

Friday, 19 September 2014, 1:30–3:00 p.m.: Panel II: “Leaves”

“Jogging Along With and Without James Logan: Early Plant Science in Philadelphia”

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These days, John Bartram (1699-1777) and James Logan (1674-1751) are routinely recognized as significant figures in early American science, and particularly botanic science, even if exactly what they accomplished is not so well known. Logan has been described by Brooke Hindle as “undoubtedly the most distinguished scientist in the area” and “It was in botany that James Logan made his greatest contribution to science.”¹ Raymond Stearns echoed, “Logan’s greatest contribution to science was in botany.”² John Bartram has been repeatedly crowned as the “greatest natural botanist in the world” by Linnaeus no less, since the early 19th century, although tracing the source for that quote and claim can prove difficult.³

Certainly Logan was a great thinker and scholar, along with his significant political and social career in early Pennsylvania. Was Logan a significant botanist—maybe not? John Bartram too may not have been “the greatest natural botanist in the world,” but he was very definitely a unique genius in his own right, and almost certainly by 1750 Bartram was the best informed scientist in the Anglo-American world on the plants of eastern North America.

There was a short period of active scientific collaboration in botany between Bartram and Logan, which lasted at most through the years 1736 to 1738. There was a collision of their

¹ Brooke Hindle, *The Pursuit of Science in Revolutionary America, 1735-1789.*, University of NC Press: 1956, p. 68, 22.

² Raymond Phineas Stearns, *Science in the British Colonies of America.* University of Illinois Press: 1970, p. 535.

³ Some version of the quote “greatest natural botanist in the world” appeared in virtually every 19th and early 20th c. publication on John Bartram. It may be attributable to Bartram’s son, William Bartram, in an anonymous article on John Bartram that first appeared in 1800 *Supplement to the Encyclopædia, or Dictionary of Art, Sciences, and Miscellaneous Literature.* vol. 1, Printed by Budd and Bartram for Thomas Dobson, Philadelphia: 1800, p. 91-92. — “Botany being his favourite pursuit he soon made such proficiency therein that the great Linnæus said in one of his letters, that he was the greatest natural botanist in the world.” This same article was reprinted in vol. 4 of the Philadelphia edition of Rees *Cyclopedia* published in 1807, under editorship of Alexander Wilson, with a short notice of William Bartram at the end of the article—certainly added by Wilson.

shared interests in this period—Logan’s metaphysical interest in generation, and Bartram’s lifelong interest in botany. A joint reading of some of the earliest Linnaean works on botany led to early practice in applying Linnaeus’ sexual system to the plants of North America. Bartram could provide a fuller and more comprehensive botanic knowledge to Logan. Logan could provide botanic books and scientific equipment to Bartram, and perhaps useful connections among the colonial Pennsylvania elite. It was a somewhat unbalanced relationship as Logan was a powerful political leader, with only occasional free time for science.

By 1738 Bartram was clearly bothered by his relation with Logan, and railed against Logan in letters to his chief London correspondent, Peter Collinson (1694-1768) and others. But John Bartram was also progressing in his own career as stable patronage from European subscribers allowed him to travel farther and collect in new regions and environments. Bartram never seems as close to Logan over the next 12 years, although he kept up occasional visits and what seems to be a polite, but distance stance. Bartram’s travels and correspondence connected him with a range of natural scientists in the North American colonies and in Europe—some with specialized knowledge of botany, which Logan did not have. And Bartram came to receive many of the most recent books on botany and natural science that he wanted, directly from European authors.

In attempting to reconstruct the scientific friendship of Bartram and Logan, there are limits in the surviving documentary record. There is only one known letter of Logan to Bartram⁴, and only two letters from Bartram to Logan⁵. This might not suggest a very close relationship, but there are dozens of additional references connecting Logan and Bartram in the letters of third parties—particularly in letters to and from Peter Collinson, but also in the papers of Franklin and others in Philadelphia.

Secondary literature on Bartram and Logan as natural scientists has long stressed their connection to Carl Linnaeus, but again, actual, first person letters from either Bartram or Logan to Linnaeus were extremely rare. There is a single letter from Linnaeus to Logan in 1738, and one letter in reply from Logan—and not likely any other correspondence.⁶ There are three known letters from Linnaeus to John Bartram (with one missing) and four surviving letters from

⁴ James Logan to John Bartram, June 19, 1736.

⁵ John Bartram to James Logan, August 19, 1737; John Bartram to James Logan, April 14, 1748.

⁶ Carl Linnaeus to James Logan, May 1, 1738—now missing. James Logan to Carl Linnaeus, Oct. 17, 1738.

Bartram to Linnaeus.⁷ There could have been a few additional letters in the Bartram-Linnaeus exchange, but not many more. Direct correspondence from Philadelphia to Sweden was very difficult and rare in the 18th century.

The stuff of 18th century plant science—herbarium specimens, scientific apparatus, books, drawings, journals and plant catalogues, and even rare examples of historic plants or seeds are occasionally preserved. This materials culture can also help document the early botanic collaboration of Bartram and Logan. In practice Bartram sent manuscript journals of his major yearly travels to Peter Collinson, along with maps, occasional drawings, and large collections of dried plant specimens. Most of the journal material sent to Collinson is now thought to be lost⁸, but large collections of Bartram’s specimens, at least 1000 sheets and possibly double that amount can be found in various collections—at the Natural History Museum, London; the Oxford Herbarium; the Bergius Herbarium at Stockholm; and there are three volumes of Bartram specimens in the Lord Petre *Hortus Siccus*, now owned by the Sutro Library in California. John Bartram’s plant specimens sometimes retain his original collecting notes and occasional notes on cultivation or uses for plants.

Recent examination of the Joseph Breintnall plant prints at the Library Company of Philadelphia, (2 volumes with more than two hundred sheets of nature prints), have shown Bartram was supplying Breintnall with specimens for printing as early as 1733, and labeled Bartram sourced prints continue through 1742. Some of the more unusual plants Breintnall printed can also be attributed to John Bartram based on his known travels or correspondence.⁹

Other artifacts potentially bearing on the collaboration between Bartram and Logan include books, scientific instruments, and plant illustrations. Much of course is known of James Logan’s library, and natural history titles can be sorted from both published and manuscript lists of the Loganian Library collection.¹⁰ Some of the books owned or read by John Bartram can be

⁷ John Bartram to Carl Linnaeus, [October 15, 1748] – in this letter Bartram mentions previous “packets of seeds” presumably with letters, he had sent to Linnaeus via Swedish ministers; John Bartram to Linnaeus, March 20, 1753; John Bartram to Linnaeus, November 11, 1753; John Bartram to Linnaeus, [October 1773]. The letters from Linnaeus to Bartram were pilfered by autograph collectors from the collection of Bartram correspondence before it was donated to the HSP in 1850.

⁸ Only Bartram’s journal for the 1743 up the Susquehanna to Onondaga and Oswego, and his 1765-1766 journal to the Carolinas, Georgia and Florida are now known largely through published versions issued in London. A few small portions of other Bartram journals are preserved in letter drafts or notes made by Collinson.

⁹ Logan does not seem to be named on any of Breintnall’s prints as a source for plants.

¹⁰ Lokken include a short list of Logan’s scientific books in his monograph “The Scientific Papers of James Logan,” ed. Roy N. Lokken, *Transactions of the American Philosophical Society*, n.s. vol. 62, part 6 (August 1972), p. 89-93.

identified from his letters. There is limited information on the later history of the Bartram family library collection, which grew over three generations.¹¹ In the early 20th century a microscope, a magnifying lens, and a telescope alleged to have been once owned by John Bartram were exhibited more than once, but none of these artifacts can be currently located.¹² Original plants illustrations, by the Bartram family or others are mentioned in the Bartram correspondence. And a range of engraved or printed illustrations were also sent to Bartram and Logan in the form of bound books, but also likely as loose prints.¹³

Well over a century of biographical works on Logan, Collinson, and Bartram are inconclusive and undecided over who first “discovered” John Bartram.¹⁴ It is also uncertain when Collinson and Logan began correspondence. By the early 1730s Collinson in London became connected with the young proprietors of Pennsylvania, particularly Thomas Penn, and could have been introduced to Logan by the Penn brothers or by other merchant connections in Philadelphia.¹⁵

The date when Bartram and Peter Collinson began correspondence is also not well established, although it was probably in the early 1730s, and around 1733. The earliest year or two—or more—of their correspondence is probably now lost.¹⁶ The first draft letter that John

¹¹ Some volumes can be traced to an auction sale June 14, 1853 by the last Bartram heirs. “Auction Sale of A Private Library of Rare Botanical, Horticultural and Other Books, This evening, at C. C. Mackey’s auction rooms, ...” *Philadelphia North American and U. S. Gazette*, vol. 71, no. 18,812, (Tuesday, June 14, 1853).

¹² Some Bartram-related artifacts were exhibited in 1931. *Catalogue of Exhibits: Two Hundredth Anniversary of the Founding of the First Botanic Garden in the American Colonies by John Bartram, June 5-6, 1931*. Philadelphia: Academy of Natural Sciences, 1931. Others were noted in newspapers, and in notes of the John Bartram Association, Bartram’s Garden.

¹³ A small assortment of loose engraved plates from Dillenius’ *Hortus Elthamensis*, London: 1732 are preserved with the manuscripts of the “Bartram Papers” collection at the HSP. It is not known that John Bartram ever owned a full copy of the *Hortus Elthamensis*, although he received waste paper from the production of the book to use for specimens.

¹⁴ Norman Brett-James in his 1925 *Life of Peter Collinson* stated: “Collinson introduced Bartram to Logan” and “Logan was a very good friend to Bartram till the day of his death”, p. 157. Brooke Hindle, *The Pursuit of Science in Revolutionary America*, 1956, thought John Bartram had “already attracted the attention of James Logan” before being introduced to Collinson, p 21. Frederick Tolles, *James Logan and the Culture of Provincial America*, 1957, also favored that “Logan had discovered a young Quaker named John Bartram” p. 201. The recent biography, by Jean O’Neill and Elizabeth P. McLean, *Peter Collinson and the Eighteenth-Century Natural History Exchange*, 2008 returns to the idea that Collinson introduced Logan and Bartram: “as far as is known, they were not acquainted until Collinson introduced them”, p. 105. Edmund Berkeley and Dorothy Smith Berkeley in their Bartram biography, *Life and Travels of John Bartram*, 1982, p. 35, state “Logan had seen Bartram only twice” when he wrote the first known letter between them, June 19, 1736—but there is no reference or known source for this fact.

¹⁵ Alan W. Armstrong, ed., “Forget not Mee & My Garden...” *Selected Letters 1725-1768 of Peter Collinson*, Philadelphia: APS, 2002, p. 91, note 4 reports “When Thomas Penn gave up mercery and became a Proprietor (about 1733), he turned over to Collinson a number of his customers...”

¹⁶ The earliest known letter by Bartram to Collinson, dates July 17, 1734, and was published a number of years after it was written—“A Letter from John Bartram, M. D. to Peter Collinson, F. R. S. concerning a Cluster of Small Teeth

Bartram retained, now preserved in the Bartram Papers at the Historical Society of Pennsylvania dates to November 1, 1737—perhaps four or more years into the correspondence with Collinson. John Bartram apparently began keeping Peter Collinson’s letters in 1735, a few years before he began saving his own drafts. But, there are also significant questions over the dating of the earliest surviving Collinson letters to Bartram.¹⁷

And it is not known when John Bartram and James Logan met. The only known Logan letter to Bartram, written from Stenton, June 19, 1736, suggests a close friendship with Bartram already existed.¹⁸ This letter is also a significant document for the history of science as Logan very clearly described a copy of Linnaeus’ first major publication, *Systema Naturae* published in six folio sheets in 1735, which had been sent by Collinson “last year”. Logan’s letter to Bartram outlined Linnaeus’s new method for organizing the vegetable classes of nature by counting the sexual parts—*stamina* and *styles* or “husbands” and “wives”. The next known piece of Bartram-Logan correspondence is a year later, from Bartram to Logan, dated August 19, 1737. Bartram’s 1737 letter to Logan reported on extensive observations from many plant species of pollen under magnification, and *apices* and *styles*, the plant sexual parts that formed the basis of Linnaeus’ new system.¹⁹

John Bartram was mentioned in Logan’s correspondence slightly before the first letter they exchanged on June 19, 1736. A short eleven days prior to that letter, Logan wrote to Peter Collinson:

“Pray procure for me a good Parkinson’s Herbal but not exceeding 25 sh or 30 at most for the first of these was the price when I was in Engl^d & I shall make a Present of it to a

Observed by Him at the Root of Each Fang or Great Tooth in the Head of a Rattle-Snake, upon Dissecting It,” *Philosophical Transactions of the Royal Society*, vol. 41 (1740), p. 358-359. This same text is published in *The Correspondence of John Bartram 1734-1777*, edited by Edmund Berkeley and Dorothy Smith Berkeley. University Press of Florida, Gainesville, 1992, p. 3. [Here after Berkeley & Berkeley 1992.] Oddly, Berkeley & Berkeley date this first letter to 17[33]/34, suggesting it could have been written in 1733?

¹⁷ The earliest known Collinson letter to John Bartram, January 24, 1735; HSP, BP 2:9 has been variously dated to 1734 or 1735 in published editions: Berkeley & Berkeley 1992: 3-6; Darlington, p. 63-65; Armstrong 2002, p. 11-15. The Wildman & West typed transcripts of the Bartram correspondence (APS and John Bartram Association collections) made in the 1950s, date this letter to 1736, and put another letter earlier, Collinson to Bartram, January 20, 1735, HSP, BP 2:8, which Berkeley & Berkeley 1992: 14-17 in turn date to 1736.

¹⁸ James Logan, Stenton to John Bartram, June 19, 1736. This letter only survives as published by William Darlington in *Memorials of John Bartram and Humphry Marshall*. Lindsay & Blakiston, Philadelphia: 1849, p. 307-308. Berkeley & Berkeley 1992: 31-32. [This letter could conceivably date to 1737? It seems to fit better in sequence with Bartram’s letter to Logan of August 19, 1737 and a letter of Logan to Collinson, August 20, 1737 describing “Linnaeus’s two botanic Tables”.]

¹⁹ HSP, Logan Papers, 10:67. Berkeley & Berkeley 1992: 61-63.

person thou values & is worthy of a heavier purse than his fortune has hither to allow'd him..."²⁰

There followed considerable discussion of the purchase of Parkinson's herbal in letters of Logan, Collinson, and Bartram in later 1736 and early 1737. Collinson also began sending letters and materials for Bartram via "*Worthy Friend J:Logan*" for a few years as well.²¹

Assuming Bartram and Logan met in 1735 or 1736—Bartram had already been corresponding and exchanging plants and curiosities with Collinson for two or three years. Logan had long been thinking about the generation of plants and animals and had already complete one or perhaps several seasons of experiments with the pollination of maize—perhaps beginning those experiments with Indian corn in 1727. Logan wrote summaries of his maize experiments and hints about "*Semina primaria Animalium*" or his belief in the primacy of the male in "generation" to a number of correspondents as early as fall 1727. A summary the experiments Logan sent to Peter Collinson November 12, 1734 was first read before the Royal Society January 23, 1735.²² Logan revised and edited his thoughts on the maize experiments in another letter to Collinson November 20, 1735, which was read before the Royal Society in early 1736 and then published in the *Philosophical Transactions*.²³

Presumably James Logan had completed his simple experiments with maize before he ever met John Bartram. Bartram himself was coming under the notice of collectors, naturalists, and virtuosi in Europe and Philadelphia in the early 1730s. Peter Collinson seems to have shared Bartram's letters and yearly shipments of seeds, plants, and curiosities with a small group of friends in London, including Mark Catesby, Philip Miller, Sir Hans Sloane, and Lord Petre. (This same group were supporters of the Trustee Garden in Savannah in the new Georgia colony,

²⁰ HSP, Logan Papers-Alverthorp Letterbook A, p. 4A; quoted in *The Friend* 11 (Philadelphia, August 4, 1838): 347.

²¹ For example in February 1738 Collinson sent Bartram "*Circular Letters to all my friends which letters come to J. Logan to save thee postage*" in preparation for Bartram's Fall 1738 trip through Virginia. HSP BP 2:34; Berkeley & Berkeley 1992: 84-85; Armstrong 2002, p. 64-66.

²² This was not the version of Logan's experiments published in the *Philosophical Transactions* in 1736, but an earlier summary or "abstract". Cited in Stearns, *Science in the British Colonies*, p. 537-538.

²³ "VI. Some Experiments concerning the Impregnation of the Seeds of Plants, by James Logan, Esq; Communicated in a Letter from Him to Mr. Peter Collinson, F. R. S." *Philosophical Transactions of the Royal Society*, vol. 39, no. 440 (1736), p. 192-195.

beginning in 1734.²⁴) In the fall of 1735 Bartram packed his first boxes of North American tree seeds for pay—3 boxes for Lord Petre valued at £18:13:3 in an account from Collinson.²⁵

If there is no good evidence how Bartram and Logan were connected, Bartram's introduction to Collinson has usually been credited to Joseph Breintnall (d. 1746). Collinson himself in a letter of 1744 said it was Dr. Samuel Chew who recommended Bartram: "*it really is True what my f^d Sam Chew said (who recommended Thee to Mee) that nothing can well Escape thee—*"²⁶ Breintnall, whether he was the first to introduce Bartram and Collinson or not, rapidly became the major conduit for letters, packages, books, seeds, and more between the pair. As Collinson filled the role of London purchasing agent for the new Library Company of Philadelphia in 1732, and Breintnall served as the first secretary, they had an ongoing trans-Atlantic correspondence. For years Collinson packed goods and letters for Bartram in the boxes of books he shipped to the Library Company in Philadelphia.²⁷

John Bartram only moved in close proximity to urban Philadelphia after the purchase of a 102 acre farm in Kingsessing Township in fall 1728.²⁸ Before that Bartram had lived some distance farther west, in Darby Township, Chester County. With the move to Kingsessing, Bartram was only 5 or 6 miles from the heart of colonial Philadelphia, but the tidal Schuylkill River remained as a barrier to easy access to the city and its social and intellectual gatherings. How or when Bartram and Breintnall met is unknown, but it seems likely it was Breintnall who introduced Bartram to Logan, Franklin, and the group of "curious men" gathering in Philadelphia—in Franklin's Junto and around the new Library Company.

In surveys of early American science it has been implied that John Bartram was a "young protégé" of Logan's, and that Logan's assistance was a major factor "enabling Bartram to make

²⁴ Renate Wilson and David L. Cowan, "Trustee Garden," *New Georgia Encyclopedia* (2003). <http://www.georgiaencyclopedia.org/articles/history-archaeology/trustee-garden#>

²⁵ Collinson to Bartram, March 12, 1736. HSP, BP 2:13; Berkeley & Berkeley 1992: 24-25.

²⁶ Peter Collinson to John Bartram January 16, 1744. HSP, BP 2:71; Berkeley & Berkeley 1992: 229. Dr. Chew apparently only arrived in Philadelphia in 1732 from Maryland. William Bartram, in "Some Account of the late Mr. John Bartram..." printed in the *Philadelphia Medical and Physical Journal*, vol. 1 (1804), p. 119 wrote "one of his particular friends undertook to convey" his father's collections "to the celebrated Peter Collinson, of London." A footnote by William Bartram, or more likely the editor B. S. Barton, identified the particular friend as "Joseph Brentnal, Merchant of Philadelphia."

²⁷ After almost 3 decades of this practice, ca. 1761, Collinson was criticized by a later generation in charge of the Library Company. Collinson resigned his volunteer position as London agent for the Library as a result. O'Neill and McLean, *Peter Collinson*, p. 92.

²⁸ This was the first of three adjacent farms Bartram purchased in Kingsessing between 1728-1739—eventually totaling close to 300 acres.

his contribution to the progress of eighteenth-century botany.”²⁹ Bartram was “another poorly educated colonial,”³⁰ helped along the way by the eminent scientist James Logan.³¹ But Bartram was not particularly young when he began working with Logan. If early 1736 is the correct date for the beginning of the relationship, Bartram was already in his mid-30s, and when the collaborating cooled Bartram was approaching 40. Logan of course was significantly older than Bartram, and in his 60s when they met. Age may have been the single major reason Bartram was not willing to be patronized by Logan for long, in spite of apparent benefits the association might have produced.

In a sense, Bartram and Logan were not that different in background, and that too may have contributed to their prickly relationship. John Bartram was probably not so much the uneducated country bumpkin as he has often been portrayed. Both Logan and Bartram were largely self-educated, although of course Logan had the benefit of a trained schoolmaster for a father and European libraries while he was learning. Nothing is known of Bartram’s early education. Both Logan and Bartram were born into the Quaker world, and not part of the first generation of enthusiastic converts. Both were immersed in Quaker culture and generally accepted the Quaker world-view, with occasional doubts or disputes. Both Logan and Bartram were denied membership in the Royal Society, so their scientific observations were filtered through Collinson and others prior to publication. Possibly both Logan and Bartram might have been more productive if they had been elected members.

Although it is not apparent from any of the limited surviving documents, James Logan could have known something about John Bartram before they met. Logan certainly knew some of Bartram’s extended family, but whether he connected them with John when they met is unknown. John Bartram’s paternal grandfather, John Bartram (1650-1697) came to Pennsylvania ca. 1683, from the Peak district of Derbyshire, UK and had settled on a 300 acre farm in Darby, Chester County by 1685. Grandfather John Bartram served a term in the Pennsylvania Assembly in 1689. John’s father William Bartram (1674-1711) also served a term in the Assembly in 1708.

Members of the extended Bartram family were involved with the Indian trade to Conestoga in the early 18th century and certainly Logan knew them. Elizabeth Bartram (1684-

²⁹ Lokken, “Scientific Papers of J. Logan,” p. 9

³⁰ E. Gordon Alderfer, “James Logan: The Political Career of a Colonial Scholar,” *Pennsylvania History*, vol. 24, no.1 (January 1957), p. 106.

³¹ Hindle, p. 21-22.

1732), the youngest sister of John Bartram's father William, was born in Pennsylvania, and in 1705 married John Cartledge (1684-1722) soon to be a significant trader at Conestoga on the Susquehanna. James Logan had repeated contact with Cartledge and his brother Edmund. In early March 1722 Logan traveled to Lancaster County with a warrant for the arrest of the two brothers for the murder of a Seneca on the frontier, an event which required extended negotiations with the Five Nations.³²

John Bartram's ancestors on the maternal line, were also known figures in early Pennsylvania, and may also have been in part involved in the Indian trade to the Susquehanna. John Bartram's maternal grandfather, James Hunt (ca. 1643-1717) originally from Bearstead, Kent, acquired three tracts in southern Kingsessing Township in the 1680s, which included the long-established Swedish trading station serving the Mingo or Susquehannock trade. James Hunt lived at the old Swedish trading location, and young John Bartram presumably visited there, as it was a short distance from the Bartram farm in Darby. Hunt married his first wife and Bartram's grandmother, Elizah Chambers (ca. 1654-1682) in Kent in 1676. She was a niece of Benjamin Chambers (d. 1715) who was the sometime president of the "Society of Free Traders" and a significant figure in early Pennsylvania. In the early 18th century Chambers owned large tracts of land in Kingsessing and Blockley townships including the Lower Ferry—for a time called Chamber's Ferry. Chambers owned the large tract "The Woodlands" and additional farm tracts on the lower Schuylkill, both above and below the future site of Bartram's Garden. When John Bartram's father, William Bartram died in 1711—a victim in the Tuscarora War in North Carolina, Benjamin Chambers was one of the executors of his will. Chambers may have served for a time after 1711 as the legal guardian for his orphaned great-grand-nephews, John Bartram and his younger brother James.³³

³² James H. Merrell, *Into the American Woods: Negotiators on the Pennsylvania Frontier*, NY: 1999, p. 115-121; Wilson Armistead ed., *Memoirs of James Logan*, London: 1851, p. 78-81. John Bartram traveled to Conestoga more than once to collect plants in the 1730s. The Bartram family seems to have retained a connection with that area of Lancaster County into the next generation. William Bartram (1739-1823), the botanist/traveler, had a twin sister Elizabeth (1739-1794) who married William Wright in 1771 and went to live at Conestoga Manor for her adult life.

³³ John Bartram's mother Elizah Hunt Bartram died in 1701, when he was 2 years old. His maternal grandmother Elizah Chambers Hunt died in Kent, 17 years before he was born. The Bartram connection with Benjamin Chambers was strong enough that December 31, 1720 John Bartram signed a deed, for the consideration of £60, relinquishing any claim to the Chambers estate, including a 600 acre tract "The Woodlands" in Blockley and Kingsessing townships, and other lands in Delaware in favor of Stephen Jackson and his wife Elizabeth Chambers Jackson, also heirs of Chambers. Philadelphia Deed Book G-7, p. 248. George E. McCracken, *Penn's Colony: Genealogical and Historical Materials Relating to the Settlement of Pennsylvania. Vol. 2: Welcome Claimants Proved, Disproved, and*

Adding to these facts linking the extended Bartram family to the Indian trade, the original Bartram farm in Darby, Chester County [modern Delaware Co.] was apparently located on the major trading trail from the Susquehanna to the Schuylkill—where the “Minquas Trail” crossed Darby Creek.³⁴ A fragment survives from a letter by John Bartram to the English naturalist George Edwards, January 27, 1757, that seems to also support this major trail went through the Bartram farm in Darby:

*“I can remember perfectly well, that when I was a boy, the Indians came frequently to our house. Their dogs had sharp-pointed upright ears, and we used to think that they were of the wolf-breed...”*³⁵

There is currently little known evidence for any of John Bartram’s travels before the 1730s and his first well-documented trip was to West Jersey in the fall of 1735. But John Bartram may very well have visited relatives on the frontier as a child or into his 20s. Bartram family participation in the Indian trade and knowledge of frontier travel may have helped train Bartram for his future role as a traveling botanist.

How much if any of this family background James Logan knew, when he first met John Bartram in the 1730s is unknown. The timing of Bartram and Logan’s meeting, ca. 1736, was particularly busy for Logan. Logan was serving as chief justice of the Pennsylvania courts, and as president of the Council was the acting executive for the colony from October 1736 through mid-1738. A fall in January 1728 had fractured Logan’s left thigh bone at the hip joint, leaving the leg useless and Logan crippled from then on. Logan would probably have preferred to stay at his newly completed country estate Stenton, but continual business brought him back to the city.

Bartram himself was equally busy from 1736 onward with collecting trips and explorations to new areas. In 1736 Bartram traveled in June to a West Jersey cedar swamp near the source of the Egg Harbor River; made a summer or early fall trip up the Schuylkill River over the Rattlesnake Mountains to the source of the river for over 300 miles round trip—mapping the course of the river; and an additional trip to New Castle, Delaware at some point. In

Doubtful with an Account of Some of Their Descendants. The Welcome Society of Pennsylvania, 1970, p. 112-116. Benjamin Chambers, John Chambers, and James Hunt may have immigrated to Pennsylvania together.

³⁴ The “Supposed path of the Minquas Indians to the Schuylkill” is plotted in the “Map of the Early Settlements of Delaware Count, Penna.” in George Smith, *History of Delaware County, Pennsylvania, From the Discovery of the Territory Included Within Its Limits to the Present Time.* Printed by Henry B. Ashmead, Philadelphia: 1862.

³⁵ Quoted by B. S. Barton, “Some Account of the Native American or Indian Dogs,” *Philadelphia Medical and Physical Journal*, Part 1, Vol. 1 (1804), p. 18-19. [William Bartram loaned B. S. Barton original letters and journals of John Bartram that are apparently now lost.]

1737 and 1738 Bartram's trips grew longer and headed south. He traveled to Conestoga, the Jerseys, and Kent County, Maryland; in fall 1737 he made an extended trip the length of the Delmarva Peninsula—down the coast and then up the bay side. In 1738 he was across the Susquehanna collecting, in the Jerseys more than once, and had an extended fall trip through Maryland and Virginia, from Williamsburg up the James River to the Shenandoah and Potomac.

As mentioned above, Logan's June 1736 request that Peter Collinson "*procure for me a good Parkinson's Herbal*" may be the earliest mention of John Bartram in the Logan correspondence. This letter continued as a rather forthright and powerful warning to Collinson and his friends about exploiting poor John Bartram:

*I cannot but admire that you who has them should be so narrow to those you know deserve well to be considered in another manner. Bartram has a genius perfectly well turned for Botany & the Productions of Nature but he has a family that depends wholly on his daily labour spent on a poor narrow spot of ground that will scarce keep them above the want at the necessaries of life. You therefore are robbing them while you take up one hour of his time without making a proper compensation for it. Both thy self at the head of so much business and thy noble friend and friends should know this. No man in these parts is so capable of serving you and none can better deserve encouragement or worse bear the loss of his time without a consideration...*³⁶

This may be explained in part as an example of Logan's righteous indignation. Both Logan and Bartram—again maybe a sign of their personal similarities—tended to explode in writing with similar and sometimes comedic anger. It is not even improbable that Bartram might have complained obliquely about Collinson to Logan, resulting in this letter.

In a later reply to Collinson in November 1736, Logan tempered what he had said, perhaps on learning that Bartram wasn't quite as impoverished as he feared. "*J. Bartram has called on me since by thy direction to acknowledge my regard to him; he is somewhat easier in his circumstances, I find, by means of his indefatigable industry, than I apprehended he could be.*"³⁷

Both Logan and Collinson, and others among Bartram's European correspondence appeared surprised by the fact that John Bartram worked for his living as a farmer. It is hard to say if they were more shocked or intrigued by something so foreign to their class. But there was

³⁶ James Logan, Stenton, to Peter Collinson, June 8, 1736.

³⁷ James Logan to Peter Collinson, November 1736; Quoted in *The Friend* 11 (Philadelphia, August 4, 1838): 347. [Location of original MS unknown, presumably at the HSP.]

a long tradition of working gardeners as botanists and published authors in Europe including among many others Gerard in the 16th century, Parkinson in the 17th century, and Miller and Catesby in the 18th century. Much of John Bartram's early reading in botany was largely in these very same authors—who generally wrote in English.

Logan's first attempt to help Bartram was with a copy of "*Parkinson's Herbal*." This short title could refer to at least two different works—John Parkinson's *Theatrum Botanicum*... first published in London in 1640 or Parkinson's *Paradisi in Sole, Paradisus Terrestris*... published in 1629 and enlarged in 1656. There is overlap in the contents of these two works, but *Theatrum Botanicum* was more comprehensive, and more an apothecary's herbal emphasizing medical and functional uses for plants, while *Paradisi in Sole* was more a compilation of fine garden plants, flowers, and kitchen garden plants. Despite their Latinized titles, both these works were written in English. Most likely Logan meant *Theatrum Botanicum* as the herbal he wanted for Bartram, and further repetitions of the order by Logan to Collinson seem to imply that.

*...he has no herbal besides Salmon's, which thou knows could not well answer his views, nor have I any other of value than Johnson's upon Gerard, and therefore was willing to get Parkinson's as better stored with accounts of American plants.*³⁸

Here Logan recites other significant English herbals—William Salmon's *Botanologia: The English Herbal*..., London: 1710; and John Gerard, *The Herball, or Generall Historie of Plants*... enlarged and amended by Thomas Johnson, London: 1636.

According to Logan, in November 1736, Bartram had "*no herbal besides Salmon's*." In a subsequent letter to Sir Hans Sloane, Bartram said Logan gave him Salmon—among the first authors he, Bartram read.³⁹ Salmon's *English Herbal* was the most contemporary large herbal in print, and there is some suggestion from the plant names used in the Breintnall leaf prints that both Bartram and Breintnall were reading Salmon. Why Logan thought Salmon "*could not well answer his views*" is not completely clear. Salmon's herbal recorded a great deal of practical medical use for plants, but mostly traditional English wild or garden plants. Parkinson's works do contain some North American plants, maybe on the order of 30 or 40 species, but they were not particularly "*stored with accounts of American plants*." All these books are massive folio volumes, illustrated, with encyclopedic content on plants, plant medicines and uses, and there are some popular new American plants in all three—Gerard, Parkinson, and Salmon. Parkinson's

³⁸ *ibid*

³⁹ John Bartram to Hans Sloane, September 23, 1743. HSP, BP 1:24:5; Berkeley & Berkeley 1992: 224.

Theatrum Botanicum contained a section on woody plants—trees and shrubs, and that may have particularly suited Bartram’s “views.”

Through the later summer and fall of 1736, Peter Collinson informed Bartram on several occasions that Logan had ordered a copy of “*Parkinson’s Herbal*” for him. August 28th:

*Thy Kind neighr James Logan is so Good as to order Mee to Buy thee Parkinson’s Herbal if I can have it for 25 shillings—He has shown a very Tender Regard for thee in his letter to Mee—it may Look Gratefull Every Now & then to Call and Inquire after they Good Frd Logan’s Welfare He is a Great Man in Every Capacity & for Whome I have the Highest Value...*⁴⁰

And September 20th:

*I have after Some Inquiry Mett with Parkinsons Herbal which I have bought p 25s by the Directions of My Good Friend J:Logan—He Designs it as a present to Thee It may not be amiss att a suitable Time to Wait on Him but take not the Least Notice that I gave thee this Hint unless He should ask they & then tell him freely—*⁴¹

These letters are still early in the Bartram-Collinson exchange and Peter Collinson is still very careful to pass on his experience in dealing with the gentry.

It seems Bartram’s copy of Parkinson was shipped from London to Philadelphia by the end of 1736. In January 1737 Collinson inquired if Logan had presented “*Parkinsons Two books*” to Bartram.⁴² This is the only reference to two books, and could mean the copy of *Theatrum Botanicum* was bound into 2 volumes—but may more likely mean Collinson was able to acquire both Parkinson’s *Theatrum Botanicum* and *Paradisi in Sole* for Bartram at the 25 shilling price Logan requested. There is little other mention of Parkinson in the Bartram correspondence beyond this, but a copy of “Parkinson’s Theatre of Plants” was listed in a short list of book titles auctioned from a portion of the Bartram family library in June 1853.⁴³

In 1736 and 1737 Collinson sent some letters and packages to Bartram through James Logan—sometimes directly through Logan and sometimes through Edward Shippen, III, Logan’s partner. For example Collinson sent Bartram unsealed letters of introduction to various friends

⁴⁰ Peter Collinson to John Bartram, August 28, 1736. HSP, BP 2:29; Berkeley & Berkeley 1992: 34.

⁴¹ Peter Collinson to John Bartram, London, September 20, 1736. HSP, BP 2:30; Berkeley & Berkley 1992: 34-35.

⁴² Peter Collinson to John Bartram, January 20, 1737. HSP, BP 2:20; 3:30-32; Berkeley & Berkeley 1992: 80.

Berkeley & Berkeley dated this letter to January 1738, but that seems wrong as the same letter mentions the return of “*Friend Robert Grace*” from London and it is known Grace arrived back in Philadelphia in Spring 1737—bringing a number of books, items, and boxes of plants for Franklin, Bartram and other friends. This same letter was dated to 1737 in the Darlington edition *Memorials...*, p. 82.

⁴³ “Auction Sale...” *Philadelphia North American*, Tuesday, June 14, 1853.

and correspondents on the Eastern Shore of Maryland in spring 1737 and similar “*Circular Letters*” to his contacts in Virginia “*In thy packet to J:Logan*” along with “*a Twig of a pear Tree with an Enameled Ring of Caterpillars around it...*”⁴⁴

Although there is little further reference of books from Logan to Bartram in the Logan or Collinson correspondence, there is other evidence Logan supplied Bartram with a number of other books besides Parkinson. Two years into his correspondence with Hans Sloane, Bartram summarized a “*catalogue of my botanical books indeed it is soon done*”—hoping to get additional books from Sloane. Logan headed this list as a source of Bartram’s books: “*The first authors I read were Salmon, Culpeper & Turner these James Logan gave me*”⁴⁵ These titles were likely Salmon’s *English Herbal*; Nicolas Culpeper’s *English Physitian* 1652 (or later—or possibly another of Culpeper’s many publications), and William Turner’s *A New Herball...* London: 1551 (with many later editions). There is also a known copy of Linnaeus, *Critica Botanica*, Leiden: 1737 with John Bartram’s inscription: “*John Bartram his Booke given him by James Logan in the year 1739*”.⁴⁶

It was in the introduction to Linnaeus—to Linnaeus’ books, to his system of natural history and ordering of plants, and eventually in a written recommendation of Bartram to Linnaeus that Logan provided his single most useful service to John Bartram. Certainly, Logan was not the only person to recommend Bartram to Linnaeus—earlier Collinson, Gronovius, and later Colden and Kalm all connected Bartram with Linnaeus. But the Logan-Bartram-Linnaeus link is significant, in part because it is so well-documented.

Again it was apparently the summer of 1736 when Bartram and Logan were their closest. June 8th Logan had written Collinson “*Bartram has a genius perfectly well turned for Botany & the Productions of Nature*” and shortly after that he remembered he had six printed folio tables that had been sent by Collinson the previous year—“*in which the author digests all the productions of Nature in classes.*” This led to what is currently the only known letter from Logan to John Bartram, June 19, 1736. Logan’s letter is a very good summary description of the first edition of Linnaeus’ *Systema Naturae*, first published in Leiden in 1735, while Linnaeus was in

⁴⁴ Peter Collinson to John Bartram, March 22, 1737. HSP, BP 2:24; Berkeley & Berkeley 1992: 43. Peter Collinson to John Bartram, February 17, 1738. HSP, BP 2:34, Berkeley & Berkeley 1992: 84-85.

⁴⁵ John Bartram to Hans Sloane, September 23, 1743.

⁴⁶ McLean Library, Pennsylvania Horticultural Society.

The Netherlands acquiring a medical degree. Logan's letter to Bartram is worth repeating in full as it shows Logan's quick understanding of the new Linnaean system:

Friend J. Bartram:—

Last night, in the twilight, I received the inclosed, and opened it by mistake. Last year Peter sent me some tables, which I never examined till since I last saw thee. They are six very large sheets, in which the author digests all the productions of Nature in classes. Two of them he bestows on the inanimate, as Stones, Minerals, Earths, two more on Vegetable, and the other two on animals. His method in the Vegetables is altogether new, for he takes all his distinction from the stamina and the styles, the first of which he calls husbands, and the other wives, He ranges them, therefore, under those of 1 husband, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 20, and then of many husbands. He further distinguishes by the styles, and has many heads, under which he reduces all known plants.

The performance is very curious, and at this time worth of thy notice. I would send it to thee, but being in Latin, it will want some explanation. Which, after I have given thee, thou wilt, I believe, be fully able to deal with it thyself, since thou generally knows the plants' names. If thou wilt step to town to-morrow, thou wilt find me there with them, at E. Shippen's, or I. Pemberton's, from 12 to 3. I want also to say something further to thee, on microscopical observations.

*Thy real friend,
J. Logan⁴⁷*

When Logan wrote to Bartram, his copy of *Systema Naturae* was likely the only copy in North America, and Linnaeus's "very curious performance" was not to be regularly accepted or followed by practicing botanists in Europe for a decade or more. Peter Collinson had met young Carl Linné in London in 1735, but many of Collinson's botanical friends were not very impressed with young Linnaeus, notably Philip Miller at the Chelsea Garden. Logan may have been taken by Linnaeus' system in part for its mathematical simplicity and clarity. It may be an understatement to say Logan was perceptive in thinking Linnaeus would be worthy of Bartram's notice. From the conclusion of the letter it seems Logan is very willing to push this new system off to Bartram after some short explanations of the Latin, and on "*microscopical observations.*"

⁴⁷ James Logan, Stenton to John Bartram, June 19, 1736. The original MS of this letter is missing and the text survives from the 1849 Darlington, *Memorials...* edition. Berkeley & Berkeley 1992: p. 31-32. [The date of 1736 must be accepted, but perhaps possibly this letter could date to 1737? Bartram and Logan seem much more immersed in testing out the new Linnaean sexual system on plants in the summer of 1737.]

All Bartram had to do was track Logan down at E. Shippen's or I. Pemberton's, and the scientific revolution could begin.

The first known Bartram letter to Logan, apparently a year later, August 19, 1737 finds Bartram making observations consistent with the new Linnaean system and demonstrates Bartram's observations on "*farina*" or pollen, and "*apices*" and "*styles*" or the male and female parts of flowers for dozens of wild and garden plants.

*I here give thee some account of the farina as I observed it at the time when the Apices opened & discharged it. I observed all these flowers at several states of perfection with what judgment & ingenuity I was capable of I believe it is near right but if thee sees mistakes I hope thee will consider that I am at the best but A learning pray excuse my freedom So in Consideration of thy many favours & the kind instructions I remain thy sincere friend*⁴⁸

Bartram followed these paragraphs with a long list of plant names—garden plants, native and exotic flowers, and some local wetland plants from the lower Schuylkill, named with a mixture of English and Latin plant names, and even some paired Latin descriptive names which were the equivalent of later binomials. For each of these plant species Bartram gave descriptions and counts for male and female parts and general descriptions of the appearance and position of the male and female parts within the flower. Bartram also included sketches of pollen grains as they "*appeared magnified by the fourth magnifier*" which very likely referred to a microscope from Logan.

Logan himself mentioned Linnaeus' *Systema Naturae* and Bartram's research in a letter written to Peter Collinson just a day after the date of Bartram's long summary of his flower observations.

...I am greatly pleased with Linnaeus's two botanic Tables which if he is just in them shew the vast pains he has taken in examining the parts of flowers in relation to their Stamina Apices and Stiles. I have put them into the hands of J Bartram to examine them who having been formed a Botanist by nature which I never was knows the kind and name of every plant he sees or at least most that have occurred to him I have also put him in a way to understand them in Latin and furnished him with microscopes to enable him to make the proper scrutiny but he wants leisure having not only his Plantation to

⁴⁸ John Bartram to James Logan, August 18, 1737. HSP, Logan Papers, 10:67; Berkeley & Berkeley 1992: 61-63.

*manage but he is building himself a house most of the work of which of every kind I am told he does with his own hands.*⁴⁹

This was not the only time Logan would deny that he was a botanist—both to Collinson and Linnaeus—and Logan was probably being honest.

Bartram apparently asked Collinson for a better microscope and additional optical equipment in a letter dated July 6, 1737 that is now missing.⁵⁰ Bartram also asked for additional botanic texts—particularly an English translation of the French botanist Tournfort’s works. Collinson’s answer to Bartram’s requests does survive, and it was a preachy and condescending letter—different from Collinson’s usual tone. In this unusually long letter, dated December 14, 1737, Collinson criticized Bartram’s time spent in Linnaean botany, and in effect tells him he is wasting his time and must be neglecting his proper business.

*My Friend Logan tells Mee thee are very Dexterous in Dissecting Flowers, which requires in some of them both Good Eyes and good Glasses to Discover their very Minute parts this is a very Curious Study & full of Wonders but must take up a great Deal of Time to be Exact & is a pretty Amusement for those that have it hang upon their hands, but for thee and Mee I think Wee can’t allow it, without prejudice to our other Weighty Affairs*⁵¹

In the course of this letter—which was a response to several Bartram letters, including reports on Bartram’s collection trips to Conestoga and to the headwaters of the Schuylkill River—Collinson criticized Bartram’s request for more books—“*besides now thee has Gott Parkinson & Miller, I would not have thee puzzle thy Self with Others for they contain the Ancient & Modern Knowledge of Botany*” Collinson questioned Bartram’s request for a better microscope and his understanding of optics—“*If thee will please to Inquire of our Worthy & Learned Friend James Logan who is well versed in opticks He will tell thee, that there is no making a Glass to Magnify to such a Degree as thee wants*” And Collinson ended the dressing down of Bartram with a criticism of Linnaeus and his new system:

⁴⁹ James Logan, Stenton to Peter Collinson, August 20, 1737. HSP, Logan Papers-Alverthorp Letterbook A, p. 28B-29A. Quoted in *The Friend*, vol. 11, (Philadelphia, Sunday, August 4, 1838), p. 347. [This August 20, 1737 letter seems logically to follow closely after the letter of Logan to Bartram, dated June 19, 1736—and suggests one of these letters might be mis-dated a year.]

⁵⁰ Apparently Logan furnished more than one microscope to Bartram. Logan’s copy of the 1735 edition of *Systema Naturae* did not seem to transfer to the Loganian Library collection, which might be further evidence that Logan gave his copy to Bartram. There is no later evidence for the book in the Bartram family library.

⁵¹ Peter Collinson to John Bartram, December 14, 1737. HSP, BP 2:41; Berkeley & Berkeley 1992: 70-72

The Systema Naturae is a Curious pformance for a young Man but His coining a Sett of New Names for plants tends but to Embarrass & perplex he Study of Botany As to his System on which they are Founded Botanists are not agreed about It very few like It

Collinson's unrepressed anger, directed at Bartram in this letter, seems in part a response to Logan's earlier criticism that Collinson and his wealthy friends were exploiting "Friend John." Unfortunately all of the Bartram letters (from April through July 1737) that Collinson mentions in the course of this December 1737 letter are lost, so there is now way to know what Collinson was replying to. It may have been Bartram's enthusiasm over his new scientific observations bothered Collinson; or maybe Bartram was sending Collinson too many requests for books, equipment, and attention. Or Collinson could have re-read Logan's critical letter of June 8, 1736. Even now, it seems fairly transparent that Logan was one of the targets of Collinson's letter:

I am Heartyly glad thee has so good a friend as James Logan being a Man of great Compassion & Humanity He writt to Mee some time agon in thy Behalf, fearing Wee had no Consideration for thy Collections—this I think was an Instance of his great Regard for thee no doubt but he considers thee for any Time taken up from thy own Affairs

In an additional letter, written a week or so later on December 20, 1737, (but likely sent and received by Bartram together), Collinson continued to discourage Bartram's request for a microscope and other optical equipment:

The Magic Lanthorn is a Contrivance to make Sport with Ignorant people—there is nothing Extraordinary in It—So not worth thy further Inquiry—

Thee art still Desirous of a Magnifier for Flowers—pray make thy Compliments to J:Logan & trye his thoughts—as thy Inquiry seems in Some Measure to be owing to Him & thee art his pupil (which no Man Need be ashamed of) no doubt but He will furnish thee with Suitable Instruments for that purpose in order to render thy Discoveries more pfect, so undoubtedly more to his Satisfaction

It is not known why Bartram wanted a magic lantern—but possibly for optical enlargement and projection of flower parts, and not "to make Sport with Ignorant people." The late December 1737 letter from Collinson also included some discussion about Bartram's expenses and payment for collecting. At this early date Bartram had three subscribers putting up 30 guineas of £21 sterling. Collinson argued that this should well pay for 5 or 6 weeks spent annually in collecting. But "if thee canst not afford to go on with this business—tell us so—and it will be at an End."

These critical letters from Peter Collinson in December 1737 led to equally peevish replies from John Bartram around May 1738.⁵² And just as Collinson's letters seemed in part directed towards Logan, Bartram also began to draw complaints about his patron James Logan into the exchange with Collinson. By the end of 1737 Bartram and Collinson had already developed a very personal and friendly tone in their letters, and certainly Bartram rarely addressed any of his other correspondents so directly and bluntly as he did Collinson. It seems strange that both were obliquely criticizing James Logan through their letters—and almost certainly neither would have addressed similar language to Logan himself. Perhaps both Bartram and Collinson's comments can be over-emphasized, and the apparent growing breach with Logan was temporary. At least for Bartram, from 1738 onward there is significantly less evidence for close association with Logan. And Bartram continued to vent anger toward Logan from time to time in letters to Collinson into the 1740s.

John Bartram's first open criticism of Logan surfaces over a rather trivial event. Collinson, apparently unasked, sent John Bartram some sloe trees or cuttings in 1737 (European blackthorn, *Prunus spinosa*—a thorny plum relative often used for hedging). Bartram's first comments on this are lost, but Collinson cautiously replied "*That you have Sloe Trees Enough when J:Logan writt to Mee for Some is very Surprising I see I must Venter to Send nothing without orders for fear you have it already...*"⁵³ Bartram, feeling particularly put upon, (after receiving Collinson's two December 1737 letters) replied in May 1738 with very a very specific critique of Logan:

thee seems to be surprised that I should write that we have sloe trees enough—and James Logan rote to thee for some but, my good friend, I assure thee, I assert nothing to thee but what is real fact the first I observed sloe trees was at a plantation whose owner came two years into this country before A house was builded in Philadelphia I brought some from there when I settled on my plantation I saw another tree near Philadelphia as thick as my thigh & last year I showed James Logan English thorns, Bullises & sloes growing in A hedge where he rides close by from his house to town which I believe hath been planted 20 year & many others grow in several distant places in the country (but are liable to be bit with the same insects that the rest of our stone fruits except peaches & cherries is) & are increased by plenty of suckers; in fact James Logan is poseded of a large field of learning & knowledge beyond any in our province or perhaps our

⁵² It would seem the winter must have delayed Bartram's receipt of Collinson's letters and instructions of December 1737.

⁵³ Peter Collinson to John Bartram, December 20, 1737.

*neighbors yet he hath but A measure of it & sometimes I can see as far into A milstone as he unless he puts on his spectacles*⁵⁴

This same May 1738 letter included many choice Bartram phrases—on books, on time spent in collecting, and on insufficient payment—all in response to Collinson’s criticism from letters at the end of 1737. Bartram ended his letter with something of an apology to Collinson—so it may be well not to over-emphasize the criticism of Logan embedded in the letter. But at least from John Bartram, from this point onward there was infrequent mention of Logan in letters, and the few very mentions of Logan were veiled or direct criticism. Bartram may well have thought he had learned all he could from Logan, and his long discussion about sloe trees seems contrived in a very simple way to demonstrate to Collinson that Bartram knew a lot more about plants than Logan.⁵⁵

Logan may or may not have realized that Bartram was finished being a pupil. At least through the end of 1738 Logan was still actively promoting and recommending Bartram to his correspondents, most notably in his only letter to Linnaeus in October 1738⁵⁶. By the end of 1737 Logan had re-written and enlarged his maize experiments into a longer Latin essay, and probably around October 1738 Logan had sent his revised Latin essay “*Experimenta et Meletemata de Plantarum Generatione*” to Collinson, along with a longer Latin essay on optics for publication in Europe. In his letter to Linnaeus, Logan was responding to a letter from Linnaeus from Amsterdam, dated May 1, 1738, now missing. Linnaeus was apparently aware of the summary of the maize experiments published in the *Philosophical Transactions* in 1736. Logan informed Linnaeus his “findings concerning real generation” were not published in that summary, but he had “confirmed his previous hypotheses” and committed them to a “scientific discourse, accessible to scholars, above all to Linnaeus.” This is certainly a reference to the Latin essay, published in Leiden in 1739.

⁵⁴ John Bartram to Peter Collinson, May 1738. HSP, BP1:42:2; Berkeley & Berkeley 1992: 89.

⁵⁵ Bartram’s observations on these traditional British “stone fruits” in North America are interesting both as natural and cultural history. Sloes, bullaces, and English thorns were ubiquitous hedgerow plants in Britain, forming thorny living fences for pastures and fields, and providing wild gathered or semi-cultivated fruit. Bartram’s comment makes it clear these common English hedging plants were brought to Pennsylvania “before A house was builded in Philadelphia” and they grew well, but never ripened much fruit in America. Insect pests—most significantly the curculio prevented many European stone fruits from developing and ripening in Pennsylvania, and they were largely abandoned in the first generation of colonization in favor of better suited fruits.

⁵⁶ James Logan to Carl Linnaeus, October 17, 1738 [Oct. 28, 1738 N. S.] Linnean Society, London; http://linnaeus.c18.net/Letters/display_txt.php?id_letter=L0259. Logan’s letter is in Latin, and English text here is from a summary translation from the Linnean Correspondence webpage. The Logan letter was in reply to a letter of Linnaeus, May 1, 1738, which is now lost.

Logan commended Linnaeus' *Systema naturae*, "a small but splendid work", but asserted that he, Logan was "completely ignorant in the field of botany". Instead, Logan praised and recommended John Bartram to Linnaeus—"a farmer and acquaintance of his with an elementary education, who is fully initiated in natural history". Logan also acknowledged Bartram's contributions to his enlarged essay on generation (an acknowledgement that did not appear in the printed version of the essay). He had "encouraged Bartram to investigate pollen in different plants and to conduct experiments on the observations made by Logan in the central and final parts of his dissertation." Logan reported to Linnaeus that Bartram's yearly collections and observations went to Collinson—who communicated them to the Royal Society and to Dillenius and Gronovius. "From Bartram and from Mark Catesby one may rightly expect all of nature's marvels in those regions to be documented."

In light of Logan's own statement to Linnaeus that he was "completely ignorant in the field of botany," it is worth looking closer at his maize experiments. Logan's experiments would seem to be a good example of Baconian or Newtonian science—a simple, yet elegant, empirical demonstration that was easy to explain and easy to repeat. The choice of Indian corn or maize as the subject was perceptive—maize is large and fast growing, with curious flowers and exceptionally large male and female flower parts, separated a good distance along the stalk. (And maize was perhaps one of the most characteristic, new "American" plants then in wide cultivation in the North American colonies and Europe.) Logan's simple experiments with maize seem to have been replicated by many over the years, and could still stand as a good project for an elementary school science fair. But on close examination it isn't clear that Logan knew what he was demonstrating or that he proved what he claimed. And at least some of Logan's contemporaries were not particularly convinced that his demonstration was new or brilliant.

Logan maize experiments came following a reading over the winter 1726-1727 of William Wollaston, *The Religion of Nature Delineated* (multiple editions 1722-1726) on "*Semina primaria Animalium*" or "*true male seed*"; and Richard Bradley, *New improvements of planting and gardening* (1717-with multiple editions), which presented what to Logan was a new idea: "*that all plants have their male as well as female seed*". Logan was excited by the potential metaphysical, theological, and ontological significance of this:

the first Seeds, the true Essences of all beings exist (perhaps ab origine) perfectly formed in the air & other parts of our Globe, that they are received by the Male in Depositories,

*fitted for them and there prepared with a proper apparatus to be transmitted into the female*⁵⁷

Logan probably began experiments with maize in the spring of 1727, in the back garden of his Philadelphia city house on 2nd Street. And he may have continued the experiments over more than one year—although his written account was summarized as one season. Logan wrote letters to Bristol—to his brother Dr. William Logan, to botanist Thomas Goldney, and others in fall 1727, describing the premises of his maize experiments in some detail. He suggesting they be repeated by his friends in England—“*there can scarce be found a finer Diversion in nature than to discover and view the various apparatus for this kind of Generation*”⁵⁸ The detail of the fall 1727 letters suggest some experiments with maize had already taken place, but perhaps could also be interpreted as a form of “thought experiment,” planned but not yet undertaken.

Logan’s maize experiments have long been interpreted as botanical science, but many of his early enthusiastic letters about this project of “Philosophical Inquiry” suggest it was much more metaphysical and theological principles that Logan was attempting to demonstrate, with the hope that it “*...might lead me to believe, tht the true Seeds of all productions or the beings themselves exist somewhere else before they are cloathed with a visible corporeity.*”⁵⁹

A letter by Logan in March 1728 found him troubled: “*to find Sir Iasac’s opinion was that the animal is in the ovum, for if the new discovery of the male seed in vegetables universally holds, I cannot believe but it will amount almost to a Demonstration that the cause is otherwise.*”⁶⁰ Logan’s excitement, that he might disprove Newton, and demonstrate the primacy of the male in generation seems to be the point of his decade-long effort to get his maize experiments published. In every version of Logan’s description of his maize experiments, he hoped to demonstrate that unincorporated beings—plants and animals—floated through the air (presumably sourced from a divine being or angels?), and were incorporated solely through the male farina or “seed” as living beings and then grown to maturity in female vessels. This was perhaps an attractive theology for an 18th c. Quaker, but not really very accurate botany or natural science.

⁵⁷ James Logan, Philadelphia to Dr. William Logan, Bristol, September 25, 1727. HSP, Letter Books of James Logan, Vol. III, Section A, p. 41; quoted in Lokken, “Scientific Papers of J. Logan,” p. 76-77.

⁵⁸ James Logan, Philadelphia to Thomas Goldney, Bristol, November 20, 1727. HSP, Letter Books of James Logan, Vol. III, Section A, p. 43. Lokken, “Scientific Papers of J. Logan,” p. 77-78.

⁵⁹ Ibid.

⁶⁰ James Logan to Col. Burnet, March 10, 1728[?].HSP, Letter Books of James Logan, Vol. III, Section C, p. 191. Lokken, “Scientific Papers of J. Logan,” p. 78-79.

When one of Logan's early letters on his experiments, from November 12, 1734, was first read before the Royal Society by Collinson January 23, 1735, it was summarized in the "Journal Book" of the Royal Society as an argument that life arose from a fundamental animalcule from the air transmitted by the male:

...*Animalculum or Embryos of either Plants or Animals were not contained within themselves, but in the Air. And then proceeds to show how by a certain sort of Attraction they are gathered by the Farina or seed of the one sex, and carried into the Ovary of the other.*⁶¹

In a November 20, 1735 letter Logan prepared another, less speculative summary of his maize experiments for Collinson, which was read to the Royal Society in early 1736 and published in the *Philosophical Transaction* as "Some Experiments concerning the Impregnation of the Seeds of Plants, by James Logan, Esq."⁶² With each written presentation, Logan described the same maize experiments, but somewhat altered what the experiments demonstrated. But through every version Logan's underlying thesis remained oddly not scientific, but philosophical—a restatement of an ancient philosophical argument that "the Seeds of all Things were in the Air."

The version of the experiments published in 1736 claimed less, and restrained Logan's sprawling metaphysical theory. Logan included a short preface to establish that belief in plant sexuality was already commonplace: "As the Notion of a Male Seed, or the *Farina Fæcundans* in Vegetables is now very common, I shall not trouble you with any Observations concerning it." Logan then limited the outcome of his experiments to a simple argument that his work disproved similar research on maize by the French apothecary and botanist Claude Joseph Geoffroy (1685-1752) published in 1711. Geoffroy apparently claimed that maize could sometimes produce seed grown to their full size without being pollenated.⁶³

Logan's final version of his maize experiments, enlarged as a Latin essay, dated "Philadelphæ. 1737" was published in Leiden in 1739 with the assistance of the botanist Gronovius, under the title *Experimenta et Meletemata de plantarum generatione*. This was later

⁶¹ Royal Society Journal Book, 16, p. 70-74; Royal Society Letter Book, 21, p. 241-266. Quoted in part by Stearns, *Science in the British Colonies*, p. 537-538. Logan's first letter to Peter Collinson on the maize experiments seems to date to November 12, 1734 and was read by Collinson before the Royal Society, January 23, 1735, but never published. This earlier 1734 letter and the first presentation of Logan's maize experiments to the Royal Society in 1735 was not mentioned in Lokken, "Scientific Papers of J. Logan".

⁶² "Some Experiments concerning the Impregnation of the Seeds of Plants" 1736.

⁶³ Logan only knew of Geoffroy from a transcription of his research in Philip Miller's *Gardener's Dictionary*, and may have largely misinterpreted Geoffroy's conclusions. Geoffroy's experiments with maize were similar to Logan's and included removing the male tassels. They were reported to the Académie Royale des Sciences in 1711.

translated into English by John Fothergill, and printed with facing Latin and English text in London in 1747, under the English title: *Experiments and Considerations on the Generation of Plants*.⁶⁴ In the extended Latin essay, Logan returned to his overt belief in “the true seminal Principle” that the “impregnating Male dust” plucked plant (or animal) existence “out of the Air this little Seed or Plant, præexistant and completely formed.” In the female part “we find nothing in the *Ova* before Impregnation, except a kind of liquid Substance.”

Modern assessments of Logan’s experiments have uniformly ignored his real thesis, and reached the obvious modern conclusion that the maize experiments demonstrated the male and female character of flowers—and that both male and female contributions (or genetic material in modern understanding) were necessary for reproduction. But that view was not Logan’s theory or what he thought he had proved. From his earliest letters on the maize experiments in 1727 he had maintained a certain belief that his experiments proved pre-existent essences were floating in the ether and were transmitted solely by the male principle or farina of the plant.

When Logan extended his examinations into plants beyond maize he found complexity and variability which confused or perhaps contradicted his beliefs. Not all plants disperse pollen into the air like maize, and Logan had not conceived of insect facilitated pollination. His attempts to integrate his (and perhaps Bartram’s) further close observations of the flowers of other plant families actually weakened his theory of “the true seminal Principle”. The middle section of his Latin essay provides evidence that Logan had been reading widely in the standard works on sex in plants, but he had difficulty integrating the results of his reading and observations with his pet theory. And in spite of the fact that Logan and Bartram had been reading Linnaeus’ *Systema naturae* as early as the summer of 1736 no trace of Linnaeus’ new system or any reference to Linnaeus as an author appeared in Logan’s Latin essay or English translation.

Perhaps most telling, Logan’s essay ended with a series of classical citations, calling on Anaxagoras, Varro, and Theophrastus who taught that “the Seeds of all Things were in the Air, and descended from thence” as support. Logan anticipated there would be something like a Copernican revolution to restore the true doctrine from antiquity, and that his “Hypothesis concerning Generation will be readily adopted by Posterity.” In this light, Logan’s experiments

⁶⁴ Fothergill only translated and re-published the “Generation” essay from the 1739 pamphlet. The Latin “*Meletemata*” was translated as “Considerations” on the title page of the essay, but as “Reflections” on the first page of the essay.

and arguments read more like renaissance humanism than 18th century science—perhaps fitting considering Logan’s interest in classical books and philosophy.

John Bartram’s infrequent mentions of Logan after spring 1738 are all that remain to document an increasing rift between Bartram and Logan. And perhaps concentrating on the times Bartram appeared angry about Logan in letters to others may not be an overly reliable measure. Bartram did not stop all contact with Logan, but seems more to have moved his scientific discussions to other friends, correspondents, and patrons. Perhaps because Bartram found Logan was not very knowledgeable about plants. Or possibly Bartram felt his contributions in collaboration with Logan’s experiments were unacknowledged.

There is no reference to Logan’s maize research or any of Logan’s publications in any of Bartram’s letters. And there is no evidence Bartram read or received copies of any of the versions of Logan’s writing. It might be assumed that Bartram did read the English versions of Logan’s essays, and likely that Logan (or someone else in Philadelphia) might have shown Bartram at least the first publication of the experiments from the *Philosophical Transactions* in 1736. And it might also be expected that Gronovius or Collinson would have sent Bartram a copy of the Latin essay in 1739, and Collinson or Fothergill the English version in 1747.⁶⁵

And possibly, although this cannot be proved, Bartram might have disagreed with Logan’s theories on the “*Male Seed*” and “*Animalculum or Embryos*” from the air. There is limited but specific evidence that John Bartram was experimenting with man-made hybrids—transferring pollen from one plant to another and observing the effects beginning by 1738 or 1739. Bartram wrote William Byrd in summer 1739 that he was continuing “*microscopical observations upon the malle & femalle parts in vegetables to oblige some ingenious botanist in Leyden*” and that he had “*made several successful experiments of joining several species of the same genus whereby I have obtained curious mixed colours in flowers never known before.*”⁶⁶ And Bartram gave more detail on his experiments in hybridization over three years with European lychnis in a letter to Peter Collinson in 1740—describing transferring pollen from red to white-flowering plants and producing “*flesh coloured flowers.*”⁶⁷ The existence of hybrids

⁶⁵ Logan did present Benjamin Franklin with a copy of the 1747 English translation of his maize experiments in late October 1748.

⁶⁶ John Bartram to William Byrd, [Summer 1739]. HSP, BP 1:17:4; Berkeley & Berkeley 1992: 120.

⁶⁷ John Bartram to Peter Collinson [April 29, 1740]. HSP, BP 1:18; Berkeley & Berkeley 1992: 135-136.

and particularly hybrid plants that shared intermediate traits from both the male and female parent would have been very clear disproof of Logan's pet theory of male dominance.

Most likely John Bartram's growing American and European correspondence, increased funding, and growing cycle of yearly collecting trips left him little time to visit Logan. Other correspondents and friends proved more cooperative and useful to Bartram. There may have been a gradual fading of the relationship as the task of examining pollen was done and Logan had finished his writings on maize and generation. It is not likely that Logan kept up any further work on generation after the end of 1737, when he completed the final Latin text on his experiments. In his later years Logan noticed citations to his work with some interest, but seems to have thought he had established what he sought to prove.

Bartram began direct correspondence with Sir Hans Sloane in summer 1741, sending a collection of fossils at Collinson's suggestion.⁶⁸ Bartram was soon sending plant specimens, insects and other curiosities to Sloane. And from 1742-1744 Sloane provided Bartram with a number of natural history books—particularly large, illustrated books.⁶⁹

While James Logan could well have introduced Bartram to some or most of the colonial elite in Pennsylvania (and New Jersey and New York), there is not much evidence to demonstrate that happened. It was generally Collinson who introduced Bartram to his circle of correspondence, which included most of the curious in all the North American colonies. It seems to be Collinson who arranged to introduce Bartram to the proprietor, Thomas Penn in fall 1737—in particular so Bartram could look over Penn's set of Catesby's *Natural History*.

Dress thy self Neatly in thy Best Habits & wait on him for them for I have in a particular manner Recommended thee to Him—

*I have Desired Him to show thee the Natural History of South Carolina in Eight Books, finely Colour'd to the Life so forget not to Ask that favour—first inquire his most Leisure Time & then wait on Him—”*⁷⁰

⁶⁸ John Bartram to Hans Sloane, July 22, 1741. British Library, Sloane MS. 4057, f. 56; Berkeley & Berkeley 1992: 160.

⁶⁹ There are 3 bound volumes of Bartram plant specimens from the 1740s in the Sloane Herbarium at the Natural History Museum, London: HS 334a, HS 344b, and HS 332*. Sloane sent Bartram his *Natural History of Jamaica* and *Catalogues Plantarum* in 1742—Hans Sloane to John Bartram, January 16, 1742. Berkeley & Berkeley 1992: 178-179. And Sloane sent Bartram a large bound collection of works by James Petiver in 1744 (now at the APS Library), after Bartram hinted he wanted “*Petivers fine collections of plants & animals which thee published*”—John Bartram to Hans Sloane, September 23, 1743. HSP, BP 1:24:5; Berkeley & Berkeley 1992: 224.

⁷⁰ Peter Collinson to John Bartram, September 8, 1737. HSP, BP 2:39; Berkeley & Berkeley 1992: 64. The “Eight Books” of Catesby would have been 8 sets of 20 plates, or all of volume 1 and over half of volume 2. Franklin's

Bartram replied to Collinson in November 1737 that Thomas Penn was very hospitable, and offered to loan the volumes of Catesby for a month.⁷¹ An apocryphal story about the meeting of Bartram and Thomas Penn circulated in the 19th century and told that the proprietor mistook Bartram “for a carter” and left him to stand a long while with no attention. Bartram eventually addressed Penn in Latin, and when Penn replied in Latin, Bartram replied in several other languages.⁷²

From the beginning of their correspondence, Collinson probably shared Bartram’s collections and information with Mark Catesby.⁷³ But Collinson did not mention Catesby or his book to Bartram until the 1737 letter inviting Bartram to look at Penn’s copy. And still Collinson did not mention Catesby by name for a year or more, calling him a “*Curious Naturalist*” or an “*Ingenious Friend*.” Bartram himself first named Catesby in a letter to Collinson, in June 1738—“*I am obliged to my friend Catesby for the fine draughts*”⁷⁴ From then onward Catesby appears frequently in the Bartram correspondence and Bartram sent specimens, boxes of plants and seeds, and even drawings through Collinson for Catesby. Bartram’s fall 1738 trip to Williamsburg and the James River served to introduce Bartram to many of Catesby’s old friends and correspondents in Virginia. Catesby had completed over two-thirds of his *Natural History* by the time he was in direct correspondence with Bartram, beginning in 1740.⁷⁵ In the short period of their known correspondence through 1746 Bartram contributed a great deal to Catesby in the form of new specimens and information on new plants from the mid-Atlantic.

At the beginning of their direct correspondence in the 1740s Catesby offered to reimburse Bartram for his work with annual parts of the *Natural History*. It can be established from letters that Catesby sent at least the first 3 parts of the book to Bartram or 60 plates and text, and

ledger accounts record binding and gilding a volume of Penn’s “*Catesby’s Birds*” for 1 shillings 10 pence October 20, 1734.

⁷¹ John Bartram to Peter Collinson, November 1, 1737. HSP, BP 1:38:2; Berkeley & Berkeley 1992: 64-66.

⁷² “Logan, Godfrey, and Bartram,” *The Friend*, vol. 11 (Sunday, August 4, 1838), p. 347. While possibly plausible, there is no primary evidence to support this story.

⁷³ Catesby first illustrated one of Bartram’s plants, *Lillium superbum* growing in Collinson’s garden in vol. 2, tab. 56 issued in 1736. Bartram was first directly mentioned in the text of Catesby’s *Natural History* in vol. 2, tab 72 issued in 1738.

⁷⁴ John Bartram to Peter Collinson, [June 13, 1738].

⁷⁵ The earliest letter, Mark Catesby to John Bartram, May 20, 1740 may have never reached Bartram, and Catesby copied the same text into his next letter of February 1741, which Bartram did receive.

Catesby probably sent more.⁷⁶ Bartram contributed plants, birds, and insects to Catesby that were illustrated on 17 plates (and 3 additional plates had likely Bartram contributions). Bartram's certain contributions totaled 24 species (with 3 likely additional). This may seem a small part out of Catesby's total book, but Bartram was only actively contributing to the book from 1738 onward. Over half of the "Appendix" section of 20 plates had a Bartram contribution, and 35% of the species illustrated in the Appendix came to Catesby from Bartram.⁷⁷ Catesby listed "Mr. John Bertram of Pensilvania" among the "Encouragers" of the *Natural History*, while Logan does not seem to have subscribed or owned a copy of the work.⁷⁸

The illustrations of North American plants in Catesby's *Natural History* came to define North American botany and natural history to the European audience. Catesby's plants were thought a good representation of the forests of North American, even though Catesby's collection area was only Virginia and the Carolinas. The plates in Catesby served as an illustrated catalogue and were an important driving force for the emerging collector-gardens in England and the rest of Europe.⁷⁹ This was a boon to Bartram's growing business in North American seeds and plants, but John Bartram had little or no access to many of the southern species Catesby illustrated until his first visits to the Carolinas in 1760. The "Appendix" section did illustrate a number of Bartram's significant, early discoveries including lady's-slipper orchids, mountain laurel, rhododendrons, cucumber magnolia and ginseng.

If in 1737-1738 John Bartram began expanding his travels and connections to the southern colonies with Collinson's assistance, he also became closer to the relatively young Philadelphia community of "Curious men" gathering around his friend Breintnall and Benjamin Franklin. In the 1737 issue of *Poor Richard's Almanack*, Benjamin Franklin included a short article on a North American medicinal plant, "Rattle-Snake Herb". This has long been cited as an

⁷⁶ Mark Catesby to John Bartram, May 20, 1740. Catesby wrote: "the part of my book I send you is in a more contracted manner, and smaller paper, than that you have seen of Mr. Penn's but in other respect the same"—apparently a cheaper version of the printing. There are a number of missing letters in the Bartram-Catesby exchange.

⁷⁷ James L. Reveal, "A Nomenclatural Summary of the Plant and Animal Names Based on Images in Mark Catesby's *Natural History* (1729-1747)," *Phytoneuron* vol. 11 (2012), p. 1-32 is a good summary of modern nomenclature for all the species depicted in Catesby's *Natural History*, organized by volume and plate number, and also identifies and cross-references all the original Catesby watercolors in the Royal Library collection, Windsor Castle.

⁷⁸ Logan did not collect that many illustrated natural history works—perhaps due to the expense? Or it could also be Catesby's southern geographic focus did not interest Logan?

⁷⁹ Mark Laird, "From Callicarpa to Catalpa: The Impact of Mark Catesby's Plant Introductions on English Gardens of the Eighteenth Century," in Amy R. Weinstein Meyers and Margaret Beck Pritchard, eds., *Empire's Nature: Mark Catesby's New World Vision*. University of North Carolina Press, Chapel Hill: 1998, p. 184-227.

early example of Franklin adapting Breintnall's unique nature printing hobby into multiple-run printing using metal matrices. The text on the rattle-snake herb has been generally attributed to Breintnall because of the leaf print, but it is more likely the text was largely or solely by John Bartram.

This "Rattle-snake herb" is a species of golden rod—bluestem or wreath goldenrod, *Solidago caesia*, and was mentioned more than once in John Bartram's writings. It was the "Virga-aurea, or that Species of Golden Rod, that is so famous for the Bite of the Rattle-Snake" described again in detail in Bartram's *Appendix to Thomas Short's Medicina Britanica*, published by Franklin and Hall in 1751. The detailed botanical description in the 1737 *Poor Richard's* article was probably beyond Breintnall's skill in botany, and the horticultural notes on culture in a garden, medical uses, and Native American ethno-botany included in the short article all suggest Bartram was the source. This article in *Poor Richard's* in 1737 may be earliest known connection between Bartram and Franklin.

Around the fall of 1737 Bartram first wrote to Collinson of his thoughts about organizing a gathering of "ingenious & Curious men" to "study of natural secrets arts & syences" in Philadelphia.⁸⁰ This is the earliest reference for what became the American Philosophical Society, formally organized by Franklin and Bartram and others in Philadelphia in early 1744.

From 1738 onward Franklin publicized John Bartram occasionally in the *Pennsylvania Gazette* and printed small pieces by Bartram. Franklin announced Bartram's discovery of ginseng along Susquehanna in summer 1738.⁸¹ And the 1741 edition of *Poor Richard's Almanack* included a Bartram essay on the "true Indian Physick" as described by Dr. John Tennant of Virginia in *Every Man his own Doctor*. Bartram had had a letter of recommendation to Dr. Tennant at Williamsburg in 1738 and learned the proper identity of the plant directly from

⁸⁰ This quote comes from a poorly preserved fragment of a draft letter by Bartram to Collinson that may date to fall 1737. HSP, BP 1:38 [4th page]; Berkeley & Berkeley 1992: 66. This fragment was first rediscovered by Edward E. Wildman and Francis D. West in the mid-1950s, and they dated this letter fragment to "May 1739". West wrote "John Bartram and the American Philosophical Society," *Pennsylvania History*, vol. 23, no. 4 (October), p.463-466. Whitfield J. Bell, Jr. adopted the 1739 date, *Patriot-Improvers: Biographical Sketches of Members of the American Philosophical Society*, vol. 1, 1743-1768. American Philosophical Society, Philadelphia: 199, p. 3. The most recent edition of Bartram's letters by Berkeley and Berkeley dated the letter to "fall of 1737". Collinson replied to Bartram's idea of a gathering of "Curious men" presumably a reply to this letter on July 10, 1738. HSP, BP 3:9; Berkeley & Berkeley 1992: 93.

⁸¹ *Pennsylvania Gazette*, July 27, 1738,

Tennant.⁸²

In the spring of 1742 Franklin promoted a subscription to raise funds within the North American colonies to fund Bartram's collecting and research. It is not entirely clear who was behind this subscription effort for Bartram. Franklin first mentioned the idea briefly as if he had just heard of it, in the March 10, 1742 issue of the *Pennsylvania Gazette* with the promise of a "more particular Account of the Design" in the next issue. In the March 17th issue the complete text of the subscription paper was published ending with the note that subscriptions were taken in at the Post-Office and near £20 a year was already subscribed, with subscriber agreeing to fund Bartram's scientific work for at least three years. Bartram sent copies of the proposal to his New York correspondents shortly afterward.⁸³

There must have been a group of supporters in Philadelphia willing to put up funds for Bartram's collecting, with Franklin one of the group, and likely some of the Library Company, and the soon to be organized members of the American Philosophical Society. This subscription effort is usually seen as a forerunner of the model of scientific cooperation across the North American colonies that Franklin and Bartram proposed for organizing the APS in 1743. Bartram had been receiving rather stable support from British subscribers on the order of £20-30 per year since 1737. A local American subscription would have increased the time he could devote to travels away from home. Coincidentally, but not really connected with the Philadelphia effort, Bartram's first major English backer, Lord Petre died of smallpox July 2, 1742. For a while Collinson thought it would be necessary for Bartram to abandon further exploration and seed shipment—but new supporters were cultivated in Great Britain to fill Lord Petre's place.

There is little further evidence about the Philadelphia subscription effort for Bartram. The next year, in June 1743 Bartram wrote Collinson:

*I believe my subscription our proprietor inquired after is wholly dropt some people lay the blame upon James Logan & not without cause*⁸⁴

⁸² John Bartram, "Many Persons being at a Loss to know the Plant which is the true INDIAN PHYSICK, I thought it not amiss to give the Publick a distinct and plain Account of it." *Poor Richard's Almanack*, 1741. Berkeley & Berkeley 1992: 147-148. "Indian-physic" or Bowman's root, *Gillenia trifoliata*.

⁸³ "A COPY of the Subscription Paper, for the Encouragement of Mr. John Bartram promised in our last," *Pennsylvania Gazette*, March 17, 1742. Franklin first used the spelling "Bartram" rather than "Bertram" with this copy of the subscription text.

⁸⁴ John Bartram to Peter Collinson, June 11, 1743. HSP, BP 1:27; Berkeley & Berkeley 1992: 216.

That short quote is the only evidence for the fate of Bartram's Philadelphia subscription, and Collinson did not inquire further, perhaps already aware it was best to avoid mention of Logan to Bartram.

In 1742 and 1743 there was also discussion in Philadelphia of making Bartram the gift of a free share in the Library Company. Bartram himself mentioned the idea to Collinson first in the summer of 1742:

Several of our Library Company talks of making me a present of a shair of their Library which will be very acceptable to me but I don't think it will answer to give six pounds to purchase a shair & ten shillings yearly (they having few books of botany or natural history)⁸⁵

Collinson followed up on this suggestion in a letter to Joseph Breintnall, February 24, 1743 begging a favor of the Gentlemen of the Library Company—free access for John Bartram.

Collinson presented the idea as the common practice of similar societies:

... be so kind to Communicate It att a suitable opportunity to the Gentlmm with my Respects. What I ask is common in almost all Societys, Especially in the Royal Society, where Ingenious Men of Slender abilitys or Foreigners are thus Distinguish'd by becoming Honourary Members.⁸⁶

An April 28, 1743 a resolution of the directors of the Library Company granted Bartram free access:

As Mr. John Bartram is a deserving man, he should have free access to the library, and be permitted to read and borrow the books.⁸⁷

Bartram and Franklin seems to have been the closest in the decade of the 1740s and particularly around the time of the founding of the American Philosophical Society in 1743 and early 1744. Bartram frequently mentioned "*friend Benjamin*" in letters to Collinson. Franklin, writing to his parents in Boston in September 1744 mentioned Bartram: "*We have a botanist here, an intimate Friend of mine, who knows all the plants in the Country.*"⁸⁸

⁸⁵ John Bartram to Peter Collinson, [summer 1742]. HSP, BP 1:29:4; Berkeley & Berkeley 1992: 198.

⁸⁶ Peter Collinson to Joseph Breintnall, February 24, 1743. Quoted in part in Armstrong, "*Forget not Mee & My Garden*," 2002, p. 26 footnote 1.

⁸⁷ Resolution of the directors of the Library Company of Philadelphia. John Bartram thanked Collinson for his efforts, May 27, 1743. HSP, BP 1:27:3; Berkeley & Berkeley 1992: 214.

⁸⁸ Benjamin Franklin to Josiah and Abiah Franklin, in Boston, September 6, 1744. APS; *Papers of B. Franklin*, vol. 2, p. 413-414.

Through the spring of 1744 the new Philosophical Society was meeting monthly and Bartram wrote his friend Cadwallader Colden in New York in late April 1744 to tell Colden he had been elected a member. Bartram commented briefly on three persons “*of little curiosity*” that Colden had suggested as members for the Society. One of these was James Logan:

*indeed James Logan was acquainted with it as A Complement but I told Benjamin, that I believed he would not incourage it; & we should have been as well pleased with his name at the top of our List, as his person in our meetings. however we resolved that his not favouring the desighn should not hinder our attempt & if he would not go along with us we would Jog along without him.*⁸⁹

Taking this comment together with the various assessments of Logan by Bartram in letters going back to 1738 there was certainly an animosity between Bartram and Logan. There may have been more behind this than will ever now be known, but that Logan was a grumpy old man, and Bartram an angry younger one seems true.⁹⁰

It remains a question whether Logan ever assisted Bartram in his explorations in Pennsylvania. Logan could have been helpful to Bartram with introductions and information on frontier areas, but there is very little if any evidence for that. Bartram had significant contact with the provincial surveyors of Pennsylvania, New Jersey, and New York, and map makers like Lewis Evans. Bartram probably obtained rough maps for areas he explored, and he also likely shared mapping data from his travels. Bartram’s summer 1736 travels to the headwaters of the Schuylkill beyond the Blue Mountains were only possible because of recent proprietary purchases. And Bartram was exploring the upper Delaware from the forks and beyond by the summer of 1739. Access through that country was only possible because of the 1737 Walking Purchase. In 1740 he again explored both shores of the upper Delaware to the foot of the “Paiqualian” or Pocono mountains. Bartram followed the route up the Delaware to Northern New Jersey again in 1742, 1753 and 1754 on trips to the Catskills and Hudson Valley.

By the summer of 1742, Bartram was friendly with the Pennsylvania “*Chief Interpreter*” Conrad Weiser. When or how he met Weiser is not known, but an introduction from Logan might

⁸⁹ John Bartram to Cadwallader Colden, April 29, 1744. HSP, Autograph Collection of Simon Gratz, Case 7, Box 21; Berkeley & Berkeley 1992: 238.

⁹⁰ In 1750 Logan initially declined Franklin’s wish to put him first in the list of trustees on the constitutions of the Philadelphia Academy, but Franklin had the large sheet of the constitutions printed with Logan’s name first and after a few weeks he accepted the honor. That may show the more politically savvy Franklin had learned how to deal with Logan. James Logan to Peter Collinson, February 28, 1750. HSP, Logan letterbook *Papers of B. Franklin*, vol. 3, p. 468-470.

be one explanation. By late July 1742 Bartram and Weiser were planning a trip up the Susquehanna to the Five Nations—“*having ingaged our Chief Interpreter to go with me the beginning of September*”⁹¹ This date followed closely after the major Indian conference with the Iroquois at Stenton and in Philadelphia in June 1742. There is no evidence Bartram did or did not attend any of this conference—but the close connection between Bartram and Weiser soon after the date of the conference suggests some link. Bartram traveled widely in the summer and early fall of 1742—to Amboy and Shrewsbury to visit Governor Lewis Morris of NJ in July and to the Catskills in August. While Bartram was at the Catskills, Weiser was needed with negotiations in Maryland, so the fall trip up the Susquehanna was postponed, although Bartram himself traveled to the lower Susquehanna in early September.⁹²

The next year, in July-August 1743, Bartram did make a trip up the Susquehanna to Onondaga and Oswego on Lake Ontario with Weiser, Shikellamy and one of his sons, and Lewis Evans. This is one of the best recorded of Bartram’s trips as his journal was published in London in 1751.⁹³ There is no mention of Logan in connection with Bartram and Weiser’s trip in 1743, but certainly he knew about the planning and dates of the trip. In 1749-1750 the proprietor Thomas Penn proposed that Bartram, Evans and Weiser make another trip to explore the western parts of Pennsylvania—in part to spy on potential French and Virginian claims on the Ohio and Erie frontiers.⁹⁴ This western expedition never took place, and Logan does not seem to have been involved in the suggestion.

All this points to John Bartram making his way in the 1740s world of colonial science without much assistance from James Logan. Bartram had a knack for meeting the gentry or “Virtuosi or ingenious Men residing in the several Colonies” as the proposal for the APS termed it—perhaps due to his engaging personality or genius. Bartram generally kept up a

⁹¹ John Bartram to Peter Collinson, July 24, 1742. HSP, BP 1:40:2; Berkeley & Berkeley 1992: 201.

⁹² John Bartram to Peter Collinson, September 5, 1742. HSP, BP 1:28:5; Berkeley & Berkeley 1992: 202-203. John Bartram to Cadwallader Colden, October 23, 1742. HSP, BP 1:26:6; Berkeley & Berkeley 1992: 206. John Bartram to Peter Collinson, November 17, 1742. HSP, BP 1:24:2; Berkeley & Berkeley 1992: 208.

⁹³ John Bartram to Cadwallader Colden, June 26, 1743. HSP, BP 1:27:2; Berkeley & Berkeley 1992: 219. John Bartram, *Observations on the Inhabitants, Climate, Soil, Rivers, Productions, Animals, and Other Matters Worthy of Notice Made By John Bartram, in his Travels from Pensilvania to Onondaga, Oswego, and the Lake Ontario in Canada...* J. Whiston and B. White, London: 1751. Bartram’s journal was reprinted with the text of Weiser and Evans’ journals: *A Journey from Pennsylvania to Onondaga in 1743*. Introduction by Whitfield J. Bell, Jr. Imprint Society, Barre, MA: 1973.

⁹⁴ Collinson advised Bartram against this “*Dangerous Expedition*.” Peter Collinson to Benjamin Franklin, July 11, 1750. Library Company of Philadelphia. *Papers of B. Franklin*, vol. 4, p. 5; <http://founders.archives.gov/documents/Franklin/01-04-02-0002>

correspondence with anyone he found interesting in his travels. Lokken in his survey of Logan's scientific papers noted that Logan had little or no connection with intellectuals in New England or the South—but Bartram developed strong connections in all the colonies, and particularly the South.

Bartram's ties to the ruling elite in the middle colonies has yet to be well researched, but the names of many important figures can be found in his correspondence. In the early 1740s Bartram was particularly friendly with Lewis Morris (1671-1746), Royal governor of New Jersey with extensive ties to the New York government as well. Bartram visited Morris in Trenton and Shrewsbury 1740-1742, and also met his son, Robert Hunter Morris (1700-1764), later a lieutenant governor of Pennsylvania. Bartram received letters and recommendations from both for his travels north to the Catskills and Hudson valley in 1741 and 1742. Bartram wrote Collinson that Morris's library at Trenton was "*the very finest I ever saw except Col byrds & but little short of it neither*"⁹⁵ Bartram was certainly familiar with Logan's library when he wrote this in July 1741. Bartram of course may have been ranking collections of books he found most useful—and it is entirely possible Byrd and Morris had more natural history books, and particularly more illustrated natural history books than Logan.

Bartram had introductions to Cadwallader Colden (1688-1776) from Collinson and probably Morris, but missed Colden at his home on his first trip to the Catskills in late spring 1741. Bartram did find Colden at Coldenham during to his second trip to the Catskills in August 1742, and the two carried on an extensive correspondence on scientific and medical topics from then on. In one of his letters to Colden discussing medicinal plants Bartram mentioned that he had treated the Pennsylvania deputy governor, George Thomas in 1745 three times for stomach troubles with the North American plant—white colicroot, *Aletris farinosa*.⁹⁶

It almost seems that Bartram had friendly relations and support from most of the leadership of the middle colonies in the decade of the 1740s, except for James Logan. Even Logan's future son-in-law John Smith wrote favorably of Bartram in 1746—"I dined with John Bartram, who was very civil in showing his rarities of sundry sorts."⁹⁷ But at some point

⁹⁵ John Bartram to Peter Collinson, July 22, 1741. HSP, BP 1:21:1; Berkeley & Berkeley 1992: 162.

⁹⁶ John Bartram to Cadwallader Colden, April 7, 1745. Boston Public Library; Berkeley & Berkeley 1992: 252.

⁹⁷ John Smith diary entry 6th mo., 12th, 1746 [August 12, 1746], quoted in Albert Cook Myers, *Hannah Logan's Courtship*, Ferris & Leach, Publishers, Phila: 1904, p.78. Smith also recorded attended the marriage of Bartram's son, Isaac Bartram and Sarah Elfreth, December 17, 1747. (Myers p. 129). Smith purchased a large estate "Richmond" at Point-Non-Point in Philadelphia County in 1746 and may have consulted Bartram on the garden

Bartram and Logan did re-establish something of a friendship and at least by 1747 Bartram was again visiting Logan.

There is considerable correspondence preserved between Franklin and Logan at the end of Logan's life, and because of that it is much easier to understand their friendship and shared interests. This may be just chance, or the more rigorous curation of every scrap of Franklin's writing. But it may also be a sign that Logan was more comfortable writing to Franklin, and the available letters reveal the two sharing books and new publications on a wide variety of topics.

In October 1748, Logan sent Franklin a copy of the 1747 Fothergill translation of his maize experiments. (There is no evidence that Logan ever sent Bartram a copy of the 1747 *Experiments...*) In a letter acknowledging this, Franklin also mentioned "Wahlboom's Oration" a 1746 medical dissertation titled *Sponsalia Plantarum* that Linnaeus wrote for his student, Johan Gustav Wahlbom. This dissertation made a few specific references to Logan's maize experiments.⁹⁸ Copies of *Sponsalia Plantarum* were carried from Sweden to Philadelphia by the Lutheran minister, Johan Sandin, who had studied at Uppsala. Sandin knew Linnaeus and had forwarded plants to Sweden for Linnaeus on his arrival in America in April 1748.⁹⁹ Franklin's letter to Logan October 20, 1748 reported on the recent death of Rev. Sandin, and the arrival in Philadelphia of Linnaeus' student, Pehr Kalm. Franklin would attempt to arrange an introduction between Kalm and Logan over more than a year.

Logan seems to have been gleefully aware of Linnaeus' references to his experiments, to the extent of counting the citations. Logan elaborated in a letter to Franklin November 9th, along with his suspicions that Kalm was something of a spy:

I know not what to think of Kalm. I had a Letter from Linnaeus 10 or 11 years Since when he was in Holland, and another recommendation from the Same Linnaeus, in Gustav Wahlbom's Inauguration which as I have Said before, is called Sponsalia Plantarum and in this he mentions my little piece that I Sent thee in my last 4 times, and yet carries not the matter as far as I have done which I admire at, And thereto I would willingly Speak with Kalm tho' I'm very Sensible Age and the Palsey have weakned me much, and the

there. Carl & Jessica Bridenbaugh, *Rebels and Gentlemen: Philadelphia in the Age of Franklin*. Reynal & Hitchcock, New York: 1942, p. 192.

⁹⁸ Benjamin Franklin to James Logan, October 30, 1748. *Papers of BF*, vol. 3, p. 323; <http://franklinpapers.org/franklin/framedVolumes.jsp?vol=3&page=323a>

⁹⁹ There is a copy of Wahlboom, *Sponsalia plantarum* Uppsala: 1746 with Johan Sandin's signature on the cover, now at the American Swedish Historical Museum in Philadelphia. Photo in Paula Ivaska Robbins, *The Travels of Peter Kalm...*, Purple Mountain Press, Fleischmanns, NY: 2007, p. 73.

*hesitation in my Speech has greatly disabled me. But he Surprizes me if he comes on no other design than he told to P. Collinson.*¹⁰⁰

Although Logan admitted his age and palsy, yet he remembered quite well the one letter he had received from Linnaeus in 1738. There is a sense though that Logan did not understand the dominant position that Linnaeus already held in international botany. Logan's vague claims for his argument on generation suggest he still believed he had demonstrated a significant fact of life—"the true seminal Principle" and would welcome the opportunity to argue the point with Kalm.

Logan held fast to his belief that Kalm had ulterior motives in visiting America, and when over a year passed and Kalm had still not paid a visit to Logan, the paranoia grew more intense. The young Philadelphia science community was cooperating freely with Kalm, but Logan had no real role. His suspicions of Kalm may largely be explained as jealousy at no longer being included in the exchange of ideas. Finally on February 28, 1750 Franklin got Kalm to Stenton for a visit, and Logan wrote Collinson later that same day,

*I have Spent most of this day for the first time with thy friend Kalm accompanied with B. Franklin, and I know not what to make of him, nor of his Journey to Canada, where, after the whole last winter Spent at a Swedish Woman's House near Newcastle, he Spent near five Months, and dined many times at the Governors at Quebec, without Seeing during the 8 Months or more that he had been here, any one person that I could hear of, but B. Franklin and Jno. Bartram*¹⁰¹

Bartram apparently resumed friendly visits to Logan at some point, and late in the decade of the 1740s Bartram seems to have occasionally gone to Stenton. In February 1747 it was Bartram who first brought an account of Franklin's electrical experiments to James Logan:

*Yesterday was the first time that I ever heard one syllable of thy Electrical Experiments, when John Bartram surpriz'd me with the account of a Ball turning many hours about an Electrified Body, with some other particulars that were sufficiently amazing.*¹⁰²

As might be expected, John Bartram had a number of meetings with Kalm when he arrived in Philadelphia in September 15, 1748. Kalm probably carried letters to Bartram, and perhaps the

¹⁰⁰ James Logan, Stenton to Benjamin Franklin, November 9th, [1748]. HSP, Logan letterbook copy; *Papers of BF*, vol. 3, p. 325; <http://franklinpapers.org/franklin/framedVolumes.jsp?vol=3&page=325b>

¹⁰¹ James Logan, Stenton to Peter Collinson, February 28, 1750. *Papers of B. Franklin*, vol. 3, p. 468-470; <http://franklinpapers.org/franklin/framedVolumes.jsp?vol=3&page=469a>

¹⁰² James Logan, Stenton to Benjamin Franklin, February 23, 1747. *Papers of BF*, vol. 3, p. 110-112. <http://franklinpapers.org/franklin/framedVolumes.jsp?vol=3&page=110a>

first direct letter from Linnaeus to Bartram.¹⁰³ Kalm made a visit to Bartram's Garden with the painter Gustavus Hesselius, on September 18th, during his first week in Philadelphia. Bartram was not home, but Kalm returned the next week to meet Bartram, and visited on a number of occasions after that. The volumes of Kalm's *Travels into North America* recorded a great deal of information on North American botany and natural history—both from Kalm's own observations and from John Bartram.¹⁰⁴

James Logan's last known correspondence with John Bartram seems to have been written in April 1748. Logan's letter is lost, but Bartram's reply survives:

*I received thy letter & specimen with much pleasure; being glad of the opportunity to gratify thy Curiosity. The plant is called Hen bit or ground Ivy leaved Chickweed or Alsine hederulae folio major*¹⁰⁵

Bartram provided a number of English names for this plant and a Latin name (modern *Veronica hederifolia* L. or ivy leafed speedwell, a small Eurasian annual plant, now a fairly common weed in southeastern Pennsylvania). There is no way to know why Logan was curious about this plant. It does not have any common use, and might have simply been a new weed in the garden or fields around Stenton.

Bartram had already resumed visits to Logan before this letter, but considering the previous long period of anger between Bartram and Logan, the question about this weed might also have been something of a device by Logan. Certainly it was the sort of question Bartram would be glad to answer.

Bartram ended his short letter with a very polite and very formal sentence, very unlike his usual tone in letters. Bartram generally wrote all his correspondents—of all classes and rank with a very egalitarian tone, but this closing to Logan was very humble and deferential:

If my kind friend Logan would please to make so free as to write often to me concerning any subject that I am capable to give any information of I shall not only think it A pleasure to satisfy thy curious enqueries but an Honnor done to thy Sincere friend

¹⁰³ Carl Linnaeus to John Bartram [June 30, 1747]. Linnaean Correspondence, L1004, in Latin, text not available yet (previously dated 1748). This letter could also have been carried by the Rev. Johan Sandin?

¹⁰⁴ Pehr Kalm, *En Resa til Norra America...*, Stockholm, 3 vols., 1753-1761. Kalm spent six months in England prior to sailing for America in August 1748, and met Collinson, attend a meeting of the Royal Society, and visited the Chelsea Garden.

¹⁰⁵ John Bartram to James Logan, April 14, 1748. HSP, Maria Dickinson Collection; Berkeley & Berkeley 1992: 292.

Logan died Thursday, October 21, 1751 and was buried on the following Saturday at the Friends Burying Ground in Philadelphia. Franklin's obituary for Logan recorded the "Funeral being respectfully attended by the principal Gentlemen and Inhabitants of Philadelphia and the neighbouring Country."¹⁰⁶ It is not known if John Bartram was among those who attended the funeral, and Bartram was travelling widely in the fall of 1751—beyond the mountains three times and twice to the New Jersey coast.¹⁰⁷ It is possible his young son William Bartram (1739-1823) traveled with Bartram on some of these 1751 trips. Early the next year, January 1752 Bartram enrolled his son William in the Philadelphia Academy, in part to learn Latin and French to better prepare him for a career as a botanist.¹⁰⁸

By 1750 John Bartram's scientific career was entering a new phase—in later years he would be travelling farther, and longer to new frontier areas added to the British possessions in North America. Bartram received wider recognition, had a wider correspondence, and eventually royal notice with a pension from George III from 1765. Bartram's short collaboration with Logan early in his career in the 1730s was perhaps good experience in dealing with the give and take of elite patronage—the only source of funding for scientific research in 18th century Philadelphia. And it might have also been useful practice in the positive and negative aspects of dealing with an opinionated patron. John Bartram himself came to reprise the role of overbearing advisor in dealing with his own son William Bartram as he sought a career, and began his work as a naturalist in the 1760s and 1770s.

¹⁰⁶ Obituary of James Logan, *The Pennsylvania Gazette*, November 7, 1751. *Papers of B. Franklin*, vol. 4, p. 207; <http://franklinpapers.org/franklin/framedVolumes.jsp?vol=4&page=207a>

¹⁰⁷ John Bartram to J. F. Gronovius, March 14, 1752. New York Public Library; Berkeley & Berkeley 1992: 339. John Bartram to Linnaeus, March 20, 1753. Linnean Society, London: Berkeley & Berkeley 1992: 345.

¹⁰⁸ "Book of Accounts Belonging to the Academy in Philadelphia." January 7, 1750–July 26, 1757, University of Pennsylvania Archives. William Daniel Cahill, "William Bartram and the Romance of Learning: A Study in Eighteenth Century American Education," Ph. D. dissertation, Graduate School of Education, Rutgers (May 2001), 116–118.