

Colonial Botany

Science, Commerce, and Politics in the
Early Modern World

EDITED BY LONDA SCHIEBINGER
AND CLAUDIA SWAN

PENN

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Chapter 6

Global Economies and Local Knowledge in the East Indies

Jacobus Bontius Learns the Facts of Nature

Harold J. Cook

Besides, every Malayan woman practices medicine and midwifery with facility; so (I confess that it is the case) I would prefer to submit myself to such hands than to a half-taught doctor or arrogant surgeon, whose shadow of education was acquired in schools, being inflated with presumption while having no real experience.

—*Dr. Jacobus Bontius, De Medicina Indorum*

One of the most important aspects of the so-called scientific revolution in Europe was the accumulation of detailed information about natural things and natural events. Numerous early modern accounts stress that before speculating about the underlying processes of nature, one had to know the things experientially. Such careful description often went by the name of “natural history,” a rubric under which even famous astronomers in later centuries placed their work.¹ Recently historians have paid renewed attention to the importance of the “big science” that was descriptive natural history,² and to the “matters of fact” that became so important to the understanding of nature.³ Europeans wanted to assemble accounts of all of nature so as to know it completely, for the sake of truth and benefit. To find things out, they made inquiries among local informants wherever they went, including craftsmen, alchemists, medical empirics, herb wives, engineers, shipwrights, and many others closely involved with things and their uses.⁴ After all, the accumulation not just of things but of information—accurate information—was essential to commerce. People who promoted trading ventures depended on finding, gathering, and redistributing the products of nature and on knowing all about them and their uses. As one economic historian of the Eu-

ropean trading companies put it, "the supply of accurate information must have been one of the first things one expected of a clever merchant."⁶ The letters they sent home to their associates while abroad indicate just how active they were in accumulating information about people, places, prices, and ways of evaluating the quality of the goods available for purchase. (See Anke te Heesen's essay in this volume, on the adaptation of financial accounting practices in natural history.) For the hardheaded merchant and other men trying to plan to their advantage, the foundation of true knowledge lay not in debating general premises or conclusions but in accumulating precise and accurate information.⁶ Thus, in the first period of globalization, which linked the silver mines of Peru with the spice trade of Asia and the gun foundries of Europe, a worldwide natural science rooted in descriptive natural history also developed for the first time. Nonetheless, how people composed accounts of these matters of fact is not always clear, requiring us to reassess "the process by which authorship is attributed to matters of fact in science."⁷ What follows is an examination of one such author's work, noting the importance of local informants in supplying him with knowledge, his debt of respect to them for doing so, and the kinds of information he drew from what he learned.

The patterns of knowledge acquisition germane to early modern global natural history are worthy of close study. On the one hand, authors had to interact with other people both at home and around the world in order to acquire knowledge. On the other hand, when they acquired it, they took only what they wanted, mainly information about description and use. In both respects, authors acted in ways similar to those of merchants who accumulated and exchanged goods. (See also the essays in this volume by Claudia Swan on collecting *naturalia* and E. C. Spary on the difficulties of transforming knowledge of particulars into universalized science.) Many of the best examples of contributions to descriptive natural history can be found among the activities that occurred under the aegis of the Dutch East India Company (Verenigde Oostindische Compagnie, or VOC). The Gentlemen Seventeen—the governors of the VOC in the Netherlands—sometimes even encouraged such efforts. Despite the violence of the VOC's efforts to monopolize the spice trade (see the essay by Julie Berger Hochstrasser in this volume), employees of the company produced some of the most important works on early modern medicine and natural history of the New World, Africa, and Asia. Several members of the company became famous for the publications that issued from their work under the VOC. The most renowned of the Asian natural historians included Hendrik Adriaan van Reede tot Drakenstein (1636–91), who investigated the Malabar coast of South Asia; Paulus Hermann (1646–95), who studied Ceylon and

nearby regions; and Georgius Everhardus Rumphius (1628–1702), who wrote on Ambon and places nearby in the Indonesian archipelago.⁸ Other writers with more explicit interests in medicine, such as Jacobus Bontius (1592–1631), Andries Cleyer (1630s–late 1697 or early 1698), and Willem Ten Rhijne (1649–1700), also produced landmark works of descriptive natural history.⁹ These authors' efforts deploy similar rhetorical devices as well. They share the quality of conveying matters of fact as if newly discovered, although careful examination reveals that their accounts were written on top of erasures, as in a palimpsest. While European authors often represented their observations as unique, personal experiences garnered independently of any help by agents of other knowledge systems, it seems that the most important means for acquiring new information actually involved contact with other people and familiarity with their experiences and accounts. In their various publications these European authors all similarly reinscribed conversations with local people in the language of commensurable matters of fact.

The work of Jacobus Bontius, who died in Batavia (now Jakarta) in service to the VOC, is exemplary of this process, a process we may come to understand as exemplary of natural history at the time of the so-called "Scientific Revolution." The Gentlemen Seventeen appointed Bontius physician, apothecary, and surgical inspector of the VOC territories in August 1626. The VOC had previously employed ships' surgeons, and a few physicians had also been sent out to certain large stations, but Bontius was given a general remit to oversee all of the VOC's medical affairs in Asia. This appointment served Bontius's ambitions in turn, for as he later remarked in a letter to one of his brothers, he expected that his travels, writings, book collection, and exotic botanicals would earn him a professorship in the Leiden medical faculty, a position both his father and his eldest brother had held.¹⁰ Bontius set sail with the outbound fleet on 19 March 1627 accompanied by his wife and two sons, and reached his destination on 13 September, having lost his wife en route.¹¹ During his stay in the Dutch East Indies, Bontius suffered many bouts of illness, especially during two sieges of Batavia in 1628 and 1629, when he contracted dysentery, beriberi, and other serious diseases. Bontius also suffered many personal losses in Batavia: his second wife, whom he had married shortly after his arrival, died on 8 June 1630 of "a vehement cholera"; his eldest son died at the beginning of 1631 of "kinderpoxkens" (perhaps measles); and the deaths of friends and acquaintances are mentioned several times in passing in his works.¹² Not only were his personal sufferings great and his medical duties relentless, but he was assigned additional responsibilities as well. Between the sieges of 1628 and 1629 he became a member of the Court of Justice, the highest judicial body in the Dutch East, and in 1630 he assumed the mantle of chief

law officer for the Dutch Indies, *Advocaat Fiscaal*. He also served as bailiff of Batavia from 15 October 1630 to 18 January 1631, finally giving up the ghost on 30 November 1631.¹³

Despite heavy duties and considerable suffering in body and mind, Bontius assiduously investigated the medicine and natural history of the region. His *Methodus medendi qua In Indiis Orientalibus oportet* (On the Proper Treatment of Diseases of the East Indies)¹⁴ was, according to the 19 November 1629 dedication, completed immediately after the lifting of the second siege. It describes nineteen major diseases of the belly, chest, and skin observed in the East Indies but unknown in the Netherlands. At the same time the work celebrated the ways in which local diseases found their remedies in local plants, a common medical point of view that emphasized the beneficence of nature: "Where the diseases . . . are endemic, there the bountiful hand of Nature has profusely planted herbs whose virtues are adapted to counteract them," he commented.¹⁵ By the time Bontius composed his dedication he had also begun a work on the natural history of the region, which he seems to have considered his major task. According to a later letter to his brother (apparently written on 18 February 1631 and printed as a preface to his first four works, published in 1642), he set out to acquire knowledge of the plants and especially the spices of Java immediately on arriving. The dedication addressed to the Gentlemen Seventeen in his *Methodus medendi* expressed his continuing devotion to their service, which would be even more evident, he promised, when he had finished his "commentaries on the shrubs, trees and herbs which grow in Java." In the same work he lamented, "And would [that] this disease, which has laid me low for about four months . . . have permitted me to travel around the countryside to freely explore the delightful woods of Java and gain an exact knowledge of the many most noble herbs that are here!"¹⁶ Perhaps even from the start, then, but certainly no later than his recovery from the effects of the second siege, Bontius kept a record of his observations on natural history, in both words and pictures.

Some of Bontius's observations on natural history appeared in a second work, his *De Conservanda Valetudine. Seu de diaeta sanorum in Indiis hisce observanda Dialogi* (On the Preservation of Health: Or Observations on a Sound Way of Life in the Indies in the Form of a Dialogue), which he finished on or before 18 January 1631.¹⁷ The *Conservanda Valetudine* is modeled after the famous work of a physician who had lived and worked in Portuguese India more than half a century earlier, Garcia da Orta (c. 1501–68), who published *Colóquios dos simples e drogas . . . da India* (Colloquies on the Simples and Drugs of India) in Goa in 1563.¹⁸ (On the influence of da Orta's text, see the essay by Daniela Bleichmar in this volume.) Da Orta's work took the form of a dialogue, in the

course of which he discussed the uses of what he considered to be the most important medicinal plants of Asia. As Guy Attewell has shown, da Orta had taken the opportunity while in Goa to learn some Arabic, and in his book he criticized classical Greek and Latin sources sharply because their authors were ignorant of most of the medicines and spices of Asia.¹⁹ While few copies of da Orta's book appear to have made it back to Europe, a young Flemish naturalist picked one up during his travels in Portugal and in 1567 brought out a heavily edited and annotated edition of it in Latin.²⁰ This edition, by Carolus Clusius (1526–1609), made Clusius's reputation as a botanist and remained the standard work on Asian botany for several generations—until Bontius's work appeared. (For more on Clusius, see the essay by Claudia Swan in this volume.)

Like da Orta's *Colóquios*, Bontius's "On the Preservation of Health" takes the form of a conversation organized around the familiar medical theme of the six non-naturals, or environmental and personal habits that can support health or cause disease.²¹ Bontius is almost as critical of da Orta as he had been of the ancients. For asserting that the Javanese and Indians attribute to pepper a cold quality, Bontius disparages da Orta as "again ridiculous." In the same dialogue Bontius writes that da Orta mistook the uses of *calamus aromaticus* (sweet flag [*Acorus calamus*]), for although he "knew no other use for it or the sweet smelling reed in India than as bedding for horses, if he had truly been as diligent in investigating the qualities of aromatics as he was discerning in reading Arabian physicians, he would not have been ignorant of the uses of that plant, for throughout India both fish and meat are cooked with a bit of *calamus aromaticus* or the sweet smelling reed, both to improve their flavor and to invigorate the stomach."²²

Immediately after finishing "On the Preservation of Health," Bontius undertook a more systematic review and critical commentary of the work of da Orta, in which his views are somewhat tempered. He completed the study by February 1631; it was later published as *Notae in Garciam ab Orta* (Notes on Garcia da Orta).²³ When he surveyed da Orta's work as a whole rather than select excerpts from it with which he disagreed, Bontius was much less critical of his predecessor. Ultimately, his *Notae* offers gentle correctives or supplements to da Orta's findings. For instance, da Orta remarks that those who use opium appear drowsy, and Bontius tempers his implied criticism of the drug, for "if we did not have this opium and opiates the prospect in this very hot region of making medicines to treat dysentery, cholera, ardent fevers, or other bilious diseases that swell the organs would be frustrated." Bontius also added considerable information. For example, da Orta confessed that he had not seen *assa foetida* (*Pterula assa-foetida*), "called 'Hin' by the Javans and Ma-



T AMSTERDAM. by IAN TEN HOORN 1693.

Figure 6.1. The title page of the 1693 Dutch translation of Willem Piso's work *Onst- en West-Indische warande* (East and West-Indian Veranda) depicts a European physician (holding the urine flask) and a surgeon (with his instruments) in conversation, with several Asian people asking for help and, in the background, a view of the interior of a hospital. The engraving appears to refer to the "Dialogues" between Bontius and his surgical friend Duric, held in front of the hospital at Batavia, and may be based on a contemporary drawing or painting now missing. L. S. A. M. von Römer, *Historical Sketches*, trans. Duncan MacColl et al. (Batavia: Far Eastern Association of Tropical Medicine, 1921), 28–30, argues that the upper part of the physician's face shows a strong family resemblance to extant portraits of Bontius's brothers, Regnerus and Willem. By permission of The British Library.

layans," so Bontius described it. Likewise, when discussing ivory, da Orta confessed that he had never seen a rhinoceros, while Bontius had "not only seen them a hundred times hiding in their lairs, but also wandering in the woods," which gave him an opportunity to give the reader an account of one fearsome encounter with the beast.²⁴

Bontius's last work, however, better represents his methods of gathering information. This was the promised natural history of the region, which remained unfinished on his death in 1631, although he had worked on it for two or three years and it was beginning to come to completion.²⁵ In a letter of 18 February 1631 to his brother Willem he told him to "expect next year, if the power of life remains, a full description of plants, shrubs and trees, with a delineation of each drawn from life."²⁶ Unfortunately, Bontius did not retain his power of life. But many years later, in 1658, Willem Piso (1611–78) published Bontius's medical works in conjunction with his own natural history material and work on Dutch Brazil by himself and Georg Marcgraf (1610–43) in a composite, voluminous, illustrated edition on the medicine and natural history of both Indies.²⁷ Piso's *De Indiae Utriusque Re Naturali et Medica* thus preserves Bontius's final efforts in published form. The natural history material attributed by Piso to Bontius contains information on thirty-three animals and sixty-two plants. A large portion of Bontius's original material, on which Piso's account is based, survives in manuscript in Oxford, where I rediscovered it among the papers collected by the early eighteenth-century lawyer and keen botanist, William Sherard (1659–1728).²⁸ These manuscript materials contain information on sixteen animals, birds, and fish and forty-two plants, in random order. Most of the information on particular specimens includes illustrations together with descriptions and commentaries on the facing or following pages; one long textual description (on the tea plant) lacks any illustration. Presumably, yet another manuscript volume, still missing, contained similar information on the additional animals and plants. A comparison of the printed version and the surviving manuscript reveals that Piso reordered Bontius's material, did some light editing of the Latin, added introductory poems and occasionally additional information, and even introduced a few new items, some based on new information from witnesses who had been in the East Indies.

Bontius's descriptions of animals are full of interesting anecdotal as well as morphological information. Some specimens he had to hand: Bontius kept the skin of a thirty-six-foot snake he killed in the woods at home; his observations of the chameleon were based on one he kept "in a case [*cavea*] at home"; and he also had a flying lizard, "which measured three quarters of an ell" (probably meaning a Flemish ell, which would make the lizard about twenty inches long) and which "can fly,