

Bioprospecting

It is quite by accident and only from savage nations that we owe our knowledge of specifics [medicines]; we owe not one to the science of the physicians.

P.-L. MOREAU DE MAUPERTUIS, 1752

Pierre-Louis Moreau de Maupertuis, president of the Berlin-Brandenburg Akademie der Wissenschaften, surely overstated his case when he claimed that European drug discoveries depended on either “accidents” or the knowledge of non-European peoples, whom the Europeans often characterized as “savages.” How were new drugs identified in the eighteenth century? How did useful new medicines such as ipecacuanha, jalap, and Peruvian bark arrive at London shops and Parisian hospitals?

The search for new and profitable drugs in the eighteenth century was not unlike bioprospecting today. Then as now, the European search for effective pharmacopoeia was fueled by the vast fortunes to be made. We should remember that chocolate was first popularized in England as a medicine—good for stomach ailments and consumption—by Sir Hans Sloane. Edward Long, Sloane’s compatriot in Jamaica seventy years later, reminded his readers that those men and women who immigrated to the West Indies did so not for the purpose of compiling natural histories, but “avowedly for the purpose of accumulating money.” Most European émigrés, Long continued, considered these islands only a temporary abode and had little interest in them except for the riches they could afford.¹

The European search for new medicines was also fed by mercantilist efforts to make European countries pharmaceutically self-sufficient, thereby checking the flow of bullion to foreign countries and eventually creating positive trade surpluses. Pierre-Henri-Hippolyte Bodard, the French physician and botanist, decried the annual loss of revenue to foreign countries, a loss aggravated by the French upper classes’ preference for “objects difficult to obtain.” He estimated the loss in revenue from saffron alone at 20,000 livres annually and from the new Peruvian bark at 7,380,000 livres per year. Other exotics, such as rhubarb, tea, cacao, and jalap, similarly drained European coffers. In England, too, physicians called for patients

not to send “to the East Indies for Drugs that they may fetch better out of their own Gardens.”²

In many instances, however, useful drugs—Peruvian bark, for example—would not grow in Europe and efforts were made to cultivate these plants in the colonies. Nicolas-Louis Bourgeois, who served as secretary of the Chamber of Agriculture during his twenty-eight-year residence in Saint Domingue, advocated in the 1780s the use of local drugs for local complaints. “Why have recourse to foreign drugs,” he asked, “when it is believed that there are so many here [in the Antilles] of use?” There is “a mass” of simples, he continued, in Saint Domingue that need only be examined: “one will find among them more of virtue than of those that come at great expense from far away.” Many of these drugs grown in the colonies were imported into Europe with the government making a tidy sum in duties. Success in learning how to substitute indigenous plants for exotics had other benefits as well. French botanist Michel-Étienne Descourtilz, who arrived in Saint Domingue at the height of the (Haitian) revolution in 1799, was spared when other Europeans were massacred because he was one of the few who knew how to replace imported medicines with indigenous cures—especially valuable knowledge after the hospital’s pharmacy burned to the ground.³

The most pressing motivation for investigating tropical medicines, however, was to keep European troops and planters alive in the colonies. Colonial botany was crucial to Europe’s successful control of tropical areas, where voyagers from temperate zones became sick and died in alarming numbers. Bourgeois noted that finding new drugs was not merely a matter of curiosity but necessary “to cure our maladies and provide new assistance.” Europeans moving into the tropics encountered illnesses completely unknown to them; their standard pharmacopoeia, sometimes old and useless from transport on damp and unsound vessels, frequently proved ineffective against new torments. Bourgeois complained that “apothecaries and surgeons buy their remedies from ship captains coming from France, but the vegetable remedies last hardly one year, and when they are old, they do more harm than good.” Bourgeois complained further that drugs that are “scrupulously” monitored in France were not regulated at all in the colonies; anyone could open a pharmacy [*boutique des drogues*].⁴

This chapter attempts to bring to light the knowledge and practices of Amerindian naturalists, the peripatetic Arawaks, Tainos, and Caribs, who moved much knowledge and many plants from place to place in the Ca-

ibbean basin, and of African naturalists—both males and females—who transported African flora and knowledge of its uses with them to the West Indies. Most of these naturalists remain faceless and nameless, and we have access to their practices primarily through the filter of European texts. With all eighteenth-century natural history we face the problem of imperfect sources removed from us by several centuries. But Caribbean slaves and Amerindians present a special case. Because they left no written documents, knowledge of their cultures and medicines, including their extensive use of plants, depends here almost entirely on European naturalists' accounts.

This chapter launches an examination of Amerindian and African slave medical practices and continues our exploration of European naturalists' field practices as they collected plants either for profit or for medicines in the West Indies. Was it the trained scientific European eye that allowed for new drug discoveries? To what extent did Europeans in the West Indies depend on African slave and Amerindian naturalists for information concerning what later came to be known as tropical medicine, as Maupertuis suggested above? How did naturalists from Europe wrest this information—upon which their very survival often depended—from populations they had conquered and enslaved?

Drug Prospecting in the West Indies

Before the onset of rampant racism in the nineteenth century, many Europeans valued the knowledges of indigenous Americans, Africans, and peoples of India and the East Indies. Richard Drayton has argued with respect to eighteenth-century England that racist tendencies were tempered by a recognition that inhabitants in the colonies—in the West Indies, Amerindian, transported African, or African or European creoles—often held knowledges worth recruiting. This was also true in earlier centuries: Harold Cook has discussed how seventeenth-century Dutch physicians in Java valued local medical information, and Richard Grove has written that the *Hortus Indicus Malabaricus* (1678–1704) prepared by Hendrik Adriaan van Reedee tot Drakenstein, the East Indies Company governor in Malabar, was “a profoundly indigenous text,” a compilation of South Asian botany “without equal.” One might argue that in respect to natural history, an epistemological shift took place over the course of the sixteenth and seventeenth centuries away from Europeans relying on the “summa of ancient wisdom” (Dioscorides, Pliny, Galen) toward their valuing (or at

least appreciating) the authority of native peoples encountered through global expansion. European physicians no longer defined their task as simply verifying the effectiveness of ancient medicines (or merely identifying local substitutes); instead, they took as their starting point for empirical investigations the drugs, dyes, and foodstuffs suggested to them by native “informants.”⁵

How did Europeans prepare for bioprospecting expeditions? Before leaving Europe, learned naturalists pored over documents from all across Europe seeking information concerning the flora they were likely to encounter in the course of their voyage. Sloane was typical in this regard. Before setting out for Jamaica, he collated all data available in Europe concerning plants of tropical areas (in both the East and West Indies) so that he would recognize new plants when he encountered them. Upon arriving in the West Indies, Sloane turned to locals for information, collecting “the best information” concerning the natural products of the country from “books and the local inhabitants, either European, Indian or Black.” Maria Sibylla Merian also set great store by local informants in Surinam. In recording the medical uses of particular plants, she often ended her entries with the words: “They told me this themselves.”⁶

Who were the local informants to whom Europeans turned for information concerning useful foods and medicines? When Christopher Columbus arrived in Hispaniola in 1492, the island was inhabited by approximately 1 million Tainos and Caribs—both of whom had migrated into this area from South America sometime before 400 B.C. These peoples established gardens (called by Tainos *conucos*) for the cultivation of their most prized foodstuffs and medicinal herbs. Spanish physicians sometimes enjoyed especially close ties with the descendants of these voyaging Amerindian naturalists. Antonio de Villasante, for example, learned the virtues of plants in Hispaniola from his Christianized wife, Catalina de Ayahibx, a Taino chief (or *cacica*).⁷

By the sixteenth century, Taino and Carib populations in the Caribbean had been decimated by conquest and disease. The Caribs had run the Arawaks out of the Lesser Antilles; the Spanish had crushed both peoples. A 1660 peace agreement between the English, the French, and the Spanish exiled the remaining warring Caribs to the islands of Saint Vincent and Dominica. A report issued in 1687 found only 111 Caribs living in Martinique. The larger islands, such as Jamaica and Hispaniola, heavily inhabited by Europeans and Africans, were left with perhaps even smaller populations of Amerindians.⁸ European physicians nonetheless gleaned what information they could from the few survivors.

[To view this image, refer to
the print version of this title.]

Figure 2.1. “The natural inhabitants of the Antilles of America, called savages” under a papaya tree. Jean-Baptiste du Tertre described these “savages” (whom he did not identify further) as the most content, happy, peaceful, honest, and healthy people on earth. Their flat foreheads and noses were not a defect of nature but, among them, considered a mark of beauty and often fashioned by their mothers. Du Tertre added that the Americans were more ignorant than the Europeans, but less vicious. 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, the bow and arrows in his right hand.

In the eighteenth century as earlier, medicine and botany were closely allied, and botany remained a required element in European medical education. Jean-Baptiste-René Pouppe-Desportes, royal physician in Cap Français, Saint Domingue from 1732 until his death in 1748, typifies voyaging naturalists who settled into life in the Caribbean. In efforts to increase the efficacy of his cures, he supplemented his mainstay of remedies sent from the Hôpital de la Charité in Paris with local “Carib simples.” Because the first Europeans who came to the Americas, Pouppe-Desportes wrote, were afflicted by illnesses completely unknown to them it was nec-

[To view this image, refer to
the print version of this title.]

Figure 2.2. A Carib woman points to the *roucou* tree, whose flowers yield a highly prized red dye. Charles de Rochefort reported that the Caribs, who cultivated these trees in their gardens, used the roots to give their meats and sauces a rich saffron color and fragrance. Europeans in this period eagerly gathered information about plants and their uses from males and females native to the Caribbean.

essary to employ remedies used by “the naturals of the country whom one calls savages.” In the third volume of his *Histoire des maladies de Saint Domingue*, this long-term resident presented what he called “an American pharmacopoeia,” offering an extended list of Carib remedies used to cure diseases. Europeans had begun producing *Pharmacopoeia*, official compendia of medicinal drugs for major cities, in the sixteenth century in an effort to secure uniformity in remedies. Pouppé-Desportes’ *Pharmacopoeia* is one of the first to record Amerindian remedies. As was typical of these works, he cross-referenced plant names in Latin, French, and the vernacular Carib. Offering synonyms (across languages and cultures) was a common European practice, especially in the pre-Linnaean era, but only rarely were Amerindian names systematically included (see Chapter 5).⁹

Even more important than adopting Amerindian cures, Pouppé-Desportes urged that Europeans emulate the native Caribbean way of life. Europeans living in Saint Domingue would not need medicines, he wrote, if they lived as “frugally and tranquilly as the savages.” But, and his is a common refrain among medical men serving in the colonies, since Europeans (and he means males, who made up the majority of the European population in the West Indies) are “given to excesses in both their eating and liquor, they often require strong remedies.” During his sixteen years in the island, Pouppé-Desportes continued to collect and test local remedies that he then classified according to their medicinal properties.¹⁰

Amerindian populations, however, continued to decline, and by the 1780s Bourgeois complained that “of the prodigious multitude of natives of which [the Spanish chroniclers] speak, not a single of their descendants can be discovered whose origin has been conserved pure and without mixture.” By the 1790s, a chronicler of the revolution in Saint Domingue bemoaned the fact that no trace of a “single native” remained.¹¹

With the decline of indigenous populations, slave medicines took on an unexpected importance in the West Indies, even though in the first half of the eighteenth century Africans on the big sugar islands were no more native to the area than were Europeans (at least 80 percent were born in Africa). Unlike Europeans, however, Africans knew tropical diseases, their preventions, and their cures. Lieutenant John Stedman, a Scottish mercenary living in Surinam, for example, worked alongside a number of African slaves. One old “Negro,” named Caramaca, had given him the threefold secret of survival: 1) never wear boots but instead harden your bare feet (which Stedman did by incessantly pacing the deck of his boat); 2) discard

the heavy European military jacket and dress as lightly as possible; and 3) bathe twice a day by plunging into the river. Some of these were distressing to Europeans, especially the latter, given their distaste for bathing. In contrast to his intimate relations with African populations in Surinam, Stedman had only vague trading relations with the Arawaks and Caribs—both of whom had been driven inland into the mountainous areas far from Dutch settlements.¹²

Bourgeois, a longtime resident of Saint Domingue, was one of those Europeans who appreciated slave medicines. Considering health a matter of state importance, he eulogized the “marvelous cures” abounding in the islands and remarked that *les nègres* were “almost the only ones who know how to use them”; they had, he wrote, more knowledge of these cures than the whites (*les blancs*).¹³

It is impossible to know with any precision how much African herbal knowledge was transferred into the New World by voyaging slave naturalists. Displaced Africans must have found familiar medicinal plants growing in the American tropics, and they must have discovered—through commerce with the Amerindians or their own trial and error—plants with virtues similar to those used back home (see Conclusion). Bourgeois confirms that there were many “doctors” [*médecins*] among the Africans, who “brought their treatments from their own countries,” but he does not discuss this point in detail.¹⁴

Bourgeois also praised the skill of slave doctors. “I could see immediately,” he wrote, “that the Negroes were more ingenious than we in the art of procuring health . . . Our colony possesses an infinity of Negroes and Negresses [*nègres & meme des négresses*] who practice medicine, and in whom many whites have much confidence. The most dangerous [plant] poisons can be transformed into the most salubrious remedies when prepared by a skilled hand; I have seen cures that very much surprised me.” What most surprised Bourgeois was that the Africans rebuffed two mainstays of European medicine: bleeding and purging. “If left to themselves, the Negroes do not bleed patients or administer enemas.”¹⁵

Confidence in African naturalists’ cures was so high among whites that when Sir Henry Morgan, lieutenant governor of Jamaica, became dissatisfied with Sloane’s treatment of his disease, he sent for a “black doctor.” Late in the eighteenth century, Jamaicans still sought the cures of “Negro Doctors.” James Knight wrote that “many secrets in the art of physick, may be obtained from the Negro Doctors, were proper methods taken, which I think is not below our physicians to enquire into, as it may be of great service to themselves, as well as mankind.”¹⁶

Even as late as 1799, amid the chaos of the Haitian revolution, Michel Descourtilz learned many of his cures from a “mulatress,” a creole naturalist of mixed race. Well into the nineteenth century, French physicians praised women of African origins living in Saint Domingue for their extensive knowledge of medicines. Initially suspicious, the mulatress told Descourtilz nothing, but eventually wooed by his drawings of the plants from the Artibonite valley, “which she coveted,” Descourtilz was able to obtain many recipes from her. These he “corrected” as he experimented with them. His efforts, he wrote, “were crowned with very satisfying results.” Descourtilz is one of the few naturalists who collected information on abortifacients (and aphrodisiacs)—one might suspect much of it from this woman (see Chapters 3 and 4).¹⁷

Attitudes among Europeans across the Caribbean, of course, were not uniform. Pierre Barrère, a French royal botanist working in Cayenne along the coast of Guiana from 1722 to 1725, did not think much of Amerindian cures. The good health the Indians (he named twenty-four peoples living there) enjoy, he claimed, resulted from their careful diet, frequent bathing and moderate indulgence in pleasure. In a word, he wrote, “our Indians are completely ignorant of how to compound medicines. The few remedies they know they have learned from the Portuguese and other Europeans.” He nonetheless recorded several Amerindian plant names and their medical uses. David de Isaac Cohen Nassy, a Jewish physician working in nearby Surinam in the latter part of the eighteenth century, remarked that the “Negroes” played a large role in the health of the colony with their “herbs and claimed cures.” But he also noted that their cures were “more valued among the Christians than among the Jews.” Sloane had a similarly poor opinion of slave medicine. Although he took care to collect what the Africans in Jamaica told him, he did not find their cures in any way “reasonable, or successful.” What they knew, he wrote, they had learned from the Indians.¹⁸

Even in an era in which many Europeans valued the knowledge of Amerindian and African naturalists, mythologies of drug discoveries suggested that knowledge traveled up a rather anthropo- and Eurocentric Chain of Being, from animals (with their instinctive cures), to Amerindians, to the Spanish, and, according to Charles-Marie de La Condamine, ultimately to the French. La Condamine, who traveled extensively in what is today Ecuador and Peru, recounted the ancient legend that South American lions suffering from fevers found relief by chewing the bark of the *Cinchona* tree. Observing its curative powers, the Indians, too, began treating malaria and other “quartan” (recurring) fevers with the bark. The

Spanish then learned of the cure from the Indians, and the French, the self-appointed keepers of universal knowledge in the age of enlightenment, learned of it from the Spanish.¹⁹

A number of eighteenth-century histories of medicine subscribed to the notion that brute animals were the first discoverers of many beneficial cures. La Condamine's countryman Pouppé-Desportes offered two further examples in this genre—one from Martinique and another from Saint Domingue. In the first, a potent antidote to snakebite had been discovered by the lowly grass snake. "Unhappy enough to live on the serpent-infested island of Martinique," wrote Pouppé-Desportes, the snake learned to employ a certain herb when attacked by a venomous serpent. The effect was so wonderful that the natives called the plant *herbe à serpent* or serpent herb. In similar fashion, Amerindian naturalists had discovered the excellent qualities of the "sugar tree" by observing wild pigs shredding the bark of this tree with their tusks when hurt and rubbing their injuries with its sap. For this reason this sap was called "wild pig balm." As Edward Long in Jamaica put it, "brutes are botanists by instinct." He reasoned that humans, too, in their "rude state" possessed a similar instinct to recognize herbs, balms, and salves necessary for their preservation. Robert James in London concurred and, like Maupertuis, disparaged European physicians for their ineffectualness in developing lifesaving cures. Drugs, he wrote, are discovered by "savages" by a "natural instinct perceivable both in man and beast," or by "madmen," by whom he meant the alchemists who, from time to time, "blundered" upon some cure by accident.²⁰

Long was very much a racist in how he looked at local cures. Although he agreed that Negro cures often worked "wonderfully" where even European art had failed, he did not admit to any creativeness among Africans. "Negroes," he charged, apply their herbs "randomly" and, like monkeys, receive their skill only from "their Creator, who has impartially provided all animals with means conducive to their preservation."²¹

Biocontact Zones

Scholars have offered various explanations for Europeans' massive success in conquering the New World. These explanations range from Europeans' superior guns, powerful horses and vicious attack dogs, to the accidental and strategic spread of diseases such as smallpox, and even Europeans' highly developed record keeping. In her study of French natural history, Emma Spary, following a Latourian model, has discussed how botanists

and gardeners at the Jardin Royal des Plantes in Paris, such as André Thouin, instructed and manipulated voyagers in order to speed new specimens into European urban centers to enhance both the power and wealth of nations. Successful acclimatization of plants for agriculture, medicine, or the luxury trade required that plants be sent into France with precise information about their cultivation, virtues, and uses. Spary has postulated that botanical men at the center needed a “rigidly structured, unvarying, universally agreed method of describing and inscribing” so that the useful plants could be known and successfully positioned within European frameworks of agri- and horticulture.²²

What the naturalists at the Jardin du Roi in Paris, the Hortus Medicus in Amsterdam, or, later, at the Kew Gardens in London could not control and standardize was the “contact zone”—where Europeans negotiated with informants of all kinds and those with medicinal and natural historical expertise in particular. Mary Louise Pratt has defined this “space of colonial encounters” as “the space in which peoples geographically and historically separated come into contact with each other and establish ongoing relations, usually involving conditions of coercion, radical inequality, and intractable conflict.”²³ Here I wish to specify *biocontact zones* in order to set the contact between European, Amerindian, and African naturalists in a context that highlights the exchange of plants and their cultural uses.

The notion of a contact zone, as it is often understood, is not unproblematic. To isolate the contact between Europeans and non-Europeans as the primary site of analysis improperly constructs an overly rigid notion of non-Europeans as “others.” Furthermore, contact is not restricted to a bounded zone; Europeans had contact at many junctures over the course of a voyage; there were encounters among persons of different classes and professions within Europe. There were certainly the encounters of young men who, driven by hunger to seek refuge in urban port cities, were kidnapped and shipped out as sailors on trading company ships. (Edward Long called the kidnappers “mantraders”; Carl Thunberg called them “man-stealers.”) Abroad, encounters between Europeans and other Europeans were often as troubled as those with non-Europeans. Merian, for example, had unhappy relations with Dutch planters in Surinam. “They mock me,” she wrote, “because I am interested in something other than sugar.” In her turn, Merian criticized the planters for failing to cultivate plants other than sugarcane and for their harsh treatment of the Amerindians.²⁴

Here I will focus (despite my caveats) on biocontact zones in the West

Indies and look closely at strategies Europeans deployed to entice information about useful plants from their informants, and how Europeans were often, in turn, manipulated by the very people they sought to control. Inside Europe, naturalists are known to have carefully choreographed complex systems of patronage—coaxing favors while also disciplining one another with varying degrees of success. Europeans in the field often found it more difficult to manipulate the informants they wished to exploit and control. They often simply refused to cooperate.²⁵ As we shall see, botanical exchange in these transcultural zones was fraught with difficulties.

“Noise”—or intellectual interference—in biocontact zones was often deafening. Loudest perhaps was the cacophony of languages. Europeans usually only scratched the surface of local peoples’ knowledges of plants and remedies because they were often unable or unwilling to speak local languages. Edward Bancroft (a Massachusetts privateer and double agent who sent missives in invisible ink during the American Revolutionary War) worked in Guiana as a young man in the 1760s. He bemoaned the fact that he was “but little acquainted with the Indian languages,” which were necessary for “acquiring that knowledge of the properties, and effects of the several classes of Animals, and Vegetables, which experience, during a long succession of ages, must have suggested to these natives.” Though he endeavored to overcome these difficulties through the use of interpreters, he remarked that these efforts were largely “in vain.”²⁶

La Condamine, Pouppe-Desportes, and Alexander von Humboldt were all keenly interested in local languages. La Condamine spoke what he called “the Peruvian language” and even owned a 1614 “Quichoa” (Quechua) dictionary, which he used to study etymologies (of “quinquina,” or quinine, for example). Dictionaries of various South American languages (Tarasco, Quechua, Nahuatl, and Zapoteco) had been available since the late sixteenth century, prepared mainly by Spanish Jesuits. These often substantial volumes were to be “useful to persons traveling in the area for commerce, to cultivate the land, or to win souls.” Concerning the language of the ancient Peruvians, La Condamine noted that by his day (1730s and 1740s) it was “strongly mixed” with Spanish. The French mathematician judged the languages of South America harshly, writing that “many possess energy and bear traces of elegance, but they are universally barren of terms for the expression of abstract and universal ideas, such as time, space, substance, matter, corporeality . . . Not only metaphysical terms, but also moral attributes are completely absent.” One wonders, however, if La Condamine had sufficient knowledge of the language to

make such judgments. Humboldt, who traveled extensively in present-day Venezuela and Colombia, prepared dictionaries of the Chaymas language that consisted of only about 140 words (he does give words for fever, hammock, boy, girl, bridegroom, fire, sun, moon, and phrases such as “he likes to kill” or “there is honey in my hut”).²⁷

Humboldt was keenly aware of the problems of communication and the power relations involved in privileging one language over another. He commended the Amerindians for their facility in learning new languages, especially Spanish, and remarked that because the Cassiquiare, Guahibo, Poignave and several other peoples inhabiting the missions did not understand each other they were forced to converse in Spanish—the language of the mission but also that of the occupying civil power. Humboldt admired the Jesuits for attempting to make Quechua the universal language of South America. Humboldt knew that most Amerindians did not understand specific Quechua words, but he supposed that they were familiar with its structure and grammatical form. He held this proposal much wiser than the one made by a provincial council in Mexico that different native American peoples communicate with one another in Latin.²⁸

The problem of language in the West Indies was not merely one between persons of far-flung cultures. In the course of his travels to Saint Vincent, Jean-Baptiste Leblond happened upon an English doctor, Mr. Johnston, age thirty. He knew not a word of French, and Leblond not a word of English. “I wished to speak to him in Latin,” Leblond wrote, “but we could not understand each other because of the differences in pronunciation.” Henceforth, they communicated in written Latin and from then on understood each other perfectly. Leblond stayed with Johnston two years, helping him run the hospital and pharmacy and learning the local island medicine.²⁹

Communication across cultures was sometimes ameliorated by the native populations in the Caribbean, who served as active linguists. The Caribs, for example, created “a jargon” through which they dealt with the French in Saint Domingue, which was a mixture of “Spanish, French, and Caraïbe pell-mell [all] at the same time.”³⁰ African slaves in Surinam created a language that served as common currency there called “Negro-English,” composed of Dutch, French, Spanish, Portuguese, and mostly English.

The hybrid peoples of the Caribbean—new biological entities formed through contact—also served to ameliorate bicultural communications. Pierre Campet, a physician working in Guiana in the 1760s, was anxious

to collect Amerindian information concerning tetanus, a disease that attacked African newborns throughout the Caribbean and dashed European hopes of breeding creole slave populations. Campet, whose 1767 “*Traité du tétanos*” detailed his treatment of twenty-five cases of tetanus primarily among slaves held by the French there, had been assured by the “Indians” of both sexes that their own newborns never suffered from this terrible disease. Anxious to discover their secret—which he suspected lay in a certain thick balm applied to the umbilical cord—Campet found “an old Indian and his wife” whom he wished to question on this matter but whose language he did not speak. Among a company of Amerindians newly ar-

[To view this image, refer to
the print version of this title.]

Figure 2.3. Typical European fortification (*château*) in the Caribbean. This one was in Saint Christopher (Saint Kitts) Island and was occupied by General Philippe de Lonvilliers, chevalier de Poincy, governor of the French Antilles from 1647–1660, for whom the *Poinciana pulcherrima* was named. Laid just behind the castle is its kitchen and pleasure garden, still visible among the ruins today. Inside the wall on the left is a small chapel. The tower outside the wall (on the bottom left) is the armory. Note the slave huts (“*Ville d’Angole*” on the right) also outside the fortification wall. De Poincy kept six hundred and sometimes more slaves on his various plantations.

rived from the hinterlands, he found a “mulatto” (*mulâtre*) who could translate (the man’s mother tongue was no doubt a mixture of creole and Indian languages; his father tongue—like his father—was probably French).³¹ Earlier conquest and colonial mixing facilitated, in this case, Campet’s medical query.

But problems of communication did not arise simply from lack of knowledge. Charles de Rochefort in 1658 placed the problems of language in the context of war and conquest. “Some of the French have observed,” he wrote, “that the Caribbeans have an aversion to the English tongue; nay their loathing is so great that some affirm they cannot endure to hear it spoken because they look upon the English as their enemies.” He noted that the Caribs had, in fact, assimilated many Spanish words to their own language, but that this was done at a time when there were friendly relations between the two nations. De Rochefort noted further that the Caribs shied away from teaching any European their language “out of a fear that their [own] war secrets might be discovered.”³² Botanical knowledge exchange may have foundered on similar shoals.

“Noise” in the biocontact zone also resulted from the inflexible theoretical frameworks that made Europeans unable to absorb radically new information. Medical historians have shown that Europeans tended to understand New World medicinal plants predominantly within Galenic explanations of disease and drug classifications. Europeans’ understanding of Carib, Taino, Arawak, or transplanted African medicinal herbs was limited to what made sense to them within a humoral context of drugs that would heat or cool the constitution. European naturalists thus tended to collect only specimens and specific facts about those specimens rather than world-views, schemas of usage, or alternative ways of ordering and understanding the world. They stockpiled specimens in cabinets, put them behind glass in museums, and accumulated them in botanical gardens and herbaria. They collected the bounty of the natural world, but sent “narratively stripped” specimens into Europe to be classified by a Linnaeus or a Jussieu, supporting once again the notion that “travelers never leave home, but merely extend the limits of their world by taking their concerns and apparatus for interpreting the world along with them.”³³

One clash in particular surrounded European encounters with obeah in Jamaica and voodoo in Saint Domingue. Europeans, who increasingly took pride in their empirical methods, tended to ignore, deride, and ridicule the ritual and spiritual aspects prominent in slave medicines. Obeah and voodoo both worked by combining various herbal concoctions with

some sort of spirit possession or trance; these were invoked to cure or to induce physical as well as social ills.³⁴ It is especially frustrating when approaching subjects that Europeans reported so negatively that historians have no direct access to these eighteenth-century West Indian practices.

It is an understatement to say that British physicians did not understand obeah. James Thomson, a native of Jamaica schooled in Edinburgh, considered many slave illnesses the result of the expensive “charms” and unreasonable “prejudices” provided by obeah men or women. “A medical man” hardly stands a chance, he wrote, in the management of disorders where obeah is involved. Rather than attempt to understand the “intimate union of medicine and magic” joined in these practices, Thomson attempted to “destroy the hold of the obeah over the patient through reasoning”—but, more often than not, he failed. “It is quite a mistake to conceive that Christianity has abolished its influence,” he concluded.³⁵ Even physicians such as Charles Spooner, who appreciated the abilities of the obeah people and used their cures with “great success,” limited his research to the herbs they employed and shied away from incorporating the spiritual aspects of obeah into his practices.

Benjamin Moseley, surgeon-general of Jamaica in the late eighteenth century, left a lengthy description of the manner of employing hair, teeth, hearts of bird and livers of mice in the “science of Obi” (he believed obeah and gambling the only instances in which immigrants from “Negro land” combined ideas at all). Although he considered obeah akin to quackery, he was perplexed by its irreversible power. If a slave was “bewitched,” he or she surely died; European medicine was as helpless against its spells as colonial laws were to suppress it. According to Moseley, African males—world-class masters in these arts—“could instruct even Frier [sic] [Roger] Bacon and frighten Thomas Aquinas.” He judged their skill in consuming humans or beasts in “lingering illnesses” to far outstrip Amerindians’ proficiency in poisoning arrows. And, Moseley opined, the knowledge of the obeah-men was superior to that of the Obi-women: men dealt in matters of life and death, whereas women dealt only in the realm of passions and merely tormented inconstant or jealous lovers.³⁶

By the end of the eighteenth century, attitudes in Jamaica had hardened and efforts were made to outlaw obeah. In 1760, the Assembly passed an act making the practice of “Obeah or Witchcraft” a felony; in 1789 the Assembly ruled further that any slave who “pretended” to any supernatural power, “in order to affect the health or lives of others, or promote the purposes of rebellion, shall upon conviction thereof suffer death.”³⁷ Other is-

lands followed suit in the first part of the nineteenth century. Despite the Europeans' sense of superiority in medical matters, one should recall that their cures at this time consisted primarily in bleeding, purging, blistering, vomiting, and sweating patients, and often did more harm than good.

In addition to problems involving language, conceptual frameworks, and physical hardships in biocontact zones, Europeans, Amerindians, and slaves each had their own economic interests and cultural aims—all of which further curtailed transcultural exchange. Humboldt complained that his Amerindian guides were interested in trees only as timber for building canoes, and as a result paid little or no attention to their leaves, flowers, or fruit. Exasperated, he exploded: “like the botanists of antiquity they deny what they had not taken the trouble to observe. They are tired of our questions, and have exhausted our patience in turn.”³⁸

Encounters between Europeans and Amerindians or African slaves were not pure meetings between equals but antagonistic struggles full of exaggerations on both sides. Humboldt derided his “Indian” pilot, who spoke to him in Spanish, for exaggerating the dangers of water-serpents and tigers. “Such conversations are matters of course, when you travel at night with the natives,” he wrote. “By intimidating the European travelers, the Indians believe that they shall render themselves more necessary, and gain the confidence of the stranger.” La Condamine some years earlier had suggested that the marvelous virtues that Europeans attributed to New World cures had been “greatly exaggerated by both prejudice and ignorance.”³⁹

Even had conditions been ideal, the enormity of the task of understanding the medical qualities of New World plants was mind-boggling. From a point of near exhaustion in Quito, La Condamine wrote that to detail all of the plants of the Amazon basin would require “years of toil from the most indefatigable botanist . . . and draughtsman . . . I speak here merely of the labor which a minute delineation of all these plants, and their reduction into classes, genera, and species, would require, but if to this were superadded an examination of the virtues ascribed to them by the natives of the country, certainly the most interesting part of a study of this nature, how daunting would be the task.”⁴⁰

But conditions in biocontact zones were hardly ideal. Humboldt attributed the exaggerations of the Amerindians to “the deceptions which everywhere arise from the relations between persons of unequal fortune and civilization.” The excesses of colonial rule brought a Carib rebellion on Saint Vincent and slave uprisings in Saint Domingue and elsewhere in the 1790s. Fear of poisonings led planters to outlaw slave medicine in English

colonies in the 1730s and in the French islands in the 1760s. Even as early as the 1680s, Sloane reported the dangers of herbalizing in islands where “run away Negroes lye in Ambush to kill the Whites who come within their reach.”⁴¹

Secrets and Monopolies

Europeans were often curious about Amerindian and slave medicines and eager to learn, but the indigenes and slaves were less eager to divulge this knowledge to their new masters. Along with miraculous cures came the silence of secrets. Bourgeois in Saint Domingue characteristically remarked that though “the Negroes treat themselves successfully in a large number of illnesses . . . most of them, especially the most skilled, guard the secret of their remedies.” A Dutch physician, Philippe Fermin, confirmed that the “Negroes and Negresses in Surinam know the virtues of plants and offer cures that put to shame physicians coming from Europe . . . but,” he continued, “I could never persuade them to instruct me.”⁴² James Grainger, on Saint Christopher’s island, found a “maroon negro” who cured lepers using an ingenious cure, but Grainger could not “discover the secret of his art.”⁴³

The guarding of secrets from colonial aggressors occurred worldwide. In his influential 1577 *Joyfull Newes Out of the Newe Founde Worlde*, Nicolás Monardes told the story of a company of Spanish soldiers patrolling in Peru who were curious about bezoars, gastric concretions used at that time in Europe as antidotes to poison, scorpion stings, worms, melancholy, and plague. The soldiers asked “certain Indians” hired to serve them about the stones, but because the Indians considered the Spanish their enemy, they refused to reveal their secrets. After a while, a twelve-year-old Indian boy, sensing that the soldiers truly wished to know about these stones, showed them that they came from the “stomachs of beasts.” Immediately, the boy was killed by his compatriots “for the advice that he gave.” Little had changed a century later when Alonso de Ovalle, a Jesuit writing from Chile, reported that “here are many plants of great virtue in physick known only to the Indians called Machis, who . . . are their doctors. Yet they conceal these plants, particularly from the Spaniards. If they do reveal the knowledge of one or two of them, it is a great mark of their friendship.” In eighteenth-century Peru, La Condamine commented that “the naturals,” as he called the Incas, had guarded the secret of *Cinchona* from the Spanish for some 140 years (some said for more than 200 years).⁴⁴

Naturalists in the West Indies devised various methods for wresting secrets from unwilling informants. Bourgeois in Saint Domingue attempted to win slaves' confidence with friendship. Failing this, he offered money "to be instructed in the details of all that they know" but again without success. Fermin in Surinam, anxious to save the colony the cost of foreign drugs and the malfeasance of ill-intentioned slaves, attempted to learn from the "black slaves" their knowledge of plants, "but these people are so jealous of their knowledge that all that I could do," he wrote, "be it with money or kindness [*caresses*], was of no use."⁴⁵

Europeans also used a number of different tricks when dealing with other Europeans in the West Indies. Nicolas-Joseph Thierry de Menonville tried flattery on the Spanish while at the same time maneuvering to steal their secrets. Landing in Cuba, he let it be known that he was a botanist and had come to collect herbs. Upon hearing this, the people of the country asked if the French did not have plants in their own country. Thierry de Menonville acknowledged that France and its colonies were not deficient in that respect but, playing to "Spanish vanity," added "that the herbs of Havana have the reputation of possessing superior virtues." Europeans also threatened and coerced reluctant informants. Sloane tells how Europeans learned about *contra yerva*, the potent antidote to poisoned arrows. The story was told to him by an English physician named Smallwood, who had been wounded by an Amerindian's poisoned arrow while fleeing the Spanish in Guatemala. Not having much time, he took one of his own Indians prisoner, tied him to a post, and threatened to wound him with one of the venomous arrows if he did not disclose the antidote. Fearing for his life, the Indian (of an unnamed people) chewed some *contra yerva* and placed it into the doctor's wound, which healed soon thereafter.⁴⁶

Perhaps the most egregious example of attempts to purchase, beg, or steal medical secrets in the eighteenth century comes from another part of the world—the British establishment in India, where "black doctors" were commonly employed to collect simples for European physicians. Edward Ives, an English physician working there in the 1770s, was much taken with "a poor Portuguese widow woman" who cured venereal disease that even he had pronounced incurable. Ives instructed the East India Company's surgeons to buy the secret, offering the widow a very "considerable premium." She refused, saying that this secret would sustain her family financially in the present as well as in future generations. Unsuccessful with his purse, Ives instructed company surgeons to spy on her, "to watch her every movement." With continuous surveillance, they were able to see

her gather a woody shrub known as the “Milky Hedge.” Ives conjectured that it must be the juice of this shrub that she used to such effect.⁴⁷

The effort to secure secrets against enemies or competitors was not unique to the vanquished in the colonies. Europeans, of course, had many secrets of their own. The historian William Eamon has discussed medieval and early modern literary texts that purported to reveal “secrets of nature.” These texts supposedly held esoteric teachings associated with nature’s occult forces. Many of these books did indeed divulge recipes, formulas, and “experiments” associated with various arts and crafts, such as instructions for making quenching waters to harden iron and steel, recipes for mixing dyes and pigments, cooking recipes, and practical alchemical formulas used by jewelers and tinsmiths.⁴⁸

More commonly, trade secrets protected profitable knowledge all across Europe. In the medical domain, physicians and apothecaries often protected their remedies by keeping their recipes secret until they could sell them for a good price. In a celebrated case, the apothecary Robert Talbor of Essex (1639–1681) garnered fame and wealth from his “marvelous secret” that cured fevers. His *remède de l’Anglais* secured him a knighthood in England and an annual pension of 2,000 livres from Louis XIV, enough to live like a rich nobleman.⁴⁹

The great trading companies of the early modern period guarded their investments through scrupulously protected monopolies. Thunberg, traveling with the Dutch East India Company, told how that company held a monopoly on the spice trade and on opium in this period: “If anyone is caught smuggling,” he warned, “it always costs him his life, or at least he is branded with a red hot iron and imprisoned for life.” Although many naturalists caught passage on company ships, the Dutch East and West India Companies cautioned them not to reveal too many of their findings in their publications. The French Compagnie des Indes also admonished authors to limit published information. The French company blocked British efforts to buy Michel Adanson’s papers concerning the natural history of Senegal. After the British took the West African port of Saint Louis in 1758, few French academic papers dealing with this part of the world were published. Adam Smith pointed out that a monopoly granted to a trading company had the same effect “as a secret in trade or manufactures.” And historian Francisco Guerra noted that “medical science has been the heritage of the human race, but the drug trade has been throughout history the object of economic monopolies” and (thereby) substantial profits. Companies, of course, still guard secrets today. Through patents, U.S.

pharmaceutical companies seek to recoup the average \$802 million typically required to develop a new drug.⁵⁰ Commercial exchange and desire for profits both by individuals and joint-stock companies countermanded emerging practices of free scientific exchange in the seventeenth and eighteenth centuries as today.

Drug Prospecting at Home

Beginning in the late seventeenth century and throughout the eighteenth century, academic physicians prospected for drugs inside Europe itself, using techniques similar to those employed by their colleagues in the colonies. From Sweden, Linnaeus remarked, “it is the folk whom we must thank for the most efficacious medicines, which they . . . keep secret.” In England, Joseph Banks’s interest in botany was kindled when, as a youth in the 1750s, he watched women gathering “simples” for sale to druggists. In encounters strikingly similar to those in the West Indies, European medical men cajoled their countrymen and women into disclosing the secrets of their indigenous cures. Sometimes persuasion, other times the power of the purse yielded the secret of some purported magically efficacious ingredient. As with colonial plants, physicians began testing on the basis of ethnobotanical clues and then later (sometimes) published the results. Thomas Sydenham provided a popular rationale for these new practices: any “good citizen,” he wrote, in possession of a secret cure was duty-bound “to reveal to the world in general so great a blessing to his race.” Medical experiments were to benefit the public good (not only physicians’ purses) for, as Sydenham continued, “honors and riches are less in the eyes of good men than virtue and wisdom.” Not everyone would have agreed.⁵¹

As in the colonies, much bioprospecting at home was sponsored by the crown. The introduction of an “admirable essence” known as “styptick” into England in the 1670s followed common procedures. An unidentified “curious person” traveling in Paris heard about a Mr. Denis’s secret formula for a “Styptick” that miraculously stopped bleeding “without any need of binding up the wound.” The efficacy of Denis’s wonder balm was demonstrated many times, first upon dogs “of whom was cut the crural and carotid arteries and the thigh itself.” After applying the styptic, all bleeding soon stopped, and the wound healed “without any scar, suppuration, or cicatrices.” Thereafter, “trials” were made on humans, whose arteries were opened, or whose hands or faces had been cut “for the purpose

of the experiment.” The styptic succeeded as well with them as it had with the dogs.⁵²

After successful trials in France, the astringent was sent to Sergeant Richard Wiseman in England. Wiseman had occasion immediately to employ the wonder drug: a patient upon whom he had operated that day was brought back to him with uncontrolled bleeding, “wetting almost a whole sheet” during the coach ride. The offending vessel lay so deep in the neck that it was hard to reach. Wiseman “dipped two pladgets in the Liquour aforesaid and thrust them into the two orifices whence the blood came.” The blood was immediately stopped, and the neck dressed without any considerable bandage. Wiseman employed the styptic that same day to stop the bleeding in a young woman who had undergone a mastectomy. Again, it worked successfully, “the blood continu’d stanch’d, and the Mouth of the arteries remain’d closed.”

These successful trials brought Mr. Denis himself to London, where he demonstrated his substance in a session at the Royal Society using a dog and two calves. At this point the king purchased the secret of the formula and had “a Quantity” prepared in his own laboratory. The English brew worked well, stopping the bleeding of wounds cut in the legs of three calves “to the Admiration of all the Spectators.” Further tests were made on two patients at Saint Thomas’s Hospital: each patient—a woman and a sailor—had had a leg amputated. Rather than the usual excruciating cauterization of the remaining limb, the French styptic was used, leaving the patients “free from pain.” Thus was the testimony of the physicians and surgeons sent by the king to witness the operations. “All did acknowledge,” the report read, that the patients could not “look more fair and ruddy.”

Within the year, the substance known as the “Royal Styptick Liquor” was ready for wartime use. In skirmishes with the Dutch, the styptic was used experimentally in the field by surgeons in the service of the Earl of Offory, Sir Edward Spragg, Sir John Berry, and others, “with admirable success.”⁵³

Money was often at stake as quacks and legitimate healers alike attempted to make their fortune. Sloane walked a fine line between respecting the monetary security bound up in secrets and advancing the emerging ethic of making effective cures available to the public for the “welfare of mankind.” Toward the end of his life Sloane published *An Account of a Most Efficacious Medicine for Soreness . . . of the Eyes* (a secret remedy he had purchased many years earlier); the fifty-four page booklets he sold for six

pence each. In England, as in Jamaica earlier in his career, Sloane was ever watchful for “real cures” wherever they might be found. Sitting at the center of England’s medical empire, he received unsolicited “receipts” from all over the world. Other recipes he actively sought out. Such was the case with Dr. Luke Rugeley’s medicine for ophthalmia. Avoiding direct contact with the doctor, Sloane attempted to procure the secret of his eye balm from a “very understanding apothecary” who knew both Rugeley and Sloane—but the apothecary either did not know it or was not talking. After Rugeley’s death, Sloane somehow got hold of all his books and manuscripts, including his *Materia medica*, but still “all in vain.” Finally, a “person” who had made the medicine for Rugeley sold Sloane the secret of the eye liniment on the condition that Sloane would not divulge it until after the unnamed person’s death (because he or she was still making a living by it). After seeing the recipe, which consisted of tutty (a zinc oxide), lapis hematite, aloes, and “prepared pearl” mixed in viper’s grease or other fat, Sloane realized that it had originally belonged to Matthew Lister, a member of the College of Physicians, who, Sloane presumed, had communicated it to Dr. Thomas Rugeley, Luke Rugeley’s father.⁵⁴

Sloane wrote his booklet in the standard form of the day, supplying the recipe for the eye balm; reporting on his own experiments and experiences, the findings of other physicians, and proof of effectiveness of the balm from as far away as the East Indies; and discussing the use of the balm in treatment. As was (and often still is) the case, success in medical treatment was probably over-reported and failure under-reported (Chapter 4): Sloane’s balm was said to be so effective that it cured an impossible 500 out of 500 cases! He cautioned that a patient required careful preparation, which consisted, among other things, in “bleeding and blistering the neck behind the ears in order to draw off the humors from the eyes.”⁵⁵

By 1745, Sloane felt that a physician of his standing had to account for holding such a useful remedy secret for so many years. He laid out the issues, as he saw them, in some detail. He should not be accused of withholding valuable information from the public. In this case, he had “religiously kept ’till now” his vow of secrecy that he had been obliged to swear in order to acquire the recipe. Neither should he be charged with making a “mystery of [his] practice.” Unlike some other physicians of “good morals and great reputation,” he had not willfully “concealed” or “monopolized” genuinely helpful medicines.⁵⁶ Sloane’s apology makes clear that by mid-century, if not earlier, an ethic of public usefulness was supplanting a physician’s right to secrecy in medical cures.

Physicians cast their nets widely in the search for effective cures at home. Published instructions encouraged travelers inside and outside Europe to question and learn from people of all stations and sexes—from statesmen, scholars, and artists as well as from craftsmen, sailors, merchants, peasants, and “wise women.” Women in the sixteenth and seventeenth centuries were still widely acknowledged healers. Upper-class ladies were routinely educated in medicine; Thomas More’s daughters in England, for example, were educated in religion, the classics, and practical medicine—the distilling of waters and other chemical extracts along with the use of minerals, herbs, flowers, and plants. Diaries and books on housewifery reveal that women who administered large households routinely dressed wounds, administered medicines, distributed herbs from their gardens, and attended childbirth. Several of these women left books of family recipes. Among the lower classes, women served as unlicensed healers of all sorts. In 1560, surgeon Thomas Gale estimated that sixty women were actively practicing medicine in London (in a population of some 70,000). Of the 714 unlicensed practitioners prosecuted by the College of Physicians of London between 1550 and 1640, more than 15 percent were women. These women treated males and females alike and often, like Joanna Stephens, discussed below, specialized in a particular kind of cure. Female practitioners generally purchased their drugs from apothecary shops and were distinct from the herbwomen who supplied those shops.⁵⁷

The eighteenth century was an important swing century for women in medicine and science. The freer structures of early modern European science had allowed women to practice midwifery, supply medical cures, and practice a variety of sciences, including astronomy and physics. During the course of the eighteenth century, women healers’ requests for admission to university—increasingly the route required for work in medicine and science—were denied. Nonetheless, physicians were anxious to gather the knowledge that many women held. This included their traditional cures. In the sixteenth century, Carolus Clusius, who worked in Vienna and Leiden, praised country “women root cutters” (*rhizotomae mulierculae*), who supplied him with information about the medical properties of plants and the names of indigenous varieties. The fashionable seventeenth-century London physician Thomas Sydenham declared, “I know an old woman in Covent Garden who understands botany better [than any academic].”⁵⁸

The process of collecting information from women “root cutters,” old women, or a particularly successful woman healer was strikingly similar to

that of prospecting abroad. The major strategy was to buy the cure and often the government put up the money. One woman who did well for herself was the spinster Mrs. Joanna Stephens, daughter of a gentleman of good estate and family in Berkshire, England. She was paid £5,000 on March 17, 1739, by the king's exchequer for her drug—an eggshell and soap mixture reported to dissolve bladder stones. Her cure for this “painful distemper” was highly prized because the only other option was surgery, known as “cutting for stones.” The London surgeon William Cheselden was able to extract stones in less than one minute (a procedure he perfected on dead bodies); the operation was nonetheless excruciating and dangerous.⁵⁹

According to the records from the case, Stephens had a knowledge of medicines and was skilled in preparing them, though we are not told how she was trained. In her narrative, she reported that “about twenty years ago” she “accidentally” came upon a recipe for “the stone” consisting of eggshells dried in an oven, which she administered to several persons. Over the years she made “trials,” experimenting with burning the egg shells and with adding various quantities of soap. The fame of her cures grew, culminating in her successful treatment of Edward Carteret, the postmaster general. By 1737, her cure was so celebrated that the speedy publication of its secrets was judged “of great importance to mankind.” At this time, her supporters attempted (“with her consent”) to raise from the general public £5,000 “as a reward for her discovering the medicines,” but this failed, and a proposal for payment went instead to the House of Commons.⁶⁰

In early 1739, Stephens herself petitioned the House of Commons for payment. Her petition was made into a bill, which passed both Houses and won royal assent on June 14th of the same year. Before payment was made, however, her medicines were to be submitted to the “examination of proper judges.” A board of trustees, appointed by Parliament exclusively for this purpose, had the remedy prepared and administered to four men (ranging in age from 55 to 79) who had long suffered from stones. About one year later, the men were examined by various surgeons, physicians, and apothecaries, each of whom verified that each man had had a stone before the medicine was administered and that no stone was now to be found. These witnesses appeared before twenty-two men of a Parliamentary committee that included the Lord Archbishop of Canterbury, the Lord High Chancellor of Great Britain, various dukes, reverends, doctors, and surgeons. All but two (who still had doubts) certified the efficacy of Stephens's medicament.⁶¹

Stephens received her rich reward and “communicated her method of preparing and giving her medicines” along with “every minute caution and circumstance” that she had observed in her years of working with it. It was now assumed that her cure could be even more successfully applied by “persons learned in the science of physick.”⁶²

A similar case occurred in France. A Swiss surgeon’s widow, a Madame Noufer, acquired great celebrity by employing a secret remedy to expel tapeworms. The secret was thought of such importance that some of the principal physicians in Paris received royal approval to make a complete trial of its efficacy. When satisfied that the drug worked as advertised, the recipe was purchased by the French king and published by his order.⁶³

Most of the women whose cures were eventually adopted and published in the various European *Pharmacopoeia* remained nameless, as was true also of most of the West Indian indigenes and slaves who offered cures. The story of the development of digitalis provides a celebrated example of a medicament still in use today that came originally from an unnamed “old woman.” The Birmingham physician William Withering told that he learned from “an old woman” that the leaves of *Digitalis purpurea* were useful for treating dropsy (edema, an abnormal accumulation of watery fluid in the body). According to Withering’s account, “in the year 1775, my opinion was asked concerning a family receipt” that was kept secret by the woman, “who had sometimes made cures after the more regular practitioners had failed.” “This medicine,” he continued, “was composed of twenty or more different herbs; but it was not very difficult to one conversant in these subjects to perceive, that the active herb could be no other than the Foxglove.” Withering then embarked on a decade of testing in order to find the most effective dosages (too much of the herb induced vomiting and violent purging). It is worth noting that he experimented first on the sick poor, whom he treated gratis one hour per day (he treated between 2,000 and 3,000 of these patients annually). “I found the Foxglove to be a very powerful diuretic,” he recorded, “but then, and for a considerable time afterwards, I gave it in doses very much too large, and urged its continuance too long.” Over the years he perfected his dosage and learned how to ensure that the powder he administered was of uniform potency. He also experimented with mixing in small doses of opium to avoid excessive purging. Only after he had developed a safe and pleasant form of the drug did he prescribe it for his paying patients. Since Withering’s day, more than thirty different cardiac glycosides, including digitoxin, digoxin, and digitoxigenin, have been isolated from *Digitalis purpurea*.⁶⁴

As with informants in the West Indies, we have little access to the women's own reactions to their encounters with academic European naturalists. The historian Lisbet Koerner has highlighted an article in a 1769 Stockholm magazine purporting to give voice to "wise women." It was not uncommon in the eighteenth century for articles such as this to be written by men under female pseudonyms. Nonetheless, the wise women's assertions echo complaints that appear in other women's writings from this period. The women noted their "joy and pleasure" when a physician, standing by a sick child's bed, ruled that "here no other help can be had than that of finding an experienced wise woman." They complained that physicians "exert themselves to both smell and taste our pouches, creams and bandages," attempting to divine the secrets of the medicines. The women, like so many at the time, ended by asking to be admitted to professional training, in this case to Stockholm Medical College, "for we are after all considered as highly as the gentlemen [physicians] in the homes into which we are called."⁶⁵

Swedish (male) physicians offered to purchase the wise women's secrets, but, like other folk healers, these women usually would not sell them because their livelihood, and often that of their descendants, depended on monopolizing the cure. Mr. Ward, for example, who developed Ward's pills, would not divulge the recipe "because it would be worth so much yearly to him and his successors."⁶⁶ Thus a conflict arose between irregular healers (and Sloane classed some London physicians in this category), who depended on their secrets for their livings, and more academically trained physicians, whose research was conducted for the "benefit of humankind"—or at least such was the ideology. Patents, developed in subsequent centuries to safeguard university and company investment in drug development, tempered this ethic.

Not everyone extolled the virtues of the herb women or folk healers. In efforts to tighten their own monopoly on healing, the Royal College of Physicians in London discussed in 1583 how to prevent "itinerant and inexperienced old women from practising medicine." For many years the college continued prosecuting herb women whom they described as "old," "poor," "little," "ignorant," "bold," "blind," and "stubborn." In 1632 Thomas Johnson, a London apothecary, inveighed against the "greedy and dirty" old herb women of the Aldersgate and Broad Street green markets who allegedly "thrust" any old root on druggists and doctors. A century later, Patrick Blair, a fellow of the Royal Society, similarly attacked the "pittiful filly Herb-women" who "cheat" the poor and ignorant apothecaries by "imposing" upon them any herb they pleased, with-

out control. But the herb women did not budge; records of the Fleet and other markets show women selling “physick herbs” throughout the first half of the eighteenth century. What is remarkable in Johnson’s and Blair’s statements is that herb women were primary suppliers to many apothecary shops and that prescriptions by college physicians ultimately depended on these women’s knowledge of roots.⁶⁷

Brokers of International Knowledge

Here I want to digress for a moment from my focus on bioprospecting in the West Indies and Europe to take an example of the transfer of a medical

[To view this image, refer to the print version of this title.]

Figure 2.4. Lady Mary Wortley Montagu in Turkish dress. Montagu was instrumental in introducing the smallpox inoculation into western Europe in the early eighteenth century. The artist has drawn her with eyelashes, although hers had been taken by smallpox.

technology from Central Asia into England, and eventually into Europe and its overseas colonies. What interests me about the story of the introduction of smallpox inoculation into Europe is the role played by Lady Mary Wortley Montagu—who, in this instance, might be styled an international broker of women’s knowledges.⁶⁸ What is of particular interest is who is credited with having introduced the new knowledge, and who is not.

Inoculation was introduced into Europe at the beginning of the eighteenth century with the upsurge in smallpox epidemics that devastated people of all classes, including the royal families of England and France (Queen Mary died in the epidemic of 1694 and the Dauphin of France in 1711). Reports of the practice of opening the “pustules of one who has the Small Pox ripe upon them” and “engrafting the virulent matter” into another person came from China, the Barbary coast of Africa, and, most impressively, from Constantinople.⁶⁹ It was here that the practice of transplanting smallpox by inoculation caught the attention of well-educated and influential Europeans.

Since the eighteenth century, historians have fought over who should wear the laurels for introducing smallpox inoculation into the West, whether it should be the learned graduates of Padua university, Emanuele Timoni and Jacob Pylarini, whose reports on smallpox inoculation were published in the *Philosophical Transactions*, Lady Mary Wortley Montagu, who created interest in the operation in England through the successful inoculation of her own son, or Sloane, the royal physician, and Charles Maitland, the royal surgeon, who oversaw the first inoculations in England.⁷⁰

Genevieve Miller, a historian who wrote a comprehensive account of this chapter in history, credited Sloane for having overseen the scientific aspects of the transfer of this procedure into England. Having returned from the West Indies interested in exotic medicines, Sloane requested information about the safety of the procedure from Timoni, a Greek physician, who published the first scientific paper in Europe on the procedure in 1714. Miller found accounts of Lady Mary’s contribution in this process “exaggerated,” and was keen to put her “in her place,” as Miller declared in an article of the same title.⁷¹

Miller’s attempt to deflate Lady Mary’s reputation in this regard responded to eighteenth-century accounts—by Voltaire, La Condamine, and Maitland—that, perhaps in deference to her class standing, celebrated Lady Mary’s role in the introduction of this lifesaving procedure. La Condamine, for example, characterized Montagu as “a tender mother” con-

cerned for the safety of her children and celebrated her influence with the Princess of Wales, a woman of “genius superior to that of the rest of her sex,” who set a powerful example for all of Britain by having her own family inoculated (1722), “by which means her royal highness preserved not their lives only, but the beauty, of some of the most amiable princesses in Europe.”⁷²

Charles Maitland, surgeon to the Montagu family while they were stationed in Andrianople, where Lady Mary’s husband Edward served as ambassador for the English Levant Company, also credited his former patroness, Lady Mary, for having brought the inoculation for smallpox to Europe. Lady Mary herself had been tragically struck by smallpox (her eyelashes were gone and her face deeply pitted) and her brother had died of the disease. In 1717 both Lady Mary and Maitland began their inquiries, and “thoroughly convinced” that it was safe, Montagu resolved to have her only son, aged about six years, inoculated. Delighted with the success of the operation, she asked that her newborn daughter also be inoculated against “the fatal distemper.” Maitland refused, and convinced her to wait until the girl was older and after they had returned to England—hoping, as he wrote, “to set the first and great example to England, of the perfect safety of this practice, and especially to persons of the first rank and quality.”⁷³

All of these discovery narratives focus on learned Europeans as conduits for information traveling from Constantinople into Europe. Rarely mentioned in this regard are the old Greek women who kept the practice of inoculation alive in the Mediterranean. One of these shadowy figures reputedly inoculated 4,000 men, women, and children during the 1706 epidemic in Constantinople and the outlying areas. (Some accounts have her inoculating 6,000 people.) Known to us only as a “Greek woman from Morea,” she performed the technique primarily on persons of the lower classes, but, as epidemic threatened, inoculation came into vogue also among noble families, and especially those of the English, Dutch, and French merchants residing in the area. Many years later, La Condamine praised this woman’s success and attributed it to her precision and care in the operation.⁷⁴

This Greek woman must be the same “old woman”—with her needle and nutshell (used to cover the incision)—whom Lady Mary asked to inoculate her son. The old woman did not invent “sewing the pox” but rather kept ancient knowledges alive in her practices. The origin of engrafting against smallpox is not known, but, according to La Condamine’s

1754 *Histoire de l'inoculation*, it was practiced from ancient times by many peoples around the world. From China, Father Dentrecolles related that smallpox was “sewn” by thrusting cotton impregnated with the matter of the dried pustules reduced into powder into the nose of children. From Circassia (on the northeast shore of the Black Sea) and Georgia, the technique was said to have been “practiced from time immemorial” by peoples anxious not to blemish their reputed beauty. It should be remembered that Georgian beauty—especially among females—was of such mythic proportions as to inspire both high prices for women from this region sold into Turkish harems and the coining of the racial term “Caucasian,” devised by the great Johann Blumenbach in the late eighteenth century to honor the Caucasus as the cradle of humanity and the people of that region as the most perfect and thus original humans. From the similarity in practices across Central Asia and Africa (the use of three pins tied together to make punctures in the skin), La Condamine conjectured that the practice was taken from Circassia into Egypt by slaves sold into Cairo’s militia. From there it was thought to have traveled into Tripoli, Tunis, Algeria, and the interior of Africa. From Africa, slaves carried the knowledge across the Atlantic to the Americas, several eventually imparting it to their masters. Apparently unrelated, “buying the smallpox” (for two or three pence) was said to have grown up independently in Wales. Here “school-boys” reportedly gave each other smallpox by rubbing pustules from a sick boy’s arm on a well boy’s until blood appeared.⁷⁵

In addition to the inoculatrix of Andrianople, La Condamine noted other Greek women who practiced the art—one from Philippopolis, the other from Thessalonica. According to La Condamine, these “inoculatrixes” mixed good skill with “quackery” and “superstition.” The Thessalonian woman claimed that her knowledge came from the Holy Virgin, and consequently she made her incisions in the form of a cross in eight different places on the body, including the forehead, cheeks, chin, both wrists, and feet.

Many physicians in England and New England objected to the prominent role women played in inoculation. The ardent anti-inoculist William Wagstaffe, a physician at Saint Bartholomew’s Hospital in London, was aghast that “an Experiment practiced only by a few Ignorant Women, amongst an illiterate and unthinking People shou’d on a sudden, and upon a slender Experience, so far obtain in one of the Politest Nations in the World, as to be receiv’d into the Royal Palace.” In New England, Zabdiel Boylston also recommended that this important procedure not

be left to “old women and nurses” but be taken over and managed by “good physicians and surgeons.” Only if physicians were not available were women to be allowed to inoculate.⁷⁶

If old Greek women had their superstitions, so did European physicians. Physicians taught that in addition to being in good health, patients had to be “prepared” with numerous bleedings and purges before undergoing inoculation. Lady Mary, who disliked medical men, opposed their desire to monopolize (for personal gain) such a “useful invention” as engrafting. She feared her resolve to introduce inoculation into England in its simplest form would place her at “war” with the medical profession. Perhaps for this reason Maitland, her surgeon, emphasized that his experiments with inoculation were intended to benefit the “Publick Good” and not his own pocketbook; he did not wish, he remarked, to retain a monopoly on the procedure by keeping it secret. Secrecy was, however, incidental to Maitland’s ability to profit from the new procedure. As royal surgeon, he received the generous sum of 1,000 pounds sterling for inoculating Prince Frederick in Hannover.⁷⁷

Historians of science often present the creation of new knowledge as an unencumbered search for truth characterized by open communication of the best results. As we have seen, however, conditions were less than ideal in European biocontact zones at home or abroad. Mortality was high; informants were unwilling. The search for potential lifesaving new drugs was mired in relations of conquest, commerce, and slavery. European colonial expansion depended upon and fueled the search for new knowledge in the realm of tropical medicines. At the same time, colonialism bred dynamics of conquest and exploitation that impeded the development of this knowledge.

It is difficult to resolve who should be honored with having introduced inoculation into Europe. Lady Mary was one of the few women who served as a conduit for a practice that eventually became part of standard medicine all across Europe and its colonies. As we shall see in the next chapters, despite her vivid reports concerning the West Indian use of abortifacients, Merian was unsuccessful in introducing them into Europe.