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2 **Revelations from *Histoire Naturelle des Indes* known as *The Drake*** 3 ***Manuscript: Horticulture and History***

4 **Jules Janick**

5 *Histoire Naturelle des Indes*, an anonymous illustrated manuscript with captions in 16th century
6 French **believed to have been** written between 1586 and 1600, is a mysterious work (Schwerdt,
7 1928; Lestringant, 1994; Klinkenborg, 1996). Consisting of 134 leaves of text and illustrations it
8 has been published in a beautiful facsimile edition by the Pierpoint Morgan Library in 1996
9 entitled *The Drake Manuscript* with a foreword by the historian and novelist Patrick O'Brian, an
10 introduction by Verlyn Klinkenborg, and translations by Ruth S. Kraemer. The manuscript is
11 roughly divided into three parts: 62 botanical illustrations; 89 drawings of fish, animals, and
12 birds; and 43 illustrations emphasizing activities involving indigenous people of the Americas
13 that include scenes with Spaniards and Black slaves as well as a scene in the Moluccas (Muluku)
14 and Cape Verde Islands. The manuscript has considerable historical and horticultural interest
15 since it portrays food plants consumed by the indigenous people of the Americas and provides
16 evidence of crop introduction from the Old World used by indigenous Americans. The objective
17 of this paper is to review the horticultural implications of this work and to speculate on the
18 unknown artist/author.

19 **THE MANUSCRIPT**

20 The manuscript was acquired by the Pierpoint Morgan Library in 1983 as a bequest of Clara S.
21 Peck who acquired it in 1947 (Klinkenborg, 1996). In 1928 the manuscript was owned by the
22 book collector C.F.G.R. Schwerdt who purchased the manuscript in 1911 from the collection of
23 the bibliophile Henry Huth, hence its name at one time as the Huth manuscript (Wallis, 1984).
24 The antiquarian bookseller, Bernard Quaritch, writing in 1867, and others since then supposed
25 the manuscript to have been written and drawn by a Frenchman who probably accompanied
26 Drake on his circumnavigation of 1577–1580 and his voyage to the West Indies of 1585–1586
27 (Schwerdt, 1928). The name of L'abbé Jean-Paul Bignon (1662–1743), a French royal librarian,
28 appears on one of the work's margins. The title page was added in the 18th century, presumably
29 when the manuscript was bound. An analysis of the illustration sequence suggests that the folios
30 were not always inserted in a logical order.

31 The illustrator was neither artistically nor scientifically trained, since the drawings although
32 vigorous are amateurish and the flora and fauna exhibit many errors in plant and animal
33 morphology that a trained botanist or naturalist would not have made. The drawings appear to be
34 by two different hands (Brochard and Chambon, 1991) and there are two or more different
35 caption styles. Most of the flora and fauna and 17 of the 44 scenes, most in the beginning,
36 include captions in all capital letters (hand A) while the others captions are in capital and lower
37 case letters (hand B) (Table 1). In the drawings of scenes, hand A show more accurate depictions
38 of facial features than B. Lestringant (1994) suggest that five people worked on the manuscript,
39 two or three artists and three scribes. However, there are common stylistic features such as flocks
40 of birds in the sky similarly drawn in the shape of a cross. Despite the possibility of multiple

1 contributors of *Histoire Naturelle des Indes*, they will be collectively referred to as the Histoire
2 Artist (HA).

3 **ILLUSTRATIONS OF CROPS AND ANIMALS**

4 Sixty two plants are illustrated and named in 16th century French in the botanical section (Table
5 2), while two, wheat, and grapes, are only found in the scenes of Indian life. Most of the plants
6 illustrated in the manuscript are of the New World (Fig. 1, 2) but eight Old World crops are
7 included: eggplant, garlic, cowpea, grape, onion, plantain, watermelon, and wheat (Fig. 3). Many
8 of the plants cannot be identified with certainty (Table 2). Old World animals include cow, dog
9 (mastiff), goat, pig, rabbit, and sheep.

10 There are many botanical inaccuracies. For example, many of the tree fruits are reasonably
11 drawn but shown to be produced on herbaceous plants! Two different cucurbit fruits are drawn
12 on the same plant (f.5v). Plants that appear fairly accurate include coconut, onion, palm tree,
13 papaya, and pineapple. It is clear that some of the depicted subjects are fabricated as indicated in
14 the drawings of sheep for llamas in the drawings of Peru. Many of the animal drawings are
15 imaginative as the many teeth on the drawings of serpents and rays, and the eel-like creatures
16 protruding from the mussel shell (probably based on a worm infested mussel).

17 **Old World Plants**

18 **Alliums.** Two alliums, garlic (f.2) and onions (f.13) are portrayed in the botanical section. These
19 Old World species must have become naturalized. Garlic is described as sweeter than the ones of
20 France and it is mentioned that they are roasted by the Indians. The onions are described as sweet
21 and very large “more so than in France” and are white inside and red outside. The captions note
22 that the Indians consume them like apples and they are grown from seed with three harvests per
23 year.

24 **Cowpea.** A leguminous plant in the botanical section is referred to as couscous (f.31) which is
25 clearly a misnomer since this term refers to a durum wheat product. The double pods resemble
26 cowpea (*Vigna unguiculata*) which was well known to the Spanish, as an Arab introduction to
27 the Iberian Peninsula.

28 **Eggplant.** The image of eggplant (f.12v) in the botanical section was unexpected. However,
29 eggplant has entire leaves, not lobed as indicated. The Spanish were very familiar with the
30 eggplant which was introduced to Iberia by Arabs about 900 probably from Persia (**Reference**).
31 It was recommended as being good cooked with meat.

32 **Grape.** This crop trained on wooden poles is only presented in the section on Indian life (f. 112).
33 Based on the text these plants are likely to be *Vitis vinifera* imported by the Spanish, although
34 many American species of grapes are found in North America. The text indicates that Indians are
35 only “allowed” to plant grapes in their gardens, and that both the Indians and Spaniards are
36 restrained from planting grapes (as well as olives) in abundance by the King of Spain, so as not
37 to compete with imported wine from the Canaries.

38 **Plantain.** The name in French, *plaintainnes*, indicates that they are plantains, and it is likely they
39 are False Horn plantain (triploid AAB hybrids of *Musa acuminata* and *Musa bulbisiana*) known

1 to be imported via the Canary Islands from Africa. The long fruit is yellow and described as
 2 good tasting but causing flatulence. Plantain is illustrated both in the botanical section (f.11v)
 3 and in the drawings of Indian life (f. 103, 123). The plant in the botanical section is inaccurate
 4 suggesting that the illustrator never saw it.

5 **Watermelon.** These fruits are illustrated only in the botanical section and named *patille* (f.12). It
 6 is noted that it promotes urination.

7 **Wheat.** This grain is found only in the drawings of Indian life (f.91) but the plant is twice the
 8 size of the harvester who is reaping the grain with a metal scythe. The scene is set in the
 9 Province of Leresne, “200 leagues from Peru, where the La Margarita River originates.” There
 10 are a number of small plants in front of the wheat, one of which resembles maize. Because of the
 11 scythe it can be assumed that the harvester is a laborer or slave. The text mentions that the wheat
 12 is harvested twice a year and exported in exchange for wine from the Canaries, linen, knives,
 13 hoops, and other things such as fish-hooks “because they have only those made of fish bone.”
 14 The unrealistic size of the wheat plants makes it unlikely that this scene was observed by the
 15 illustrator.

16 **New World Plants**

17 **Cactus.** A cactus plant (f.16) that resembles a branched columnar type (*Cereus* or *Selenicereus*)
 18 is shown. The statement is made that it does not bear fruit.

19 **Fruit Vegetables.** A squash plant (*Agoviam*) with two types of fruit, globular and pyriform, is
 20 shown in the botanical section (f.5v) and appears to be *Cucurbita pepo*. A viney cucurbit,
 21 probably *C. moschata*, is shown in a garden scene (f.121) with nine large globular fruits. There
 22 are various depictions of capsicum peppers (f.11, 22, 121) with either red, yellow, or green fruit.
 23 Deeply lobed (ribbed) tomato fruits (f.7v) growing on a single plant are similar to illustrations
 24 found in early herbals in the 16th century and resemble a sculpture in the bronze doors of the Pisa
 25 cathedral made in 1601 (Daunay et al., 2008). The fruit of the bottle gourd (*petonnes*) in the
 26 botanical section (f.6) is very strange and the text indicates the Indians call it Caribara. It is
 27 mislabeled bottle gourd in the Drake Manuscript. However, various bottle gourds are used as
 28 vessels in various scenes (f.92, 116, 117, 123).

29 **Grains.** Maize is found both in the botanical section (f.13v, sic) and in the Indian garden scene
 30 (f.21) where there are three plants. All drawings show 5 to 8 ears per plant on single stems with
 31 no tassel but an ear on the tip of the plant. In the botanical section four ears show intermingled
 32 yellow, red, and purple seeds indicating genetic segregation for aleurone color. The ears are
 33 attached to the stem with a long shank but the nodes are not articulated, the same error that is
 34 displayed on the ceiling of the Farnesina Palace in Rome, where the first illustration of maize
 35 appears in 1515–1518 (Janick and Caneva, 2005) indicating that the drawing was made from
 36 detached ears with the plant drawn from memory. The leaves are long and narrow.

37 **Fruits and Nuts.** A plethora of New World fruits are illustrated (Table 1). These include various
 38 annonas, avocado, berries, cashew nut, coconut, guava, icaco plum, mamey, papaya, and
 39 pineapple. Oranges are mentioned in f.97 but not illustrated.

1 **Fiber Crops and Tobacco.** Cotton (*Gossypium hirsutum*) is shown on a plant in the botanical
 2 section (f.32) and being spun by an Indian (f.119). New World tetraploid cotton (*G. hirsutu* and
 3 *G. barbadense*) would change the entire world cotton industry.

4 **Legumes.** The common bean (*Phaseolus vulgaris*) called *frigolles* is found in the botanical
 5 section (f.19). Beans trained on a pole can also be shown in the garden scene (f.121).

6 **Palms and Trees.** Various palms and trees are illustrated as shown in Table 1.

7 **Tobacco.** Tobacco called *petun* is shown in the botanical section (f.4v) and smoking is described
 8 along with many medicinal uses. In one scene (f.92), an Indian mortally wounded by arrows is
 9 being treated by burning tobacco in an oven with smoke directed in a pipe toward the wound.
 10 The text indicates that tobacco leaf with balsam will be applied to the wound as a plaster.

11 **Tubers.** *Patates* both yellow (f.18) and purple-skinned (f.10v, 23v) are considered to be sweet
 12 potato and the description indicates that it can be multiplied by planting small pieces. Potato
 13 (*Solanum tuberosum*) is not mentioned although Drake has been credited with introducing the
 14 potato to Europe in 1586, associated with the rescue of the Roanoke colonists (Salaman, 1949).
 15 A14 foot tall statue of Drake by Andreas Friedrich (1798–1877) in Offenburg, Germany, erected
 16 in 1854. has his right hand holding a map of America and his left hand holding a flowering
 17 potato plant. However, sweet potato and not potato was grown in Roanoke but the potato may
 18 have been on board Drake's ship possibly brought on board in Cartagena according to Salaman
 19 (1949).

20 Mennil or cassava (f.23) are illustrated and it is noted that it is dried in the sun and then
 21 consumed as bread. It may be that the bread cooked by the Indian illustrated in f.124 was made
 22 from cassava brought to her by her fiancé (f.122).

23 INDIAN LIFE

24 The drawings although crude are lively, especially the ones involving Indian daily life that are
 25 presented in a sympathetic, non-patronizing manner. Although there is one violent episode of a
 26 fight between two individuals (f.85), most are peaceful scenes of food production and
 27 collection, hunting, fishing, mining, healing, fire making, spinning, net making, as well as
 28 touching scenes of domestic life including courtship, cooking, bathing, and childbirth. The
 29 living structures of the Indians are either circular with a thatched cone shaped roof (*caney*) or
 30 rectangular with a thatched hipped roof (*bohio*) typical of the Taino (Arawak) culture (Rouse,
 31 1992). Males and females are generally unclothed but a few wear loin cloths or tunics (f.81).
 32 The Indians of Santa Marta (f.87) and Caribara (f.89) have penis sheaths, and two (f.81, 87)
 33 have nose rings. From the locations mentioned it is conceivable that the Indians portrayed
 34 include Carib, Taino, Tairona, and Algonquin cultures.

35 The richest horticultural scenes involve a romantic courtship series (f.113–116, and f.121–124).
 36 A young man meets his beloved and her father (f.113), shows off his life skills in hunting,
 37 fishing, spinning cotton, net making, and gardening (f.11–117, 121–123), culminating in a
 38 confrontation with the father. The richest horticultural illustration (Fig. 4) shows the young
 39 unclothed Indian male in a garden enclosed by a wattle fence. He distributes seed with one hand
 40 to a rectangular bed outlined with a wooden frame, and holds a long pointed dibble stick in the

1 other. Among the plants that can be identified are trellised bean, green capsicum pepper, maize
 2 with multiple ears, melons (probably *Cucurbita moschata*) with nine large fruit, papaya,
 3 pineapple, and perhaps sweet potatoes on the ground. There are four unidentifiable plants—
 4 three with red, berry like fruit, and one plant (between the legs of the Indian) with larger fruit
 5 that resemble soursop on an herbaceous plant, similar to the drawing called *Annonne* in the
 6 botanical section. Horticultural plants can also be seen in the collecting scenes. In the first
 7 (f.122) the young suitor carries a pole across his shoulders from which is suspended cassava
 8 root (*manil*) and an empty basket on one end, and a dead snake on the other. In the next
 9 illustration (f.123), the basket on one end is now filled with fruits and a number of crops are
 10 attached to the other end (**Fig. 5**). Prominent is a stalk of plantain bearing six fingers of long
 11 yellow fruit as well as a bottle gourd and cassava root. The other fruits cannot be identified with
 12 certainty. A similar collection of fruits (f.104) hang from a beam in part of a mining series. In
 13 the last courtship scene (f.124), the young man now dressed to impress, in an ornamented loin
 14 cloth carrying a rabbit confronts his intended who is preparing food (“bread”) and his
 15 prospective father-in-law (still carrying a big stick) who, according to the text, encourages the
 16 match. The plethora of details suggests that HA observed the scene.

17 Extraordinarily, the work contains a self-portrait of HA (f.111), as a guest in the home of an
 18 Indian, likely the one involved in the courtship scenes, based on his house (**Fig. 6**). The text
 19 explains that his fearlessness of the *Athoua*, the Indian Devil, is due to his belief in Jesus
 20 Christ—the emphasis of belief suggests that the artist was a Protestant or French Huguenot
 21 (Klinkenborg, 1996). The portrait shows a beaded young man dressed in a “loose short coat of a
 22 sailor” (Schwerdt, 1928), in tights, and a hat.

23 ASSOCIATION OF HA WITH SIR FRANCIS DRAKE

24 There are two direct references to Drake in the manuscript. The first is in the caption entitled
 25 Canoe of the South Sea (f.44) showing a canoe labeled with the word *Cacique*, (an Indian term
 26 for Chief) with two ranks of 11 rowers each, with a seated figure of authority seated in an
 27 elevated chair. The text indicates it is from an island called Gilolo (in the Moluccas, now
 28 Maluku) “where Frances Drake, an English man, had his ship cleaned to make it ready for his
 29 voyage to the South Sea.” Drake was in Ternate during his circumnavigation voyage which is
 30 near Gilolo (Halmahera) where he encountered Babu, the Sultan of Ternate, at the end of his
 31 circumnavigation voyages of 1577–1580. But, the Sultan arrived with three galleys each of 80
 32 oarsmen. The inaccuracy of the drawing of the boat indicates that the artist illustration is based
 33 on hearsay (Lessa, 1984). There was a botanist in that voyage named Lawrence Eliot and his
 34 work is referred to by Charles de l’Ecluse (Clusius) in 1582 (Clusius and de Orta, 1582; Sugden,
 35 1990, p. 154).

36 The 1585–1586 voyages of Drake included stops in Portugal, Cape Verde islands, Santo
 37 Domingo; Hispaniola; Cartagena, Columbia; Cuba; St. Augustine, Florida, and Roanoke,
 38 Virginia (now North Carolina). The *Drake Manuscript* contains an illustration of the volcano at
 39 Fire Island (*Fougue*) (f.93–93v) in the Cape Verde Islands, Drake’s first landfall. However, this
 40 scene is wildly imaginative and was probably based on hearsay. The caption of an illustration
 41 (**Fig. 7**) entitled *Hinde de Loranbec* (Indian of Loranbec) (f.90) contains the second mention of
 42 Drake:

1 *These Indians dressed in skins are extremely skillful in battle on account of their strength, as*
 2 *the English could tell fighting under Sir Francis Drake in 1586 when they attempted to*
 3 *conquer this land, but were forced to weigh anchor and retreat because of the resistance they*
 4 *encountered. Its location is between Florida and Terre Neuve [Newfoundland] at 36 ½*
 5 *latitude.”*

6 Note that the text mentions, Drake, an Indian battle, the year 1586, and a location at 36.5°N.
 7 However, there was no battle at Roanoke when Drake arrived, although there was a skirmish
 8 near St. Augustine a week earlier (Sugden, 1990). The location is critical since Roanoke Island in
 9 North Carolina (lat. 35°85’) is where Drake picked up 105 colonists from the colony established
 10 by Sir Walter Raleigh in 1584. These were mostly soldiers, but including the artist John White
 11 who painted pictures of Indian life in the colony, the scientist Thomas Harriot, and Ralph Lane,
 12 the leader in the second of the ill-fated expeditions to the Roanoke. White was destined to return
 13 as the leader of the colony in 1587 and was the grandfather of Virginia Dare, the first English
 14 child born in America.

15 The word Loranbec, mentioned three times in the *Drake Manuscript*, is an enigma. In addition to
 16 the Indian of Loranbec, there is an illustration of an oyster (*hovitrede*) from “Loranbec” (f.44v)
 17 and a seal (*chatile*) (f.48) in the land of “Lorembec (sic) between Florida and Terre Neuve
 18 [Newfoundland]”. Both oysters and harbor seals exist in North Carolina. The word *Loran* is
 19 presumably of Algonquin origin (Bourinot, 1897) and there are now two small sea villages in
 20 Cape Breton called Big Lorraine and Little Loraine (or Little Loran). There was a Port of
 21 Loranbac or Noranbeque, a little harbor on the eastern shore of Cape Breton, Nova Scotia.
 22 Loranbec may be a corruption of Norumbega, originally Oranbega, in Verrazzano’s 1529 map of
 23 America. The transition from Oranbega in Italian to l’oranbega, loranbeque, loranbec in French
 24 is a possibility. A 1589 map by Baptista Boazio of Drake’s voyage indicates that the area
 25 northeast of Virginia was called Norumbega (Wood, 1979). John Gerard in his 1597 *Herball*
 26 (p.752) discussing milkweed which he called Indian Swallow wort with a woodcut derived
 27 from a John White painting) includes the statemen “There groweth in that part of Virginia, or
 28 Norembega, where our English men dwelled intending there to erect a Colony...p. 752.”

29 The Drake Manuscript includes names of other locations associated with the various voyages of
 30 Drake (Table 3). Not all locations in the Drake manuscript were visited by Drake suggesting that
 31 HA could have been in the New World independent of Drake or obtained information from
 32 verbal descriptions of others. There are images close to Lima, Peru (f.62, 91) but Drake did not
 33 stop there although he was near the port of Callao in his circumnavigation voyage of 1577–1580
 34 that included the landing in California.

35 Did actually accompany Drake? The evidence is circumstantial and conjectural. There is an
 36 abundance of evidence that a Frenchman accompanied Drake. Francis Pretty, one of Drake’s
 37 Gentlemen at Arms who authored a 1589 work on the circumnavigation voyage in English, is
 38 referred to as a “Gentleman of Picardy” in the French translation (Schwerdt, 1928). The
 39 translator, Francois Louvencourt, is credited with a reference to the fact that one of the tenants of
 40 Baron de Courtomer had been with Drake (Schwerdt, 1928). Drake also encountered Frenchmen
 41 in his 1585–1586 voyage to the West Indies. He set free 18 or 19 Frenchman in Santo Domingo
 42 (Keeler, 1981, p. 244) and rescued Frenchmen from prison in St. Augustine just before arriving
 43 in Roanoke (Quinn, 1985, p. 133). When Cartagena was attacked and destroyed by Drake in

1 1586, he picked up Frenchmen along with Turks and Negroes and “recruited” them to his crew
2 (Keeler, 1981; Sugden, 1990, p. 195).

3 It is conceivable that HA could have been one of the French group picked up by Drake in
4 Cartagena and perhaps had been making a study of Indian life for a commercial commission
5 which would have been of extreme interest at that time. Since Drake was known to be a painter
6 (his work from his last voyage was sent to Queen Elizabeth with his report but were lost) he
7 likely would have appreciated art work of the new French artist, impressed or recruited.
8 Cartagena although unmentioned in the *Drake Manuscript* is in the middle of many locations that
9 are along the Spanish Main from Panama to the Guajira Peninsular of Colombia (**Table 3**).
10 includes pictures of gold mining in Veragua, and a detailed scene of the port Nombre de Dios in
11 Panama, and there are various references to locations in Columbia. HA seems to have been
12 intimately associated with indigenous locations and people of the area based on the details of the
13 illustrations.

14 If HA was a member of the West Indian voyage he could have received information of other
15 voyages of Drake based on discussions with the crew. When the crew landed in England in 1586
16 it can be assumed that HA made their way back to France and then completed the manuscript.
17 The provenance of the manuscript suggests that it became part of the library of a well-connected
18 French nobleman who may have been the sponsor.

19 **ASSOCIATION BETWEEN THE WORK OF HA, JOHN WHITE, JACQUES LE** 20 **MOYNE, AND THEODORE DE BRY**

21 **Evidence from the Indian of Loranbec**

22 The Indian of Loranbec illustration in the *Drake Manuscript* is of a warrior ready to load an
23 arrow, perhaps at a bird perched on a limb (**Fig. 7A**). The somewhat humorous situation suggests
24 that the drawing was not made from life. The figure is dressed in an off-the-shoulder fringed
25 tunic tied at the neck with red beads on the bottom and the text indicates it is made of skins. He
26 wears an earring. His shins are painted with a zigzag design suggestive of tattooing and the back
27 of his neck shows evidence of a painted symbol. He holds a quiver of arrows attached to his
28 shoulder with a strap. His hair is short with a pony tail.

29 If the Indian of Loranbec drawn by HA is from Roanoke, this would be strong evidence that he
30 accompanied Drake on at least part of the 1585–1586 expedition. There is a way to determine
31 this. The Indians of Roanoke were well illustrated by John White who was there in 1584, August
32 17, 1585–June 18, 1586, and from July 22 to August 27, 1587. Two of his paintings, An Indian
33 Chief (Fig. 7B) and An Old Man of Pomeiock (Fig. 7C) show similarities to the Indian of
34 Loranbec (Feest, 2007). Many of the watercolors of White, including these two portraits, were
35 engraved by Theodore De Bry and subsequently published in 1590 to illustrate Harriot’s 1588
36 report of the Roanoke colony entitled *A Briefe and True Report of the New Found Land of*
37 *Virginia* (Lorant, 1946). However the Indian Chief engraving was reconfigured to include a front
38 and a back view (Fig. 7D). The Indian of Loranbec figure and the two paintings of White along
39 with the corresponding engravings of De Bry which are presented in mirror image are scaled to
40 the same size in Fig. 7. A comparison of the images suggest that all are related and that the
41 Loranbec Indian image of HA is a composite of the Indian Chief (especially the back image of

1 the engraving) and the Old Man. Figure 7E reconstructs the Loranbec image by combining
2 versions of the White painting and De Bry engraving.

3 **Jacques Le Moyne**

4 The artist Jacques Le Moyne de Morgues (1533-1588) sailed on the disastrous Jean Ribault
5 expedition to Florida in 1564–1565 and drew scenes of the life of the Timucua Indians where
6 most of the colony was murdered by the Spanish. However Le Moyne escaped destruction and
7 eventually returned to London and died there. Apparently his paintings or drawings from Florida
8 were made from memory when he returned to France or later in London, which with one
9 exception were all lost. The paintings or drawings were used by the engraver Theodore De Bry
10 to illustrate his famous 1591 Latin work known as *Florida* (Lorant, 1946). Le Moyne and John
11 White met in London in 1585 and White copied each Le Moyne's work. Examples include a
12 Indians of Le Moyne reflected in White's watercolors, and similar figures of ancient Picts of
13 England by both Le Moyne and White (Hulton and Quinn, 1964; Birch, 2009). HA must have
14 been aware of De Bry's engraving since many of his images have echoes of both Le Moyne and
15 White's work (**Fig. 8–11**) This is evidence that HA was aware of some of the paintings of White
16 directly since a number of his images that are paralleled in HA's paintings such as the tortoise,
17 pineapple, mamey, plantain, and flying fish, are not found in the engravings.

18 **CONCLUSION**

19 From the information presented above, various conclusions can be drawn as follows. HA was a
20 Frenchman and was involved in some way with at least one of the voyages of Sir Francis Drake.
21 Drake had contacts with Frenchman on his voyages and picked up a number of them in
22 Cartagena in 1586 (Keeler, 1981; Sugden, 1990). HA's knowledge of the latitude of Roanoke
23 and the illustration of the Indian of Loranbec suggest that he was aware of John White's rescue
24 at Roanoke by Drake in 1586. There are similarities in some of HA's illustrations to those of
25 White, Le Moyne, and the corresponding etchings of De Bry, all of whom were present in
26 London between 1587 and 1588.

27 Drake arrived with at least eight ships on the Carolina coast in 1586 but if HA was on board
28 Drake's 400 ton flagship *Elizabeth Bonaventure* he certainly would not have landed with Drake
29 and select officers who braved the shallows in a smaller boat to confer with Ralph Lane on
30 Roanoke. Thus, the picture of the Indian of Loranbec by HA offers no evidence that the artist
31 was actually ashore at Roanoke but he could have on board one of the ships in the area, most
32 likely Drake's flagship. The mention of a battle of the Loranbec Indians by HA may be
33 explained by confusion with a skirmish at St. Augustine. If HA accompanied Drake on his West
34 Indian voyage, he would have accompanied White from Roanoke to Plymouth from June 18 to
35 July 27, 1586. Since Le Moyne was known to White and De Bry they might have connected in
36 London as some point between 1585 and Le Moyne's death there in 1588. The surmise that HA
37 was picked up in Cartagena by Drake has the virtue of explaining the possible relationship of
38 White, Le Moyne, and De Bry; HA's deep familiarity about the Spanish Main and Indian
39 culture; and his inclusion of bits of information about Drake's various voyages that could have
40 been picked from his crew. The precise identity of HA remains a mystery, but his work remains
41 a valuable resource for information about horticulture and culture of the indigenous Indians of
42 the New World.

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- 14

1 Table 1. Distribution of captions.

Type of drawings	Capital	Script	Total
	byline Hand A	byline Hand B	
Botanicals	59	4	63
Fauna	89	3	92
Scenes	17	27	44

2

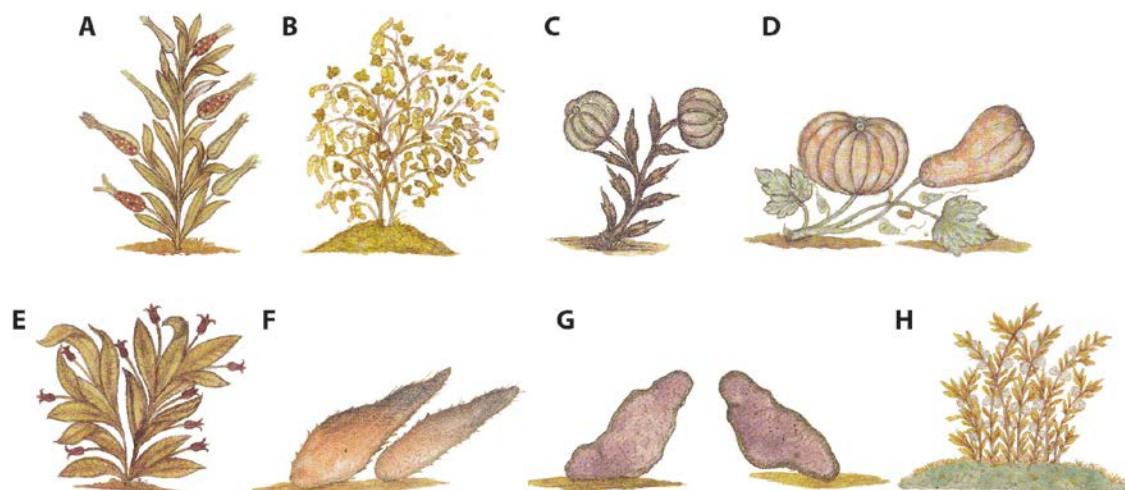
3 Table 2. Horticultural plants in the botanical section of *The Drake Manuscript* with the French name from manuscript, the English name, and the Latin binomial.
4

Folio	French name in Drake manuscript	English name	Latin binomial
2	Ache des Yndes	Garlic	<i>Allium sativum</i>
3	Annone	Soursop	<i>Annona muricata</i>
3	Icaques	Icaco plum	<i>Chrysobalanus icaco</i> L.
3v	Havoqates	Avocado	<i>Persea americana</i>
4	Honnes	“Berries”	
4	Hinnes	Pineapple	<i>Anannas comosus</i>
4v	Petun	Tobacco	<i>Nicotiana tabacum</i>
5	Agovqves	Cassava	<i>Manihot esculenta</i>
5	Prennelles	Prunelle, sloe	<i>Prunus orthosepala</i>
5v	Agoviamme	Squash	<i>Cucurbita pepo</i>
6	Petannes ??	Bottle gourd	<i>Lagenaria siceraria</i>
7	Inhames	Cheremoya	<i>Annona cherimola</i>
7	Pineulles	Quenepa?	<i>Melicoccus bijugatus</i>
7v	Tomates	Tomato	<i>Solanum lycopersicum</i>
8	Siroveles		?
8	Mamee	Mamey	<i>Mamea americana</i>
8v	Govnave	Soursop	<i>Annona muricata</i>
9	Prannonqves	Agave	<i>Agave tequilana</i>
10	Goviaves	Guava	<i>Psidium guajava</i>
10	Mamonne	Soursop	<i>Annona americana</i>
10v, 18, 23v	Patates	Sweet potato	<i>Ipomoea battas</i>
11	Pimente	Pimento	<i>Capsicum annua</i>
11	Cioques	Coconut	<i>Cocos nucifera</i>
11v	Plantainnes	Plantain, banana	<i>Musa sapientum</i>
12	Patille	Watermelon	<i>Citrullis s vulgaris</i>
12	Papae	Pawpaw tree, papaya	<i>Carica papaya</i>
12v	Venragiere	Eggplant	<i>Solanum melongena</i>
13	Cibolles des Yndes	Onions of the Indes	<i>Allium cepa</i>
14	Acogova	Cashew nut	<i>Anacardium esculenta</i>
14	Palmites	Paom marrow	Species of <i>Aracaceae</i>
13v	Mil	Maize	<i>Zea mays</i>

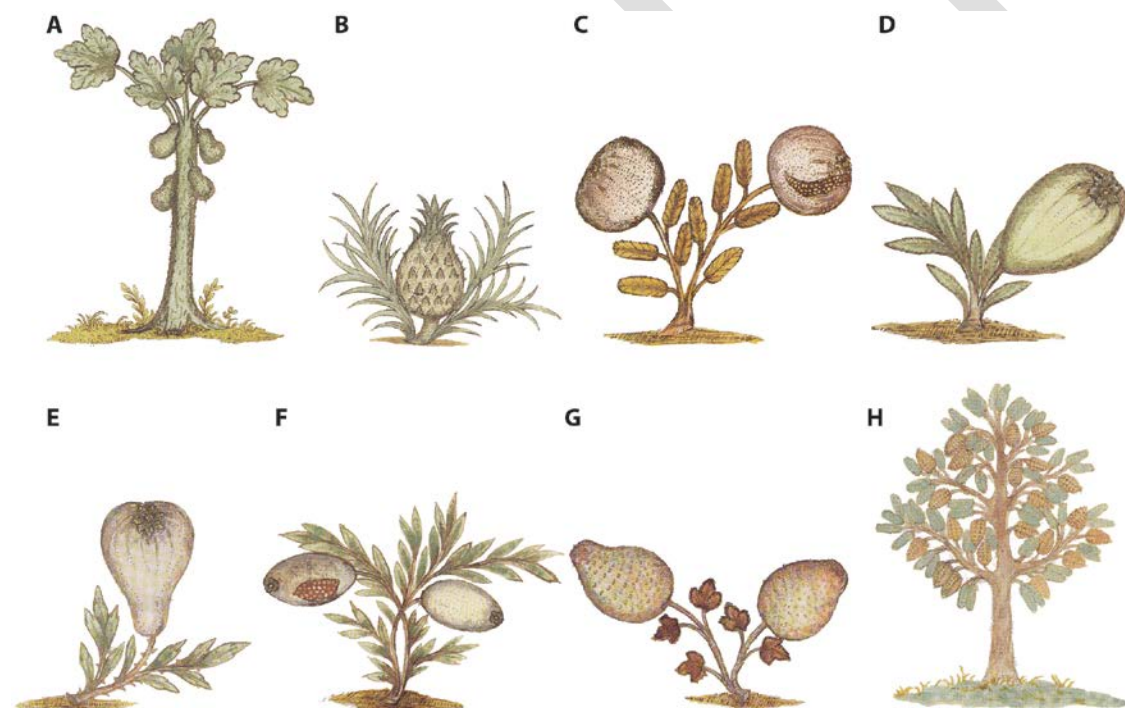
15	Balce		
15v	Figue sauvage	Wild fig	<i>Ficus</i> or <i>Clusia</i> spp.
16	Torchales	Cactus	<i>Cereus</i> sp.
17	Cabovcle	Cabuya, Figue	<i>Furcraea andina</i>
17v	Bregele	Unidentified softens iron?	
18	Rovmerre		
18v	Canbre		
19	Frigolles	Beans	<i>Phaseolus vulgaris</i>
21	Avilannes noires gomites	Black Physic nut	<i>Jatropha curcas</i>
20	Avelannes Blanches Gomits	White physic nut	<i>Jatropha curcas</i>
22	Hagis Ruges, Ianne, Vert	Pepper: red, yellow, green	<i>Capsicum frutescens</i>
23	Chatane des Indes	Chestnut of the Indes	
23	Mennil	Cassava	<i>Manihot esculenta</i>
24	Miel savvage	Wild honey tree	
24	Barbeqve		
24v	Pite	Silk grass	
25	Madae	Madera	
26	Carane	Carane (resin)	
27	Mensenille	Menchineel tree (little apple of death)	<i>Hippomane mancinella</i>
27v	Canifiste	Cassia tree, Golden shower	<i>Cassia fistula</i>
28	Laciqve	Laciqve	
28	Sacafras	sassafras	<i>Sassafras albidum</i>
28v	Cacine	holly tree	<i>Ilex cassine</i>
29	Miatona		
30	Chuppe	cacao	<i>Theobroma cacao</i>
31	Couchequou	Couscous= Cowpea	<i>Vigna unguiculata</i>
32	Coton	Cotton	<i>Gossypium hirsutum</i>
33	Palme	Palm tree	Species of Aracaceae???
91	Bled	Wheat	<i>Triticum vulgare</i>
112	La Vigne	Grape	<i>Vitis vinifera</i>

1

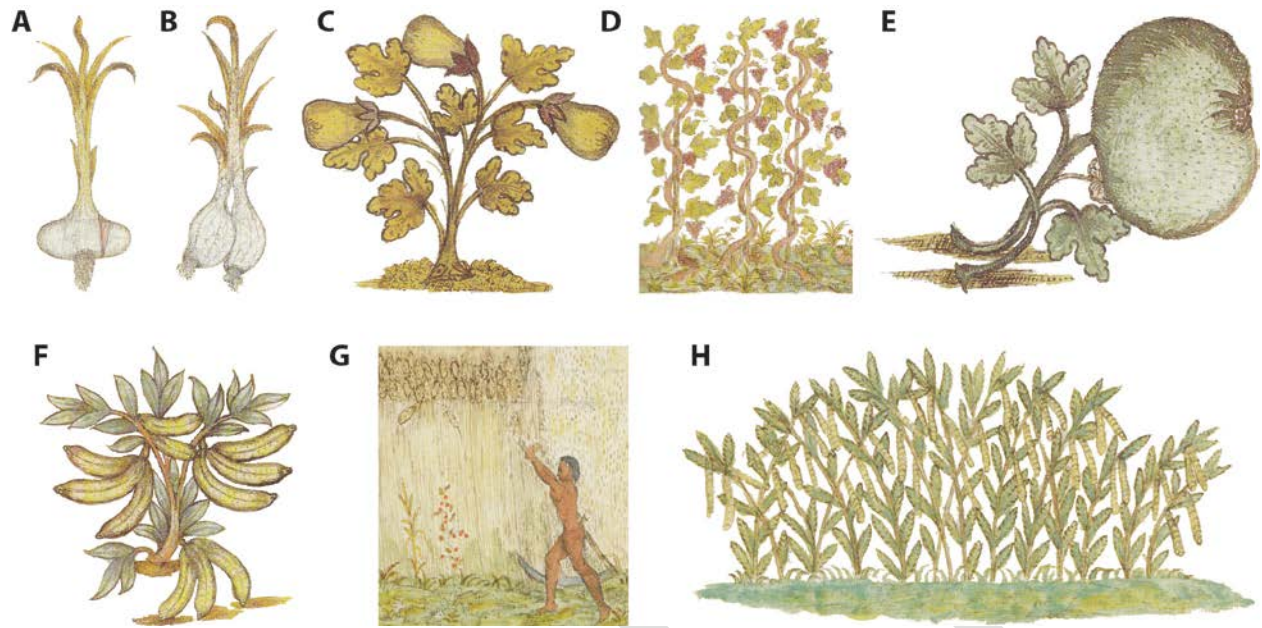
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1
2 Fig. 1. New World herbaceous crops in the *Drake Manuscript*: (A) maize, (B) bean, (C) tomato,
3 (D) squash, (E) tobacco, (F) cassava, (G) sweet potato, (H) cotton.



4
5 Fig. 2. New World fruits crops in the *Drake Manuscript*: (A) papaya, (B) pineapple, (C)
6 avocado, (D) mamey, (E) soursop, (F) guava, (G) annona, (H) cacao.



1

2 Fig. 3. Old World plants in the *Drake Manuscript*: (A) onion, (B) garlic, (C) eggplant, (D) grape,
 3 (E) watermelon, (F) plantain, (G) wheat, and (H) cowpea.



4

5 Fig. 4. Garden scene in the *Drake Manuscript* (f.121).



1

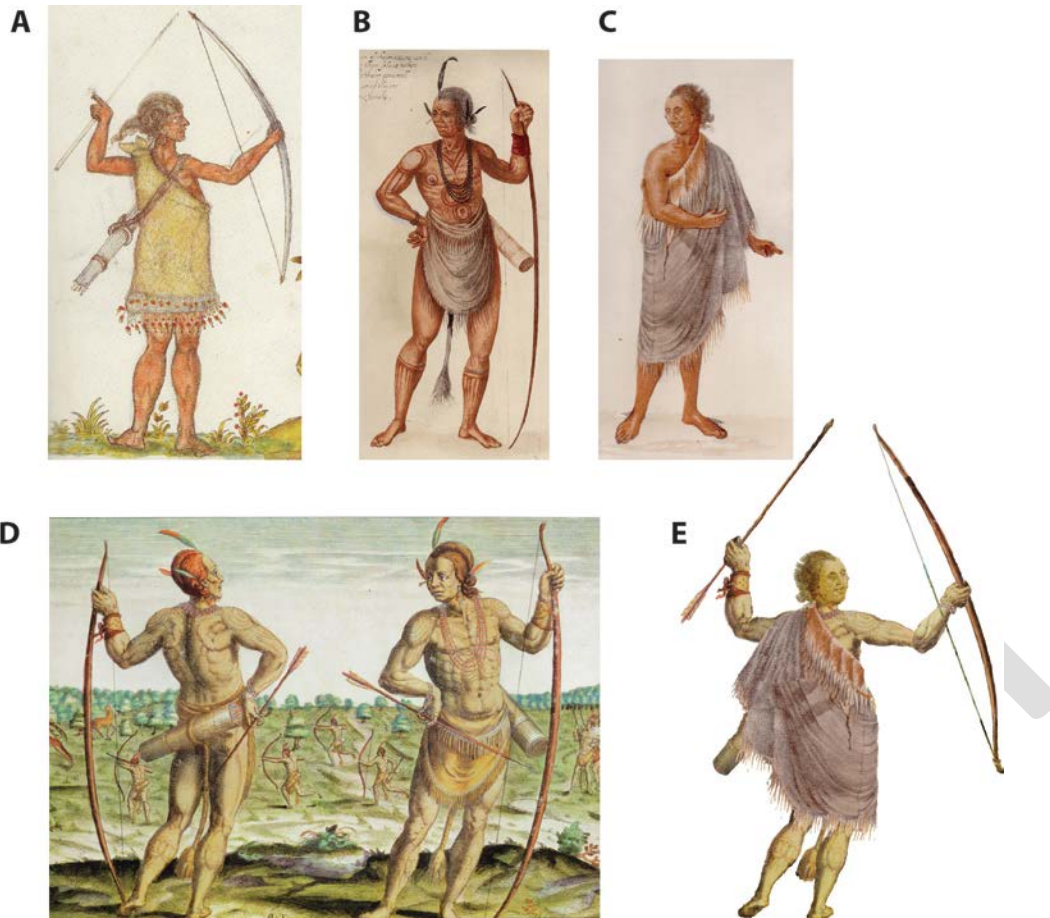
2 Fig 5. Gathering fruit in the *Drake Manuscript* (f.123) inset from f.103–103v).

3

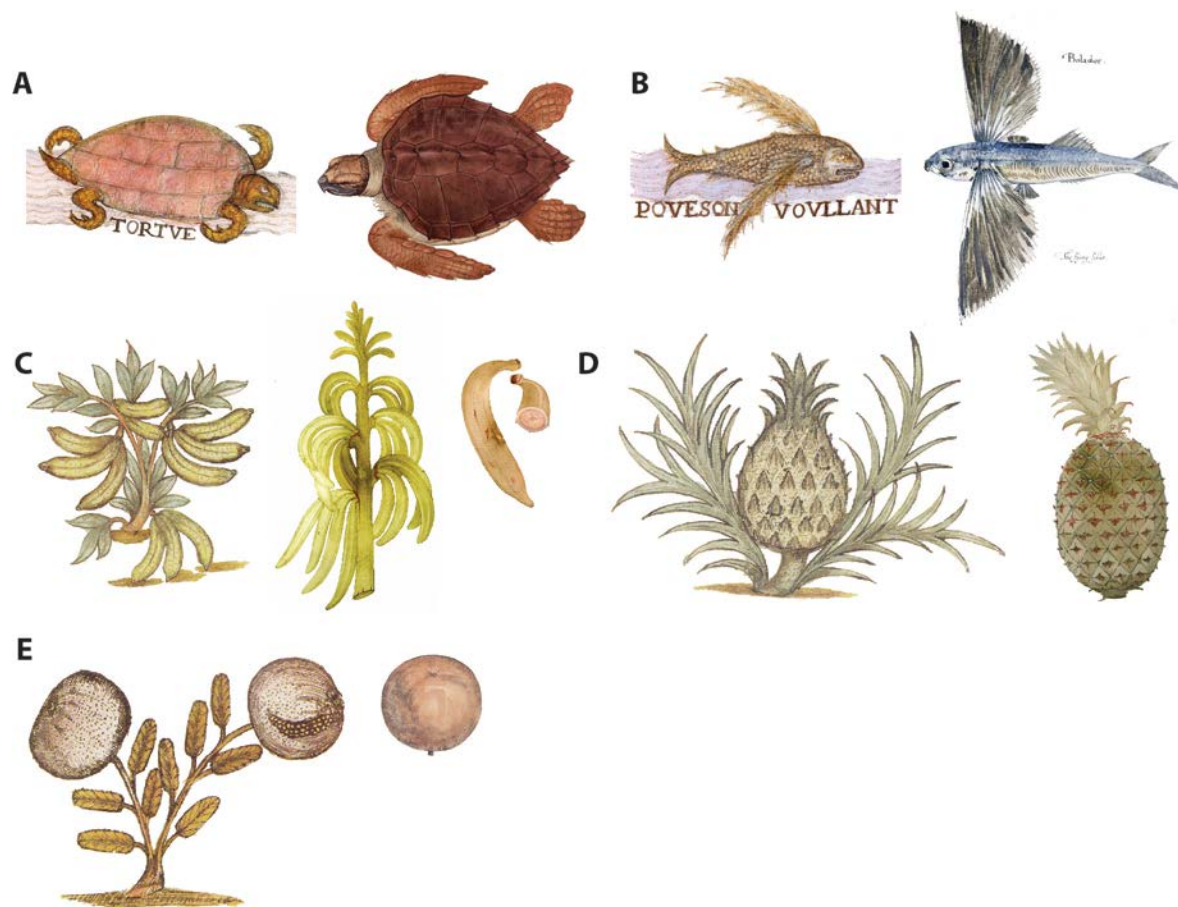


4

5 Fig. 6. Self portrait of HA at the house of an Indian friend and the devil *Athoa* (f.111–111v).



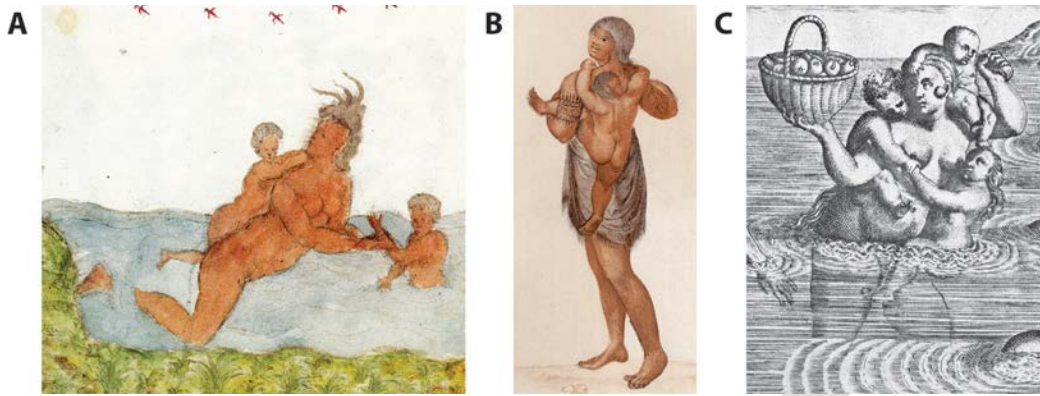
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 2 Fig. 7. The Indian of Loranbec (A); White's portraits of the Chief (B) and Old Man (C); and the
 3 associated engraving of Theodore De Bry reversed (D). A reconstruction of the Indian of
 4 Loranbec based on the White images and De Bry engraving is shown in E. Note that tinted
 5 images of De Bry are used.



1
2 Fig. 8. Flora and fauna from the *Drake Manuscript* compared to watercolors of John White on
3 the right: (A) tortoise, (B) flying fish, (C) plantain, (D) pineapple, and (E) mamey.



4
5 Fig. 9. Grilling fish: (A) image from the *Drake Manuscript*; (B) image from John White, (C)
6 reversed De Bry engraving.



1

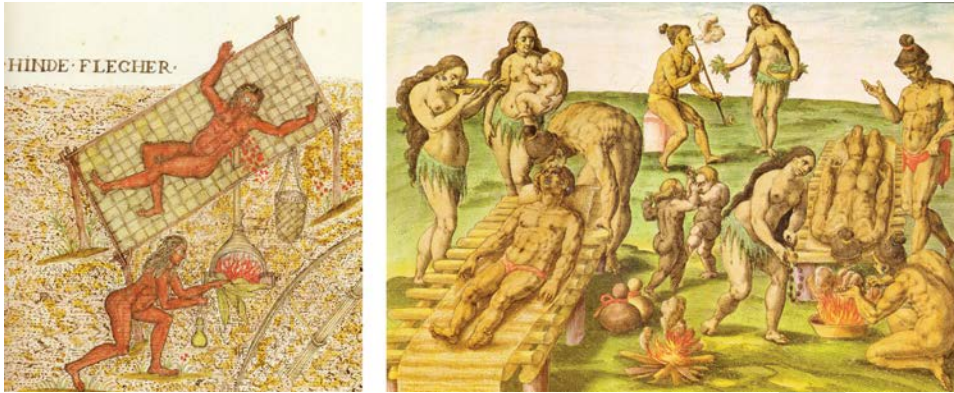
2 Fig. 10. Women and children: (A) woman and children bathing from the Drake Manuscript; (B)
 3 Florida woman and child by John White; (C) Florida women and children crossing to an island
 4 (reversed) by Jacques Le Moyne.



5

6 Fig. 11. Indians of Ionia [Guiana?] in Drake Manuscript (left) compared to sleeping sentinel
 7 execution image of Jacques Le Moyne.

8



1

2 Fig. 12. Healing: (Left) Indians healing an arrow wound with smoke from tobacco from the
3 Drake Manuscript; (Right) healing of Florida Indians by Jacques Le Moyne.