy MacLeod, ed., Nature and Empire: Science and the Colonial Enterprise, special issue of Osiris 15 (2000).
3. Londa Schiebinger, The Lost Knowledge of the Peacock Flower: Colonial Bioprospecting in the Atlantic World (Cambridge, Mass.: Harvard University Press, fall 2004); Londa Schiebinger and Claudia Swan, eds., Colonial Botany: Science, Commerce, and Politics in the Early Modern World (Philadelphia: University of Pennsylvania Press, fall 2004).
4. Henry Hobhouse, Seeds of Change: Five Plants that Transformed Mankind (New York: Harper & Row, 1985); Clifford Foust, Rhubarb: The Wondrous Drug (Princeton: Princeton University Press, 1992); Saul Jarcho, Quinine's Predecessor: Francesco Torti and the Early History of Cinchona (Baltimore: Johns Hopkins University Press, 1993); Larry Zuckerman, The Potato: How

the Humble Spud Rescued the Western World (New York: North Point Press, 1999); Susan Terrio, Crafting the Culture and History of French Chocolate (Berkeley : University of California Press, 2000).

5. Maria Sibylla Merian, Metamorphosis insectorum Surinamensium (Amsterdam, 1705), commentary to plate no. 45.

6. Renée-Paule Guillot, "La vraie 'Bougainvillée': La première femme qui fit le tour du monde," Historama 1 (1984):36-40. Londa Schiebinger, « Jeanne Baret: The First Woman to Circumnavigate the Globe,» Endeavour 27 (2003):22-25.

7. Ann Shteir, Cultivating Women, Cultivating Science: Flora's Daughters and Botany in England 1760-1860 (Baltimore: Johns Hopkins Press, 1996).

8. In addition to individual works cited below, see John MacKenzie, ed., Imperialism and the Natural World (Manchester: University of Manchester, 1990); N. Jardine, J. Secord, E. Spary, eds., Cultures of Natural History: From Curiosity to Crisis (Cambridge: Cambridge University Press, 1995); Yves Laissus, ed., Les Naturalistes français en Amérique de Sud (Paris: Édition du CTHS, 1995); Tony Rice, Voyages: Three Centuries of Natural History Exploration (London: Museum of Natural History, 2000).

9. Term coined by Robert Proctor, Cancer Wars: How Politics Shapes What We Know and Don't Know About Cancer (New York: Basic Books, 1995), 8. See also Robert Proctor and Londa Schiebinger, eds., Agnotology: The Cultural Production of Knowledge (Chicago: Chicago University Press, in progress).

10. See, for example, Steven Shapin and Simon Schaffer, Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life (Princeton: Princeton University Press, 1985); Thomas Laqueur, Making Sex: Body and Gender from the Greeks to Freud (Cambridge, Mass.: Harvard University Press, 1990); Londa Schiebinger, Nature's Body: Gender in the Origins of Modern Science (Boston: Beacon, 1993); Nelly Oudshoorn, Beyond the Natural Body: An Archeology of Sex Hormones (New York: Routledge, 1994); Mario Biagioli, ed., The Science Studies Reader (New York: Routledge, 1999).

11. Patrick Blair, Pharmaco-Botanologia: or, An Alphabetical and Classical Dissertation on the British Indigenous and Garden Plants of the New London Dispensory (London, 1723-1728), v. Knowledge of Native Americans, Africans, and other peoples of the Third World is today often improperly termed "indigenous knowledge" to distinguish it from "true," "universal" science. Furthermore, when "indigenous" is used (as it often is) merely as a synonym for "third world," it homogenizes a broad spectrum of culturally diverse knowledges and practices. "Indigenous" means simply native to a place; Europeans had (and still have) their own indigenous knowledge just as do non-European peoples. Achoka Awori, "Indigenous Knowledge, Myth or Reality?" Resources: Journal of Sustainable Development in Africa 2 (1991):1; Peter Meehan, "Science, Ethnoscience, and Agricultural Knowledge-Utilization," Indigenous Knowledge Systems and Development, eds. David Brokensha, D. Warren, and Oswald Werner (Washington, D. C.: University Press of American, 1980), 379. See also Alexandra Cooper, "Inventing the Indigenous; Local Knowledge and Natural History," (Ph.D. Diss., History of Science, Harvard University, 1998).

12. William Thomas Stearn, "Botanical Exploration to the Time of Linnaeus," Proceedings of the

Linnean Society of London 169 (1958): 173-196.

175. Much of the history of botany has been written as the rise of systematics. See, for example, Julius von Sachs, Geschichte der Botanik vom XVI. Jahrhundert bis 1860 (Munich, 1875); Edward Lee Greene, Landmarks of Botanical History, 2 vols. (Washington, D.C.: Smithsonian Institution, 1909).

13. Louis-Jean-Marie Daubenton, Histoire naturelle des animaux, vol. 1 of the Encyclopédie méthodique (Paris, 1782), ix. Haggis, "Fundamental Errors"; Jaramillo-Arango, Conquest; John Dixon Hunt, ed., The Dutch Garden in the Seventeenth Century (Washington, D. C.: Dumbarton Oaks, 1990). Harold J. Cook, "The Cutting Edge of a Revolution? Medicine and Natural History near the Shores of the North Sea," Renaissance and Revolution: Humanists, Scholars, Craftsmen and Natural Philosophers in Early Modern Europe, ed. J. Field and F. James (Cambridge: Cambridge University Press, 1993), 45–61; Steven Harris, "Long-Distance Corporations, Big Sciences, and the Geography of Knowledge," Configurations 6 (1998):269-304.

14. Johann Blumenbach, The Natural Varieties of Mankind (1795) trans. Thomas Bendyshe (1865; New York: Bergman, 1969), 212n2. Blumenbach codified notions long current in the culture.

15. Londa Schiebinger, The Mind Has No Sex? Women in the Origins of Modern Science (Cambridge, Mass.: Harvard University Press), chap. 3; Natalie Davis, Women on the Margins: Three Seventeenth-Century Lives (Cambridge, Mass.: Harvard University Press, 1995), 140-202.

16. Hans Sloane, A Voyage to the Islands Madera, Barbadoes, Nieves, St Christophers, and Jamaica; with the Natural History, 2 vols. (London, 1707) vol. 2, 384; vol. 1, lvii; 2, 50.

17. Michel-Étienne Descourtilz, Flore pittoresque et médicale des Antilles, 8 vols. (Paris, 1833), vol. 1, 27-30.
18. Sloane, Voyage, vol. 1, cxliii. Other great "dissemblers" of illness, according to Sloane, were servants, "both Whites and Blacks."
19. Edward Shorter, Women's Bodies: A Social History of Women's Encounter with Health, Ill-Health, and Medicine (1982; New Brunswick: Transaction, 1991), 181.
20. Sloane, Voyage, vol. 1, cxliii; Shorter, Women's Bodies, 190.
21. Bartolomé de Las Casas, Historia de las Indias, 3 vols. (Mexico: Fondo de Cultura Económica, 1951), vol. 2, 206.
22. Alexander von Humboldt, Personal Narrative of Travels to the Equinoctial Regions of the New Continent, during the Years 1700-1804, trans. Helen Williams, 7 vols. (London, 1821), vol. 5, 28-32.
23. Thomas Jefferson, Notes on the State of Virginia, ed. Thomas Abernethy (New York: Harper & Row, 1964), 58.
24. Historian Barbara Bush discusses the role of women in this insurrection (Slave Women in Caribbean Society, 1650-1832 [Bloomington: Indiana University Press, 1990], 65-73).
25. John Gabriel Stedman, Stedman's Surinam: Life in an Eighteenth-Century Slave Society, eds. Richard Price and Sally Price (Baltimore: Johns Hopkins Press, 1992), 130, 266. Poisons used included le jus de la canne de Madere, le Mancanilier, le Laurier Rose, and la graine de Lilas.

Michel-René Hilliard d'Auberteuil, Considérations sur l'état présent de la colonie Française de Saint-Domingue, 2 vols. (Paris, 1776-1777), vol. 2, 139.

26. Ligon, cited in Bush, Slave Women, 121.

27. Sloane, Voyage, vol. 2, 248.

28. [Janet Schaw], Journal of a Lady of Quality, ed. Evangeline Andrews (New Haven: Yale University Press, 1922), 112-13.

29. Stedman, Stedman's Surinam, 18-21.

30. *Ibid.*, 186.

31. Johann Heinrich Zedler, Grosses vollständiges Universal Lexicon aller Wissenschaften und Künste (Halle and Leipzig, 1732-1754), s.v. "Abortus," "Abtreiben."

32. Aristotle, History of Animals, ed. D. M. Balme (Cambridge, Mass.: Harvard University Press, 1991), Bk. IX, III, 583b. European medical traditions were influenced also by Arabic scientific traditions. Muslim jurists held that the fetus becomes a human being only after the fourth month of pregnancy (120 days); abortion was allowed up until that time. Basim Masallam, "The Human Embryo in Arabic Scientific and Religious Thought," The Human Embryo, ed. G. R. Dunstan (Exeter: University of Exeter Press, 1990), 32-46, esp. 39. Michael Ryan objected in the 1830s that quickening did not occur until half the period of utero-gestation had elapsed, even though the fetus was alive from the very moment of conception (A Manual of Medical Jurisprudence [London, 1831], 151). It was not until 1876 that Oskar Hertwig observed a sperm fertilize an egg. John M.

Riddle, Eve's Herbs: A History of Contraception and Abortion in the West (Cambridge, Mass.: Harvard University Press, 1997, 222).

33. Frank, Johann Peter. System einer vollständigen medicinischen Polizey, 4 vols. (Mannheim, 1780-1790), vol. 2, 61.

34. Barbara Duden, Disembodying Women: Perspectives on Pregnancy and the Unborn, trans. Lee Hoinacki (Cambridge, Mass.: Harvard University Press, 1993).

35. Johann Peter Frank and others had argued in favor of abolishing this notion already at mid century (System, vol. 2, 84-122). Günter Jerouschek, "Zur Geschichte des Abtreibungsverbots," Unter anderen Umständen: Zur Geschichte der Abtreibung, ed. Gisela Staupe and Lisa Vieth (Dresden: Deutsches Hygiene-Museum, 1993), 11-26.

36. Riddle, Eve's Herbs, 209.

37. *Ibid.*, 224.

38. Jean Astruc, Traité des maladies des femmes, 6 vols. (Paris, 1761-1765), vol. 2, 278. Donald Monro, A Treatise on Medical and Pharmaceutical Chemistry and the Materia Medica, 3 vols. (London, 1788). vol. 2, 445.

39. René Desfontaines, Catalogus Plantarum Horti Regii Parisiensis (Paris, 1829), intro. See also [Monsieur Jonquet] Hortus Regius (Paris 1666), 3; Catalogus plantarum [Horti Regii Parisiensis] (Anno 1766), 228; Hermanno Boerhaave, Index Alter Plantarum quae in Horto Academico Lugduno-Batavo (Lugduni Batavorum, 1727), part 2, 57; Carl Linnaeus, Hortus Upsaliensis,

Exhibens Plantas Exoticas (Stockholm, 1748), vol. 1, 101; "Catalogue des plantes apportées en France par le capitaine de vaisseau Milius commandant le Lys," Ms. 305 (Bibliothèque Centrale du Museum National d'Histoire Naturelle, Paris).

40. Philip Miller, The Gardeners Dictionary (London, 1768), s. v. "Poinciana (Pulcherrima)."

41. Hermann Boerhaave, Historia plantarum (Rome, 1727), 488-489.

42. For a full discussion of this non-transfer of knowledge, see Schiebinger, Miscarriage of Knowledge, chap. 4.

43. Iris Engstrand, Spanish Scientists in the New World: The Eighteenth-Century Expeditions (Seattle: University of Washington Press, 1981), 3.

44. William T. Stearn, "Carl Linnaeus's Acquaintance with Tropical Plants" Taxon 37 (1988): 776-781.

45. Mary Gunn and L. E. Codd, Botanical Exploration of Southern Africa (Cape Town: A. A. Balkema, 1981), 25.

46. Irving Rouse, The Taino: Rise and Decline of the People who Greeted Columbus (New Haven: Yale University Press, 1992), 3-4. Private communication, Lee Ann Newsom, Department of Anthropology, Pennsylvania State University. See also Charles Gunn and John Dennis, World Guide to Tropical Drift Seeds and Fruits (New York : Quadrangle, 1976).

47. Stearn, "Botanical Exploration," 193; J. Heniger, Hendrik Adriaan van Reede tot Drakenstein and Hortus Malabaricus (Rotterdam: A.A. Balkema, 1986), 76-77.

48. Richard Ligon, A True and Exact History of the Island of Barbados (London, 1657), 15; Miller, Gardeners Dictionary, s.v., Poinciana (Pulcherrima).
49. Carney, Black Rice. Many African foods were brought aboard slave ships as food for the passage. Edward Long notes that, in addition to slaves, "African traders" often carried "some valuable drugs" from Africa to the New World (The History of Jamaica, 3 vols. [London: 1774], vol. 1, 491). See also Judith Carney, "African Traditional Plant Knowledge in the Circum-Caribbean Region," Journal of Ethnobiology (2003), forthcoming. Thomas Dancer also noted that "persons of the Jewish Nation" introduced dates and palm oil into the island (Catalogue of Plants, Exotic and Indigenous, in the Botanical Garden, Jamaica [St. Jago de la Vega, Jamaica, 1792]).
50. Edward Ayensu, Medicinal Plants of West Africa (Algonac, Mich.: Reference publications, 1978); Maurice Iwu, Handbook of African Medicinal Plants (Boca Raton: CRC Press, 1993); Beb Oliver-Bever, Medicinal Plants of Tropical West Africa (Cambridge: Cambridge University Press, 1986). Slaves, of course, came from very different parts of Africa, each with its own customs and medical traditions. On the origins of slaves in Surinam, see Stedman, Stedman's Surinam, 96; for the French West Indies, see Gabriel Debien, Les Esclaves aux Antilles françaises, XVII^e-XVIII^e siècle (Basse-Terre: Société d'histoire de la Guadeloupe, 1974), 39-68. Hans Neuwinger, African Ethnobotany (London: Chapman & Hall, 1996), 321-324. Barbara Bush discusses some continuities between abortive practices in Africa and Caribbean slave societies in "Hard Labor: Women, Childbirth, and Resistance in British Caribbean Slave Societies," More than Chattel: Black Women and Slavery in the Americas, ed. David Gaspar and

Darlene Hines (Bloomington: Indiana University Press, 1996), 193-217, esp. 204-206. Debien, Esclaves, 364-365.

51. Augustin-Pyrame de Candolle, Prodromus systematis naturalis regni vegetabilis, 17 vols. (Paris, 1824-1873), vol. 2, 484; M. D. Dassanayake and F. R. Fosberg, eds., Flora of Ceylon, 8 vols. (New Delhi: Amerind Publishing Co., 1980-1994), vol. 7, 46-48. It is today known as an abortifacient in the Dutch East Indies. John Watt and Maria Breyer-Brandwijk, The Medicinal and Poisonous Plants of Southern and Eastern Africa (Edinburgh: Livingstone, 1962), 564.

52. William Keegan, William. "The Caribbean, Inclusion Northern South American and Lowland Central America: Early History, The Cambridge World History of Food, ed. Kenneth Kiple and Kriemhild Coneè Ornelas, 2 vols. (Cambridge: Cambridge University Press, 2000), vol. 2, 1260-1278, esp. 1269-1271; Dancer, Catalogue of Plants; Arthur Broughton, "Hortus Eastensis: A Catalogue of Exotic Plants, in the Garden of Hinton East, Esq., in the Mountains of Liguanea, Island of Jamaica," The History, Civil and Commercial, of the British West Indies, Bryan Edwards, 2 vols. (London, 1794), appendix to vol. 1.

53. Registres du Comité de Librairie (March 1763), vol. 1, 122. I thank James E. McClellan, III for this information.

54. Joseph Raulin, De la Conservation des enfans (Paris, 1768), vol. 1, "épitre au roi."

55. Jean-Baptiste Dazille, Observations sur les maladies des negres, 2 vols. (Paris, 1776), vol. 1, 1-2.