Chapter 3
A Manhattan *Hortus Medicus*?: Healing Herbs in Seventeenth-Century New Amsterdam

Richard G. Schaefer

Archaeologists and historians of New Amsterdam are fortunate to have at their disposal a remarkable visual source, known as the Castello Plan (Fig. 3.1). The existing copy of this 1660 bird's-eye view was made for Cosimo de' Medici III and rediscovered at the Villa Castello near Florence. The plan shows every building and street in the town, with elaborate gardens behind many of the structures. It is probable that the Castello Plan was copied with some degree of precision from an original survey of New Amsterdam drawn for the Dutch West India Company (WIC) by Jacques Cortelyou in 1660. An educated man and sworn land surveyor (Danckaerts 1913:57; Cohen and Augustyn 1997:40), Cortelyou had the training to create an accurate model. The number, size, and uniformity of the gardens do suggest the use of artistic conventions to fill in the map's empty spaces, however. On the other hand, it is known that the depiction of structures and lots is extremely accurate. It is also known from WIC records that too many inhabitants were involved in land speculation. People planted gardens and orchards, so that their properties were productive, and waited for land values to rise. The company directors complained that the "excessively large plots and gardens" took up space that should have been devoted to new dwellings for the growing population (Blackburn and Piwonka 1988:93; Cohen and Augustyn 1997:38–40).

The gardens of the Castello Plan are also plausible in that they show a similarity to contemporary Dutch garden designs (Schaefer and Janowitz 2005). An important source for seventeenth-century Dutch garden layout is *Den Nederlandtsen Hovenier* (The Dutch gardener), a gardening manual first published in 1669 by Jan van der Groen, gardener to the Prince of Orange (Van der Groen 1669, 1988). Van der Groen, in his figures illustrating "A Dutch garden, and flower paterre," shows a garden with a cruciform pathway dividing it into four equal rectangles. One of these rectangles is a flower garden, with elaborately shaped decorative beds. The

R.G. Schaefer (✉)
Historical Perspectives, Inc.,
28-27 215th Street, Bayside, NY 11360-2629, USA
e-mail: ripschae@yahoo.com

M.F. Janowitz and D. Dallal (eds.), *Tales of Gotham, Historical Archaeology, Ethnohistory and Microhistory of New York City*,
DOI 10.1007/978-1-4614-5272-0_3,

Fig. 3.1 The Castello Plan, believed to be a copy of Jacques Cortelyou's original 1660 bird's-eye-view of the New Amsterdam settlement. (Original map in the collection of the Biblioteca Medicea-Laurenziana, Florence, Italy). The Dutch title reads: Representation of the city of Amsterdam in New Netherland (Stokes 1915 (1):frontispiece)

remaining three rectangles form a kitchen garden, with beds of vegetables and herbs arranged in combinations of parallel rows (Van der Groen 1683:43, 1988:32). Using Van der Groen's layout for a simple Dutch garden as an interpretive key to the Castello Plan, the areas laid out with a central bed in a four-lobed floral shape would correspond to flower gardens.

Among the less-elaborate parterres depicted on the plan are those with paths surrounding diamond- or oval-shaped central beds, which probably indicate flower gardens, or possibly herb gardens. During the seventeenth century, the line between herbs appreciated for their utilitarian value and flowers prized for their aesthetic qualities was not so sharply drawn as today. Many of the herb garden plants to which seventeenth-century herbals attributed remarkable medical powers, such as hollyhock, roses, and irises (Nylandt 1683:40,153–154,264–265), are now generally grown for their beauty or perfume. In 1617, William Lawson, author of *The Country Housewife's Garden*, provided an aesthetic basis for this division. The kitchen/herb garden should be separate from the pleasure garden, because the former, yielding "daily Roots, and other herbs" suffers "deformity" (Lawson 1983:22).

The Castello Plan also shows gardens composed of rectangles with simple, parallel beds that are certainly kitchen or herb gardens, just as in Van der Groen's "Dutch Garden." They represent the sort of layout expected for a *hortus medicus*, or medicinal garden, and can be found throughout the New Amsterdam settlement.

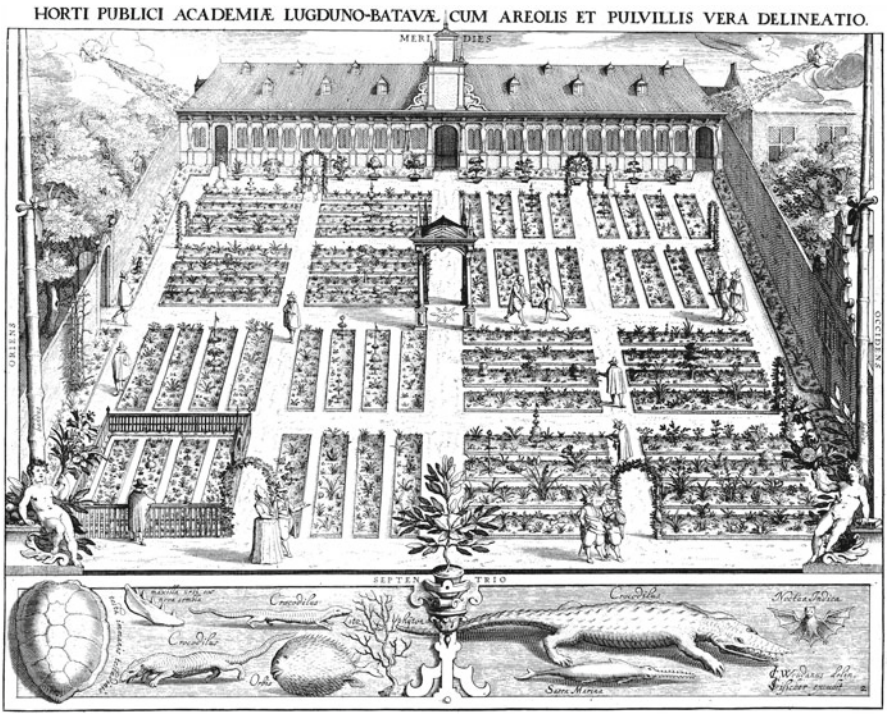

Fig. 3.2 View of the Leiden botanical garden in 1610. Note the simple, parallel beds. The structure at the far end of the garden housed rare plants and other curiosities from around the world, some of which are depicted along the bottom of the engraving (Engraving, J. W. Swanenburgh, after J. Cornelisz. Woudanus)

The establishment and maintenance of a *hortus medicus* by the University of Leiden at the end of the sixteenth century, and followed by the other cities of the United Provinces, was a practical investment for a municipality concerned with the welfare of its inhabitants. The cultivation of medicinal plants was necessary for supplying doctors, apothecaries, and surgeons with the medicines needed to practice their professions, but a *hortus medicus* also served as a visual teaching aid for both students and professionals. Unlike flower parterres, which change shape with fashion, medicinal and academic gardens, because of their utilitarian purpose, tend to be static in design. Even the most elaborate and famous academic botanical gardens––such as the Leiden Hortus (Fig. 3.2), which began as a *hortus medicus*, but was transformed into a full-fledged *hortus botanicus* (botanical garden) under the administration of the great Flemish botanist and physician Carolus Clusius (1526–1609, professor at Leiden from 1584)—were laid out in simple beds in parallel rows (De Jong 2000:122,135, figs. 151,152).

In a sense, these gardens were also dynamic, since in a research institution new plants were constantly being added and the organization refined. If not always aesthetically pleasing, the gardens were important to the townspeople, because they

were a source of their physical well-being. The gardens were also recreational in the sense that they were a sort of living book or encyclopedia through which one could stroll (De Jong 2000:129).

The individual plants were additionally instructive through the widely held belief in *signatures,* the notion that every plant has a human use of which God has provided some external indication. For example, the meat of walnuts looks like the surface of the brain, which indicates that it affects the brain and head. In the same vein, yellow plants were connected with the treatment of jaundice. Before the reader experiences too much amusement at the expense of the practitioners of folk medicine, it is ironic to note that the doctrine of signatures was spread by the *professional* medical community, which wrote the surviving texts. The research of modern folklorist and botanist Gabrielle Hatfield suggests that the connection between the ailment and the color or shape of the plant began as a mnemonic to help the often-illiterate practitioner remember which plant to use. Depending on the healer, a prayer or other ritual might accompany the treatment. Over centuries, the name of the specific plant intended was obscured or forgotten, the mnemonic remembered, and the ritual, if there were one, gradually came to be considered an essential part of the cure (Hatfield 1999:127–130,142–143).

Only by the late seventeenth century did many professional medical practitioners begin to reject the doctrine of signatures as unscientific, and whether rightly or wrongly, the use of *simples*, medicines made of common herbs and flowers, gradually fell into disrepute (Thomas 1983:84; Hunt 1990:187). It was still supported by the herbals, such as *Den Verstandigen Hovenier* (The intelligent gardener), a companion volume to Van der Groen's gardening guide, written by physician Peter Nylandt (1683). Nylandt lists numerous herbs, plants, and trees, their properties and medicinal uses. He also authored his own stand-alone herbal, *De Nederlandtse Herbarius of Kruydt-boeck* (The Dutch herbal or herb book), published in 1682.

Nylandt's works are part of a long line of international medical handbooks. Such works as Gervase Markham's *The English Housewife* (multiple editions from 1615 to 1631), more professional publications such as Nicholas Culpeper's *English Physitian Enlarged* (1653), and John Gerard's *Historie of Plants* (1597[1]) tend to be recompilations, translations, and reorganizations of earlier works extending back to the medieval period, and to Greek and Roman antiquity. Even illustrations were copied. As a result, many of the plant cures and uses compiled by German botanist and medical doctor Leonhart Fuchs in his beautifully illustrated *New Kreüterbuch* (New herbal) of 1543 are remarkably like those published by Culpeper, 110 years later, and by Nylandt another 30 years beyond that. Although the theory of signatures may not be explicitly stated, and even rejected by the author, signature-based remedies were still prescribed, as for example, *Saxifragia* (Nylandt 1682:118; Culpeper 1990:167; Markham 1994:134; Fuchs 2001:286).

[1] Gerard's *Historie of Plants* of 1597 was extensively corrected, revised, and expanded by Thomas Johnson, and republished in 1633, in what came to be its "standard" form (Gerard 1998:xvi).

The most important of these texts was that of Rembert Dodoens (1517–1585), Flemish physician and botanist, and professor of medicine at the University of Leiden from 1582. Dodoens's *Cruijdeboeck* (Herb Book) of 1554 contained so much medical information that it became a standard manual of herbal medicine, or *pharmacopoeia*, for centuries (Dodoens 1554). The work was translated into French by Clusius in 1557, appeared in English in 1578 (Lyte 1619),[2] and Dodoens's definitive edition was published in Latin in 1583. The text was extensively revised and expanded from about 800 to approximately 1,500 pages by 1644. Additions included plants such as tobacco, as well as a 129-page chapter entitled "Indian or foreign trees, shrubs and herbs," such as sugar, black pepper, and sassafras—new plants encountered during the sixteenth and seventeenth centuries through expanding trade and exploration. The chapter was particularly indebted to the work of Clusius (Dodoens 1644:1,363–1,364).

In addition to the doctrine of signatures, a second theory of illness still important in the seventeenth century was derived from the ancient Greeks. It was based on the belief that all matter consists of four elements: earth, fire, air, and water; the elements' qualities: dryness, heat, cold, and wetness; and represented respectively in the four humors or fluids of the body: black bile, yellow bile (choler), phlegm, and blood. The humors were also believed to represent four temperaments: melancholic, choleric, sanguine, and phlegmatic. Mental and physical health were dependent on maintaining a balance between the humors, with different plants representing combinations of the desired qualities of dryness, heat, cold, and wetness (Sloan 1996:35–36). So, in addition to noting that dry walnuts cause headaches, Nylandt and Dodoens also rate various parts of the walnut tree as to their level of warmth and dryness. Nylandt writes that the fresh nuts are "warm in the first grade and dry in the second grade," although Dodoens declares the green nuts to be "somewhat cool and very moist" (Lyte 1619:526–527; Dodoens 1644:1,278; Nylandt 1683:55–56). Humoral theory considered tobacco to be hot and dry, so some practitioners prescribed the inhaling of tobacco smoke for asthma and other respiratory ailments caused by surplus phlegm, which was considered cold and wet (Culpeper 1990:177; Gerard 1998:93).

Some of Culpeper's elaborate recipes show why many laymen and even professionals continued to rely on the aptly named simples containing only a few herbal ingredients: price. Some professionally prepared cures might have over 40 components, including exotic spices, gemstones, minerals—literally gold, frankincense, and myrrh––and various animal fluids and parts (Culpeper 1990:251,254,322). The native plants required for folk cures were available free to anyone who could identify the ingredients, collect (or grow), and process them (Hatfield 1999:166–167). Often, in an age in which professional medicine relied on "laxatives, enemas, emetics and bleeding" to balance the humors, the patient was usually better off with cheap folk-derived cures. Not just an example of the acuity of hindsight, this position was held by the general public, as well as some physicians of the period (Nagy 1988:43–45,48,50,52).

[2] Gerard's *Historie* was an English translation of a later edition of Dodoens, with added commentary by Gerard (Gerard 1998:xv,xvii).

Like the town governments of the United Provinces, the Dutch WIC, despite its mercenary reputation, did take an interest in the health of its New Netherland employees and colonists. The company usually employed at least one medical man for the settlers and also kept midwives on the payroll. Before the English conquest in 1664, there were or had been at least five graduates of European medical schools resident in New Amsterdam. Perhaps the most important of these was Dr. Johannes La Montagne (ca. 1595–1670), who received his medical degree from the University of Leiden and arrived in New Netherland in 1637, but was more important as a member of the colony's council, and later served as vice director.

Most of the medical practitioners in the colony were barber-surgeons—men who had trained during an apprenticeship lasting from two to nine years (Bridenbaugh 1964:90–91; Sloan 1996:6–7; Shorto 2004:75). In seventeenth-century Europe, professional medical care was generally distributed among three groups of practitioners: physicians, apothecaries, and barber-surgeons. Physicians had university degrees and saw themselves as being in a supervisory role over the apothecaries and surgeons. They also prescribed medicines for internal consumption. Apothecaries prepared and sold the medicines. Surgeons treated external disorders such as wounds, breaks, and tumors, and performed surgery. In practice, there was a great deal of overlap between these professions, and the services an individual performed varied from town to town (Jütte 1989:189; Sloan 1996:2–7).

In general, only the affluent could afford a professional physician, and as a result there were very few of them in each town. For its population of 40,000 in 1628, the city of Haarlem had only nine. Some towns kept a physician on the municipal payroll to treat the poor for free, but in general, those desiring professional medical care utilized the services of barber-surgeons (Van Deursen 1991:237).

The surgeons' educations varied. In the Dutch countryside there was no regulation of surgeons and some had little or no training (Van Deursen 1991:237). Within the towns, each medical practitioner had his own guild, requiring apprenticeship to and practice under a master. Sometimes the barbers and surgeons were in the same guild and sometimes they were separate. In the seventeenth-century North Holland town of Graft the apprenticeship lasted 5 years. At the end of the apprenticeship, the candidate was permitted to take a test to be permitted to open his own barber-surgeon practice. This included demonstrating a proficiency in making bandages, preparing and applying a *cauterium potentiale*,[3] making lancets, and dissecting part of a corpse. Oral examination may have followed and would have included questions regarding knowledge of veins and nerves (Venema 2003:128–129).

Ships' surgeons, as the lone medical men onboard—a position in which all the practicing New Netherland surgeons seem to have begun their careers—were forced to act as physician, surgeon, and apothecary (Sloan 1996:109). This is evident from the surgeon's chests of various periods that have been recovered from shipwrecks. From the Dutch ship *Amsterdam*, which sank in 1749, came

[3] A cauterizing salve used to stop bleeding and burn away putrid tissue, as opposed to cauterization by hot metal implements.

parts of three enema syringes, including a narrow wooden nozzle, in addition to a number of white tin-glazed drug/ointment jars (Marsden 1985:128,153,159). The more complete surgeon's chest from the English *Mary Rose* (1545) held approximately 60 items, including turned wooden ointment canisters, wooden spatulas for applying or mixing ointment, stoneware medicine bottles with cork stoppers, a glass bottle, a pear-shaped wooden bottle with top identified as a feeding bottle, a possible trepan (T-shaped instrument for drilling the skull), a pewter canister, wooden bowls, and wooden handles for now-decayed metal surgical instruments. A separate chest, possibly that of an apothecary, contained a balance and weights, two wooden handles for small tools, as well as an octagonal wooden plate or mixing palette (Richards 1997:95,97,pl. 2D). Items believed to have belonged to the surgeon of the Spanish *San Diego* (1600) included two large albarelli, small lead weights, and several mortars and pestles. The missing metal instruments are amply illustrated in John Woodall's 1617 manual, *The Surgion's Mate*, and included forceps, various cauterizing irons, trepans, and saws (Desroches et al. 1996:176–179).

The medicine and instrument assemblages represented by Woodall likely represent a level of completeness that few surgeons attained. Probably more typical was the ship's medicine chest from a seized Swedish vessel that the New Amsterdam authorities assessed at five guilders (1654). The chest could not have been very elaborate, since the same inventory gave that value to a crowbar (O'Callaghan 1856:2.16). Two surgeon's chests were noted in the 1665 probate inventory of Gysbert van Imbroch (also spelled Imborch, Imbroecke, Imbroecken, etc.) a surgeon at Esopus (now Kingston, New York), but the contents are not described. Other items relating to Van Imbroch's profession are recorded, including both a copper and white tin-glazed shaving bowl (possibly used for bleeding), an enema spout, three balances and weights, a barber's saw and grindstone, a glass with oil of juniper (a diuretic), a glass with a yellow medicine (Eekhof 1914:163–164; Van Buren 1923:139–140), a box with senna leaves (a strong laxative) and other herbs, a skin-iron (a cauterizing iron?), three medical syringes, a barber's case with instruments, a bottle with "purfumery and fumigating matter," an iron mortar and stamper, a plate with eight razors and five pairs of scissors, a comb holder with five combs, a barber's chair, and a blue shaving towel (Versteeg 1976:567–570).

Van Imbroch was also quite a bibliophile, leaving a library that included 17 volumes identified as surgical texts or simply "*medecijn boeck*" (medicine book) (Eekhof 1914:163–164*n*).[4] Noteworthy among these is an edition of Cornelis Herl's *Examen der Chyrurgie* (Examinations in surgery), the earliest Dutch-language surgery text, first printed in 1625. It covered the circulation of the blood and the dosing of purgatives, emetics, and opiates. The title page of the 1663 edition of the book described the contents as

[4] The identifiable authors include the famous French surgeon Ambrosius Paré (1517–1590); Giovanni de Vigo (1450–1525), the pope's personal surgeon; and what appears to be a translation into Dutch of Nicolaes Tulp's 1641 *Observationes Medicae* (Medical observations). The *medicijn boecken* were not limited to surgery, and the works of Christopher Wirtsung (ca. 1505–1570), and Quintus Apollinarem (Walter Hermann Ryff, active 1539–1549), included herbal remedies as well.

"for all young surgeons, very beneficial, and useful, especially those that are going to the East or West Indies"[5] (Herl 1663). As the son-in-law of the affluent and influential Dr. La Montagne, Van Imbroch cannot be considered the average surgeon, but his library does suggest that some surgeons were much more than barbers.

In New Amsterdam itself there seems to have been no great discrimination between the two levels of medical practitioner. The barber-surgeons were given the honorific "Mr." (*Meister* = Master), and the courts relied on a few of the more trusted surgeons for expert medical opinions in relevant cases.

One of the most respected was Jacob Hendricksz Varrevanger, a surgeon employed by the WIC from about 1647. He petitioned the company to establish a *gasthuys* or hospital for its sick soldiers and slaves. Varrevanger had identified an important loophole in the WIC company health care plan—the care of convalescents, especially soldiers and other company employees who did not have families in the colony. Varrevanger reported to Director-General Stuyvesant and the council in 1658:

> that such sick people must suffer much through cold, inconveniences, and the dirtiness of the people who have taken the poor fellows into their houses, where bad smells and filth counteract all health-producing effects of the medicaments given by him, the surgeon. Death has been the result of it in several cases and more deaths will follow (Wilson 1892:298).

Varrevanger identified a suitable place near his own home for the hospital (the north side of Bridge Street between Whitehall and Broad Streets, (Fig. 3.3), and requested an attendant to assist the patients with fire, food, and light. Soldiers were to pay for care out of their own wages and rations, while the "Company Negroes" were treated at company expense, "or as advisable." The company appointed a matron, Hilletje Wilbruch, in 1658, and built the tiny hospital in 1659 (Wilson 1892:298,300; Stokes 1916:260).

The WIC generally gave its physicians a set salary. According to memoranda in the 1638 minutes of the New Netherland Council, barber-surgeon Jan van Essendelft, working at a company outpost on the South (Delaware) River, was paid only $f10$ per month, or $f120$ per year (Van Laer 1974:4.14), at a time when the yearly wage of a skilled worker in the United Provinces was about $f130$ per year (Schama 1987:617). The salary may have been a commentary on Van Essendelft's skills, since it was substantially below the salaries of lower level officers and master craftsmen, who were receiving from $f20$ to $f40$ per month, and on the same level as a quartermaster and an assistant gunner. Perhaps to compensate for the difference in wages between the New and Old Worlds, company employees in this salary tier also received living expenses of $f100$ per year, although this is not recorded with respect to Van Essendelft (Van Laer 1974:4.13–15). Based on a slightly later salary list, Dutch historian Jaap Jacobs places surgeons somewhere in the middle of the second level of company employees, beneath the schoolmaster, equivalent to the captain of a sloop and an assistant commissary, but above most craftsmen (Jacobs 2005:342–343).

[5] "Alle jonge Chyrurgijns seer nut, endienstigh, insonderheyt die haer naer Oost-ofte West Indien begeven."

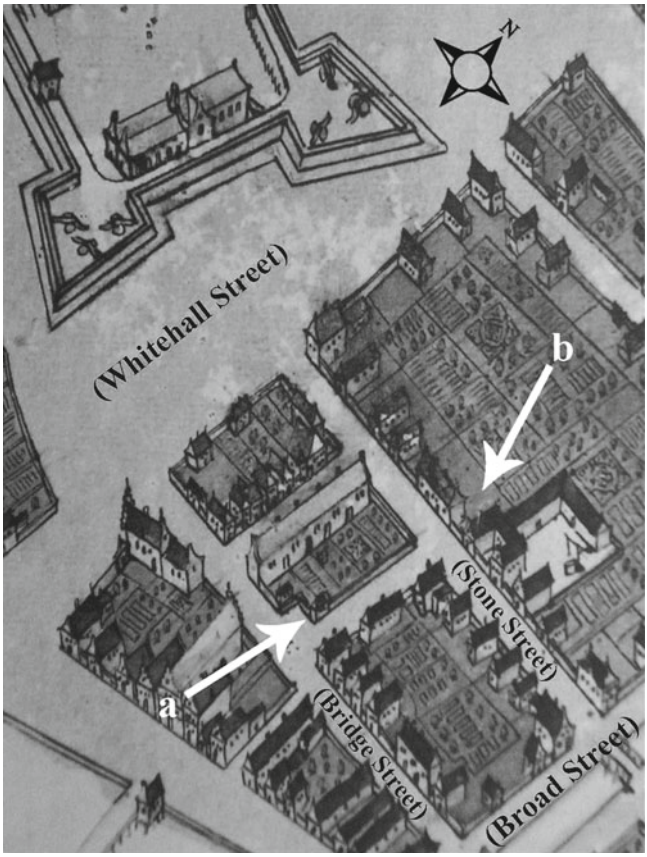

Fig. 3.3 Castello Plan, detail showing the blocks north of Pearl Street between Whitehall Street and Broad Street, (**a**) indicates the West India Company *gasthuys*, or hospital, (**b**) gives the location of Harmen Myndertsen van den Bogaert's lot on the north side of Stone Street (Stokes 1916:C.pl.82c)

As today, fees varied by the reputation and experience of the practitioner. Often, when treating non-WIC personnel, the surgeons would charge for care over a long time period, usually a year. For Mr. Jacob Huges (or Vuges), a year's worth of care seems to have ranged between *f*6 and *f*9[6] (Fernow 1976:3.386,4.40). Huges fees were quite reasonable, as one patient complained that "his wife lay with a severe accident and agreed with him for [*f*8] a year, but Mr. Jacob [Huges] had not come to see after his wife; was therefore obliged to call Mr. Hans [Kierstede], to whom he must pay fully three times as much" (Fernow 1976:3.386). In specie-starved New Netherland, payment was often in kind, most popularly the guilder-equivalent in beaver pelts or sewan (wampum)[7] (Fernow 1976:1.321,4.305,6.272).

[6] Recorded in separate court cases as *f*9, and *f*8 in 1661, *f*6 11st in 1662.

[7] Despite the "equivalency," coins were more valuable: *f*1 sewant = *f*5/16 specie (Gehring and Schiltkamp 1987:xxix).

An examination of 20 years of surviving New Amsterdam court records (1653–1674) indicates a number of things about medical practice in the colony. Malpractice suits were few, and most of the lawsuits were filed against the *patients*, who failed or refused to pay for various reasons. Mr. Huges seems to have been particularly plagued by this (e.g., Fernow 1976:3.365–386), perhaps because his low fees attracted the people who were least able and likely to pay. Dr. La Montagne, on the other hand, does not appear in the court records at all, at least in reference to medical practice. Most of the medical cases recorded tend to be flesh wounds and bone breaks, the usual results of accidents (e.g., Van Laer 1974:1.263) and knife fights (Van Laer 1974:1.26, 92–93,151–152). This is not surprising given the source of the information, but the incidents seem to have been rampant in a town in which a fourth of the buildings had become "houses for the sale of brandy, tobacco, or beer" (Brodhead 1853:487), and bans on fighting had to be repeated continually. As is the case with gunshot wounds today, New Netherland surgeons were required to question their patients and report suspicious cuts and stab wounds to the authorities (Jacobs 2005:451–452).

Unfortunately, although mention is made of "medicaments" prescribed, the particular medicines used in these cases are not mentioned. One of the saddest cases, although intriguing because it provides an above-average amount of information regarding the illness and treatment, was that of an enslaved African woman in September 1653 (Fernow 1976:1.362–363).

Nicolaes Boot purchased the woman from Teunis Kray, who was conducting her to Boot's house from a ship just arrived from the West Indies. "[T]he said negress fell to the ground … whereupon she cried 'Ariba.' On standing up she could not well hold her feet, and was brought 10 to 12 paces farther on, when she again fell down; her eyes standing fixed in her head and something white being seen in her mouth."

The carpenter of the ship came, and Boot asked him what was wrong with her. "[T]he negress then answered—'More! More!' which the carpenter rendered into Dutch, saying, the negress is drunk; it will soon pass away; she is sound at heart."

Boot asked Mr. Jacob Huges to come to his house; about 3 or 4 p.m. "[H]e, as a surgeon felt for the pulse, and there distinguishing no pulse at all; yea no more than a dead man; he said to Boot's wife, that she must prepare some sugarsops, and see if the negress would swallow some, and give her something else, when he should further prescribe."

Huges had no further chance at treatment. He was called again at 9 p.m. "On arriving there he found her very low. She died immediately, within half an hour in their hands." Nicolaes Boot sued both Teunis Kray and Mr. Huges, but the outcome of the case is not recorded.

The court records describe no other prescription or treatment, aside from the sugar sops, which according to the 1811 *Dictionary of the Vulgar Tongue* are "[t]oasted bread soked in ale, sweetened with sugar, and grated nutmeg: it is eaten with cheese" (Grose 1811). Although sugar had long been recognized as a stimulant, and Dodoens declares it to be "extremely good in food or drink … for the sick as well as the healthy" (Dodoens 1644:1,384), the recipe appears to be a snack rather than a medication. This suggests that Huges thought the woman was suffering from lack

of food or exhaustion. On the other hand, sugar sops may be a seventeenth-century hangover remedy.

Another medicine appears in the documentary record in 1652, when the barber-surgeons of New Amsterdam petitioned Stuyvesant and the council about unauthorized medical practitioners. "Three such practitioners are known to have made pills and sold Vienna drink," they complained. Historian James Grant Wilson described Vienna drink as made from rhubarb and senna steeped in port wine (Wilson 1892:298). Modern pharmacological analyses indicate that senna was a powerful laxative. Senna, from the genus *Cassia*, of which *Cassia marilandica* is a native American species, is a member of the pea family. The rhubarb and wine are omitted in the modern formulations, but diluted alcohol actually helps to extract senna's laxative properties, and also removes its nauseous odor and taste (Remington 1918:s.v. Senna). The 1644 edition of Dodoens notes that rhubarb is a gentle laxative, and more importantly, served to relieve cramps in the stomach, kidneys, and liver (Dodoens 1644:637), a powerful side effect of senna. In 1673, surgeon Hans Kierstede successfully employed rhubarb and senna leaves in the treatment of Hendrik de Zeewantrijger,[8] who was suffering from a stab wound in the abdomen, and apparently had been unable to relieve himself (Eekhof 1914:166).[9] Concoctions of rhubarb, senna, and several other herbs steeped in ale seem to have been considered a health drink, good for both the healthy and infirm. Gerard wrote that the recipe "purifieth the bloud and makes yong wenches look faire and cherry-like" (Gerard 1998:99–100).

The prominence of a powerful laxative fit in well with the practice of humoral medicine, which sought to return the body to its natural balance of humors by purging of the body of one or another of its fluids. Barber-surgeons also used more direct means, namely bleeding. The practice is mentioned early in New Netherland history (1623), when Jan Price, the barber-surgeon on board the ship *Maeckereel*—the first recorded WIC ship to visit New Netherland—bled some of the Indians in exchange for animal pelts (Condon 1968:153; Bachman 1969:52*n*).

Barber bowls, large basins placed under the chin of a customer, and with a cut-out rim to accommodate the neck, were not just adjuncts to shaving, but could also be used in bleeding patients. Both a copper- and a tin-glazed earthenware example have already been noted in the Van Imbroch inventory.

An artifact unambiguously associated with the infirm is the bedpan, called a *bed-depan* or *ondersteek* in Dutch. It would have been employed by those too sick to leave bed and use the chamberpot or outhouse. None have yet been identified in New Netherland. The late seventeenth-century, lead-glazed white earthenware example shown in Fig. 3.4 was recovered in Amsterdam (Schaefer 1998:95,145). Note the smooth edges to prevent it from snagging on bedclothes as it was pushed under the patient, the folded-in rim to prevent spillage, and the handle that doubles as a pouring spout.

[8] Literally, Hendrik the sewan (wampum) stringer, that is, a man who strings sewan beads.

[9] Unfortunately, recovery was not proceeding quickly enough for Hendrik's friends, and they gave him a half-pint of goat's blood to drink. He died the next morning (Eekhof 1914:166).

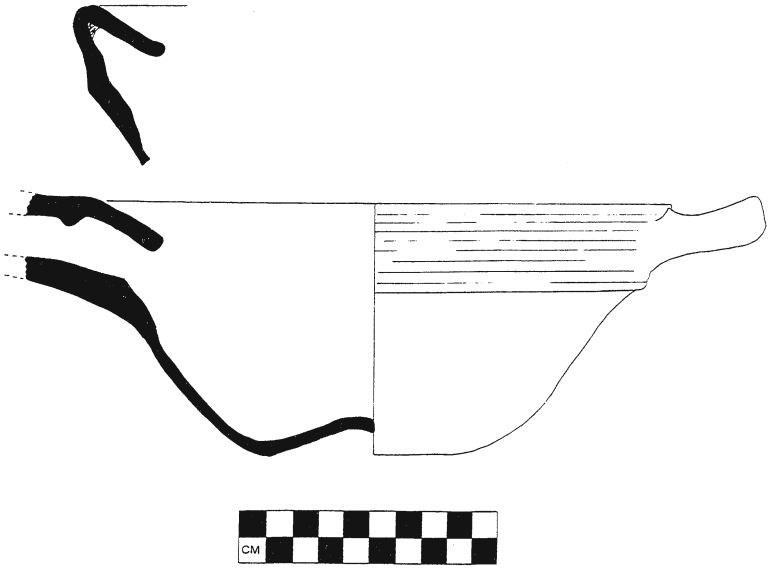

Fig. 3.4 A Dutch seventeenth-century *beddepan* (bedpan), white earthenware with lead glaze, horizontal ear handle (right), hollow rod handle, which also served as a spout (left) has broken off. Excavated in Amsterdam (Taanstraat BP3 A-8). (Drawing by author)

Another artifact is the ointment jar, or *zalfpot* (Fig. 3.5). A number of these have been recovered in the Hudson Valley (Huey 1988:417–418,714,717) and may have contained medicines or even cosmetics. They were made in utilitarian red or white earthenware, or in more expensive white tin-glazed earthenware (Fig. 3.5a, b). The latter form is related to the traditional apothecary's drug jar, known as an *albarello*, which is still manufactured today, although more for its decorative character than for holding medicines. The constricted neck and flaring lip of this family of containers make it possible to seal the container with a piece of parchment or bladder tied with a string.

Written records make some mention of medicines being imported from Europe, with the most detailed list from a shipment of medicines sent in 1663. Stuyvesant ordered the shipment for an "English preacher[10] versed in the art of Physick and willing to serve in the capacity of Physician" (Singleton 1909:241). The organic entries on the list included 3 lb of white and 3 lb of black hellebore root (*Helleborus albi* and *H. niger*, commonly known as the Lenten and Christmas rose), 1 lb of opium, and 19.5 lb of oil of terebinth (turpentine, from *Pistacia terebinthus*, a European tree) (Eekhof 1914:165*n*). In general, pharmaceutical oils were used in various combinations as plasters and healing lotions for swellings and wounds. Not only did this require the proper medicinal herbs and the necessary distilling appara-

[10] Singleton (1909:241) suggests this refers to Rev. William Leverich.

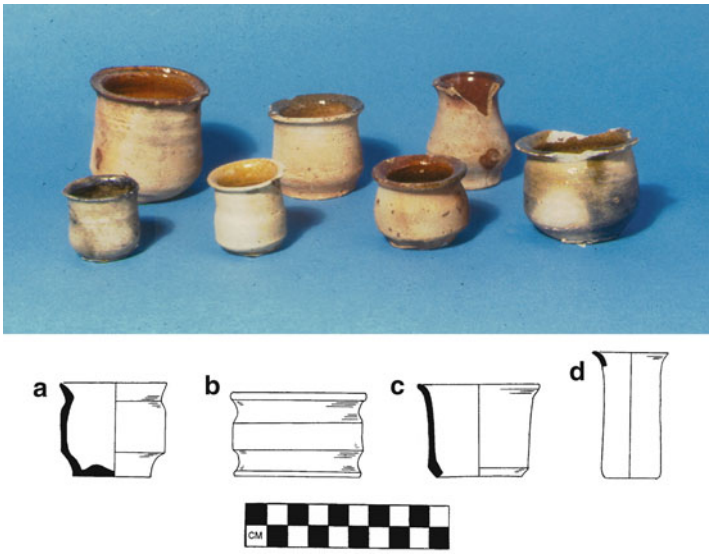

Fig. 3.5 Top: Seven Dutch earthenware *zalfpotten* (ointment pots), unglazed exterior, lead-glazed interior, ca. 1600–1625. Excavated in Amsterdam. Bottom: (**a**) Tin-glazed (faience) earthenware *zalfpot*, albarello form, excavated in Amsterdam (Ph-152 BP-16); (**b**) Tin-glazed (faience) earthenware *zalfpot*, wide form ca. 1650–1700, excavated in Amsterdam, drawing after Baart et al. (1977:fig. 534); (**c**) White earthenware *zalfpot*, unglazed exterior, lead-glazed interior, excavated in Amsterdam (Taanstraat BP1 A-1); (**d**) Grey stoneware *zalfpot*, coagulated salt glaze with black specks, excavated in Amsterdam (Taanstraat BP5 A-10). (Drawings and photograph by author)

tus, but also an experienced distiller/herbalist. The glass distillation equipment had to be ordered from the Netherlands, and securing the herbalist was even more problematic, because "[p]ersons of such great qualities are very rare, even in the Netherlands, and seldom travel to the Indies" (Michel and Werger-Klein 2004:465–467). This last piece of information explains the reason Stuyvesant went out of his way for an *English* preacher, when there were surgeons and even a university-trained physician resident in the colony. The Englishman had expertise in distilling. In addition to the medical supplies, the order lists sections of an alembic or distilling apparatus, including ten glass retorts, four large and three smaller glass receivers, and three glass heads (Eekhof 1914:165*n*).

In spite of these activities, the WIC does not seem to have provided medicines in sufficient quantities. The need in New Netherland was more acute than we may realize, considering that most of the plants comprising European remedies did not grow wild in the New World. In 1654, the company compensated Mr. Varrevanger, then a former employee, for importing medicines from Holland at his own expense since 1652 (Gehring 1983:146). If the surgeons' medicinal requirements were not provided by the company, it is probable that they grew the plants themselves or got them from other colonists. Documentary evidence associates only two medical practitioners with the cultivation of healing plants.

In September 1659, Stuyvesant requested that the company directors send over "some medicinal seeds and plants" for cultivation in New Amsterdam. The directors answered in December that "the seed would be ordered from the Hortus at Leyden and would be sent herewith" (Bangs 1912:11; Stokes 1922:199,201). The seeds were to be the charge of the newly arrived rector of the Latin School, Alexander Carolus Curtius, a "professor in Lithuania," who also practiced as a physician (Brodhead 1853:656). In 1660, the directors wrote, "As we are told, that Rector Curtius practices medicine there and therefore asked to have an herbal sent to him, we have been willing to provide him with one herewith, you will hand it to him with the understanding, that it shall not cease to be the property of the Company" (Brodhead 1853:694; Stokes 1922:205).

The logical places for the location of this New Amsterdam *hortus medicus* would be on the lot of the rector's house, which—if the Castello Plan is consulted—seems to be an unplanted courtyard with a well, near the northwest corner of Broad Street and Exchange Alley; or the extensive WIC Gardens on the west side of Broadway north of Exchange Alley, laid out along the Hudson River in 1638 (Fig. 3.6). A number of parterres of all types are depicted in the WIC Gardens, and it is plausible that at least one small section served as a medicinal garden. Clusius's famous garden at Leiden was quite small, only about 115×130 ft. (De Jong 2000:135), so size was probably not a constraint. This location would fit in well with the company's apparently paternal intentions, i.e., to furnish the land for the *hortus medicus*, and at the same time retain possession of the hortus (and the herbal reference book), so that it could be maintained should the medical practitioner depart company service, as Curtius was soon to do in 1661.

At least one private medicinal garden also existed. In his *Beschryvinge van Nieuw-Nederlant* (Description of New Netherland), Adriaen van der Donck wrote that "a certain surgeon had made a very beautiful garden / and also he was a botanist / many medicinal things from the wild were planted there." Van der Donck then presents a list of "healing herbs," in addition to unnamed native herbs and trees, "among which there undoubtedly are good simples" (Van der Donck 1656:24, 1968:28).

In order to determine where this private *hortus medicus* may have been, it is first necessary to determine the identity of the surgeon. The best candidate is Harmen Myndertsen van den Bogaert (1612–1648), who had presumably served an apprenticeship as a barber-surgeon, arriving in New Netherland in May 1631 as the surgeon of the ship *De Eendracht* (Brodhead 1853:419; Van Laer 1974:1.271–272).[11] He was employed by the WIC in a number of positions, most importantly as leader of an important trade and diplomatic mission to the Mohawk Indians in 1634, at the ripe old age of 22. It is not clear why the company chose him as one of the three men on the mission. It may have been because he was able to communicate in the Mohawk language, but apparently was neither fluent nor particularly knowledgeable. According to Dominie Megapolensis, Bogaert said "that he was of the opinion that the Indians changed their language every 2 or 3 years" (Jacobs 2005:28). As a

[11] A popular, dramatic account of Bogaert's history has been published by Russell Shorto (2004).

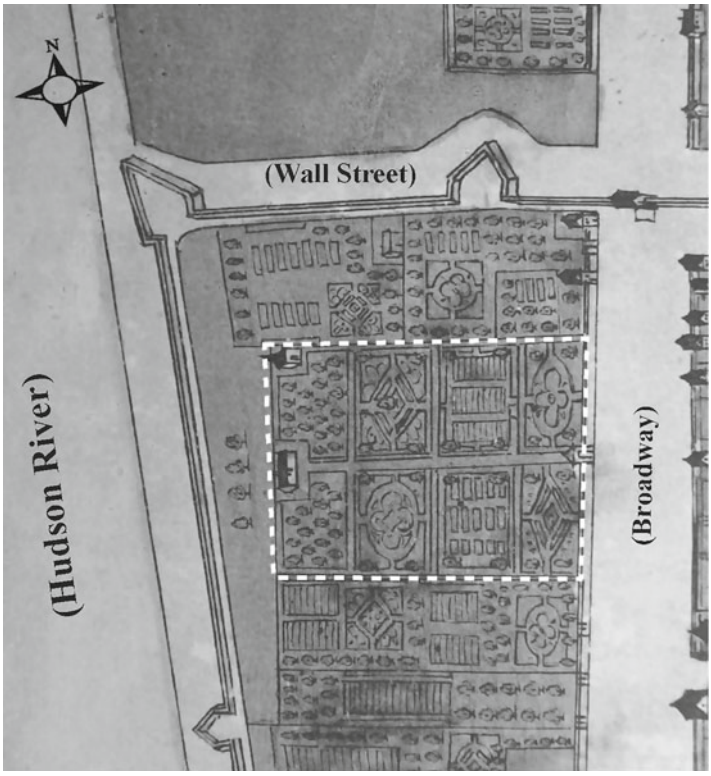

Fig. 3.6 Castello Plan, detail showing Broadway south of Wall Street. The white broken line gives the approximate boundaries of the Dutch West India Company Gardens, possible site of a company *hortus medicus* (Stokes 1916:C.pl.82b)

barber-surgeon he had a certain status among the Indians, who respected healers and were apparently not unaware of his training (Meuwese 2003:142–143), since he was specially invited to view healing rituals on at least two occasions (Gehring and Starna 1988:17–18).

Perhaps seeking additional excitement, in 1638 Bogaert sailed on a privateering mission against the Spanish in the West Indies. The ship was the frigate *La Garce*, of which he was a partial owner (Gehring and Starna 1988:xxi). Later, from August to September 1639 he served as supercargo on the yacht *Canarivogel*. Even after his seafaring career was over, probably not coincidental with his marriage to Jelisjen (or Gelisje) Swits in 1639, he acquired additional shares in *La Garce* in 1647 (Van Laer 1974:3.436–437, 4.59).

In 1640 he was appointed commissary of stores on Manhattan, but in 1645 went back north to serve as commissary at Fort Orange (Brodhead 1853:419,491; Gehring and Starna 1988:xxi). Although Bogaert obtained official title to a plot of land on Stone Street in New Amsterdam in 1647 (Fig. 3.3) (Stokes 1916:251, 1922:109), he is noted as owner by September 1645 (Gehring 1980:30), and New Amsterdam

historian J. H. Innes also reports that Bogaert was living there by 1645 (Innes 1902:68–69). The lot itself had an 85.5 ft. frontage on Stone Street, and extended between 135 and 150 ft. into the center of the block, narrowing to 66.5 ft. (Gehring 1980:53), but there seems to be no mention of a house, although one appears there on the Castello Plan in ca.1660.

While in New Amsterdam, Bogaert's one recorded court appearance as an expert medical witness occurred on 11 April 1643, when he gave his opinion that Philip Gerardy's wound was not fatal "at present" (Van Laer 1974:3.112–113).

Bogaert and his wife produced two sons and two daughters, and the couple appears to have been fairly prosperous. Following the 1641 death of his father-in-law, Claes Cornelissen Swits, Bogaert inherited Swits's plantation along the East River in the present Turtle Bay section of Manhattan, which he sold for 160 Carolus guilders (Van Laer 1974:3.40–41).

Bogaert came to a sad end in early 1648. While at Fort Orange he was caught in flagrante with Tobias, a male African slave owned by the company. Bogaert escaped by fleeing into Indian territory, fortifying himself in a Mohawk longhouse. The building was set afire, destroying a large quantity of pelts, wampum, and grain stored there for the winter. Bogaert was captured. His offense was considered so heinous that Stuyvesant decided to sit in judgment himself, even though it was necessary to wait until spring so that he could make his way up the iced-over Hudson from Manhattan. Bogaert managed to escape again, and in the pursuit across the frozen river, the ice broke and he drowned (Gehring and Starna 1988:xxi–xxii).

Stuyvesant compensated the angry Mohawk with the proceeds of the sale of Bogaert's "garden" (Innes 1902:71; Huey 1988:48), but this possibly refers to the lack of a dwelling there, rather than a lot in cultivation. No trace of a possible Bogaert *hortus medicus* remains to be shown on the Castello Plan, which depicts the location more than a decade later.

What scholars do have is the list of 42 healing herbs that Van der Donck recorded as present in New Netherland. Van der Donck was well educated, a lawyer with multiple degrees from the University of Leiden. He was not a botanist, however, which is evident from the punctuation and spelling of his list of healing herbs, and unless the errors can be attributed solely to the printer, it suggests that Van der Donck was not the original compiler. The healing herb list was published in at least three different works claiming to describe New Netherland. The earliest was the *Vertoogh van Nieu-Neder-land* (Remonstrance of New Netherland), which was published under Van der Donck's name in the Hague in 1650 (Van der Donck 1650):

> *Capilli veneris, Scholopentria, Angelica, Polupodium, Verbascum, Album Calceus facensores, vel Marie catriplex, Hortense&Marine, Chortium turites, Calannis, Arromaticus sassafrax coeis Virginarium, Rarunculus, Planfago, Bursa Pastoris, Malva, Origanum Genanium althea, Cineroton, Pseuto Daphne, Viola, Ireas, Indigo, Silvestris, Sigillum Solomonis, Sanguis Draconium, Consolida, Mille foluum*, veelderhande soorte van varen / verscheyde wilde Lelyen / *Agrimonium*, wilde Loock / *Carde-benedictus, Serpentaria,* Spaensche-vyghen die aende Bladers uytgroeyen / *Arragon,* ende heel veel andere planten en Bloemmen (Van der Donck 1650:7).

The *Remonstrance* was originally written and sent to the States General of the United Provinces in July 1649 as a list of complaints against Peter Stuyvesant and the mismanagement of the colony. Van der Donck was one of 11 signers (Van der Donck 1968:31–35).

The healing herb list was next published in Joost Hartgers's *Beschrijvinghe van Virginia, Nieuw Nederlandt, Nieuw Engelandt*, etc. (Description of Virginia, New Netherland, New England, etc.), which appeared in Amsterdam in 1651, but like the *Remonstrance* describes conditions in 1649. Hartgers either employs the *Remonstrance* list, or the same source that Van der Donck used, with slightly altered spelling and punctuation (Hartgers 1651:28). Van der Donck's own *Description*, first published in 1655, was an expanded version of the *Remonstrance*, and the list is expanded as well, with six additional plants: "Noli Metanghere," "Coriander, leke Pollen," and "Elaetine, Camperfoelie, Petum, manneken en wijfken" (Van der Donck 1656:24, 1968; O'Callaghan 1856:I.279).

The latest date on which the list could have been composed was July 1649, and if Van der Donck is discussing Bogaert's garden, the list dates to less than a year and a half after Bogaert's death in early 1648. Van der Donck tactfully concludes his account of the medicinal garden by writing, "unfortunately, the owner has removed and the garden lies neglected" (Van der Donck 1968:28). Since gardens are quite ephemeral, this short period of time without its gardener would fit the criterion of neglect.

Each of the healing herbs on Van der Donck's list, down to the familiar irises, lilies, and violas, had a medicinal use according to Nylandt and the various editions of Dodoens. It is interesting to note that of the 20 plants that Dr. Nylandt's "Dutch gardener" recommended for planting in a medicinal garden,[12] the two lists have only four plants in common, i.e., blessed thistle (*Cardobenedictus*), angelica (*Angelica archangelica)*, and two members of the mallow family, mallow (*Malva*) and the white or marsh mallow (*Althaea).* All were European natives, and would have been purposely imported and cultivated at New Amsterdam (Van der Donck 1650, 1656, 1968:28; Nylandt 1683).

The blessed thistle, now considered something of a weed, was then still appreciated for its medicinal powers. Among other uses, according to the herbals, the leaves boiled in wine and drunk provoke sweat and urine, and so were good for stomach cramps, removing internal blockages like gallstones, purging phlegm in the stomach and breast, promoting easier breathing, and "the natural sickness of women." A nutshell of the powder could cure the plague. The juice was a cure for all poisons, and the green herb for the bites of snakes, spiders, and scorpions, and for swellings, sores, and blotches (Dodoens 1554:569–570, 1644:1,154–1,555; Lyte 1619:383–384; Nylandt 1682:168–169).

Van der Donck lists numerous modern culinary herbs, fruits, and vegetables, such as figs, leeks, coriander, oregano or marjoram, and angelica. For some of these,

[12] Angelica, Aloë, Byvoet, Camillen, Carde Benedict, Centaurea, Galligan, Gentian, Haselwortel, Heemstwortel (Althea), Holwortel (Corydalis), Hipericon, Lepelbladen, Malve/Pappelen, Schelkruyt, Sinnau, Wintergroen, and Walwortel (Nylandt 1683).

their culinary importance was still secondary to their medicinal use. Presently, the candied stems of angelica are used in cake decoration, but the root of angelica was then considered an antidote to all poisons, driving them out by supposedly encouraging perspiration and urination. Among other benefits, angelica root was also believed to cure and provide protection from the plague, improve the appetite, and along with the leaves act as a general disinfectant, especially to cleanse wounds and heal bites from bees, snakes, and mad dogs. A cure for the plague consisted of powdered angelica root mixed into the distilled water of the blessed thistle. This was the summer recipe—the winter version was mixed into wine (Dodoens 1554:139, 1644:512–513; Lyte 1619:212; Nylandt 1682:290–291).

A number of familiar flowers were also still found among the healing herbs, including irises ("ireas"), violets, and two forms of mallow, the mallow (*Malva*) and white or marsh mallow (*Althaea*). The marsh mallow was recommended for all pains of the body, including kidney stones, sciatica, cramps, and toothaches, and for bloody diarrhea, coughs, various problems of the skin, such as sores, roughness, tumors, swellings, and even facial spots and freckles. The leaves were used to heal burns, scalds, the bites of dogs, new wounds, and bee and wasp stings. The mucilaginous quality of the roots was approved for creating salves and plasters (Dodoens 1554:621–623, 1644:1,022; Lyte 1619:419).

Mallow, of both wild and garden (hollyhock) varieties, had similar qualities to the marsh mallow. Among other uses, drinking the broth made from the root and leaves would cause vomiting as a remedy for all venoms and poison, while bathing in the broth was prescribed for hardness of the womb. Administered with a clyster it treated the ulceration and roughness of the bladder, womb, and anal tract. The seeds with wine were believed to increase the milk production of nursing mothers. Malva leaves could be used for wasp, bee, and scorpion stings, spider bites, and to draw out thorns and splinters. The roots roasted in ashes and pounded into a paste were recommended as a plaster to relieve the soreness of women's breasts (Dodoens 1554:618–620, 1644:1,017–1,021; Lyte 1619:416–418).

It is notable that Van der Donck's list includes only three identifiable plants native to eastern North America.[13] Two of these, sassafras (*Sassifrax*) and "petum," had been introduced into Europe at the end of the sixteenth century, and their characteristics and uses were already published in seventeenth-century herbals (Dodoens 1644:739–742, 1,463; Nylandt 1682:212–214).

Sassafras, an unruly shrub in the northern United States, was introduced into Europe by Spanish explorers, and sassafras tea became vastly popular in Europe as a cure-all, even being sold from street stalls in England. It was believed to strengthen the stomach, liver, and bowels, and be useful for all sicknesses involving internal stoppages or obstructions, such as jaundice. The 1644 edition of Dodoens noted that it was "most used" as a cure for syphilis. Not surprisingly, this caused the public drinking of sassafras tea to fall from fashion (Dodoens 1644:1,463; Lehner and Lehner 1962:112).

[13] "Identifiable" is the operative term here, since *Rois Virginarium,* obviously a New World native, may be the Virginia rose, or it has been suggested that "Rois" may be *Rhus,* and therefore a species of sumach.

Petum or petun, words taken from an indigenous South American language via Portuguese, is tobacco. Tobacco was another perceived cure-all, believed to relieve everything from labor pains to bad breath, and to protect against the plague. The juice and leaves were used for wounds as a purgative. As noted earlier, the inhaling of the smoke was believed by some to help cure asthma and other respiratory ailments (Culpeper 1990:177), although many in the medical professions were already either skeptical of the benefits of tobacco smoke or wary of its abuse. Some tended to rely more on the juice from the leaves and roots (Dodoens 1644:740–742; Gerard 1998:93), while others were openly hostile to the plant's use, and a large body of anti-tobacco literature appeared during the seventeenth century (e.g., Paulli 1746 [1665]).

Like the unidentified wild lilies and ferns, which Van der Donck mentions in passing, the third American plant which he calls "Serpentaria" *(Aristolochia serpentaria*) and "Slange-kruyt" (snake-herb) (Van der Donck 1650:8, 1656:45) would have been familiar and unthreatening to Europeans because several close relatives of this plant were European natives, namely *A. longa* and *A. rotunda.* There is a certain level of confusion in the herbals regarding the members of this genus (e.g., Fuchs 2001:XXXI). Nylandt includes what he calls "Hol-wortel," or *Aristolochia fabacea,* in his list of medicinal herbs (Nylandt 1682, 1683:212), but other publications recognized it as a distinctly different plant, today known as *Corydalis cava* (Dodoens 1554:352, 1644:524–527; Lyte 1619:228).

From Van der Donck's designations serpentaria and snake-herb, and the common English name Virginia snakeroot, it is fairly obvious that the plant was used to cure the bites of snakes and other poisonous animals. Dodoens and Nylandt both describe the treatment, effected by placing *Aristolochia* root on the wound or drinking the root in wine (Dodoens 1554:350, 1644:523; Lyte 1619:227; Nylandt 1683:212). What is interesting about the Virginia snakeroot is that European colonists seem to have adopted its use from observing the Indians.

In the *Remonstrance,* Van der Donck mentions serpentaria in connection with his description of rattlesnakes:

> This snake is very malignant and not inclined to retreat before a man or any other creature. Whoever is bit by one runs great risk of his life, if not immediately attended to; but the best of it is, they are not numerous; and the true Serpentaria grows spontaneously here, which is very highly prized by the Indians, as being an unfailing cure (O'Callaghan 1856:1.279).

In his *Description,* he notes that "many of them [the Indians] always carry some of it, well dried, with them to cure the bites of those serpents" (Van der Donck 1968:58). Travelers and colonists from New England to North Carolina reported Native Americans chewing or mashing snakeroot and spitting or placing it on snakebites. Since the root also promoted sweating, Indians used it to treat fevers, among other ailments (Vogel 1970:51,373–374). Modern herbals describe it as a fast-acting "pure stimulant whose action is mainly employed in diverting the flow of blood outward, hence its "great reputation for snakebites" when taken internally (Hutchens 1989:289–290).

Van der Donck (1656:69) assures his readers that there must be many native healing herbs, but does not name them, and declares that "with herbs, roots, leaves

and suchlike that the land gives them, and of which they know the powers, without making compounds"[14] they cure everything from ulcers to wounds to venereal disease. In what may be an additional backhanded swipe at European medical practices, he notes that they "also do not esteem medicines and purgatives."[15] The more acute illnesses were treated by fasting and use of the sweat lodge. If these failed, they resorted to consulting what Van der Donck refers to as "the Devil," but he is surprisingly unjudgmental in this regard (Van der Donck 1656:69, 1968:95). This is possibly due to the fact that the *Description* was intended to encourage Netherlanders to emigrate to New Netherland rather than frighten them away.

If the private *hortus medicus* were Bogaert's, one might expect more native American plants on the list, considering his Indian contacts. Of interest is the Mohawk wordlist appended to the journal of his 1634 trade expedition into Mohawk and Oneida country (Gehring and Starna 1988:52–63). As expected, most entries are words used in commerce, such as "kettles," "beaver," "to trade," and "sewan," but historian Marcus Meuwese (2003:121,131*n*) has noted that a number of the words are related to Bogaert's medical background. The list includes Mohawk terms for "sick," "death," "woman in labor/pregnant woman," "to make medicine," "to heal," and 19 terms for parts of the body from "head" to "feet" (Gehring and Starna 1988:52–63). This suggests that he took some interest in Indian healing methods. Bogaert also records viewing at least two Indian medical procedures. Near the end of the first he seems to have fled the house to avoid being struck by hot ashes and embers that were being flung about. The second involved a great deal of perspiration accompanied by singing, clapping, and dancing. It culminated with the two Mohawk doctors vomiting all over the sick man's body. Bogaert did not marvel at the Indian's herbal prowess as did Van der Donck, but he also did not condemn the rituals (Gehring and Starna 1988:10,17–18).

Although the documentary evidence is clear that there was at least one *hortus medicus* in New Amsterdam, the available archaeological evidence of New Amsterdam gardens in general is practically nonexistent. This is due to a combination of factors, mainly the shallow nature of garden remains, and the intensive construction episodes that have taken place in Lower Manhattan. The possibility of data recovery from the two prime locations identified for the *hortus medicus* is unlikely because of the deep foundations of existing buildings. The site of the WIC Gardens, on the west side of Broadway between Wall Street and Exchange Place, is presently beneath three office buildings of between 21 and 33 stories. Similarly, Bogaert's garden plot, on the north side of Stone Street between Whitehall and Broad Streets, is occupied by an 8- to 32-story building with an underground parking garage (Sanborn Map Company 2003).

In general, a possible archaeological survivor would be the remains of flowerpots (Fig. 3.7). A noted component of seventeenth-century Dutch garden layout, flower

[14] "met Kryden Wortelen/ Bladen en diergelijcke dat het Landt haer gheeft/ en sy de krachten van kennen/ zonder compositen te maecken"

[15] "houdenoock van geen *Medicineren* en *Purgeren*"

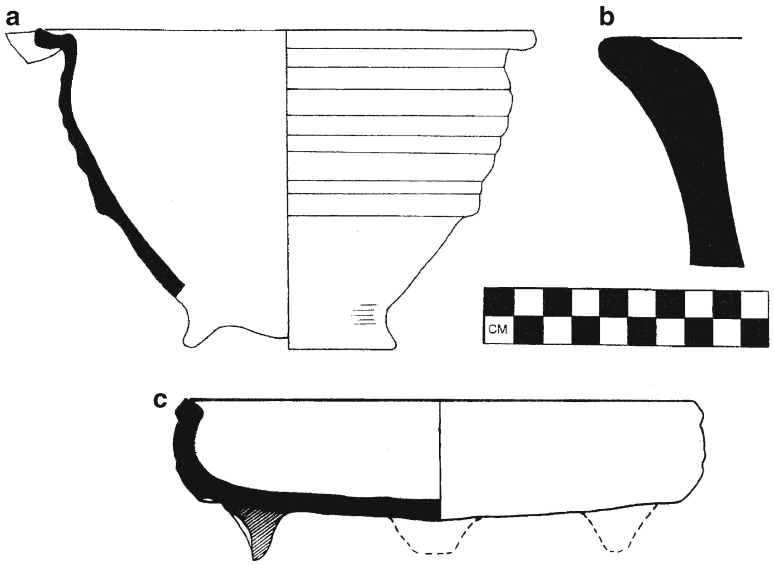

Fig. 3.7 (**a**) *Bloempot* (flowerpot), seventeenth century, red earthenware, unglazed, stump of an ear handle at the rim, drainage holes in base. Excavated in Amsterdam (Taanstraat BP1 A-1); (**b**) *Bloempot* (flowerpot), seventeenth century, red earthenware, lead glaze. This large (d. approx. 45 cm, ht. 33 cm), baseless planter, a product of the Croonenburgh pottery in Bergen op Zoom, the Netherlands, was manufactured in four sections, each with a decorative handle, and most likely intended to be sunk into the ground to hold a shrub or small tree; (**c**) Flowerpot "saucer," seventeenth century, unglazed red earthenware, with three shell-shaped lobe feet. Excavated in Amsterdam (OZA A-30). (Drawings by author)

pots and tubs were set out in the planting beds in the spring and taken indoors for the winter. Ceramic vessels could range from elaborate classically inspired urns to small, unglazed red-earthenware pots. The latter would have been useful indoors for providing fresh herbs during the winter months both for culinary and medicinal use, and were produced by some Dutch potteries during the seventeenth century. They appear occasionally both in Dutch art and in the ceramic assemblages from Dutch domestic sites, suggesting that they were not just the province of the affluent (Oldenburger-Ebbers 1990:169; Groeneweg 1992:s.v. bloempot; Schaefer 1998:85–86,141). None have been identified from New Amsterdam, however, and even in the Netherlands itself, they tend to be few and far between, at least in seventeenth-century domestic contexts (see e.g., for the towns of Nijmegen, Kampen, and Deventer, respectively: Clevis and Kottman 1989; Clevis and Smit 1990; Thijssen 1991; there are others). The heyday of the domestic flowerpot had to wait until the eighteenth century (Richards 1999:116–119).

Van der Donck's plant list records the presence of "Spaensche-vyghen" ("Spanish figs" in Nylandt 1682:19), which by his description are actually Indian figs. The plants would have needed some sort of winter protection. This could have been easily accomplished by wrapping the dormant plant or bringing it indoors. On the other

hand, most of the tropical plants that would have been planted in tubs, such as aloes and citrus fruits, required the construction of a special orangery or hothouse, something expensive to maintain even in the Netherlands itself (Oldenburger-Ebbers 1990:164–166). Such an unusual construction in New Netherland would not have gone unnoticed, but there is no record of one being built. Furthermore, wooden tubs would not be likely to survive in the archaeological record, and if they did, chances are that their use as planters would not be discernable.

Another possible source of information is from seeds and pollen preserved in undisturbed seventeenth-century contexts. Unfortunately, of the few excavated sites on Manhattan which fall within the geographical and chronological boundaries under discussion, seeds were analyzed only on the Broad Street site, the location of the WIC warehouse. For various reasons, about half the seeds recovered could not be identified at the time (Greenhouse Consultants 1985:X-30). Of the identified seeds from the context of 1640, half were European fruit pits, and another 45 were classified as "weeds." The main "weed" identified was purslane (*Portulaca oleracea*), a prized European salad green and medicinal plant, which may have been purposely planted by colonists, or because of its invasiveness, accidentally introduced. It is common on historical archaeological sites in the eastern United States (Raymer 2004:159), and thus its presence is inconclusive. Samuel de Champlain noted it in Quebec before the 1630s, where the Native Americans, who had no use for it, were futilely attempting to weed it out of their maize patches (Hylton 1974:542).

This discussion has only begun to tap the wealth of documentary information regarding medical practice in New Netherland, and in New Amsterdam in particular. Unfortunately, researchers must await the completion of future archaeological excavations in order to supplement the existing evidence, and bring it to life in the unique way that only archaeology can. It is hoped that this data is still preserved somewhere beneath the streets and buildings of Manhattan and other parts of New Netherland, awaiting the archaeologist's trowel.

References

Baart, J., Krook, W., Lagerweij, A., Ockers, N., Van Regteren Altena, H., Stam, T., Stoepker, H., Stouthart, G., and Van der Zwan, M. (1977). *Opgraving in Amsterdam: Twintig Jaar Stadskernonderzoek* (Excavations in Amsterdam: Twenty years of city-core investigation). Haarlem, the Netherlands: Fibula-Van Dishoek.

Bangs, C. R., & Bleecker, R. W. (1912). *Reminiscences of old New Utrecht and Gowanus*. New York, NY: Privately published.

Blackburn, R. H., & Piwonka, R. (1988). *Remembrance of patria: Dutch arts and culture in colonial America 1609–1776*. Albany, NY: Albany Institute of History and Art.

Brodhead, J. R. (1853). *History of the state of New York* (Vol. 1). New York, NY: Harper & Brothers.

Clevis, H., & Kottman J. (Eds.), (1989). *Weggegoid en Teruggevonden: Aardewerk en glas uit Deventer vondscomplexen, 1375–1750* (Thrown away and found again: Earthenware and glass from Deventer assemblages, 1375–1750). Kampen, the Netherlands: Stichting Archeologie IJssel/Vechtstreek.

Clevis, H., & Smit, M. (1990). *Verscholen in Vuil: Archeologische Vondsten uit Kampen, 1375–1925* (Hidden in dirt: Archaeological discoveries from Kampen, 1375–1925). Kampen, the Netherlands: Stichting Archeologie IJssel/Vechtstreek.

Cohen, P. E. & Augustyn, R. T. (1997). *Manhattan in maps 1527–1995*. New York, NY: Rizzoli.

Condon, T. J. (1968). *New York beginnings: The commercial origins of New Netherland*. New York, NY: New York University Press.

Danckaerts, J. (1913).*The journal of Jasper Danckaerts* (1679–1680), B. B. James & J. F. Jameson, editors. New York, NY: Barnes and Noble.

De Jong, E. (2000). *Nature and art: Dutch garden and landscape architecture 1650—1740*. Philadelphia: University of Pennsylvania Press.

Desroches, J.-P., Casal, G., & Goddio, F. (Eds.). (1996). *The treasures of the* San Diego. Paris, France: Association Française d'Action Aristique.

Dodoens, R. (1554). *Cruydeboeck* (Herb book). Antwerp, Belgium: Jan van der Loe. <http://www.leesmaar.nl/cruijdeboeck/index.htm>. Accessed 30 Aug 2006.

Dodoens, R. (1644). *Cruydt-Boeck* (Herb book). Antwerp, Belgium: Plantijnische Druckerij. <http://www.leesmaar.nl/cruydtboeck>. Accessed 30 Aug 2006.

Eekhof, A. (1914). *De Hervormde Kerk in Noord-Amerika (1624–1664)* (The reformed church in North America [1624–1664]), part 2. The Hague, the Netherlands: Martinus Nijhoff.

Fernow, B (Ed.). (1976). *The records of New Amsterdam from 1653 to 1674* [Court Records], 7 vols. Baltimore, MD: Genealogical Publishing Co.

Gehring, C. T. (Ed.), (trans: Gehring, C. T.). (1980). *Land papers,* vol. GG. Baltimore, MD: Genealogical Publishing Co.

Gehring, C. T. (Ed.), (trans: Gehring, C. T.). (1983). *Council minutes 1652–1654,* New York Historical Manuscripts—Dutch, vol. 5. Baltimore, MD: Genealogical Publishing Co.,

Gehring, C. T. (Ed.), (trans: Gehring, C. T.), & Schiltkamp J. A. (Ed.), (trans: Schiltkamp, J. A.). (1987). *Curacao papers,* New Netherland documents, Volume XVII. Interlaken, NY: Heart of the Lakes.

Gehring, C. T., & Starna, W. A. (Eds.), (trans: Gehring, C. T., & Starna, W. A.). (1988). *A Journey into Mohawk and Oneida country, 1634–1635: The journal of Harmen Meyndertsz. van den Bogaert.* Syracuse, NY: Syracuse University Press.

Greenhouse Consultants, Inc. (1985). The excavation of Augustine Heerman's warehouse and associated 17th-century Dutch West India Company deposits. Report to Fox and Fowle P.C. and HRO International, New York, NY. New York, NY: Greenhouse Consultants, Inc.

Groeneweg, G. (1992). *Bergen op Zooms Aardewerk: Vormgeving en decoratie van gebruiks aardewerk gedurende 600 jaar pottenbakkersnijverheid in Bergen op Zoom* (Bergen op Zoom's earthenware: Formation and decorations from utilitarian earthenware during the 600-year pottery industry in Bergen op Zoom). Bijdragen tot de Studie van het Brabantse Heem, Deel 35. Waalre, the Netherlands: Stichting Brabants Heem.

Grose, F. (1811). *Lexicon Balatronicum: A dictionary of buckish slang*. London, UK: C. Chappel.

Hartgers, J. (1651). *Beschrijvinghe van Virginia, Nieuw Nederlandt, Nieuw Engelandt, En d'Eylanden Bermudes, Berbados, en S. Christoffel* (Description of Virginia, New Netherland, New England, and the islands Bermuda, Barbados, and St. Christopher). Amsterdam, the Netherlands: Joost Hartgers. <http://digbijzcoll.library.uu.nl/lees_gfx.php?lang=nl&W=On&BoekID=46> and <http://stuyvesant.library.uu.nl/TableOfContents.asp>. Accessed 30 Aug 2006.

Hatfield, G. (1999). *Memory, wisdom and healing: The history of domestic plant medicine*. Phoenix Mill, UK: Sutton.

Herl, C. (1663). *Examen der Chyrurgie* (Examinations in surgery). Middelburg, the Netherlands: Françoys Crook.

Huey, P. R. (1988). *Aspects of continuity and change in colonial Dutch material culture at Fort Orange, 1624–1664*. Doctoral dissertation, Department of American Civilization, University of Pennsylvania, Philadelphia. Ann Arbor, MI: University Microfilms International.

Hunt, J. D. (1990). But who does not know what a Dutch garden is?: The Dutch garden in the English imagination. In J. D. Hunt (Ed.), *The Dutch garden in the seventeenth century* (pp. 175–206). Washington DC: Dunbarton Oaks Research Library and Collection.

Hutchens, A. R. (1989). *Indian herbology of North America* (15th ed.). Windsor, ON: Merco.
Hylton, W. H. (Ed.). (1974). *The Rodale herb book*. Emmaus, PA: Rodale Press.
Innes, J. H. (1902). *New Amsterdam and its people*. New York, NY: Charles Scribner's Sons.
Jacobs, J. (2005). *New Netherland: A Dutch colony in seventeenth-century America*. Boston, MA: Brill.
Jütte, R. (1989). A seventeenth-century German barber-surgeon and his patients. *Medical History, 33*, 184–198.
Lawson, W. (1983). *The country housewife's garden*. Reprinted from the 3rd edition. London, UK: Breslich & Foss.
Lehner, E., & Lehner, J. (1962). *Folklore and odysseys of food and medicinal plants*. New York, NY: Tudor Publishing.
Lyte, H. (1619). *A new herbal, or historie of plants.* London, UK: Edward Griffin. <http://www.zum.de/stueber/lyte>. Accessed 30 August 2006.
Marsden, P. (1985). *The wreck of the* Amsterdam (2nd ed.). London, UK: Hutchinson & Company.
Meuwese, M. P. (2003). *For the peace and well-being of the country: Intercultural mediators and Dutch-Indian relations in New Netherland and Dutch Brazil, 1600–1664*. Doctoral dissertation, Department of History, University of Notre Dame, South Bend, IN. Ann Arbor, MI: University Microfilms International.
Michel, W., & Werger-Klein, E. (2004). Drop by drop—The introduction of Western distillation techniques into seventeenth-century Japan. *Journal of the Japan Society of Medical History, 50*(4), 463–492.
Nagy, D. E. (1988). *Popular medicine in seventeenth-century England*. Bowling Green, OH: Bowling Green State University Press.
Nylandt, P. (1682). *De Nederlandtse Herbarius of Kruydt-boeck* (The Dutch herbal or herb-book). Reprinted 1976. Schiedam, the Netherlands: Interbook International.
Nylandt, P. (1683). *Den Verstandigen Hovenier, De Medicijn-Winckel, of Ervaren Huys-houder* (The intelligent gardener, the medicine shop, or experienced householder). Part 3 of *Het Vermakelyck Landt-leven* (The pleasurable country life). Amsterdam, the Netherlands: Marcus Doornick.
O'Callaghan, E. B. (Ed.), (1856). *Documents relative to the colonial history of the state of New-York,* Vols. 1 and 2. Albany, NY: Weed, Parsons and Company.
Oldenburger-Ebbers, C. (1990). Notes on plants used in Dutch gardens in the second half of the seventeenth century. In J. D. Hunt (Ed.), *The Dutch garden in the seventeenth century* (pp. 159–174). Washington, DC: Dunbarton Oaks Research Library and Collection.
Paulli, S. (1746). *A treatise on tobacco, tea, coffee, and chocolate* (Translated from the 1665 edition by Dr. James). London, UK: T. Osbourne. <http://www.246.dk/teapaul.html>. Accessed 30 Aug 2006.
Raymer, L. in Yamin, R. and Parker, S. (2004). Route 18 Section 2a Extension Project, Technical Report No. 3: The Bodine/French Meadow Property (28-Mi-85) and the Adjacent Lottery House/Letson Property (28-Mi-217). Report to Gannett Fleming and the New Jersey Department of Transportation, Trenton. Philadelphia, PA: John Milner Associates, Inc.
Remington, J. P., Horatio, C. W., et al. (Ed.), (1918). *The dispensatory of the United States of America*, 20th ed. Philadelphia, PA: J. B. Lippincott. <http://www.henriettesherbal.com/eclectic/usdisp/index.html>. Accessed 30 Aug 2006.
Richards, M. (1997). Form, function, ownership: A study of chests from Henry VIII's warship *Mary Rose* (1545). In R. Mark (Ed.), *Artefacts from wrecks: Dated assemblages from the late middle ages to the industrial revolution* (pp. 87–98). Oxford, UK: Oxbow Monograph 84, Oxbow Books.
Richards, S. (1999). *Eighteenth-century ceramics: Products for a civilised society*. Manchester, UK: Manchester University Press.
Sanborn Map Company. (2003). *Manhattan landbook of the city of New York.* New York, NY: Sanborn Map Company.
Schaefer, R. G. (1998). *A typology of seventeenth-century Dutch ceramics and its implications for American historical archaeology*. Oxford, UK: BAR International Series 702.

Schaefer, R. G., & Janowitz, M. F. (2005). The Castello Plan—Evidence of horticulture in New Netherland or cartographer's whimsy? *Northeast Historical Archaeology, 34*, 61–76.
Shorto, R. (2004). *The island at the center of the world*. New York, NY: Doubleday.
Singleton, E. (1909). *Dutch New York.* New York, NY: Dodd, Mead & Company.
Stokes, I. N. P. (1916). *The iconography of Manhattan Island*, vol. 2. New York, NY: Robert Dodd.
Stokes, I. N. P. (1922). *The iconography of Manhattan Island*, vol. 4. New York, NY: Robert Dodd.
Thijssen, J. (1991). *Tot de Bodem Uitgezocht: Glas en ceramiek uit een beerput van de 'Hof van Batenburg' te Nijmegen, 1375–1925* (Sought out of the ground: Glass and ceramics from a cesspit of the "Court of Batenburg" at Nijmegen, 1375–1925). Nijmegen, the Netherlands: Stichting Stadsarcheologie Nijmegen.
Thomas, K. (1983). *Man and the natural world*. New York, NY: Pantheon Books.
Van Bachman, C. (1969). *Peltries or plantations: The economic policies of the Dutch West India Company in New Netherland 1623–1639*. Baltimore, MD: Johns Hopkins Press.
Van Buren, A. (1923). *A history of Ulster County under the dominion of the Dutch.* Kingston, NY.
Van der Donck, A. (1650). *Vertoogh van Nieu-Neder-land* (Remonstrance of New Netherland). The Hague, the Netherlands: Michiel Stael. <http://digbijzcoll.library.uu.nl/lees_gfx.php?lang=nl&W=On&BoekID=37> and <http://stuyvesant.library.uu.nl/TableOfContents.asp>. Accessed 30 August 2006.
Van der Donck, A. (1656). *Beschryvinge van Nieuw-Nederlant* (Description of New Netherland). Second printing. Amsterdam: Evert Nieuwenhof. <http://digbijzcoll.library.uu.nl/lees_gfx.php?lang=nl&W=On&BoekID=49> and <http://stuyvesant.library.uu.nl/TableOfContents.asp>. Accessed 30 August 2006.
Van der Donck, A. (1968). *A description of the New Netherlands* (Reprinted and translated from the 1656 edition. T. F. O'Donnell, editor.). Syracuse, NY: Syracuse University Press.
Van der Groen, J. (1669). *Le Jardinier Hollandois/Der Niederländische Gärtner* (The Dutch gardener). Amsterdam, the Netherlands: Marcus Doornick.
Van der Groen, J. (1683). *Den Nederlandtsen Hovenier* (The Dutch gardener). Part 1 of *Het Vermakelijck landt-leven* (The pleasurable country life). Amsterdam, the Netherlands: Marcus Doornick.
Van der Groen, J. (1988). *Den Nederlandtsen Hovenier* (The Dutch gardener). (Reprint of the 1687 and 1721 editions. Carla S. Oldenburger-Ebbers, editor). Utrecht, the Netherlands : Stichting Matrijs.
Van Deursen, A. T. (1991). *Plain lives in a golden age.* trans: Martin Ultee. Cambridge, UK: Cambridge University Press.
Van Laer, A. J. F. (translator and annotator). (1974). *Register of the provincial secretary 1642–1647,* vols. 1, 3, and 4. Baltimore, MD: Genealogical Publishing Co.
Venema, J. (2003). *Beverwijck: A Dutch village on the American frontier, 1652–1664*. Albany: State University of New York Press.
Versteeg, D. (trans: Versteeg, D). (1976). *Kingston papers,* vol. 2. P. R. Christoph, K. Scott, & K. Stryker-Rodda (Eds.). Baltimore, MD: Genealogical Publishing Co.,
Vogel, V. J. (1970). *American Indian medicine*. Norman: University of Oklahoma Press.
Wilson, J. G. (1892). *Memorial history of the city of New-York* (Vol. 1). New York, NY: New-York History Co.