

## BIG BONE LICK PUBLICATIONS, 1744-2022

Big Bone Lick is a Kentucky State Historic Site located 20 miles southwest of Cincinnati. The salt lick has played many roles: hallowed Native American ground, salt source, health spa, and rich trove of Ice Age fossils. The lick gave the world the first evidence of the extinction of several mammalian species, including the American mastodon. Cincinnati residents and institutions, such as the Cincinnati Museum Center and the University of Cincinnati, have conducted many of the scientific studies completed at the world-famous paleontological site.

In his 1936 book on Big Bone Lick, Willard Rouse Jillson included an annotated bibliography listing publications dealing with the lick. He referenced additional printed works concerning the location in his 1968 book on extinct Pleistocene vertebrates of Kentucky. The bibliography below includes Jillson's citations along with citations to hundreds of additional publications.

### 1744

Bellin, Jacques Nicolas. 1744. *Carte de La Louisiane, etc.* Paris. According to Jillson, on this French map appears one of the first if not the first reference to the discovery of the lick in these words: "Endroit ou on a trouve des os d'Elephant en 1729." The discovery date, unfortunately, is inscribed in error on this map as 1729. It should have been 1739.

### 1750

Bonnecamps, Joseph-Pierre de. 1750. *Journal of Father Bonnecamps.* In Galbreath, C. B., ed. 1921. *Expedition of Celoron to the Ohio Country in 1749.* F. J. Heer, Columbus, OH. Bonnecamps is upset about not visiting the lick during his 1749 trip down the Ohio River to the mouth of the Great Miami River (p. 92).

### 1751

Gist, Christopher. 1751. *Journey through Ohio and Kentucky in 1750 and 1751.* In Darlington, William M., ed. 1893. *Christopher Gist's Journals, etc.* Weldon, Pittsburgh. According to Jillson, this contains a reprint of Gist's journal with its reference to the lick on March 13 and visit to the lick on March 18, 1751 (pp. 57-58, 129).

### 1752

Urban, Sylvanus. 1752. *Of the Fossil Nautilus—Prodigious Teeth.* *The Gentleman's Magazine and Historical Chronicle* 22: 301-302. This article in the London publication reports a 6-pound molar and describes and illustrates a 1.5-pound molar, both collected at the lick. The illustration may be the first picture of an American vertebrate fossil.

### 1755

Bellin, Jacques Nicolas. 1755. *Remarques sur le Carte de l'Amerique Septentrionale.* Paris. Refers to the French expedition down the Ohio in 1729, at which time Longueuil discovered the lick (pp. 120-121). Bellin says here: "I am indebted for the topographical details of the course of this river to M. de Lery, Engineer, who surveyed it with the compass at the time that he descended it with a detachment of French (commanded by Longueuil) troops in 1729." The 1729 date is incorrect and should instead be 1739.

Evans, Lewis. 1755. *A General Map of the Middle British Colonies in America.* Philadelphia. According to Jillson, this is the first English map to note the lick. It is inscribed "Elephant Bones found here" at the location of the lick near the Ohio River. From the lick a trail to the south and east is indicated and labeled "A War Path." The map also shows the trail followed by Col. Gist in 1751.

### 1756

Bossu, Jean-Bernard. 1756. Letter to Marquis de l'Estrade, Illinois Territory, November 10. *In* Feiler, Seymour, ed. 1962. *Jean-Bernard Bossu's Travels in the Interior of North America, 1751-1762*. University of Oklahoma Press, Norman. Reports that the lick was first visited by French-Canadians in 1735 (pp. 103-112).

Guettard, Jean-Étienne. 1756. *Mémoire dans lequel on compare le Canada à la Suisse, par rapport à ses minéraux. Histoire de l'Académie royale des Sciences, Année 1752, avec les Mémoires de Mathématiques & de Physique, pour la même Année 1752*. Illustrates American mastodon molar taken from the lick in 1739 by Longueuil, identifying the tooth as that of an unknown mammal (pp. 189-220).

### 1761

Kenny, James. 1761-1763. Journal. *In* Jordan, John W., ed. 1913. *Journal of James Kenny*. *Pennsylvania Magazine of History and Biography* 37(1): 1-47, 152-201. Reports on big bones and teeth found at the lick and records one visitor's determination that the remains were those of rhinos (pp. 42-43, 163, 180).

### 1762

Bartram, John. 1762. Letter to Peter Collinson, December 3. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. Explains that skeletons at the lick could not be standing in an upright position, as had been reported (pp. 579-580).

Bouquet, Henry. 1762. Letter to John Bartram, Fort Pitt, July 15. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. Reports receiving a large tooth and part of a tusk from the lick, citing these as proof that elephants had formerly existed in North America (pp. 563-564).

Collinson, Peter. 1762. Letter to John Bartram, London, June 11. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. Asks for a description of the Great Buffalo (proboscidean) skeletons being found at the lick (pp. 562-563).

Collinson, Peter. 1762. Letter to John Bartram, London, July 25. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. Reports that Croghan had been at the lick, and urges Bartram to visit the lick (pp. 565-566).

Collinson, Peter. 1762. Letter to John Bartram, Mill Hill, December 10. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. Relates that teeth from the lick are not those of extant elephants (pp. 580-582).

Franklin, Benjamin. 1762. Letter to Peter Collinson, Philadelphia, December 7. *In* Smyth, Albert Henry, ed. 1907. *The Writings of Benjamin Franklin, Volume 4*. Macmillan Company, New York. Franklin makes reference to the big bones at the lick (pp. 182-183).

Wright, James. 1762. Letter to John Bartram, Fort Pitt, August 22. *In* Simpson, George Gaylord. 1942. *The Beginnings of Vertebrate Paleontology in North America*. *Proceedings of the American Philosophical Society* 86: 130-188. Relays description of lick and its bones by two Shawnee Indians (p. 140).

### 1763

Bartram, John. 1763. Letter to Peter Collinson, May 1. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. States that the big bones at the lick are those of an unknown animal, not an elephant or a rhinoceros (pp. 590-591).

### 1764

Daubenton, Louis Jean Marie. 1764. Mémoire sur des os et des dents remarquables par leur grandeur. *Histoire de l'Académie royale des Sciences, Année 1762, avec les Mémoires de Mathématiques & de Physique, pour la même Année 1762*. Concludes that the femur (pictured) and tusk collected by Longueuil at the lick in 1739 are those of an elephant, while the three molars come from a large hippopotamus (pp. 206-229).

### 1765

Croghan, George. 1765. Journal. *In* Featherstonehaugh, George. 1831. Journey down the Ohio in 1765. *Monthly American Journal of Geology and Natural Science* 1(6): 257-272. According to Jillson, the original journal manuscript by Croghan was acquired by George Featherstonehaugh, of Philadelphia, and published as above. This unique journal was reprinted by Mann Butler in his *History of Kentucky in Louisville* in 1834 and was reprinted again with fulsome notes in *Early Western Travels, Volume 1*, by R. G. Thwaites in 1904. The Sir William Johnson version of this journal appears in *New York Colonial Documents, Volume 7*, pp. 779-788. Another variant edition is printed in Hildreth's work, *Pioneer History of the Ohio Valley*. Croghan writes of his collection of lick fossils on May 31, 1765.

### 1766

Gordon, Harry. 1766. Journal of an Expedition along the Ohio and Mississippi by Captain Harry Gordon. *In* Kindle, Edward M. 1931. *The Story of the Discovery of Big Bone Lick*. *Kentucky Geological Survey, Series 6*, 41: 191-212. According to Jillson, in this journal Captain Gordon tells of his visit to the lick in 1766 and describes the locality. It was at this time that Croghan and Morgan made collections.

Hutchins, Thomas. 1766. Courses of the Ohio River. *In* Bond, Beverly W., ed. 1942. *The Courses of the Ohio River Taken by Lt. T. Hutchins*. *Historical and Philosophical Society of Ohio*. Hutchins, in Croghan's 1766 party, recorded the locality of the lick (p. 48).

Jennings, John. 1766. Journal. *In* The Historical Society of Pennsylvania. 1907. John Jennings "Journal from Fort Pitt to Fort Chartres in the Illinois Country," March-April, 1766. *Pennsylvania Magazine of History and Biography* 31: 145-156. Describes floating down the Ohio River near the lick where "Elephant Bones" are found (p. 148).

### 1767

Collinson, Peter. 1767. An Account of Some Very Large Fossil Teeth, Found in North America, and Described by Peter Collinson, F. R. S. *Philosophical Transactions* 57: 464-468. According to Jillson, this discusses and describes "the elephants bones" collected by George Croghan, deputy of Sir William Johnson, the king's superintendent of Indian affairs in America, at the lick in 1766 and sent separately to Lord Shelburne and Dr. Benjamin Franklin in London.

Collinson, Peter. 1767. Letter to Georges-Louis Leclerc de Buffon, July 3. *In* Peale, Rembrandt. 1803. *An Historical Disquisition on the Mammoth*. Lawrence, London. Letter (p. 13) that accompanied molar teeth from the lick sent to Buffon. Collinson questions Buffon's view that the lick's remains were commingled fossils consisting of hippopotamus teeth and elephant tusks and bones.

Collinson, Peter. 1767. Letter to John Bartram, Mill Hill, September 19. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. Writes of Croghan's description of the lick and the bones given by Croghan to Franklin and Shelburne (pp. 688-689).

Collinson, Peter. 1767. Sequel to the Foregoing Account of the Large Fossil Teeth. *Philosophical Transactions* 57: 468-469. Paper is concerned primarily with the pronged molar teeth found at the lick.

Croghan, George. 1767. Letter to the Earl of Shelburne, New York, January 16, 1767. *In* Kindle, Edward M. 1931. *The Story of the Discovery of Big Bone Lick*. *Kentucky Geological Survey, Series 6*, 41: 195-212. Briefly describes his 1766 visit to the lick and announces plan to ship collected fossils to London for the Earl of Shelburne, the British official in charge of the American colonies.

Franklin, Benjamin. 1767. Letter to George Croghan, London, August 5. *In* Kindle, Edward M. 1931. *The Story of the Discovery of Big Bone Lick*. Kentucky Geological Survey, Series 6, 41: 191-212. According to Jillson, this (pp. 202-203) discusses the “elephant’s tusks and grinders” received through George Croghan from the lick and gives his deductions concerning them. Dr. Franklin presented these bones to the Royal Society of London where many of them may still be seen in the British Museum.

W., G. 1767. [Letter to the Editor], *Pennsylvania Chronicle*, October 19-26. Anonymous reader viewed Croghan’s fossils from the lick and now asks other readers to offer their reactions to the finding of elephant remains in the Ohio Valley. Also see a reply to the query in the October 26-November 2 newspaper edition and the G. W. follow-up letter in the November 2-9 edition.

## 1768

Anonymous. 1768. List of Fossils Sent by George Croghan to the Earl of Shelburne and Benjamin Franklin. *Philosophical Transactions* 57: 467. *In* Labaree, Leonard W., ed. 1970. *The Papers of Benjamin Franklin*, Volume 14. Yale University Press, New Haven. Lists fossils from Croghan’s 1766 collection at the lick as well as other lick specimens in the possession of Lewis Ourry (pp. 28-29).

Collinson, Peter. 1768. Letter to Cadwallader Colden, February 10. *In* Gray, Asa, ed. 1843. *Scientific Correspondence of Cadwallader Colden*. B. L. Hamlen, New Haven. Reviews Croghan’s 1766 collection of proboscidean remains from the lick (p. 49).

Collinson, Peter. 1768. Letter to John Bartram, Mill Hill, May 17. *In* Berkeley, Edmund, and Dorothy Smith Berkeley, eds. 1992. *The Correspondence of John Bartram, 1734-1777*. University Press of Florida, Gainesville. Conjectures that the pronged teeth from the lick either belong to an unknown species of elephant or to some other unknown animal (pp. 701-703).

Franklin, Benjamin. 1768. Letter to l’Abbé Chappé d’Auteroche, London, January 31. *In* Willcox, William, ed. 1972. *The Papers of Benjamin Franklin*, Volume 15. Yale University Press, New Haven. Based on the structure of the molars, Franklin hypothesizes that the lick’s mastodon was an herbivore; asks French scientist if such teeth were also found in Siberia (pp. 33-34).

Hunter, William. 1768. Observations on the Bones, Commonly Supposed to Be Elephants Bones, Which Have Been Found near the River Ohio in America. *Philosophical Transactions* 58: 34-45. According to Jillson, this includes observations on the mastodon fossils from the lick sent to Lord Shelburne and Dr. Franklin.

Hutchins, Thomas. 1768. Journal from Fort Pitt to the Mouth of the Ohio. *In* Dunn, Jacob Piatt. 1895. *Documents Relating to the French Settlements on the Wabash*. Indiana Historical Society Publications 2: 418-421. Description of lick in 1768.

## 1770

Morgan, George. 1770. Memorandums. *In* Oaks, Robert F. 1976. *George Morgan’s “Memorandums”: A Journey to the Illinois Country, 1770*. *Journal of the Illinois State Historical Society* 69(3): 185-200. The “elephant bones” at the lick are noted on a 1770 Ohio River trip (p. 189).

## 1771

Pennant, Thomas. 1771. Synopsis of Quadrupeds. J. Monk, Chester. Identifies the large fossils found at the lick as skeletal elements of the American elephant, an animal believed to still be living (pp. 90-91).

## 1772

Connolly, John. 1772. Letter to George Washington, September 18. *In* Abbott, W. W. And Dorothy Twohig, eds. 1994. *The Papers of George Washington, Colonial Series, Volume 9*. University Press of Virginia, Charlottesville. This letter accompanied a proboscidean tooth found at the lick, which is described in detail (pp. 95-99).

### 1773

McAfee, Robert. 1773. Journal of an Exploration through Kentucky in 1773. *In* Jillson, Willard R. 1936. *Big Bone Lick*. Big Bone Lick Association Publication Number 1. Standard Printing Company, Louisville. Describes the appearance of the lick on July 4, 1773, when Robert and James McAfee, Thomas Bullitt, and others visited the locality (pp. 20-21).

### 1774

Adams, John. 1774. Diary, October 14. *In* Adams, Charles Francis, ed. 1850-1856. *The Works of John Adams, Volume 2*. Little Brown, Boston. Adams (p. 397) records that when he was in Philadelphia for meetings of the first Continental Congress in 1774, he dined with John Morgan and saw George Morgan's collection of mastodon bones from the lick.

Floyd, John. 1774. Survey of Big Bone Lick, May 12. *In* Jillson, Willard Rouse. 1936. *Big Bone Lick*. Big Bone Lick Association Publication Number 1. Standard Printing Company, Louisville. First property survey of the lick (p. 76).

Hanson, Thomas. 1774. Journal Kept on the River Ohio in the Year 1774. *In* Thwaites, Reuben Gold, and Louise Phelps Kellogg, eds. 1905. *Documentary History of Dunmore's War, 1774*. Wisconsin Historical Society, Madison. According to Jillson, describes (p. 121) John Floyd's survey on May 12, 1774, of 1,000 acres including the lick for Col. William Christian. Also mentions explorer James Douglas built a tent at the lick by using long bones as poles (p. 111).

Le Page du Pratz, Antoine Simon. 1774. *The History of Louisiana*. T. Beckett, London. Believes four skeletons found at the lick were those of elephants that recently migrated from northeast Asia to North America via a land bridge (pp. 303-304).

### 1775

Cresswell, Nicholas. 1775 (1928). *The Journal of Nicholas Cresswell*. Dial, New York. Passed Big Bone Creek traveling by canoe down the Ohio during the night of May 19-20, 1775. On returning, visited the lick on Saturday, June 17, 1775. According to Jillson, this graphic pen-picture is remarkable for accuracy, detail, and sensitivity to a scene altogether new and unique; it bids fair to long outlast both the erosive hand of time and the changing mood of fossil collectors.

Romans, Bernard. 1775. *A Concise Natural History of East and West Florida*. Aitkin, New York. Reports bones at the lick may be those of the hippopotamus (p. 53).

### 1776

Pownall, Thomas. 1776. *A Topographical Description of Such Parts of North America, etc.* London. According to Jillson, this contains a portion of the Journal of Captain Harry Gordon, kept on his journey down the Ohio from Fort Pitt to Illinois. On this journey in 1766 he stopped at the lick. This volume also contains the first printing of Col. Christopher Gist's journal of an expedition through Kentucky in 1751 at which time he obtained a large tooth (proboscidean molar) from the lick. Jillson also states that this may have been the first mammalian fossil to have been found and brought from the Indian lands in the Ohio Valley to a long-settled area on the eastern seaboard of North America.

Stiles, Ezra. 1776-1795. Diary. In Dexter, Franklin Bowditch, ed. 1901. *The Literary Diary of Ezra Stiles*. Charles Scribner's Sons, New York. Believes that molars and bones collected at the lick are those of human giants; records that George Washington owned some molars from the lick; recounts that Jefferson had seen bones from the lick; reports that Parsons in 1786 gave Yale and Harvard Colleges each one molar from the lick (Volume 2, pp. 201, 511-512; Volume 3, pp. 126, 214-215).

## 1778

Buffon, Georges Louis Leclerc de. 1778. *Historie naturelle, générale et particulière* (Sonnini). Imprimeries royale, Paris. According to Jillson, in Volume 1 (pp. 421-430) is a general speculative discussion as to the fossil remains of great animals. Refers to Canada. Buffon is said to have received bones from Longueuil in about 1739 from Canada. In Volume 4 (pp. 55-68), presents P. Collinson's letter to Buffon of July 3, 1767, crediting discovery of the lick to G. Croghan in 1765, and extract from Croghan's journal of same year. Three plates of mastodon teeth collected at the lick in 1766 by Croghan.

Hutchins, Thomas. 1778. *A New Map of the Western Parts of Virginia, Pennsylvania, Maryland, and North Carolina*. Almon, London. According to Jillson, this reflects Hutchins' visit to the lick with Croghan in 1766. Hutchins locates the lick on the map by simply using the words "Big Bones."

Hutchins, Thomas. 1778 (1904). *A Topographical Description of Virginia, Pennsylvania, Maryland, and North Carolina*. The Burrows Brothers Company, Cleveland. According to Jillson, this (pp. 82-83) describes the lick as "several large and miry Salt Springs."

Smith, William Bailey. 1778. Letter to Col. George Rogers Clark, Holston River, March 29. In Alvord, Clarence Walworth, ed. 1912. *George Rogers Clark Papers: 1771-1781*. Collections of the Illinois State Historical Library, Volume 8. Illinois State Historical Society, Springfield. According to Jillson, it (p. 42) states: "if you have not retired to Dranings Lick I would give it as my opinion you had better make the place of Randavous at the big bone lick where I am informd there will be a garrison arected as soon as Col. Bowman Can get out ...."

## 1780

Heckwelder, John. 1781. Letter to Colonel Daniel Brodhead, February 26. In Wallace, Paul A. W. 1952. *The Moravian Records*. Indiana Magazine of History 48(2): 141-160. In 1780, the Shawnee and other tribes went to the lick to join the British in raiding Kentucky settlements (p. 147).

Jefferson, Thomas. 1781-1783. Letters to George Rogers Clark. In Boyd, Julian P., ed. 1952. *The Papers of Thomas Jefferson*, Volume 6. Princeton University Press, Princeton. Four letters (pp.139, 204-205, 218-219, 371) requesting Clark to send bones from the lick to Jefferson.

## 1782

Clark, George Rogers. 1782. Letter to Thomas Jefferson, Louisville, February 20. In Boyd, Julian P., ed. 1952. *The Papers of Thomas Jefferson*, Volume 6. Princeton University Press, Princeton. Promises to send bones from the lick to Jefferson (pp. 159-160).

## 1783

Clark, George Rogers. 1783. Letter to Thomas Jefferson, October 12. In Thomas, Samuel W., and Eugene H. Conner. 1967. *George Rogers Clark (1752-1818): Natural Scientist and Historian*. The Filson Club History Quarterly 41: 202-226. Apologizes for his inability to procure bones from the lick, but promises to collect some within the next year.

## 1784

Anonymous. 1784. March 5: Nicola Presented Observations. In Phillips Jr., Henry. 1885. *Early Proceedings*. Proceedings of the American Philosophical Society of Philadelphia 22(119): 123. Presentation on a femur, tusk, and molar brought to Philadelphia from the lick by Isaac Craig.

Clark, George Rogers. 1784. Letter to Thomas Jefferson, February 8. *In* Thomas, Samuel W., and Eugene H. Conner. 1967. *George Rogers Clark (1752-1818): Natural Scientist and Historian*. The Filson Club History Quarterly 41: 202-226. Clark again promises to secure fossils from the lick for Jefferson.

Filson, John. 1784. *The Discovery, Settlement, and Present State of Kentucke*. Wilmington, DE. According to Jillson, the lick's waters and their medicinal values are cited. The "Big Bones" are described and the nature of the great beasts that once frequented the salt spring is speculated upon.

Filson, John. 1784. *This Map of Kentucke, etc.* Engraved by Henry D. Purcell and Printed by T. Rook, Philadelphia. According to Jillson, this map locates the lick as a "Salt and a Medicinal Spring on Big Bone Creek" where it is crossed by General Clark's war road from Drennon Springs to the mouth of the Licking. It states, "the large bones are found here."

Stiles, Ezra. 1784. Letter to Thomas Jefferson, Yale College, June 21. *In* Boyd, Julian P., ed. 1953. *The Papers of Thomas Jefferson, Volume 7*. Princeton University Press, Princeton. States that the big bones from the lick, as well as from other parts of the world, are those of human giants (pp. 312-317).

## 1785

Anonymous. 1785. Letter, December 22. *In* Smith, Dwight L., ed. 1953. *The Ohio Country in 1785*. Bulletin of the Historical and Philosophical Society of Ohio 11(1): 42-46. An army party from Fort Finney excavated a four-foot-long bone and a five-pound molar from seven feet below the lick's surface (p. 45).

Butler, Richard. 1785 (1847). *Journal of General Butler*. *The Olden Times* 2 (10): 433-464. A party of soldiers based at Fort Finney excavated many "elephant" bones and teeth from the lick (p. 462).

Denny, Ebenezer. 1785 (1859). *Military Journal of Major Ebenezer Denny*. Historical Society of Philadelphia, Philadelphia. Refers (p. 60) to a 1785 visit to the lick, where a party of soldiers from Fort Finney excavated "some astonishing large bones."

Jefferson, Thomas. 1785. Letter to Ezra Stiles, Paris, July 17. *In* Boyd, Julian P., ed. 1953. *The Papers of Thomas Jefferson, Volume 8*. Princeton University Press, Princeton. Informs Stiles that the big bones from the lick could not have been those of a human giant, since the bones are accompanied by elephantine tusks (pp. 298-300).

## 1786

Anonymous. 1786. *Description of Bones, &c. Found near the River Ohio*. *Columbian Magazine* 1: 103-107. Description and illustration of bones collected at the lick in 1784 by Isaac Craig. Author ascribes the numerous bones to animals that became stuck in swampy soil.

Butler, Lawrence. 1786. Letter to Anna F. Cradock, November 29. *In* Butler, Lawrence. 1932. *Letters from Lawrence Butler, of Westmoreland County, Virginia, to Mrs. Anna F. Cradock, Cumley House, near Harborough, Leicestershire, England (continued)*. *Virginia Magazine of History and Biography* 40(4): 362-370. Describes a 1786 hunt at the lick, a "Salt Mine," during which he saw bones from an animal larger than an elephant (pp. 364-365).

Fitzroy, Alexander. 1786. *The Discovery, Purchase, and Settlement of the Country of Kentuckie, etc.* H. Goldney, London. According to Jillson, this (p. 13) states that at "a salt spring (Big Bone Lick) near the Ohio River, very large bones have been found."

Ledyard, John. 1786. Letter to Thomas Jefferson, Saint Germain, February 7. *In* Boyd, Julian P., ed. 1954. *The Papers of Thomas Jefferson, Volume 9*. Princeton University Press, Princeton. Native Americans believed that large bones at the lick were the remains of an animal that "resides in the earth" and resembles "the little mole in its form" (pp. 260-261).

Parsons, Samuel Holden. 1786. Letter to Ezra Stiles, Middletown, April 27. *In* Boyd, Julian P., ed. 1956. *The Papers of Thomas Jefferson, Volume 13*. Princeton University Press, Princeton. Parsons in 1785 collected 300-400 pounds of bones from the lick, and in 1786 gave a molar from the collection to Yale College (pp. 477-478).

Stiles, Ezra. 1786. Letter to Thomas Jefferson, Yale College, May 8. *In* Boyd, Julian P., ed. 1954. *The Papers of Thomas Jefferson, Volume 9*. Princeton University Press, Princeton. Admits his mistake in believing that the big bones from the lick were not those of “elephants” (pp. 476-477).

Whitehurst, John. 1786. *An Inquiry into the Original State and Formation of the Earth, Second Edition*. Describes how the bones at the lick were the result of the Biblical flood (p. 271).

### **1787**

Jefferson, Thomas. 1787 (1955). *Notes on the State of Virginia*. University of North Carolina Press, Chapel Hill. According to Jillson, this gives reference to the lick and describes the size and nature of extinct animals represented by the fossils collected there. First publication of Indian legend as to last of the mastodons at the lick.

### **1789**

Ross, David. 1789. Letter to George Washington, November 28. *In* Twohig, Dorothy, ed. 1993. *The Papers of George Washington, Presidential Series, Volume 4*. University Press of Virginia, Charlottesville. Requests government protection for the saltworks at the lick (pp. 337-338).

### **1790**

Harmar, Joseph. 1790. Letter to Doctor Wistar, April 5. *In* Denny, Ebenezer. 1859. *Military Journal of Major Ebenezer Denny*. J. B. Lippincott & Company, Philadelphia. Promises that Harmar will send bones from the lick to Wistar (p. 251).

### **1792**

Imlay, Gilbert. 1792. *A Topographical Description of the Western Territory of North America*. J. Debrett, London. Imlay is amazed by the size of the extinct animals whose bones are found at the lick (pp. 43-44).

Kerr, Robert. 1792. *The Animal Kingdom, or Zoological System, of the Celebrated Sir Charles Linnaeus. Class I. Mammalia. A*. Strahan and T. Cadell, London. Concludes that the large fossils found at the lick are not those of a “true elephant” (p. 116).

### **1793**

Annan, Robert. 1793. *Account of a Skeleton of a Large Animal, Found near Hudson’s River*. *Memoirs of the American Academy of Arts and Sciences* 2, Part 1: 160-164. Relates that George Washington owned a molar taken from the lick.

Baker, Gardiner. 1793. *Broadside: Museum and Waxwork, at the Exchange, New York*. *In* McClung, Robert M., and Gale S. McClung. 1958. *Tammany’s Remarkable Gardiner Baker*. *New York Historical Society Quarterly* 43: 142-169. In 1793, the Tammany Society’s museum in New York City displayed a four-pound molar taken from the lick the previous year.

Michaux, André. 1793. *Journal*. *In* Thwaites, Reuben Gold. 1966. *Early Western Travels, 1784-1846, Volume 3*. Arthur H. Clark Company, Glendale, CA. Presumes (p. 37) that the lick’s big bones belonged to marine animals, since the local bedrock is full of “sea-shells.”

Parsons, Samuel Holden. 1793. *Discoveries Made in the Western Country*. *Memoirs of the American Academy of Arts and Sciences* 1, Part 2: 119-127. Description of the lick in 1785, and some of the bones collected by Parsons.

## 1795

Graham, Edward. 1795. Letter to John Breckenridge, September 25. Breckenridge Manuscripts, Manuscript Division, Library of Congress, Washington, D.C. According to Jillson, this proposes the establishment of a museum of natural history at Lexington, Kentucky, with a mammoth skeleton from the lick as the central nucleus.

Winterbotham, William. 1795. A Geographical, Commercial, and Philosophical View of the Present Situation of the United States of America, Volume 3. Tiebout and O'Brien, New York. Description of lick, three Indian legends about the big bones, and an illustration (copied from *Columbian Magazine*, November, 1786) of a tusk fragment, molar, and femur collected at the lick by Isaac Craig (pp. 138-141).

## 1796

Cuvier, Georges Dagobert. 1796. Memoir on the Species of Elephants, Both Living and Fossil. In Rudwick, Martin J. S. 1997. *Georges Cuvier, Fossil Bones, and Geological Catastrophes: New Translations and Interpretations of the Primary Texts*. University of Chicago Press, Chicago. According to Jillson, this is a memoir on the various species of living and extinct elephants and cites fossils at the lick.

Saint-Hilaire, Étienne G., and Jean-Baptiste Lamarck. 1796. Letter to Charles Willson Peale, January 30. In Miller, Lillian B, ed. 1983-1996. *The Selected Papers of Charles Willson Peale and His Family, Volume 2, No. 1*. Zoologists of the Muséum National d'Historie Naturelle in Paris request big bones from the lick (p. 142).

## 1797

Blumenbach, Johann Frederichs. 1797. *Haudbuch der Naturgeschichte*. Gottingen, Germany. The first determined species of the genus mastodon was from the lick. According to Jillson, Blumenbach characterized this lesser proboscidean (lesser frame and more primitive characteristics) in 1797 as *Mammut Ohioticum*, hence *M. Ohioticus* which title, somewhat later, was altered to *Mastodon americanus*. This is the first use of a specific name for this extinct mammal and precedes Cuvier's *M. giganteus* of 1805.

## 1799

American Philosophical Society. 1799. Circular. In Bedini, Silvio A. 1990. *Thomas Jefferson: Statesman of Science*. Macmillan, New York. Circular (pp. 280-281) highlights the importance of finding an entire skeleton of the mastodon and identifies the lick as a promising site for such a discovery.

Turner, George. 1799. Memoir on the Extraneous Fossils, Denominated Mammoth Bones, etc. *Transactions of the American Philosophical Society* 4: 510-518. According to Jillson, this is an early description of the lick and some of its fossil remains.

## 1800

Cuvier, Georges Dagobert. 1800. Extract from a Work on the Species of Quadrupeds of Which the Bones Have Been Found in the Interior of the Earth. In Rudwick, Martin J. S. 1997. *Georges Cuvier, Fossil Bones, and Geological Catastrophes: New Translations and Interpretations of the Primary Texts*. University of Chicago Press, Chicago. Highlights the lick as the primary source of mastodon fossils.

## 1802

Peale, Rembrandt. 1802. *Account of the Skeleton of the Mammoth, a Non-Descript Carnivorous Animal of Immense Size, Found in America*. E. Lawrence, London. According to Jillson, this refers to the discovery of "great numbers of bones" at the lick (p. 8).

## 1803

Faujas de Saint-Fond, Barthélemy. 1803. Sur deux espèces de boeufs dont on trouve les crânes fossiles en Allemagne, en France, en Angleterre, dans le nord de l'Amérique et dans d'autres contrées. *Muséum national d'histoire naturelle, Annales* 2: 188-200. According to Nickles (United States Geological Survey Bulletin 746), this article makes reference to fossils found at the lick.

Lewis, Meriwether. 1803. Letter to Thomas Jefferson, Cincinnati, October 3. *In* Jackson, Donald, ed. 1978. *Letters of the Lewis and Clark Expedition and Related Documents, Second Edition, Volume 1. Report on mammoth and mastodon remains collected at the lick by Goforth* (pp. 126-131).

Peale, Charles Willson. 1803. Letter to Thomas Jefferson, July 18. *In* Jackson, Donald, ed. 1978. *Letters of the Lewis and Clark Expedition and Related Documents, Second Edition, Volume 1. University of Illinois Press, Urbana. States that Cincinnati physician William Goforth had undertaken a fresh excavation for bones at the lick* (p. 132).

Peale, Rembrandt. 1803. *An Historical Disquisition on the Mammoth, or, Great American Incognitum, etc.* E. Lawrence, London. According to Jillson, this credits in the preface "some of the first discovered bones of the mammoth" from the lick given to his father, Charles Willson Peale, by Dr. Brown as responsible for the establishment in 1785 of Peale's Philadelphia Museum. Many references to the lick. This is an expansion of his *Account of the Skeleton, etc., of 1802*.

Rodney, Thomas. 1803. *Book of Accounts of Thomas Rodney Commencing at Dover in the State of Delaware, August, 1803.* *In* Smith, Dwight L., and Ray Swick. 1997. *A Journey through the West: Thomas Rodney's 1803 Journal from Delaware to the Mississippi Territory.* Ohio University Press, Athens. Describes the springs, bones, and salt works at the lick (pp. 107, 111-113).

Rodney, Thomas. 1803. Letter to Caesar A. Rodney, October 16. *In* Gratz, Simon, ed. 1919. *Thomas Rodney (Continued).* *The Pennsylvania Magazine of History and Biography* 43(2): 117-142. At the lick, the writer collected and measured elephantine teeth and bones that he identified as fossil concretions built up over the skeletal elements of animals no larger than bison (pp. 132-134).

## 1804

Fitz, Gideon. 1804. Letter to Thomas Jefferson, October 19. *In* Jackson, Donald, ed. 1978. *Letters of the Lewis and Clark Expedition and Related Documents, Second Edition, Volume 1. University of Illinois Press, Urbana. Refers to the boat accident at Natchez that sent to the Mississippi River bottom the lick fossils procured by Lewis from Goforth* (p.132).

Jefferson, Thomas. 1804. Letter to Gideon Fitz, September 17. *In* McClure, James P., ed. 2019. *The Papers of Thomas Jefferson, vol. 44, 1 July to 10 November 1804.* Princeton University Press, Princeton. Requests the recovery of lick fossils from the sunken boat at Natchez; see Fitz, 1804 (p. 407).

Rodney, Thomas. 1804. Letter to Thomas Jefferson, May 14. *In* McClure, James, ed. 2017. *The Papers of Thomas Jefferson, vol. 43, 11 March to 30 June 1804.* Princeton University Press, Princeton. Refers to 10-pound proboscidean tooth he found at the lick (pp. 428-435).

Twist, Hore Browse. 1804. Letter to Thomas Jefferson, March 6. *In* McClure, James P. 1804. *The Papers of Thomas Jefferson, vol. 42, 16 November 1803–10 March 1804.* Princeton University Press, Princeton. Refers to the boat accident at Natchez that sent to the Mississippi River bottom the lick fossils procured by Lewis from Goforth (p. 589).

Villefosse, Heron de. 1804. *Consederations sur les Fossiles, etc.* *Journal des Mines*, No. 91. Paris. According to Jillson, this is a review of Blumenbach's *Handbuch der Naturgeschichte*. Refers to "Mammut Ohioticum, dit l'icognitum de l'Ohio, grand quadrupede" from the lick.

## 1805

Barton, Benjamin Smith. 1805. *Miscellaneous Facts and Observations*. Philadelphia Medical and Physical Journal 1: 154-159. According to Jillson, this describes fossil bones at the lick. Quotes from the letter of John Bartram to James Logan. Shawnee Indians had brought a tooth and part of a tusk to Fort Pitt. They reported five whole skeletons at the lick and a shoulder blade which standing on the end came to the shoulder of a tall man. A variant and more fulsome account of this Indian description of the lick appears in Dr. Barton's *Archaeologiae Americanae Telluris Collectanea et Specimina*, etc.

Richardson, Andrew. 1805. *A Short Description of the Bones of the Mammoth, etc., Found in Big Bone Lick, Ken., etc.* In Cramer, Zadok. 1805. *Pittsburgh Magazine Almanack*. Pittsburgh. According to Jillson, this is an abbreviated list of lick fossils collected by Dr. William Goforth.

## 1806

Ashe, Thomas. 1806. *Memoirs of Mammoth and Various Other Extraordinary and Stupendous Bones of Incognita, or Non-Descript Animals, etc.* Harris, Liverpool. According to Jillson, this is a grandiloquent piece of writing, attempting to be scientific but actually a composite piracy of the writings of Collinson, Jefferson, Peale, Buffon, Hunter, Turner, and others on lick fossils that he, Ashe, stole from Dr. Goforth, of Cincinnati.

Brown, Samuel. 1806. Letter to Thomas Jefferson, August 24. Founders Online, National Archives, <https://founders.archives.gov/documents/Jefferson/99-01-02-4195>. Writes of Goforth's collection of lick fossils that Mr. Irvill (Thomas Ashe) was transporting to New Orleans.

Cramer, Zadok. 1806-1824. *The Navigator*. Cramer, Spear and Eichbaum, Pittsburgh. Pp. 41-42, Ed. 1806; pp. 69-70, Ed. 1808; pp. 117-120, Ed. 1811; pp. 114, 256-262, Ed. 1814; pp. 104, 225-230, Ed. 1817; pp. 101, 222-227, Ed. 1818; pp. 86, 201-206, Ed. 1824. According to Jillson, this is a description of the lick.

Cuvier, Georges Dagobert. 1806. *Sur le Grand Mastodonte*. *Annales du Muséum d'Histoire naturelle* 8: 270-312. Assigns the name "Mastodonte" to the animal fossils most commonly found at the lick.

Wistar, Caspar. 1806. Letter to William Goforth, Philadelphia, December 1. In Jillson, Willard Rouse. 1936. *Big Bone Lick*. Big Bone Lick Association Publication Number 1. Standard Printing Company, Louisville. Requests that Goforth write the President of the United States (Thomas Jefferson) relative "to the bones of a large animal with claws," also as to the mammoth in his collection from the lick (p. 39).

## 1807

Clark, William. 1807. Letter to James Findlay, Big Bone Lick, September 21. In Storrs, Glenn W. 2019. *Big Bone Lick*. *Ohio Valley History* 19(3): 82-90. Text and photograph of Clark's letter about his discoveries at the lick (pp. 86-87).

Clark, William. 1807. Letter to Jonathan Clark, Big Bone Lick, September 9. In Holmberg, James J., ed. 2002. *Dear Brother: Letters of William Clark to Jonathan Clark*. Yale University Press, New Haven. William reports the collection of specimens and requests his winter coat and money from his brother at Louisville (p. 126).

Clark, William. 1807. Letter to Thomas Jefferson, September 20. In Rice Jr., Howard C. 1951. *Jefferson's Gift of Fossils to the Museum of Natural History in Paris*. *Proceedings of the American Philosophical Society* 95(6): 597-627. Progress report on Clark's excavation at the lick.

Clark, William. 1807. Letter to Thomas Jefferson, November 10. In Rice Jr., Howard C. 1951. *Jefferson's Gift of Fossils to the Museum of Natural History in Paris*. *Proceedings of the American Philosophical Society* 95(6): 597-627. Reports on the lick and the fossils found by Clark's party.

Goforth, William. 1807. Letter to Thomas Jefferson. In Jillson, Willard Rouse. 1936. *Big Bone Lick*. Big Bone Lick Association Publication Number 1. Standard Printing Company, Louisville. Reports on fossils he gathered from the lick (pp. 40-43).

Jefferson, Thomas. 1807. Letter to David Ross, February 24. Founders Online, National Archives, <https://founders.archives.gov/documents/Jefferson/99-01-02-5157>. Asks permission to collect fossils on Ross's lick property.

Jefferson, Thomas. 1807. Letter to Caspar Wistar, Washington, D.C., February 25. *In* Bergh, Albert E., ed. 1907. *The Writings of Thomas Jefferson, Volume 11*. Thomas Jefferson Memorial Association, Washington, D.C. Outlines his plan to have Captain William Clark "stop at the lick" and make collections for him at his own expense. He proposes to give these specimens without cost to the American Philosophical Society (pp. 158-159).

Jefferson, Thomas. 1807. Letter to Caspar Wistar, Washington, D.C., December 19. *In* Bergh, Albert E., ed. 1907. *The Writings of Thomas Jefferson, Volume 11*. Thomas Jefferson Memorial Association, Washington, D.C. According to Jillson, this (pp. 403-404) discusses the work of fossil collecting by General William Clark at the lick and the type of fossils recovered and forwarded to Washington. Indicates his desire to send a few "to the National Institute of France." Invites Wistar to Washington to be his guest.

Jefferson, Thomas. 1807. Letter to George Rogers Clark, Washington, D.C., December 19. *In* Bergh, Albert E., ed. 1907. *The Writings of Thomas Jefferson, Volume 11*. Thomas Jefferson Memorial Association, Washington, D.C. According to Jillson, this (p. 406) requests that balance of bones from the lick be packed and sent to him through William Brown, collector, of the port of New Orleans. Then follows a personal remembrance to General Clark.

Jefferson, Thomas. 1807. Letter to William Clark, Washington, D.C., December 19. *In* Bergh, Albert E., ed. 1907. *The Writings of Thomas Jefferson, Volume 11*. Thomas Jefferson Memorial Association, Washington, D.C. According to Jillson, this (pp. 404-405) refers to General Clark's letters to him of September 20th and November 10th, relative to the collections of fossils made at the lick and asks that other specimens stored at the residence of George Rogers Clark at Clarksville be also forwarded to him at Washington, D.C., via New Orleans.

## 1808

Ashe, Thomas. 1808. *Travels in America, etc.* William Sawyer, London. Reports sulfur and low salt concentration in the water at the lick (p. 233).

Barton, Benjamin Smith. 1808. *Facts, Observations, and Conjectures, Relative to Elephantine Bones (of Different Species) That Are Found in Various Parts of North-America; in a Letter from the Editor to Mr. G. Cuvier, of Paris.* Philadelphia Medical and Physical Journal 3 (First Supplement): 22-35. Mistakenly interprets John Wright's letter to John Bartram as saying that Indians had found a proboscis or trunk of a mastodon at the lick.

Bryant, William Cullen. 1808. *The Embargo*. Boston. A long, sarcastic poem that includes a reference to Jefferson's interest in the lick (p. 6).

Jefferson, Thomas. 1808. *Memorandum Books, 1808.* *In* Bear, James A. and Lucia C. Stanton, eds. *The Papers of Thomas Jefferson, Second Series, Jefferson's Memorandum Books, vol. 2*. Princeton: Princeton University Press. On February 9, paid William Clark \$199.66 for digging fossils at the lick (pp. 1217-1237).

Jefferson, Thomas. 1808. Letter to Caspar Wistar, March 8. *In* Rice Jr., Howard C. 1951. *Jefferson's Gift of Fossils to the Museum of Natural History in Paris.* *Proceedings of the American Philosophical Society* 95(6): 597-627. Requests Wistar to come from Philadelphia to help Jefferson identify and distribute Clark's collection of bones from the lick (p. 605).

Jefferson, Thomas. 1808. Letter to Caspar Wistar, Washington, D.C., March 20. *In* Bergh, Albert E., ed. 1907. *The Writings of Thomas Jefferson, Volume 12*. Thomas Jefferson Memorial Association, Washington, D.C. According to Jillson, this (pp. 15-16) invites Dr. Wistar to visit Jefferson at the White House and inspect his collection of "upwards of three hundred bones" made for the President by General William Clark at the lick.

Jefferson, Thomas. 1808. Letter to Bernard Germain Etienne de La Ville-sur-Ilion, Comte de Lacépède, July 14. Founders Online, National Archives, <https://founders.archives.gov/documents/Jefferson/99-01-02-8319>. Letter accompanied lick fossils sent to France.

## 1809

Bonn, A. C., and Rembrandt Peale. 1809. *Verhandeling over de Mostodonte of Mammoth van den Ohio*. Haarlem, Holland. According to Jillson, this recites the discovery of Big Bone Lick by Longueuil. References to Croghan, Collinson, Hunter, Franklin, Shelburne, Chappe, Michaelis, Peale, Cuvier, etc.

Brown, A. C. 1809. *Description of the Mastodon or Mammoth of Ohio*. Amsterdam. According to Jillson, this pamphlet states that George Croghan visited the lick, removed some of the bones, and sent them to Peter Collinson in London.

Jefferson, Thomas. 1809. Letter to William Clark, Monticello, September 10. *In* Bergh, Albert E., ed. 1907. *The Writings of Thomas Jefferson, Volume 12*. Thomas Jefferson Memorial Association, Washington, D.C. According to Jillson, this (pp. 309-311) refers to the additional three boxes of bones sent from the lick to him through Mr. Brown of New Orleans and says that the bill of lading was received but that the bones were put off at St. Mary's near Havana. He is at a loss to know what was done with these bones.

## 1810

Cuming, F. 1810. *Sketches of a Tour to the Western Country*. Cramer, Spear and Eichbaum, Pittsburgh. *In* Thwaites, R. G., ed. 1904. *Early Western Travels, 1748-1846*. Arthur H. Clark, Cleveland. According to Jillson, this includes references to the lick and a description of the Dr. Goforth collection of fossils taken from this locality and housed in Pittsburgh.

Schultz, Christian. 1810. *Travels on an Inland Voyage, Volume 1*. I. Riley, New York. Includes two Native American explanations of the source of the lick's bones (pp. 185-188).

T. 1810. *Western Spy*, September 22. Reviews fossil remains found at "The Great Bone Lick," including those believed to be carnivores drawn to the lick by the presence of salt-seeking herbivores.

Wilson, Alexander. 1810. Letter to Alexander Lawson, April 4, Lexington. *In* Hunter, Clark, ed. 1983. *The Life and Letters of Alexander Wilson*. American Philosophical Society, Philadelphia. At the lick, Wilson shot ducks and Carolina parakeets, sank into the mud, and left a letter at the salt works requesting that the owner preserve any fossils that might be unearthed while prospecting for additional sources of brine (p. 335).

## 1811

Buffon, Georges Louis Leclerc de. 1811. *Les Époques de la nature, Volume 3*. Paris. According to Jillson, this book that was originally published in 1779 recites (pp. 64-76) discovery of elephant teeth and tusks by George Croghan on the Ohio River at the lick in 1765 and 1766 and makes comparisons. Cites Collinson. Figures nine views of mastodon teeth.

## 1812

Brookes, Richard. 1812. *General Gazetteer Improved*. Johnson and Warner, Philadelphia and Richmond. According to Jillson, this includes a note on the lick and its animal bones.

Cutler, Jervis. 1812. *A Topographical Description of the State of Ohio, Indiana Territory, and Louisiana*. Charles Williams, Boston. Reports that the bones of enormous animals had been dug up at Big Bone Creek (p. 48).

Marshall, Humphrey. 1812. *The History of Kentucky*. Henry Gore, Frankfort. Record of visit to the lick in 1773 by surveyor James Douglas and the posting of 18 militiamen at the lick in 1790 (pp. 85-86, 406).

## 1814

American Philosophical Society. 1814. Minutes. *In* Anonymous. 1885. Early Proceedings of the American Philosophical Society for the Promotion of Useful Knowledge, Compiled by One of the Secretaries, from the Manuscript Minutes of Its Meetings from 1744-1838. Proceedings of the American Philosophical Society 22(119, Part III): 443-450. Jefferson donates two skulls collected at the lick by William Clark (p. 447).

Barton, Benjamin Smith. 1814. *Archaeologiae Americanae Telluris Collectanea et Specimina*, etc. Barton, Philadelphia. According to Jillson, this includes various references to the lick and its fossil mammoth, mastodon, and other extinct species (pp. 34-40). Shawnee description of the lick given to Colonel Bouquette prior to 1762. Letters to Cuvier, Jefferson, and others.

Cramer, Zadok. 1814. *The Navigator*, Eighth Edition. Cramer, Spear and Eichbaum, Pittsburgh. *In* Jillson, Willard Rouse. 1936. *Big Bone Lick: An Outline of its History, Geology and Paleontology*. Big Bone Lick Association Publication Number 1. Standard Printing Company, Louisville. Reports the theft by Ashe of Goforth's specimens that were collected from the lick (pp. 37-38).

## 1815

Drake, Daniel. 1815. *Natural and Statistical View, or Picture of Cincinnati and the Miami Country*. Looker and Wallace, Cincinnati. Reports on Goforth's collection of bones from the lick and its removal to England by Ashe; writes that due to past collecting, few bone fragments are present on the surface of the lick; reports on the curative aspects of the lick's spring waters (pp. 71-72, 195-197).

## 1816

Melish, John. 1816. *Travels through the United States of America, in the Years 1806 & 1807, and 1809, 1810, & 1811*. Belfast. States there was no reason to go to the lick from the Ohio River since all the bones that had been found there had been carried away (p. 367).

## 1817

Anonymous. 1817. *Transactions of Learned Societies*. National Intelligencer, September 17. Nathan Guilford of Cincinnati believes that a complete mammoth skeleton might be procured from the lick.

## 1818

Mitchell, Samuel L. 1818. *Observations on the Geology of North America*, etc. New York. According to Jillson, this contains references to the lick and its fossil bones (pp. 361-362).

Palmer, John, *Journal of Travels in the United States*. Sherwood, Neely, and Jones, London. Describes the lick's fossils and resort facilities in 1817 (pp. 98-100).

Wistar, Caspar. 1818. *An Account of Two Heads Found in the Morass, Called Big Bone Lick, and Presented to the Society, by Mr. Jefferson*. *Transactions of the American Philosophical Society*, New Series, 1: 375-380. According to Jillson, this describes the skulls of *Bootherium bombifrons* and *Cervalces scotti* collected by General Clark for President Jefferson.

## 1819

Evans, Estwick. 1819. *A Pedestrious Tour of Four Thousand Miles*, etc. Joseph C. Spear, Concord, NH. *In* Thwaites, Reuben G., ed. 1966. *Early Western Travels, 1748-1846*, Volume 8. AMS Press, New York. Lists factors that may have been responsible for the abundance of remains at the lick (pp. 270-271).

McMurtrie, Henry. 1819. *Sketches of Louisville*. S. Penn, Louisville. According to Jillson, includes a list of the fossils removed from the lick by Dr. S. L. Mitchell upon the order of Governor Clark (pp. 82-83).

Morse, Jedidiah. 1819. *The American Universal Geography, Sixth Edition*. Boston. According to Jillson, this contains a reference to the lick (p. 499).

## 1820

Drake, Daniel. 1820. *An Anniversary Discourse On the State and Prospects of the Western Museum Society*. Western Museum Society, Cincinnati. Reviews how the lick's fossils contribute to the recent understanding that species have become extinct (p. 12).

Gilleland, J. C. 1820. *Ohio and Mississippi Pilot, etc.* Pittsburgh. According to Jillson, contains a note (p. 30) as to the lick on the left side of the Ohio.

## 1821

Harris, William Tell. 1821. *Remarks Made during a Tour through the United States of America, in the Years 1817, 1818, and 1819*. Sherwood, Neely and Jones, London. Portrays the mammoth as a possible predator on animals at the lick, cites Ashe's stealing of Goforth's fossils, and mentions additions being made to the Clay House (pp. 125-126).

## 1822

Edmondson, J. 1822. Advertisement. *Louisville Public Advertiser*, March 20. Offers the rental of the lick with its farm and medicinal salt springs.

Godman, John. 1822. *Further Observations On the Same Disease*. *Western Quarterly Reporter of Medical, Surgical, and Natural Science* 1: 355-357. Refers to Big Bone Springs, where "invalids drink copiously." (p. 357)

Pierce, Thomas. 1822. *The Odes of Horace in Cincinnati as Published in the "Western Spy and Literary Cadet" during the Year 1821*. Harrison's Press, Cincinnati. Two odes about Big Bone Springs, a summer retreat for Cincinnatians (pp. 40-48).

## 1823

Niblo, William. 1823. *Bank Coffee House*. *National Advocate* (New York City), February 14. Advertises an upcoming serving of meat from a bear killed at the lick.

## 1824

Blane, William Newnham. 1824. *An Excursion through the United States and Canada during the Years 1822-23*. Baldwin, Cradock, and Joy, London. Collected fragments of a tusk from the lick in 1822 (pp. 130, 133).

Rafinesque, C. S. 1824. *Ancient Annals of Kentucky*. In Marshall, Humphrey. 1824. *History of Kentucky, Volume 1*. Henry Gore, Frankfort. According to Jillson, this contains references to the lick (p. 17).

## 1825

Anonymous. 1825. *Cincinnati Advertiser*, July 3. Advertises a two-day boat excursion to Big Bone Landing, arriving on Saturday and departing on Sunday, to allow an overnight stay at the lick and the collection of springwater.

Harlan, Richard. 1825. *Fauna Americana*. Anthony Finley, Philadelphia. Numerous references to the lick. According to Jillson, book includes a description (p. 273) of a portion of a skull of an extinct fossil bison originally presented to the American Philosophical Society by Samuel Brown of Kentucky. The specimen came from near the lick. This specimen had previously been described by Rembrandt Peale in 1803. Harlan names the species *Bos latifrons*. Dr. Leidy later renamed it *Bison latifrons*.

Peale, Charles Willson. 1825-1826. *Autobiography*. In Miller, Lillian B., et al., eds. 2000. *The Selected Papers of Charles Willson Peale and His Family*. Yale University Press, New Haven. Reports that he was stimulated to open his museum based on a favorable reaction to the bones in his studio that George Morgan had collected from the lick (pp. 112-113).

## 1826

Collot, Victor. 1826. *A Journey in North America*. Arthur Bertrand, Paris. Describes several fossils (including mastodon and mammoth teeth) he found at the lick in 1796 (pp.138-141).

Godman, John D. 1826. *American Natural History*. Carey, Lea and Carey, Philadelphia. Includes illustrations of two fossils found at the lick by William Clark: elk-moose (Part 1, Volume 2, opp. p. 197) and helmeted musk ox (Part 1, Volume 3, opp. p. 242), and description of the lick with its swampy, animal-entrapping soil (Part 1, Volume 2, p. 238).

Mitchell, Samuel L. 1826. *Catalogue of the Organic Remains and Other Geological and Mineralogical Articles Contained in the Collection Presented to the New York Lyceum of Natural History*. New York. According to Jillson, this cites several mastodon bones and tusks from Kentucky, probably disinterred at the lick (p. 11).

## 1827

Chateaubriand, Francois-Rene. 1827. *Travels in America*. In Switzer, Richard. 1969. *Chateaubriand's Travels in America*. University of Kentucky Press, Lexington. In 1791, the bisons' feces at the lick is so impregnated with salt that it resembles limestone (p. 52).

Drake, Benjamin, and E. D. Mansfield. 1827. *Cincinnati in 1826*. Morgan, Lodge, and Fisher, Cincinnati. Western Museum and Letton's Museum obtain specimens from the lick (pp. 45-46). The city's residents may utilize the medicinal waters of the lick (p. 87).

## 1828

Buffon, Georges Louis Leclerc de. 1828. *Oeuvres completes de Buffon (Buffon et Daubenton, LaCepede, Cuvier, Dumerie, Poiret, Lesson et Geoffroy-St. Hilaire)*, Volume 2. Bruxelles. Also 1833. *Theorie de la Terre*, Volume 1. Bruxelles. According to Jillson, this presents P. Collinson's letter of July 3, 1767, to Buffon. Gives credit for discovery of elephant bones in Canada (Big Bone Lick) to Croghan in the years 1765-1766 and figures teeth from those Croghan sent to him via Peter Collinson, Benjamin Franklin, and Lord Shelburne. Croghan's journal of 1765 excerpts.

Chateaubriand, Viscount de. 1828. *Travels in America and Italy*. Henry Colburn, London. Includes measurements of "mammoth" bones and tooth discovered at the lick (p. 164).

Drake, Daniel. 1828. *Notices of the Principal Mineral Springs of Kentucky and Ohio*. *The Western Journal of the Medical and Physical Sciences* 2(3): 142-167. Lists curative powers of the lick's spring waters.

Guilford, N. 1828. *Traditions of the Mammoth*. In Hall, James, ed. 1828. *The Western Souvenir*. N. and G. Guilford, Cincinnati. Relates a tale that there are so many big bones at the lick because the large species at the site battled each other to death (pp. 31-32).

## 1829

Harlan, Richard. 1829. *Description of the Fossil Bones of the Megalonyx, Discovered in "White Cave," Kentucky*. *Journal of the Academy of Natural Sciences of Philadelphia* 6(1): 269-288. According to Jillson, this (pp. 277, 279, 284) includes descriptions and references to the humerus of a megalonyx disinterred at the lick.

## 1830

Anonymous. 1830. Daily National Journal, November 9. In October, Mr. Finney excavated tusks and bones at the lick, the remains of an animal "25 feet high, and sixty feet long." Also reported in the Indianan State Journal, December 15. But see Featherstonehaugh, 1831.

Anonymous. 1830. Daily National Journal, December 2. Finney will facilitate the placement of the lick's fossils in a public institution.

Byers and Butler. 1830. Harrodsburg, Blue Lick and Big Bone Waters. Louisville Public Advertiser, May 25. Advertises that water from the lick is available for purchase.

Cooper, William. 1830. Two Young Skulls of an Extinct Animal Lately Found in Kentucky and New York Resembling the Mastodon. American Journal of Science and Arts 19(1): 159-160. According to Jillson, this refers to mastodon material from the lick.

Gazley, Sayres. 1830. Notice of the Osseous Remains at Big Bone Lick. American Journal of Science 18: 139-141. According to Jillson, this is a good early description by an eyewitness of the lick. Capt. Finnell "keeps the boarding house at this watering place." "The waters are beneficial to health; but the place is not much resorted to."

### 1831

Anonymous. 1831. The Wonders of Nature. Arkansas Gazette, February 16. Two fossil horse feet were found at the lick along with the bones and teeth of a 60-foot-long carnivorous animal. The latter find was also reported in the Vermont Chronicle, February 18. But see Featherstonehaugh, 1831.

Cooper, William. 1831. Notices of Big-Bone Lick. Monthly American Journal of Geology and Natural Science 1: 158-174, 205-216. According to Jillson, this gives a condensed history of the explorations made at the lick for vertebrate fossils. An outline of all early collections and a list of the bones recovered together with the first estimate of the number of animals involved, possible methods of accumulation, geological notes, comparison with foreign depositories, specimens, etc. A very important early paper accompanied by the first published detailed map, with a particular account of the great collection of bones discovered in September, 1830.

Cooper, William, J. A. Smith, and James E. DeKay. 1831. Report of Messrs. Cooper, J. A. Smith, and DeKay to the Lyceum of Natural History, on a Collection of Fossil Bones, Disinterred at Big Bone Lick, Kentucky, in September, 1830, and Recently Brought to This City (New York). American Journal of Science and Arts, Series 1, 20: 370-372. *Also* Monthly American Journal of Geology and Natural Science 1: 43-44. According to Jillson, describes the collection of Captain Benjamin Finnell as containing specimens of the mastodon, mammoth, horse, buffalo, elk, moose, and ground sloth. Upwards of 300 bones in this collection besides 22 tusks, weight 5,300 pounds. It was shown in 1831 in New York City at the corner of Broadway and Pearl Streets and was to be transferred to London or Paris.

Featherstonehaugh, George William. 1831. Scientific Memoranda. Monthly American Journal of Geology and Natural Science 1: 42-43. According to Jillson, this is an editorial note relative to the report of the Museum of Natural History of New York by Cooper, Smith, and DeKay on the lick's fossils. In the same issue (p. 2), Featherstonehaugh writes that the 60-foot-long carnivore recently dug out of the lick is a fake reconstruction.

Harlan, Richard. 1831. Description of the Jaws, Teeth, and Clavicle of the *Megalonyx laqueatus*. Monthly American Journal of Geology and Natural Science 1(2): 74-76. According to Jillson, this describes a left ramus of the lower jaw of a ground sloth and calls it *Megalonyx laqueatus*. Later shown by Owen to be *Myiodon harlani*. This specimen was once a part of the Finnell collection in Cincinnati and came (according to Leidy, 1855) from the lick.

Silliman, Benjamin. 1831. Remarks by the Editor. *American Journal of Science and Arts* 20: 371-372. According to Jillson, Silliman says after seeing the exhibit from the lick shown in New York City: "They (the bones) produced in the beholder the strongest conviction that races of animals formerly existed on this continent, not only of vast magnitude, but which also must have been very numerous; and the Mastodon, at least, ranged in herds, over probably the entire American continents."

### 1832

Rafinesque, C. S. 1832. Visit to Big-Bone Lick, in 1821. *Monthly American Journal of Geology and Natural Science* 1(8): 355-358. According to Jillson, this is an interesting early description of the lick.

Trollope, Frances. 1832 (1966). *Domestic Manners of the Americans* (Edited by Donald Smalley). Alfred A. Knopf, New York. Description of lick's appearance in 1828 (pp. 139, 141).

### 1833

Anonymous. 1833. *Lexington Kentucky Gazette*, January 19. Members of the Nullifier Party gathered at the lick in 1833 (p. 3).

Hays, Isaac. 1833. Descriptions of the Inferior Maxillary Bone of Mastodons in the Cabinet of the American Philosophical Society, etc. *Transactions of the American Philosophical Society, New Series*, 4: 317-339. According to Jillson, this includes numerous references to fossils from the lick.

Maximilian, Prince of Wied. 1833. *Travels in the Interior of North America*. In Thwaites, Reuben G., ed. 1966. *Early Western Travels, Volume 12*. AMS Press, New York. States that collectors had taken away all of the fossils from the lick (p. 156)

Vigne, Godfrey T. 1833. *Six Months in America*. T. T. Ash, Philadelphia. Because the lick's mammalian fossils are found mixed together with marine invertebrate fossils, Vigne reports that both types are the remains of animals that lived during the same era (p. 129).

### 1834

Butler, Mann. 1834. *A History of the Commonwealth of Kentucky*. Wilcox, Dickerman, Louisville. According to Jillson, in the appendix is the complete journal of Colonel Croghan, beginning May 15, 1765, and telling of his visit to the lick, May 30 and 31, 1765 (pp. 368-369).

Cummings, Samuel. 1834. *Western Pilot*. N. and G. Guilford, Cincinnati. According to Jillson, this gives notes on the lick and repeats the impossible tradition of the Delaware Indians as related by Thomas Jefferson (pp. 44-45). Tells of Thomas Ashe taking several wagonloads of the bones to England. The 1825 edition of this book has a brief note on the lick on page 19.

### 1835

Cuvier, Georges Dagobert. 1835. *Researches on Fossil Bones*. Henderson, London. According to Jillson, this 1812 publication contains various notes as to the lick, its discovery by Longueuil in 1739, its mammoth and mastodon bones, and President Jefferson's gifts of fossil bones to the Institute of France. *Bison latifrons* from near the lick is here styled Aurochs.

### 1836

Cooper, William. 1836. A Report on Some Fossil Bones of the *Megalonyx* from Virginia, etc. *Annals of the Lyceum of Natural History of New York* 3: 166-173. According to Jillson, numerous references and descriptions of megalonyx material from the lick.

### 1838

Atwater, Caleb. 1838. History of the State of Ohio, Natural and Civil. Cincinnati. Reports that tons of fossils from the lick have been sent to all parts of the United States and to Europe (p. 57).

Robertson, William. 1838. The History of America, Volume 2. D. Strahan, London. Originally published in 1777, relates the bones at the lick are those of an unknown animal (pp. 427-428).

#### **1840**

De Quincey, Thomas. 1840. Style. In Masson, David, ed. 1897. The Collected Writings of Thomas De Quincey, Volume 10. A. and C. Black, London. Claims that the name of the lick was derived from the numerous bones of bison that were hunted at the site (p. 144).

Owen, Richard. 1840. Zoology of the Voyage of H. M. S. Beagle, 1832-1836. Part 1, Fossil Mammalia. London. According to Jillson, this includes references to *Megalonyx laqueatus* as described by Dr. Harlan from the lick (p. 68).

Wilson, Alexander. 1840. Wilson's American Ornithology. Otis, Broaders, Boston. Describes the Carolina parakeet at the lick (pp. 246-253).

#### **1844**

Lyell, Sir Charles. 1844. On the Geological Position of *Mastodon giganteum* and Associated Fossil Remains at Bigbone Lick, Kentucky, and Other Localities in the United States and Canada. American Journal of Science and Arts 46: 320-323. Also Geological Society of London, Proceedings 4(92): 36-39. According to Jillson, this briefly describes geography, topography, geology, and mode of occurrence of fossil bones at the lick. Lyell states it plainly as a fact, but of course erroneously, that glacial drift did not cover this area. Says buffalo paths still to be seen there.

#### **1845**

Lyell, Sir Charles. 1845. Travels in North America. Wiley and Putnam, New York. According to Jillson, this describes the lick and adjoining area. Speculates on the order of superposition of the various glacial mammals found there. Brief description of the physiography, geology, vertebrate and invertebrate paleontology found at the lick.

#### **1846**

Cave, John. 1846. Commissioner's Sale of Bigbone Spring. Licking Valley Register, May 9, p. 2. Also Kentucky Intelligencer, May 13, p. 3. Offering of lick for sale.

Falconer, Hugh, and P. I. Cantley. 1846. Fauna Antiqua Sivalensis. Smith, Elder and Co., London. States (p. 16) that based on the law of priority, the mastodon's correct scientific name should be *Mammot Ohioticum*, the specific name originally having been originally given to the animal in recognition of its discovery at the lick near the Ohio River.

Hodgson, William B. 1846. Memoir on the Megatherium, etc. Barlett and Welford, New York. According to Jillson, this refers to discovery of fossil bones at the lick (p. 7).

Taylor, James. 1846. Autobiography. In Johnston, J. Stoddard. 1898. First Explorations of Kentucky. Filson Club Publications No. 13. Filson Club, Louisville. Refers to excavations at the lick by Goforth and Finnell (pp. 170-171).

#### **1847**

Anonymous. 1847. Boone and the Big Bone Springs. Licking Valley Register, March 13. Identifies Indian Hill on the west side of the lick.

Collins, Lewis. 1847. *Historical Sketches of Kentucky*. Maysville. According to Jillson, this contains an important early American historical sketch of the lick.

Leidy, Joseph. 1847. On the Fossil Horse of America. *Proceedings of the Academy of Natural Sciences of Philadelphia* 3: 262-266. According to Jillson, this includes a description of ten molar teeth of a fossil horse taken from the lick and presented to the Academy by Mr. J. P. Wetherill (pp. 262-264).

### 1850

Collins, Lewis. 1850. *History of Kentucky*. Maysville. According to Jillson, this contains historical descriptions of the lick and its fossils (pp. 180-181). Cites James Douglas, Dr. Goforth, Thomas Ashe, Dr. Blake, President Jefferson, M. Cuvier, Mr. Finnell, and Mr. Graves. Cites sales of some fossil collections as high as \$5,000.00.

### 1851

Anonymous. 1851. *Cincinnati Daily Commercial*, June 19. An investor purchased a large part of the lick's resort area, chartered the Big Bone Hotel company, and proposed to subdivide the land into lots for individually-owned summer cottages.

Leidy, Joseph. 1851. [Remarks on *Equus Americanus*]. *Proceedings of the Academy of Natural Sciences of Philadelphia* 5: 140. Identifies three bones from the lick as those of *Equus Americanus*.

### 1852

Anonymous. 1852. Prof. Silliman's XI. Lecture—Geology. *National Intelligencer*, March 4. Mammoth and mastodon teeth from the lick were exhibited at the Smithsonian talk.

Hitchcock, Edward. 1852. *Elementary Geology*, Eighth Edition. Newman and Ivison, New York. Cites lick as the most remarkable fossil locality in the United States (p. 149).

Leidy, Joseph. 1852. *Memoir on the Extinct Species of American Ox*. *Smithsonian Contributions to Knowledge*, Volume 5, Article 3. According to Jillson, this includes many systematic references to the Pleistocene oxen or bison recovered from the lick.

Leidy, Joseph. 1852. [Remarks on Extinct Bison]. *Proceedings of the Academy of Natural Sciences of Philadelphia* 6: 117. According to Jillson, this is the first description of *Bison antiquus* and was made from a fragment of horn core and skull from the lick, collected by William Clark for Jefferson.

### 1854

Busch, Moritz. 1854 (1971). *Travels between the Hudson and the Mississippi, 1851-1852*. University Press of Kentucky, Lexington. Narrates the Native American story that the large bones in the lick were the remains of huge animals that preyed on game animals. On the contrary, according to Busch, the mammoths of the lick were herbivores (pp. 207-208).

Leidy, Joseph. 1854. [Remarks on the Question of the Identity of *Bootherium cavifrons* with *Oribos moschatus* or *O. maximus*]. *Proceedings of the Academy of Natural Sciences of Philadelphia* 7: 209-210. According to Jillson, this is a reply in a dispute with Sir John Richardson as to proper identification of *Bootherium* taken from the lick.

### 1855

Anonymous. 1855. Ho for Big Bone. *Indiana American*, August 31. Refers to the taste of spring water at the lick as "nasty."

Leidy, Joseph. 1855. A Memoir on the Extinct Sloth Tribe of North America. Smithsonian Contributions to Knowledge, Volume 7, Article 5. Smithsonian Institution, Washington, D.C. Describes and illustrates remains of Harlan's ground sloth found at the lick (pp. 47-48, 65-66).

Warren, John C. 1855. The Mastodon Giganteus of North America. Boston. According to Jillson, this is a very detailed and systematic description containing an important chronology on the scientific literature touching on the mastodon. Numerous references to mastodon fossils from the lick.

### **1856**

Foot, William Henry. 1856. Sketches of Virginia: Historical and Biographical. Second Series. Lippincott, Philadelphia. According to Jillson, this (pp. 150-159) cites Mary Ingles' visitation to and escape from the lick in 1756, while on a salt collecting expedition with a party of Shawnee Indians.

Foster, Col. 1856. Fossil Elephants and Mastodons. Nw York Herald, August 25, page 8. The proboscidean bones at the lick are older than the deer and bison remains at the site.

### **1857**

Anonymous. 1857. A Day at the Salt Works of Syracuse, State of New York. Frank Leslie's Illustrated Newspaper, August 8, 148-149, 151-152. Applies the title "Bigbone Lick" to all American salt licks, "for here are found great heaps of bones" (p. 148).

Owen, David Dale. 1857. Second Report of the Kentucky Geological Survey. This reports the chemical analysis of the water of the lick (pp. 82-83).

Shaler, Nathaniel Southgate. 1857. General Report of the Kentucky Geological Survey, Volume 2. Shaler describes the chemistry of the water from the springs at the lick (p. 82).

### **1860**

Leidy, Joseph. 1860. Description of Vertebrate Fossils. In Holmes, Francis S. 1860. Post-Pleiocene Fossils of South-Carolina. Russell and Jones, Charleston. Leidy describes and figures the tooth of a tapir (*Tapirus haysii*) listed (mistakenly) as having come from the lick (p. 107).

### **1866**

Anonymous. 1866. October 23d. Proceedings of the Academy of Natural Sciences of Philadelphia 18: 290-291. Joseph Leidy exhibited mastodon fossils from the lick that he (mistakenly) presumed had been ground by glacial ice.

Lucas, Squire, and Thomas Combs. 1866. The Big Bone Springs. Cincinnati Daily Enquirer, June 23, p. 2. Advertisement for the re-opening of the lick's health resort.

### **1867**

Anonymous. 1867. June 25th. Proceedings of the Academy of Natural Sciences of Philadelphia 19: 83-86. Joseph Leidy suggests that the Academy's *Bison antiquus* skull from the lick may be a female of *Bison latifrons* (p. 85).

### **1868**

Anonymous. 1868. Note. Louisville Courier-Journal, July 27. Reports that excavations continue at the lick.

### **1869**

Anonymous. 1869. Newport. Cincinnati Daily Gazette, August 18, p. 1. Reports about 100 visitors at the lick's health resort.

Leidy, Joseph. 1869. *The Extinct Mammalian Fauna of Dakota and Nebraska with a Synopsis of Extinct Mammalia of North America*. Philadelphia. According to Jillson, this includes many references to paleontological literature of the lick (pp. 373-375, 392-400, 411, 413, etc.).

Peyton, John Lewis. 1869. *Over the Alleghanies and across the Prairies*. Simpkin, Marshall and Co., London. Regarding the lick's spring water, Peyton found "the taste and smell sulphurous and offensive."

Shaler, Nathaniel Southgate. 1869. Note on the Occurrence of the Remains of *Tarandus rangifer* Gray, at Big Bone Lick in Kentucky. *Proceedings of the Boston Society of Natural History* 13: 167. Points to the present-day sub-Arctic range of the caribou to show that a warming climate had been responsible for northward displacement of the lick's extirpated and extinct cold-adapted mammals.

Shaler, Nathaniel Southgate. 1869. [Remarks on Changes in the Geographical Distribution of the American Buffalo]. *Proceedings of the Boston Society of Natural History* 13: 136. Shaler found bison bones "in great abundance just below the recent mould," but not "in the rich deposits of extinct mammals just beneath."

## 1870

Leidy, Joseph. 1870. [Report on American Mastodon Remains in Warren Museum and Cambridge University Museum]. *Proceedings of the Academy of Natural Sciences of Philadelphia* 22: 97. According to Jillson, this includes a brief description of the Pleistocene mammalian fossils (mastodon, mammoth, bison, horse, musk ox, and other vertebrates) from the lick collected by Professor Shaler who informed him "that he had detected no evidence of glacial action" there.

Mansfield, E. D. 1870. Mineral Wonders! *Newark Advocate*, September 9. "We live in a practical age, when there is work for every man to do, and where its value depends on its utility. I feel no particular interest in knowing when the trilobites around Cincinnati lived, or when the mastodon got buried at Big Bone Lick. I am glad they were buried, for I can conceive no specific use for them in this age."

Shaler, Nathaniel Southgate. 1870. The Time of the Mammoths. *American Naturalist* 4: 148-166. Makes reference to the mammoth and mastodon fossils found at the lick.

## 1872

Allen, William B. 1872. *A History of Kentucky*. Bradley and Gilbert, Louisville. According to Jillson, this refers to salt water and fossil bones of the mammoth and mastodon, evidently rewritten from Collins, Marshall, and other earlier Kentucky historians (pp. 19, 113-114).

## 1873

Pike, J. W. 1873. "Groping among the Ancients," to Find Out about Jesus. *Boston Investigator*, August 13. Pike met a clergyman at the lick "who couldn't see the use of digging to find out whether the Mastodon was there before the Mammoth, since both, if they ever existed, 'are dead' now."

## 1874

Peter, Robert. 1874. *Geological Formations in Kentucky*. In Collins, R. H. 1874. *History of Kentucky*, Volume 1. Covington. Discusses the skeletal remains of Ice Age mammals found at the lick (p. 378).

Walton, George E. 1874. *Mineral Springs of the United States and Canada*. Second Edition. D. Appleton and Company, New York. Reports the lick supports three named springs utilized by visitors to the health resort: Big Bone, Mastodon, and American Epsom (p. 194).

## 1876

Allen, J. A. 1876. *The American Bisons, Living and Extinct*. Memoirs, Kentucky Geological Survey, Volume 1, Part 2. University Press, Cambridge. *Also* Memoirs, Museum of Comparative Zoology 4(10). According to Jillson, this is a detailed, systematic monograph with 12 plates and map on the bisons with many references to those found at the lick.

Anonymous. 1876. Big Bone Springs. *Louisville Courier-Journal*, August 3. Reports bridges across small creeks were comprised of large bones found at the lick.

Anonymous. 1876. Local News. *Boone County Recorder*, May 25, p. 3. Reports the re-opening of the Clay House at Big Bone Springs.

Carr, Lucien, and Nathaniel S. Shaler. 1876. On the Prehistoric Remains of Kentucky. Memoirs, Kentucky Geological Survey, Volume 1, Part 4. University Press, Cambridge. According to Jillson, this (pp. 30-31) states "At Big Bone Lick the excavations have failed, as yet, to show a trace of man along with the extinct mammalia of the country. Altogether the indications are not in favor of a great antiquity of man in this district, but it is not yet time to form a final opinion on this point."

J., S. E. 1876. Letter to the Editor. *Covington Ticket*, August 29, p. 2. Report on the lick's health resort.

Jones, Mary Keturah. 1876. *History of Campbell County, Kentucky*. Newport. Reports 23 bison killed at the lick in 1793 (p. 6).

Shaler, Nathaniel Southgate. 1876. Appendix 2: On the Age of the Bison in the Ohio Valley. *In* Allen, Joel A. 1876. *The American Bisons, Living and Extinct*. Memoirs, Museum of Comparative Zoology 4(10). According to Jillson, this discusses the sequence of *Bison latifrons*, *Bison bison*, and other glacial animals at the lick based upon excavations made in 1868 and 1869 (pp. 232-236).

## 1877

Anonymous. 1877. Personal Section. *Newport Local*, July 17, p. 3. Reports Mayor Berry returned from Big Bone Springs and will go back. "He's examining the big bones up there to see if there are any as big up there as his own."

Graham, Christopher C. 1877. The Mammoths' Graveyard. *Boone County Recorder*, February 22. Reports excavating wolf, cougar, and bear remains from the lick (p. 1).

Shaler, Nathaniel Southgate. 1877. Notes on the Investigations of the Kentucky Survey. *In* Kentucky Geological Survey. 1877. *Reports of Progress, New Series*, 3: 66-70. According to Jillson, this describes his exploration at the lick in 1868, giving a list of the fossils recovered and citing their stratigraphic arrangement.

## 1878

Anonymous. 1878. [The County Attorney]. *Boone County Recorder*, November 7. A mammoth mandible with intact teeth was found at the lick during the summer of 1877 (p. 2).

## 1879

Adams, Leith. 1879. The Fossil Elephants. *Palaeontographical Society* 33: 69-146. According to Jillson, this includes references and comparisons of Big Bone Lick mammoth or mastodon molars in the British Museum and the Woodwardian Museum at Cambridge. Citations from Cuvier as to proboscidean teeth from the lick.

Bishop, Nathaniel. 1879. *Four Months in a Sneak Box: A Boat Voyage of 2600 Miles down the Ohio and Mississippi Rivers*. Lee and Shepard, Boston. Refers to the lick as the place containing the fossil bones of "the Mastodon and the Arctic Elephant" (p. 86).

## 1880

Maclean, J. P. 1880. Mastodon, Mammoth, and Man, Second Edition. R. Clark, Cincinnati. According to Jillson, this recites discovery of lick by Longueuil (p. 13) but incorrectly states that he collected bones of the mastodon and returning to Paris presented them to D'Aubenton and Buffon.

### 1881

Anonymous. 1881. Big Bone Springs. Covington Daily Commonwealth, April 26. Advertises that the entirely refitted resort will open on May 10 for the season.

Langdon, Frank W. 1881. The Mammalia of the Vicinity of Cincinnati. Journal of the Cincinnati Society of Natural History 3: 297-313. Attributes the name of the lick to the mastodon bones found there (p. 312).

McLaughlin Jr., C. A. 1881. Big Bone Springs. The Daily Commonwealth, April 26, p. 4. Advertisement announcing the re-opening of the resort at the lick.

### 1882

Anonymous. 1882. Boone County: Big Bone Springs. Covington Daily Commonwealth, May 24, p. 1. Refers to the three medical doctors living at the lick's medicinal springs.

Collins, Richard. 1882. History of Kentucky. Collins and Co., Covington. According to Jillson, Volume 1 (pp. 15, 16, 17, 191, and 378) and Volume 2 (pp. 51, 52, 53, and 607) contain many historical and descriptive notes on the lick and its fossils. Cites Christopher Gist, Robert Smith, George Croghan, Harry Gordon, Mary Ingles, Thomas Bullitt, Hancock Taylor, James, George, and Robert McAfee, and others.

### 1883

Griffing, B. N. 1883. An Atlas of Boone, Kenton and Campbell Counties, Kentucky. D. J. Lake and Company, Philadelphia. Maps lick and surrounding businesses.

Smith, Erminnie A. 1883. Myths of the Iroquois. *In* Bureau of American Ethnology. 1883. Second Annual Report, 1880-1881. Smithsonian Institution, Washington, D.C. Relates that bones at the lick are those of large animals killed by pygmies (pp. 65-66).

### 1884

Flower, W. H., and J. G. Garson. 1884. Catalogue of Osteology and Dentition of Vertebrated Animals, Recent and Extinct, Part 2, Mammalia. London. According to Jillson, this (p. 445) gives reference as to source of purchase and gift of the lick fossils in the Royal College of Surgeons in London, England.

Phillips Jr., Henry, ed. 1884. Early Proceedings of the American Philosophical Society. Proceedings of the American Philosophical Society 22(119). Page 123 lists Nicola's 1784 paper on bones collected at the lick by Major Isaac Craig (this paper was possibly the one cited above as Anonymous. 1786. Description of Bones, &c. Found near the River Ohio. *Columbian Magazine* 1: 103-107). Page 193 lists Timothy Matlack's 1791 description of a large tusk that may have been found at the lick. Page 388 contains 1806 statement that Jefferson would attend to procuring bones from the lick. Page 390 records the 1806 reading of Brown's and Jefferson's letters about the bones at the lick. Page 394 contains reference to Jefferson's 1807 offer to procure bones from the lick for the society's collection. Page 413 lists Wistar's 1809 paper on Clark's collection of bones from the lick. Page 414 contains report that Wistar's paper had been lost.

Shaler, Nathaniel Southgate. 1884. Kentucky—A Pioneer Commonwealth. Boston and New York. According to Jillson, this is a general geological description of the lick and its fossils (pp. 41-42). Reports the traditional story that some of the lick's bones held by Jefferson were mistakenly sent to a bone mill to be made into fertilizer (p. 61).

### 1885

Leidy, Joseph. 1885. Remarks on Mylodon. Proceedings of the Academy of Natural Sciences of Philadelphia 37: 49-51. Compares ground sloth teeth found in Louisiana with *Paramylodon harlani* teeth from the lick.

Lydekker, Richard. 1885. Catalogue of the Fossil Mammalia in the British Museum, Part 2. London. According to Jillson, this cites No. 40847 as a fragment of a right mandible of *Bison latifrons* from the lick (p. 27).

Mercer, Henry C. 1885. The Lenape Stone. G. P. Putnam's Sons, New York. According to Jillson, this cites the fact that "the great bones (at Big Bone Lick) often seemed hardly older than those of modern animals with which they were mingled." Discusses the contemporaneity of the mammoth and the Indian in North America (pp. 12-15).

## 1886

Hale, John P. 1886. Trans-Allegheny Pioneers. The Graphic Press, Cincinnati. According to Jillson, describes (pp. 29-30) Mary Ingles' captivity by the Shawnees and visit to the lick in 1756.

Lydekker, Richard. 1886. Catalogue of the Fossil Mammalia of the British Museum, Part 4. London. According to Jillson, this cites many complete and fragmented mammoth and mastodon bones, teeth, and tusks in this collection from the lick beginning with Croghan-Gordon collection of 1766 which was presented by the Earl of Shelburne in 1768 (pp. 17, 19-25).

Perrin, W. H., J. H. Battle, and G. C. Kniffin. 1886. Kentucky—A History of the State. Louisville and Chicago. According to Jillson, this is a running account of the discovery and early collection of "big bones" at the lick taken principally from Cramer's Navigator and Collins' History of Kentucky (p. 115, 549-550). Robert McAfee, Dr. William Goforth, Thomas Ashe, Dr. Blake, Prof. Monroe, Thomas Jefferson, George Cuvier, and Mr. Finnell are cited.

## 1887

Howorth, Henry H. 1887. The Mammoth and the Flood. Sampson Low, Maston, Seale and Rivington, London. Refers to remains at the lick to support his belief that the mammoth was exterminated by the biblical flood.

Scott, W. B. 1887. American Elephant Myths. Scribner's Magazine 1(4): 469-478. In reference to the lick's big bones, Longueuil "mentions the reverence in which the Indians held these, and states that they never removed or disturbed them."

## 1888

Heckewelder, John. 1888. Narrative of John Heckewelder's Journey to the Wabash in 1792. The Pennsylvania Magazine of History and Biography 12 (2): 165-184. While boating up the Ohio toward Cincinnati, Heckewelder's party met several people going to the salt works at the lick.

## 1890

Goode, G. Brown. 1890. The Origin of the National Scientific and Educational Institutions of the United States. G. P. Putnam's Sons, New York. According to Jillson, this (p. 25) cites Thomas Jefferson's interest in paleontology particularly as exemplified by his personal collection from the lick.

Perrin, Henry. 1890. [One of the more interesting spots]. Boone County Recorder, July 9. Refers to "crowds of gay pleasure seekers that gather there in the summer season" (p. 2).

Shaler, Nathaniel Southgate. 1890. General Account of the Fresh-Water Morasses of the United States. United States Geological Survey, Washington, D.C. Cites the lick as a corrosion-spring swamp (p. 266).

## 1891

Shaler, Nathaniel Southgate. 1891. *Nature and Man in America*. Charles Scribner's Sons, New York. Reviews the fossils he excavated at the lick and concludes that the American bison arrived there in a recent century (pp. 185-186).

### **1892**

Smith, Zachary F. 1892. *History of Kentucky*. Louisville. According to Jillson, this is a running account of the lick, recording early visits by Douglas, McAfee, and others.

### **1893**

Darlington, William M., ed. 1893. *Christopher Gist's Journals*. Weldon, Pittsburgh. According to Jillson, this contains a reprint of Gist's journal with its reference to the lick on March 13, and visit to the lick on March 18, 1751 (pp. 57-58 and 129). Mentions Robert Smith, Hugh Crawford, George Croghan, Peter Collinson, Dr. William Clarke of Cincinnati, and Thomas Jefferson.

Nicolar, Joseph. 1893. *Life and Traditions of the Red Man*. Bangor, Maine. Relates a 19th century version of the Native American stories about the disappearance of the proboscideans from the lick (pp. 35-38).

### **1894**

Crouch, Myrax J. 1894. *Big Bone Springs*. Boone County Recorder, December 26, p. 2. Recommends the use of Big Bone Springs waters to treat several diseases.

### **1895**

Withers, Alexander Scott. 1895. *Chronicles of Border Warfare*. Robert Clarke Company, Cincinnati. Bones from the Lick were transported up the Ohio River in 1779 (p. 271, footnote 17).

### **1896**

Gratacap, L. P. 1896. *Fossils and Fossilization (Continued)*. *The American Naturalist* 30: 993-1003. Ascribes the preservation of the lick's fossils to the presence of salt in the soil (p. 993).

Hutchinson, H. N. 1896. *Extinct Monsters, A Popular Account of Some of the Larger Forms of Ancient Animal Life, Fourth Edition*. Chapman and Hall, London. Relates the discovery and early finds of the mastodon at the lick (pp. 220-221).

### **1897**

Mercer, Henry C. 1897. *The Finding of the Remains of the Fossil Sloth at Big Bone Cave, Tennessee, in 1896*. *Proceedings of the American Philosophical Society* 36: 36-70. Reports *Megalonyx jeffersonii* bones had previously been found at the lick (p. 38).

Thompson, Porter, ed. 1897. *Young People's History of Kentucky*. St. Louis. According to Jillson, here is a reference to Gist's trip to the lick in 1751 (p. 32).

Thwaites, Reuben Gold. 1897. *Afloat on the Ohio*. Way and Williams, Chicago. Contains a description of the lick in 1894 (pp. 196-198).

### **1898**

Johnston, J. Stoddard. 1898. *First Explorations of Kentucky*. Filson Club Publications No. 13. Filson Club, Louisville. Reprints excerpts from several historical documents related to the lick (pp. 167-185). In his autobiography written in the 1790s, James Taylor considers the lick's dispersed and fractured bones to be evidence of the carnivorous nature of the lick's big animals (p. 170).

## 1899

Crook, James K. 1899. Mineral Waters of the United States. Lea Brothers and Company, New York. Lists the chemicals in the Big Bone Springs water (p. 250).

Lucas, F. A. 1899. The Fossil Bison of North America. Proceedings of the U.S. National Museum 21(1172): 755-771. Systematically arranges, describes, and figures the various types of American bison; cites *Bison bison*, *Bison antiquus*, and (mistakenly) *Bison latifrons* occurring as type fossils at the lick.

McClure, David. 1899. Diary of David McClure. Privately Printed. At Pittsburgh in 1772, McClure obtained proboscidean fossils collected at the lick and theorized that the animals had migrated to the lick from Asia where such fossils had been found (pp. 54-55).

## 1901

Freeman, Theresa J. 1901. Early Discoveries of the Mastodon. The American Antiquarian and Oriental Journal 23(5): 320. Ralph Letton had a collection of bones and teeth from the lick in 1812.

## 1902

Jones, Robert Ralston. 1902. Fort Washington at Cincinnati, Ohio. Society of Colonial Wars in the State of Ohio, Cincinnati. Reports that General Josiah Harmar in 1790 had bones from the lick sent east through Pittsburgh (p. 24).

Leverett, Frank. 1902. Glacial Formations and Drainage Features of the Erie and Ohio Basins. U.S. Geological Survey Monograph 41: 257-258. Leverett refers to the lick area in his studies of the drainage features of the Erie and Ohio basins.

Thwaites, Reuben Gold. 1902. Daniel Boone. New York. According to Jillson, this cites a French expedition as investigating the lick in 1735 (p. 87).

## 1903

Brown, Barnum. 1903. A New Genus of Ground Sloth from the Pleistocene of Nebraska. Bulletin of the American Museum of Natural History 19: 569-583. According to Jillson, this states "the type (fossil) *Mylodon harlani* taken from Big Bone Lick should be in Columbia University Museum but has been lost or mislaid." The fossil may have been destroyed in a fire in the old American Museum of Natural History. A cast of the fossil is in the Museum at Williams College.

## 1904

Adler, Cyrus. 1904. Jefferson as a Man of Science. In Bergh, Albert Ellery, ed. 1904. The Writings of Thomas Jefferson, Volume 19. The Thomas Jefferson Memorial Association, Washington, D.C. According to Jillson, this describes Jefferson's interest in fossils collected at the lick (p. 5).

Greve, Charles Theodore. 1904. Centennial History of Cincinnati and Representative Citizens, Volume 1. Biographical Publishing Company, Chicago. William Goforth excavated a great mass of bones from the lick in 1803, after which they were pilfered by Thomas Ashe and sold in England (p. 367).

Lloyd, John Uri. 1904. When Did the American Mammoth and Mastodon Become Extinct? Records of the Past 3(1): 43-46. According to Jillson, this discusses antiquity of the mammoth and the mastodon at the lick, concluding that these species persisted in this locality until a very short time, perhaps a century or so, before white men first arrived.

## 1905

Editorial. 1905. Stone Relics in California. *American Antiquarian and Oriental Journal* 27: 169-177. Quotes Henry C. Mercer, who wrote that the mammoth remains on the surface of the lick show that "a few representatives of the more ancient epoch survived their fellows." (p. 173)

## 1906

Henry, William Elmer. 1906. Some Elements of Indiana's Population. *Indiana Historical Society Publications* 4(6): 375-396. Henry playfully suggests that the mastodon deliberately left its remains at the lick to mark the species' time on earth (p. 386).

Merrill, George P. 1906. Contributions to the History of American Geology. *In U.S. National Museum Annual Report for 1904*. Washington, D.C. According to Jillson, this contains references to the lick and Thomas Jefferson as a paleontologist (p. 213).

## 1907

Durrett, R. T. 1907. An Historical Sketch of Drennon Springs. *Register of the Kentucky State Historical Society* 5(15): 87-90. A buffalo trace connected the lick to Drennon Springs (pp. 87-88).

Smith, James. 1907. Tours into Kentucky and the Northwest Territory. *Ohio Archaeological and Historical Publications* 16: 348-401. Records a 1795 visit to the lick (p. 383).

## 1908

Anonymous. 1908. Local News. *Boone County Recorder*, September 30, p. 5. Supports the restoration of Big Bone Springs as a health resort.

## 1909

Colton, Harold Sellers. 1909. Peale's Museum. *Popular Science Monthly* 75(3): 221-238. According to Jillson, this (p. 222) states: "Dr. Morgan gave him (Peale) some bones of a mammoth from Ohio." Also, Peale refused to buy mastodon bones from the lick, since they were from several animals (p. 238).

Gilbert, R. B. 1909. Pre-historic Animals in Kentucky and the Ohio Valley. *Register of the Kentucky State Historical Society* 7: 49-55. Reviews the history of scientific exploration at the lick (pp. 51-52).

Hay, Oliver P. 1909. The Geological and Geographical Distribution of Some Pleistocene Mammals. *Science* 30: 890-893. Refers to many mammal fossils recorded from the lick.

Johnston, J. Stoddard. 1909. The Fauna of Kentucky. *The Western Farmers' Almanac*, Louisville. According to Jillson, this includes references to the lick and its glacial fauna (pp. 47-48).

Juettner, Otto. 1909. Daniel Drake and His Followers. Harvey Publishing Company, Cincinnati. William Goforth dug up fossils at the lick in the spring of 1803, after which they were stolen by Thomas Ashe (pp. 17-18).

McElroy, Robert McNutt. 1909. *Kentucky in the Nation's History*. Moffat, Yard and Company, New York. According to Jillson, this contains footnotes as to George Croghan's visit to Big Bone in 1765 (p. 12).

Shaler, Nathaniel Southgate. 1909. *The Autobiography of Nathaniel Southgate Shaler*. Houghton Mifflin, Boston and New York. According to Jillson, here is a reference to Shaler's excavations at the lick in 1868 (pp. 247-248).

## 1910

Anonymous. 1910. Bowman's Expedition against Chillicothe, May-June, 1779. *Ohio Archaeological and Historical Publications* 19: 446-459. A canoe load of specimens from the lick were transported up the Ohio River to Redstone Old Fort in 1779.

Anonymous. 1910. Femur of a Mammoth Mastodon Found By a Warsaw (Ky.) Man at Big Bone Lick. *Cincinnati Enquirer*, August 28, p. 6. W. G. Cox brought the bone to the newspaper office.

Anonymous. 1910. Our Pioneer Mothers. *Cincinnati Enquirer*, July 3, p. D2. Recounts the escape of Mary Draper Ingles from a Shawnee salt-collecting party at the lick in 1755.

James, James Alton. 1910. Indian Diplomacy and the Opening of the Revolution in the West. *In* Proceedings of the State Historical Society of Wisconsin for 1909. Madison. A Shawnee party killed two white men at the lick in 1777 (p. 136).

Osborn, Henry Fairfield. 1910. *The Age of Mammals*. Macmillan, New York. According to Jillson, this contains numerous references to the lick and its vertebrate fauna (pp. 478, 480, 482, 487, 492).

## 1912

Alvord, Clarence Walworth, ed. 1912. *George Rogers Clark Papers: 1771-1781*. Collections of the Illinois State Historical Library, Volume 8. Illinois State Historical Society, Springfield. Reports four Shawnee killed two white men at the lick in 1776 (pp. xxix-xxx).

Hanna, Charles A. 1912. *The Wilderness Trail*. G. P. Putnam's Sons. New York. According to Jillson, many references (pp. 42, 117, 126, 127, 157, 238, 242, 245, 247, 249) to the lick. Citation of French expedition conducted with troops by M. Chaussegros de Lery, an engineer, in 1739. His compass survey of the Ohio and topographical notes formed the basis of N. Bellin's map of 1744.

Hay, Oliver P. 1912. *The Pleistocene Period (Age) and Its Vertebrata*. *In* Department of Geology and Natural Resources of Indiana. 1912. 36<sup>th</sup> Annual Report. Indianapolis. According to Jillson, this (pp. 539-784) includes many descriptions and references to Pleistocene fossils taken from the lick.

Lippincott, Isaac. 1912. The Early Salt Trade of the Ohio Valley. *Journal of Political Economy* 20(10): 1029-1052. Reports salt making at the lick (p. 1039).

## 1913

Hall, Henry. 1913. Bowman's Campaign—1779. *Ohio Archaeological and Historical Publications* 22: 515-519. In 1779, bones collected at the lick were taken up the Ohio River (pp. 515, 519) to Redstone Old Fort.

## 1914

Hay, Oliver P. 1914. *The Pleistocene Mammals of Iowa*. Annual Report for 1912, Iowa Geological Survey 23: 1-662. Mistakenly reports *Bison latifrons* as found at the lick (p. 327).

Koch, Felix J. 1914. Hunting for Mastodon Bones in Kentucky. *The American Antiquarian and Oriental Journal* 36(1): 19-24. Describes historical and contemporary fossil-hunting at the lick.

## 1915

Faxon, Walter. 1915. Relics of Peale's Museum. *Museum of Comparative Zoology Bulletin* 59(3): 117-148. According to Jillson, this states (p. 125) Charles Wilson Peale's Philadelphia Museum had a modest beginning in 1784, with a paddle fish from the Allegheny River and some bones of a mastodon from the lick.

Leverett, Frank, and F. B. Taylor. 1915. *The Pleistocene of Indiana and Michigan and the History of the Great Lakes*. U.S. Geological Survey Monograph 53: 62. According to Jillson, this outlines the border of Illinoian drift as covering the lick.

Purcell, Martha Grasham. 1915. *Stories of Old Kentucky*. New York. According to Jillson, this reviews the visitations of James Douglas to the lick in 1773 and describes the occurrence of the bones of the mastodon and mammoth (pp. 27-28).

## 1916

Anonymous. 1916. *New Company Would Place Big Bone, Ky., "On the Map."* *Kentucky Post*, February 28, p. 2. Reports the recent incorporation of the Big Bone Springs Co., with its goal "to make Big Bone the Hot Springs of the East."

Anonymous. 1916. *New Corporation*. Boone County Recorder, January 6, p. 1. Reports that the Big Bone Springs Water Co. will fund a health resort at the lick in addition to bottling and distributing spring water.

## 1917

Cotterill, R. S. 1917. *History of Pioneer Kentucky*. Cincinnati. According to Jillson, this describes the lick as a sepulcher of the mastodon (pp. 9, 45). Cites visitations of Gist in 1751.

Taylor, Philip Fall. 1917. *Earliest Surveys of Land in Kentucky*. *In Society of Colonial Wars in the Commonwealth of Kentucky*. 1917. Yearbook. Louisville. According to Jillson, this cites 1,000 acres surveyed for William Christian (Bundle 94, Kentucky Land Office) on May 12, 1774, by John Floyd on a south branch of the Ohio called Big Bone Creek, including the large Buffalo Lick and Salt Spring, being about four miles from the Ohio (p. 100).

## 1919

Abny, Harry Bennett. 1919. *On the Ohio*. Dodd, Mead and Company, New York. Refers to bottled mineral water from Big Bone Spring (p. 172).

Gratz, Simon. 1919. *Thomas Rodney*. *Pennsylvania Magazine of History and Biography* 43: 1-23, 117-142. Rodney's reports (pp. 132-133) of collecting at the lick in 1803; he speculated that the large bones were "fossil concretions" and that no animals larger than bison ever existed there.

Miller, Arthur McQuiston. 1919. *The Geology of Kentucky*. Kentucky Geological Survey, Series 5, Bulletin 2. According to Jillson, this discusses the lick and states the first account of the site was made by Longueuil (p. 220). Cites Gist and Buffon.

## 1922

Connelley, William Elsey, and E. M. Coulter. 1922. *History of Kentucky*. American Historical Society, Chicago and New York. According to Jillson, this states: "Big Bone Lick with its heaps of skeletons of prehistoric animals had long excited the wonders of visitors and many of the bones had been carried away." Also reviews the 1795 interest in establishing a Kentucky museum with a mammoth skeleton as its central attraction (p. 532).

Kerr, Charles, ed. 1922. *History of Kentucky, Volume 1*. Chicago and New York. According to Jillson, this includes C. Gist's interest in the lick and description. Robert Smith's visit in 1744 cited. Mary Ingles' visitation in 1750. Edward Graham writes John Breckenridge in 1795 and proposes a museum of natural history in Lexington to display with other things the skeleton of a mammoth from the lick (pp. 72, 84, 160, 532).

Miller, Arthur McQuiston. 1922. *Licks and Caves of the Lower Ohio Valley as Repositories of Mammalian Remains, Including Those of Man*. *Bulletin of the Geological Society of America* 33(1): 156-159. According to Jillson, this contains references to fossil remains at the lick. In addition to other collections, those of 1816-1817 by John Clifford of Lexington are mentioned.

## 1923

Coghlan, Ralph. 1923. "Farthest North" for Kentucky. Louisville Post, February 23. Describes Boone County and the lick giving historical resume. James Douglas, Dr. William Goforth, Thomas Ashe, and others quoted from R. Collins.

Drake, Daniel. 1923. Memoir of the Miami Country, 1779-1794. Quarterly Publication of the Historical and Philosophical Society of Ohio 18: 45-94. John Wallace hunted at the lick in 1789 (p. 60).

Hay, Oliver P. 1923. The Pleistocene of North America and Its Vertebrated Animals, etc. Carnegie Institute of Washington, Washington, D.C. According to Jillson, this is a summary statement of the vertebrate paleontology of the lick, together with numerous separate descriptions of occurrence of individual genera. Also, lists 17 species of late Pleistocene mammals from fossils recovered at the surface and at depth at the lick (pp. 43, 128, 146, 160, 181, 202, 209, 234, 243, 255, 265, 270, 401-405).

Jillson, Willard Rouse. 1923. Geological Research in Kentucky. Kentucky Geological Survey, Series 6, Volume 15. According to Jillson, he gives titles of books and pamphlets referring to the lick (pp. 120-121).

Zittel, Karl A. Von. 1923. Grundzuge der Palaontologie (Palaozoologie), Volume 2. Ableilung: Vertebrata. Munchen and Berlin, Germany. According to Jillson, this describes and figures (No. 618) *Megalonyx jeffersoni* Leidy from the Pleistocene of (Big Bone Lick) Kentucky (p. 500).

## 1924

Collot, Victor. 1924. A Journey in North America. O. Lange, Frieze. A French mapping party descending the Ohio in 1796 gathered bones from the lick, including a mammoth tooth that likely is the first record of a mammoth fossil at the site. Collot theorizes that the bones are evidence of Indian ambushes of animals that visited the lick (pp. 138-141).

Merrill, George P. 1924. The First Hundred Years of American Geology. New Haven. According to Jillson, this refers to Thomas Jefferson as a paleontologist and his collection of more than 300 specimens of fossil bones brought to the White House at his own expense from the lick (p. 16).

Myer, William E. 1924. Indian Trails of the Southeast. *In* Forty-second Annual Report. Bureau of American Ethnology, Washington DC. Many bison trails connected at the lick (pp. 788-791).

Robertson, Harrison. 1924. Kentucky Mastodons. Courier-Journal, November 27. According to Jillson, editorial contains historical notes on the lick with references to its discovery in 1729, Mary Ingles, and Christopher Gist (p. 6).

## 1925

Fowke, Gerard. 1925. The Genesis of the Ohio River. Proceedings of the Indiana Academy of Science 34: 81-102. Big Bone Creek is included in Fowke's consideration of the evolution of the Ohio River.

Funkhouser, William Delbert. 1925. Wild Life in Kentucky. Kentucky Geological Survey, Frankfort. According to Jillson, this (pp. 30-32) discusses prehistoric mammals of Kentucky and cites many found at the lick.

Jillson, Willard Rouse. 1925. The Kentucky Land Grants. Filson Club Publications No. 33. Filson Club, Louisville. According to Jillson, he (p. 37) cites William Christian's 1,000-acre grant from Virginia on the Ohio River of May 16, 1774, as in Book 5, p. 23. This is the John Floyd Survey of Big Bone Lick.

## 1926

Jillson, Willard Rouse. 1926. Old Kentucky Entries and Deeds. Filson Club Publications No. 34. Filson Club, Louisville. According to Jillson, he indexes the entry of James Douglas to 500 acres at the lick on May 22, 1780; also the deed of 1,000 acres of land including the lick from Colonel William Christian to David Ross, December 22, 1780 (pp. 200, 444, 478).

Meisel, Max. 1926. *A Bibliography of American Natural History: The Pioneer Century 1769-1865*, Volume 2. Premiere Publishing, New York. According to Jillson, this contains many references to early scientific papers on fossils recovered from the lick.

Volwiler, Albert T. 1926. *George Croghan and the Westward Movement, 1741-1782*. Arthur H. Clark, Cleveland. Summarizes Croghan's 1766 visit to the lick (p. 196).

## 1927

Beckner, Lucien. 1927. *John Findley: The First Pathfinder of Kentucky*. *The History Quarterly of the Filson Club* 1(3): 111-122. According to Jillson, this describes John Findley's meeting with Indians near the lick in the fall of 1752 (p. 113).

Davis, Darrell Haug. 1927. *The Geography of the Blue Grass Region of Kentucky*. Kentucky Geological Survey, Frankfort. According to Jillson, this references the lick as one of the three most celebrated salt licks in Kentucky.

Jillson, Willard Rouse. 1927. *Kentucky's Mineral Resources*. Kentucky Geological Survey, Series 6, Pamphlet 13. Jillson quotes from pamphlet: "During the early days in Kentucky, all of the salt used by the settlers of the Commonwealth was produced from brines taken from natural springs or wells dug near natural 'Licks.' Outstanding among the salt springs of this period were those at Big Bone and Blue Licks.... All of these 'Licks' have now been abandoned for many years as a source of salt."

Jillson, Willard Rouse. 1927. *The Topography of Kentucky*. Kentucky Geological Survey, Series 6, Geologic Reports, Volume 30. "Many deep-seated mineral springs such as those at Crab Orchard, Big Bone Lick, Blue Licks and Dawson Springs, however, have retained their original purity and are of much medicinal value."

McAfee, Robert B. 1927. *The Life and Times of Robert B. McAfee and His Family and Connections*. *Register of Kentucky State Historical Society* 25(73): 4-37. The McAfee party made use of vertebrae for stools and long bones for tent poles when camping at the lick in 1773 (p. 18).

## 1928

Bodley, Temple. 1928. *History of Kentucky, Volume 1*. S. J. Clarke, Chicago and Louisville. According to Jillson, this records that Indian scouts reported to Captain Alexander McKee in the spring of 1782 that they "had discovered the enemy" (General Clark's "Big Knives") on their march below the lick (p. 312).

Funkhouser, William Delbert, and William S. Webb. 1928. *Ancient Life in Kentucky*. Kentucky Geological Survey, Frankfort. Likely in error, lists the flat-headed peccary among the species that have been found at the lick (pp. 40-46).

Jillson, Willard Rouse. 1928. *Geology and Mineral Resources of Kentucky*. Kentucky Geological Survey, Series 6, Volume 17. According to Jillson, this (pp. 19-20) cites the lick as one of the most ancient and celebrated mineral springs. Geology of Boone County presented.

## 1929

Jillson, Willard Rouse. 1929. *Geologic Map of Kentucky*. Kentucky Geological Survey, Series 6. According to Jillson, this shows aerial geology of the lick and inclusion within the southern limit of the drift of the Illinoian advance of the continental ice sheet.

Jillson, Willard Rouse. 1929. *Sketch of the Life of John Filson in Filson's Kentucky*. Filson Club Publications No. 35. Filson Club, Louisville. Refers to the land owned in 1783 by John Filson on Big Bone Lick Creek (p. 140).

Leverett, Frank. 1929. The Pleistocene of Northern Kentucky. Kentucky Geological Survey, Series 6, Volume 31. According to Jillson, this includes numerous geological references to the lick. Lists Pleistocene mammalian fossils found there. Reprints of excerpts from Filson (1784) and Imlay (1793) relating to the lick.

Osborn, Henry Fairfield. 1929. Thomas Jefferson, the Pioneer of American Paleontology. *Science* 69(1790): 410-413. According to Jillson, this contains references to the lick.

### 1930

Rothert, Otto A. 1930 and 1931. Big Bone Lick. *The Filson Club Quarterly* 4: 127 and 5: 197. According to Jillson, these make reference to the McAfee visitation in 1773 to the lick.

### 1931

Cooper, Chalmer Lewis. 1931. The Pleistocene Fauna of Kentucky. In Jillson, Willard Rouse, ed. 1931. *The Paleontology of Kentucky*. The Kentucky Geological Survey, Frankfort. According to Jillson, cites the occurrence of Pleistocene vertebrates at the lick and elsewhere in Kentucky (pp. 433-461).

Gray, Beulah B. 1931. The National Lincoln Memorial Highway over the Buffalo Trace. Buffalo Trace Historical Association, Otwell, IN. According to Jillson, this outlines the old buffalo trace from the prairies of central Illinois to the Wabash River at Vincennes, thence to the Falls of the Ohio into Kentucky, to Big Bone Lick and eastwardly.

Hitchcock, Margaret R. 1931. The Mastodon of Thomas Jefferson. *Journal of the Washington Academy of Sciences* 21: 80-86. Description and photographs of upper and lower jaw bones presumably excavated by William Clark at the lick and probably given to the University of Virginia by Thomas Jefferson.

Jillson, Willard Rouse. 1931. The Kentuckie Country. H. L. and J. B. McQueen Inc., Washington, D.C. According to Jillson, he reprints in facsimile Fitzroy's "Discovery, Purchase, and Settlement of the Country of Kentuckie" and with it his notes on the lick (p. 41). Also the "Whatman" edition of John Filson's Map of Kentucke of 1784, showing location of the lick.

Jillson, Willard Rouse, ed. 1931. *The Paleontology of Kentucky*. Kentucky Geological Survey, Series 6, Volume 36. According to Jillson, this is the best group of summary statements as to the discovery of the lick and its systematic paleontology in the literature of Kentucky (pp. v, xi, 38-41, 439-447).

Jillson, Willard Rouse. 1931. Structural Geologic Map of Kentucky. Kentucky Geological Survey, Series 6. According to Jillson, he shows regional structural geology of Big Bone Lick area and its proximity to top of Cincinnati Arch.

Kindle, Edward M. 1931. The Story of the Discovery of Big Bone Lick. Kentucky Geological Survey, Series 6, 41: 191-212. According to Jillson, this describes the visit of George Croghan in 1765 and Harry Gordon in 1766. Refers to the interest of Benjamin Franklin in 1767, also to the work of O. P. Hay and N. S. Shaler. Photos of restorations of mastodon and the lick. References to Charles Lyell's visit in 1841-1842.

Leahy, Ethel C. 1931. Who's Who on the Ohio River and Its Tributaries. Cincinnati. According to Jillson, this includes reprint of Cramer's Navigator of 1814 and its descriptions of the lick; also the Wistar, Goforth, and Jefferson correspondence of 1806 (pp. 156-159).

Shideler, W. H. 1931. Geologic Map of Boone County, Kentucky. Kentucky Geological Survey, Series 6. According to Jillson, this shows detailed aerial geology of the region around the lick.

Withers, Spencer. 1931. Oil and Gas Structural Geologic Map of Boone County, Kentucky. Kentucky Geological Survey, Series 6. According to Jillson, this shows detailed structural position of the lick on the southern edge of the Big Bone Syncline.

## 1932

Beckner, Lucien. 1932. Eskippakithiki: The Last Indian Town in Kentucky. *The Filson Club Quarterly* 6: 355-382. According to Jillson, this cites John Findley's visit to the lick in 1752, meeting there with Shawnee Indians and journeying with them to Eskippakithiki (p. 372).

Butler, Lawrence. 1932. Letters from Lawrence Butler, of Westmoreland County, Virginia, to Mrs. Anna F. Cradok, Cumley House, near Harborough, Leicestershire, England (Continued). *The Virginia Magazine of History and Biography* 40: 362-370. Records a 1786 visit to the lick where they viewed fossils and killed bears, turkeys, deer, and bison (pp. 364-365).

England, J. Ray. 1932. Kentucky Is Interesting Field for Student of Prehistoric Days. *The Kentucky Post*, February 14, p. 2. According to Jillson, this is a popular "Special" story on the lick and its fossils based on a recent publication of the Kentucky Geological Survey by Edward M. Kindle. Includes photos of mastodon tusk and ground sloth skull from lick.

Funkhouser, William Delbert, and William S. Webb. 1932. *Archaeological Survey of Kentucky, Volume 2*. University of Kentucky, Lexington. Environmental background including geology and topography of the lick is discussed.

Jillson, Willard Rouse. 1932. *Kentuckie: A Colonial Narrative*. Society of Colonial Wars, Louisville. According to Jillson, this (p. 11) cites Longueuil's discovery of the lick and the remains of the mastodon.

Jillson, Willard Rouse. 1932. *Paleontological Beginnings in Kentucky*. *Pan-American Geologist* 57: 38-44. According to Jillson, this sets out the succession of explorative visitations to the lick.

## 1934

Jillson, Willard Rouse. 1934. *John Filson: Kentucke and the Adventures of Col. Daniel Boone with an Introduction*. John P. Morton and Company, Louisville. According to Jillson, this is a facsimile reprint of the 1784 edition of John Filson's *Kentucke*. Contains all of Filson's and Boone's references and descriptions pertaining to the lick.

Jillson, Willard Rouse. 1934. *Pioneer Kentucky*. The State Journal Co., Frankfort. According to Jillson, he states the lick was discovered by the French in 1729; location, notes, and references (pp. 9, 36, 109, 111, 117).

Rule, Lucien V. 1934. John D. Shane's Interview with Ephraim Sandusky. *The Filson Club Quarterly* 8: 217-228. Several references to the lick in the 18<sup>th</sup> century (pp. 220-221).

Strong, W. D. 1934. North American Indian Traditions Suggesting a Knowledge of the Mammoth. *American Anthropologist* 36: 81-88. Refers to the Indian stories concerning the origin of the lick's fossils as myths as opposed to historical traditions based on knowledge of living animals.

## 1935

Anonymous. 1935. *Big Bone Area Soon to Be Acquired*. *Cincinnati Enquirer*, June 5. According to Jillson, this news story outlines plans for organization of Big Bone Lick Association and acquisition of 100 acres surrounding and including the lick.

Anonymous. 1935. *Big Bone Coming into Its Own, etc.* *Walton Advertiser*, May 30, p. 1. According to Jillson, this is a news story of movement to conserve the lick.

Anonymous. 1935. *Big Bone Lick Once Gathering Place, Chivalry of the South*. *Kentucky Weekly*, Louisville, January 4. According to Jillson, this is a special story describing the lick today and in the past. John Thomas Lloyd, James Douglas, Dr. William Goforth, Thomas Ashe, Thomas Jefferson, M. Cuvier, etc., mentioned.

Anonymous. 1935. Booklet Published in 1801 Describes Big Bone (Ky.) Area. Cincinnati Enquirer, May 21, p. 11. According to Jillson, this is a news story of general interest relative to the lick and descriptions in The Navigator.

Anonymous. 1935. Geologist Is to Speak about Kentucky Bones. Cincinnati Enquirer, May 14. According to Jillson, this announces a lecture on big bones found in Northern Kentucky, to be given at Sinton Hotel, Cincinnati, May 22.

Anonymous. 1935. Geologist to Explain Fossils of Kentucky. Cincinnati Times-Star, May 15, p. 9. According to Jillson, this is a news story outlining the work of a geologist and announcing Dr. Jillson's lecture in Cincinnati, May 22, on the fossils found at the lick.

Anonymous. 1935. Geology Talk Tonight. Cincinnati Post, May 22. According to Jillson, this is a brief announcement of a lecture by Dr. Willard Rouse Jillson, former Kentucky State Geologist, at Sinton Hotel, broadcast over Station WLW, Cincinnati.

Anonymous. 1935. Historical Big Bone Springs. Walton Advertiser, May 16, p. 1. According to Jillson, this announces a lecture on "Big Bones of Northern Kentucky" to be given in Sinton Hotel, Parlor F, May 22, by Willard Rouse Jillson, Sc. D.

Anonymous. 1935. Noted Geologist Will Be Heard. Cincinnati Times-Star, May 10. According to Jillson, this is a news story announcing lecture on "Big Bones of Northern Kentucky" to be given by Dr. Willard Rouse Jillson at Sinton Hotel, Cincinnati, May 22.

Anonymous. 1935. Rescue Big Bone Lick for Posterity, etc. Cincinnati Enquirer, May 23. News account of a meeting at Sinton Hotel, Cincinnati, May 22. Big Bone Lick Foundation is proposed.

Anonymous. 1935. Saving Big Bone Lick for Kentuckians. Lexington Herald, June 2, p. 4. According to Jillson, this editorial favors a new movement to conserve the lick.

Anonymous. 1935. Urge Preservation of Big Bone Lick. Cincinnati Times-Star, May 23. According to Jillson, this is a news account of a meeting at the Sinton Hotel, Cincinnati, Ohio.

Daugherty, A. A. 1935. Mastodon Graveyard Boomed as Park Site. Louisville Times (Daily Magazine), September 20. According to Jillson, describes lick and outlines plans of Big Bone Lick Association; cites officers and principal workers.

Dunn, C. Frank. 1935. Memorializing Mary Ingles. Lexington Herald, June 16. According to Jillson, this is an editorial recounting the escape of Mary Ingles from Shawnee Indians at the lick.

Haller, Grace. 1935. Directors Named by Association. Cincinnati Enquirer, June 18. According to Jillson, this is a news story of the first meeting of the Big Bone Lick Association at Florence, Kentucky, June 17, 1935.

Haller, Grace. 1935. Man and Mammoth at Big Bone Lick. Enquirer Sunday Magazine, July 21, p. 4. Reviews the lick's history and states that the recently-formed Big Bone Lick Association plans to excavate the lick to find more fossil species.

Jillson, Willard Rouse. 1935. The Big Bones of Northern Kentucky. Kentucky State Historical Society Register 33(104): 181-190. According to Jillson, he covers the principal historical, paleontological, and geological features of the lick.

Kindle, Edward M. 1935. American Indian Discoveries of Vertebrate Fossils. Journal of Paleontology 9(5): 449-452. Credits Native Americans as the discoverers of the lick's fossils.

Osborn, Henry Fairfield. 1935. Thomas Jefferson as a Paleontologist. Science 82(2136): 533-538. According to Jillson, this contains many references to the lick and Jefferson's interest therein as evidenced by his correspondence which is reprinted.

Rhody, James B. 1935. Movement on Foot to Preserve for Kentucky Fossils of Bones in State. State Journal, Frankfort, June 6. According to Jillson, outlines plans for the lick by conservationists (p. 1).

Rouse, Robert. 1935. Plans for Establishing Museum at Big Bone Lick Formulated, etc. Lexington Herald, June 2, p. 1. According to Jillson, this is a news story of a plan to build a museum at the lick. Leaders in movement cited.

### **1936**

Jillson, Willard Rouse. 1936. Big Bone Lick. Big Bone Lick Association Publication Number 1. Standard Printing Company, Louisville. Comprehensive history of the lick.

Osborn, Henry Fairfield. 1936. Proboscidea: A Monograph of the Discovery, Evolution, Migration and Extinction of the Mastodons and Elephants of the World, Volume 1. The American Museum Press, New York. Reviews the collections of the mastodon at the lick, its type-locality.

### **1937**

Frick, Childs. 1937. Horned Ruminants of North America. Bulletin of the American Museum of Natural History 69: 1-663. Records of ruminants at the lick, mistakenly including *Bison latifrons* (pp. 565, 578).

### **1938**

Clark, Thomas D. 1938. Salt, a Factor in the Settlement of Kentucky. The Filson Club History Quarterly 12: 42-52. Refers (p. 43) to a 1792 advertisement for the rental of salt works at the lick.

### **1941**

Stevens, Sylvester K., and Donald H. Kent, eds. 1941. The Expedition of Baron de Longueuil. Erie County Historical Society, Pennsylvania Historical Commission, Harrisburg. Reports that 1739, not 1729, was the year of Longueuil's visit to the lick (pp. 2-7).

### **1942**

Simpson, George Gaylord. 1942. The Beginnings of Vertebrate Paleontology in North America. Proceedings of the American Philosophical Society 86: 130-188. Considers the lick to be the site of the first scientific discovery (1739) of vertebrate fossils in North America.

### **1943**

McFarlan, Arthur Crane. 1943. The Geology of Kentucky. University of Kentucky Press, Louisville. This provides a brief description and bibliography of the Big Bone Lick area (pp. 241-246). McFarlan states that the waters of the springs are regarded as originating in the St. Peter sandstone which occurs at a depth of 900 ft.

Simpson, George Gaylord. 1943. The Discovery of Fossil Vertebrates in North America. Journal of Paleontology 17: 26-38. Identifies the lick as the site for the initial discovery of fossil vertebrates in North America.

### **1945**

Eiseley, Loren C. 1945. Myth and Mammoth in Archaeology. American Antiquity 11: 84-87. Identifies the lick as the center of the Native American myth that mammoths were still in existence in the 1700s.

### **1946**

Branch, John Russell. 1946. The Geomorphology and Pleistocene Geology of the Big Bone Lick Area of Kentucky. MA Thesis, University of Cincinnati. The Pleistocene geology of the lick.

Eiseley, Loren C. 1946. Men, Mastodons, and Myth. *Scientific Monthly* 62: 517-524. Concludes that the Shawnee observation at the lick of a head with a long nose was referring to a mastodon skull, not a preserved trunk (pp. 518-520).

Masterson, James R. 1946. Travelers' Tales of Colonial Natural History. *The Journal of American Folklore* 59: 51-67. Reviews the various early views that the lick's big bones were those of the elephant, rhinoceros, hippopotamus, giant bison, or Siberian mammoth (pp. 56-57).

Schultz, C. Bertrand, and W. D. Frankforter. 1946. The Geologic History of the Bison in the Great Plains (A Preliminary Report). *Bulletin of the University of Nebraska State Museum* 3(1): 1-10. Mention of bison at the lick (p. 4).

### **1947**

Hendrickson, Walter B. 1947. The Western Academy of Natural Sciences of Cincinnati. *Isis* 37: 138-145. References Lyell's visit to the lick in 1842 and subsequent correspondence with the academy (p. 143).

Palmer, Katherine Van Winkle. 1947. Fun with Fossils. *The Scientific Monthly* 64(5): 385-388. Reports that Jefferson's White House collection of fossils from the lick provided him with a happy diversion from the affairs of state (p. 388).

Sellers, Charles Coleman. 1947. Charles Willson Peale, Volume 1. Early Life (1741-1790). *Memoirs of the American Philosophical Society* 23(1): 239-240. Mastodon bones from the lick inspired the establishment of Peale's American Museum.

### **1948**

Bell, Whitfield J. 1948. John Morgan. *Bulletin of the History of Medicine* 22(5): 543-561. Includes a description of how proboscidean bones collected at the lick in 1766 provided inspiration for the establishment of Peale's American Museum and later became part of a Dutch museum collection (pp.553-557).

Bell, Whitfield J. 1948. The Scientific Environment of Philadelphia, 1775-1790. *Proceedings of the American Philosophical Society* 92: 6-14. Records that John Morgan showed fossils from the lick to John Adams (p. 6).

Hollinger, Robert E. 1948. De Quincey's Use of Americanisms. *American Speech* 23(3/4): 204-209. Reports that the author Thomas De Quincey regarded the title "Big Bone Lick" as being too coarse of a name for a place associated with the grand phenomenon of salt-seeking bison herds (pp. 208-209).

### **1949**

Bell, Whitfield J. 1949. A Box of Old Bones: A Note on the Identification of the Mastodon, 1766-1806. *Proceedings of the American Philosophical Society* 93(2): 169-177. Complete story of the American mastodon bones collected at the lick in 1766 by George Morgan, including many references to European papers that deal with mastodon bones from the lick.

Butterfield, Lyman H. 1949. The Papers of Thomas Jefferson: Progress and Procedures in the Enterprise at Princeton. *American Archivist* 12(2): 131-145. William Clark's 10 November 1807 letter to Jefferson concerning Clark's excavations at the lick is "one of the best reports on early paleontological research that survives" (p. 135).

Dunbar, Carl O. 1949. *Historical Geology*. John Wiley and Sons, New York. Cites the fossil assemblage at the lick as "one of the most striking of all bog deposits" (p. 43).

Jillson, Willard Rouse. 1949. Early Kentucky Maps (1673-1825). The Register of the Kentucky Historical Society 161: 265-293. The location of the lick is indicated on many early maps.

Yealey, A. Michael. 1949. Big Bone Lick. Boone County Recorder, November 17. Brief history of lick.

### **1950**

Shepard, Lee. 1950. Big Bone Lick. Bulletin of the Historical and Philosophical Society of Ohio 8(3): 220-223. Announces that the society holds the historical correspondence of the Big Bone Lick Association that lobbied for the lick to become a park (p. 220).

### **1951**

Rice Jr., Howard C. 1951. Jefferson's Gift of Fossils to the Museum of Natural History in Paris. Proceedings of the American Philosophical Society 95(6): 597-627. Story and photographs of William Clark's fossils sent to France in 1808.

### **1953**

Hubbard, Harlan. 1953. Shantyboat. New York: Dodd, Mead. The author did not walk up the Big Bone Creek valley to visit the Lick, "but would have surely done so if any of the huge relics had remained" (p. 109).

### **1954**

Anonymous. 1954. Bones of Prehistoric Animals Unearthed at Big Bone Springs. Boone County Recorder, September 16, p. 1. Reviews recent paleontological, archaeological, and historical investigations at the lick.

### **1955**

Coleman, J. Winston. 1955. The Springs of Kentucky. Winburn Press, Lexington. Describes the springs at the lick (pp. 61-64).

### **1957**

Ellis, Robert. 1957. Tusk Is Uncovered at Big Bone. The Enquirer, July 26, p. 1. Reports discovery of a mammoth tusk.

Moore, Arthur K. 1957. The Frontier Mind. University of Kentucky Press, Lexington. Reports that "Following the Revolution curio seekers thoughtlessly despoiled Big Bone Lick of its ancient treasure" (p. 17).

Wilson, Gordon. 1957. An Ornithologist Visits Kentucky. The Register of the Kentucky Historical Society 55(4): 338-344. The Carolina parakeet that Alexander Wilson caught at the lick often appears in statues and portraits of Wilson (p. 339).

### **1958**

Hinds, Charles F. 1958. The Editor's Desk. The Register of the Kentucky Historical Society 56: 115-121. Announces a prospectus to make the lick a state site was recently published by the Big Bone Lick Historical Association (p. 120).

Jaffe, Bernard. 1958. Men of Science in America, Revised Edition. Simon and Schuster, New York. Notes that the lick's fossils dominated American paleontology well into the nineteenth century (pp. 285-287).

McFarlan, Arthur Crane. 1958. Behind the Scenery in Kentucky. Kentucky Geological Survey, Series 9, Special Publication 10. Geology of the lick (pp. 139-144).

## 1959

Greene, John C. 1959. *The Death of Adam*. Iowa State University Press, Ames. Relates the discovery of the mastodon at the lick to the emergence of evolutionary thought.

Wade, Richard C. 1959. *The Urban Frontier: The Rise of Western Cities, 1790-1830*. Harvard University Press, Cambridge. Reports that Cincinnati's elite congregated at the lick in the summer months of the first third of the nineteenth century (p. 312).

Wainwright, Nicholas B. 1959. *George Croghan: Wilderness Diplomat*. University of North Carolina Press, Chapel Hill. Reports that Croghan in 1766 collected specimens from the lick and in 1767 sent bones, tusks, and teeth to Franklin and Shelburne in London (pp. 234, 240-241).

## 1960

Anonymous. 1960. *Big Bone Park May Be Enlarged*. *The Post and Times-Star* (Kentucky), July 9. More acreage for the park is investigated.

Anonymous. 1960. *Big Bone Lick Will Be Park*. *The Post and Times-Star* (Covington), July 8. Reports that work will begin on the new Big Bone Lick State Park.

Anonymous. 1960. *Boone County's Big Bone Lick Is Designated a State Park*. *The Enquirer* (Covington), July 9. Announces the official designation of the lick as a state park.

Anonymous. 1960. *Geological Treasury Unearthed*. *The Enquirer*, August 20. According to Jillson, this records the finding of the lower jaw of a mastodon by Ellis Crawford, museum curator of Covington, Kentucky.

Anonymous. 1960. *Group Seeks Action on Big Bone Park*. *The Enquirer*, April 8. Chamber of Commerce delegation visits Kentucky Parks Commissioner.

Field, Thomas P. 1960. *The Indian Place Names of Kentucky*. *Filson Club History Quarterly* 34: 237-247. Indian names for the lick are unknown (p. 246).

Starr, S. Frederick. 1960. *The Archaeology of Hamilton County, Ohio*. *The Journal of the Cincinnati Museum of Natural History* 23(1): 1-130. A prehistoric gorget is made of fossilized bone, the nearest source of which is 28 miles away at the lick (pp. 52-53).

Yealey, A. Michael. 1960. *History of Boone County, Kentucky*. William Fitzgerald, Florence. Ownership, salt-making, and resort history of the lick (pp. 27-29).

## 1961

Carrington, Richard. 1961. *Mermaids and Mastodons*. The Scientific Book Guild, London. Refers to the lick as the most famous source of mastodon bones in the world (p. 128).

Raver, Howard. 1961. "Fossil Quarry" to Be Operated Next Year at Famed Big Bone Lick. *Post and Times-Star*, December 15. Forecast of a four- or five-year cooperative proposal between the Kentucky Department of Parks and the University of Nebraska and other associated organizations (the American Philosophical Society and the U.S. Geological Survey), all of which are to be represented by Dr. C. Bertram Schultz of Lincoln.

Rubin, Meyer, and Sarah M. Berthold. 1961. *U.S. Geological Survey Radiocarbon Dates VI*. *Radiocarbon* 3: 86-98. Wood sample W-908 (p. 88) dated <250 years was deposited in a blue clay matrix by a scour of Big Bone Creek.

## 1962

Anonymous. 1962. Uncovering Started of Prehistoric Animals. Boone County Recorder, July 26, p. 1. Announces the beginning of the University of Nebraska excavations.

Creason, Joe. 1962. Bones to Pick. The Courier-Journal Magazine, Louisville. September 2. Fossils collected at the lick in 1962.

Ellis, Robert. 1962. Mastodon, Elephant Fossils in New Dig at Big Bone Lick. The Enquirer, August 9. Describes early vertebrate paleontological excavations at the lick.

Holtman, Fred. 1962. Graveyard of the Mammoth. Kentucky Happy Hunting Ground, May. Description of the lick (pp. 16-17).

Martin, Jack. 1962. Scientists Seek Fossil Treasures. The Enquirer, December 4, p. 2. Announces the start of the five-year University of Nebraska excavations at the lick.

Saunders, Carl A. 1962. The Big Bone Story Unfolds. Kentucky Post and Times-Star, August 24. Editorial about the lick.

### 1963

Anonymous. 1963. Big Bone Lick Richest Fossil Depository. The Enquirer, September 6, p. 2. Scientist declares that the lick is the world's richest deposit of fossils.

Anonymous. 1963. More Bones Unearthed as Excavations End for Season at Big Bone. Boone County Recorder, September 5, p. 1. Reports the discovery of a ground sloth skull along with other fossils.

Anonymous. 1963. Second Year of Big Bone Lick Excavations in Progress. Boone County Recorder, August 15, p. 1. A crew of 15 diggers found several fossil bones.

Ellis, Robert. 1963. Ancient Sloth Skull Uncovered. The Enquirer, September 2. Scientist announces that the University of Nebraska will eventually return the collected lick fossils to Kentucky.

Ellis, Robert. 1963. Big Bone Lick Start Slated. The Enquirer, July 20. Second year of University of Nebraska dig begins.

McDermott, John Francis, ed. 1963. The Western Journals of Dr. George Hunter, 1796-1805. Transactions of the American Philosophical Society 53(4): 1-133. Goforth's fossils from the lick arrived at Pittsburgh in 1804 (pp. 58-59).

Murphey, John E. 1963. Big Bones Big Dividend in "Big Dig." The Kentucky Post and Times-Star, August 8, p. 1. Report on progress of the University of Nebraska excavations.

Schultz, C. Bertrand. 1963. Fossil Hunting Yesterday and Today. University of Nebraska News, Museum Notes No. 22. Reports on fossils found at the lick.

Schultz, C. Bertrand. 1963. The Late Pleistocene Faunal Sequence at Big Bone Lick, Kentucky. *In* American Philosophical Society. 1963. Yearbook. American Philosophical Society, Philadelphia. Reports on the University of Nebraska excavations at the lick (pp. 348-350).

Schultz, C. Bertrand, Lloyd G. Tanner, Frank C. Whitmore Jr., Louis L. Ray, and Ellis C. Crawford. 1963. Paleontologic Investigations at Big Bone Lick State Park, Kentucky: A Preliminary Report. *Science* 142(3596): 1167-1169. Mammal bones, ranging in age from Wisconsinan to Recent, were recovered in 1962 from four different faunal zones in two terrace fills.

### 1964

Anonymous. 1964. Knee Bone, Leg Bone, Ankle Bone...Ready for Tour. The Enquirer, August 8. Reports this year's "dig," which lasts six weeks, started July 20.

Ellis, Robert. 1964. Big Bones Found at Big Bone Lick. *The Enquirer*, August 15, p. 2. Mastodon and bison remains uncovered.

Price Jr., W. E. 1964. Geology and Hydrology of Alluvial Deposits along the Ohio River between Newport and Warsaw, Kentucky. U.S. Geological Survey, Hydrology Inventory, Atlas HA-98. Environmental background including geology and topography of the lick is discussed.

## 1965

Anonymous. 1965. A Walk along the River. *Ashland Oil Log* 24: 1-7. Recounts the 1755 escape of Mary Ingles from Shawnee captors at the lick.

Anonymous. 1965. Musk Ox Domesticated. *The Science News-Letter* 87: 370. Caption below a photograph of a musk ox fossil skull from the lick refers to the lick as a "jackpot region for extinct fauna."

Anonymous. 1965. "Old Lake Bed at Big Bone 'Dig' 17,000 Years Old." *Boone County Recorder*, July 29, p. 1. Reports excavation of a 12-foot-deep trench at the lick to detect floral changes since the Ice Age.

Bell, Whitfield J. 1965. John Morgan, Continental Doctor. University of Pennsylvania Press, Philadelphia. Proboscidean fossils at the lick were collected by George Morgan in 1766, given to his brother John Morgan, noted by John Adams in 1774, sketched by Charles Wilson Peale in 1783, and sold by John to Dutch scholar Petrus Camper in 1788 (pp. 173-174, 261).

Durrell, R. H. 1965. Stop 7-9: Airport Roadcuts, Kansan Drift, Boone County, Kentucky, East Central Part of the Burlington Quadrangle. *In* Schultz, C. Bertrand, and H. T. U. Smith, eds. 1965. *Guidebook for Field Conference G. Great Lakes-Ohio River Valley*. INQUA (International Association for Quaternary Research) 7<sup>th</sup> Congress. Environmental background including geology and topography of lick is discussed.

Ellis, Robert. 1965. Dig at Big Bone Attracts Scientists. *The Enquirer*, July 15, p. 20. Reports that scientists from throughout the world will visit lick in August.

Ellis, Robert. 1965. Scientists Start Big Dig at Big Bone State Park. *The Enquirer*, July 22, p. 2. Reports the resumption of the University of Nebraska excavations.

Fetterman, John. 1965. In Quest of Ancient Kentuckians. *Courier-Journal Magazine*, September 12, pp. 23-31. Photo-story on 1965 excavations at the lick.

Fitzgerald, William. 1965. Big Bone Lick—Boone County, Kentucky. Kentucky Historical Society, Frankfort. Microfilm of a 152-page scrapbook containing dozens of 1954-1964 newspaper articles on the lick.

Fitzgerald, William. 1965. History of Big Bone Lick State Park. *Boone County Recorder*, September 23. Recounts efforts since 1935 to establish park.

Levin, Betsy, Patricia C. Ives, Charles L. Oman, and Meyer Rubin. 1965. U.S. Geological Survey Radiocarbon Dates VIII. *Radiocarbon* 7: 372-398. Wood sample W-1357 (p. 374) dated <200 years was taken from near the top of a gravel layer containing fresh bison bones, worn proboscidean bones, and an Adena pendant. W-1358 (p. 374) dated approximately 8650 BC was taken from near the top of gray silty clay containing Pleistocene mammal species.

Schultz, C. Bertrand, Lloyd G. Tanner, Frank C. Whitmore Jr., Louis L. Ray, and Ellis C. Crawford. 1965. Big Bone Lick. *In* Schultz, C. Bertrand, and H. T. U. Smith, eds. 1965. *Guidebook for Field Conference G. Great Lakes-Ohio River Valley*. INQUA (International Association for Quaternary Research) 7<sup>th</sup> Congress. Reports that the giant bison has often been listed as a fossil animal found at the lick, but that no evidence substantiates this contention (pp. 60-61).

Teale, Edwin Way. 1965. In the Valley of Ice Age Wildlife. *Audubon* 67(5): 286-291. History and modern description of the lick.

## 1966

Anonymous. 1966. Big Bone Digging Coming to an End. *The Enquirer*, June 4. Jillson quotes from this source: "This summer (1966) will mark the beginning of the fifth and last year of extensive research (exploratory excavations) at Big Bone Lick State Park in Boone County (Kentucky) by Dr. C. B. Schultz, director of the University of Nebraska State Museum," and his associates and assistants.... "The project has been financed by a grant from the American Philosophical Society and other interested organizations."

Colegrove, Albert. 1966. Big Bone Lick Returns to Salty Slumber as Summer Dig Ends. *Kentucky Post and Times-Star*, August 15, p. 6. Reviews the excavations at the lick during the 1960s.

Ellis, Robert. 1966. Master Plan for Kentucky's Newest State Park Unfolds. *Cincinnati Enquirer*, November 20. The park plan is described.

Ellis, Robert. 1966. Part of Giant Sloth Is Found by Diggers at Big Bone Park. *The Enquirer*, July 24. Sloth foreleg found.

Haynes, C. Vance. 1966. Elephant Hunting in North America. *Scientific American* 214(1): 104-112. States there is no evidence that a Paleoindian Clovis point found at the lick in 1898 was associated with mammoth bones.

Ray, Louis L. 1966. Pre-Wisconsinan Glacial Deposits in Northern Kentucky. U.S. Geological Survey Professional Paper 550-B. Government Printing Office, Washington, D.C. Glacial deposits near the lick (pp. B91-B94).

Schultz, C. Bertrand, Frank C. Whitmore Jr., and Lloyd G. Tanner. 1966. Pleistocene Mammals and Stratigraphy of Big Bone Lick State Park, Kentucky (Abstract). *Geological Society of America Special Paper* 87. Reports the presence of the woolly mammoth at the lick, an identification that was changed to mammoth sp. in later papers by Schultz, et al. (pp. 262-263).

Teale, Edwin Way. 1966. *Wandering through Winter*. Dodd, Mead and Company, New York. Contains a description of the lick in 1962 and summarizes the lick's history (pp. 240-249).

Wood, Richard G. 1966. Stephen Harriman Long, 1784-1864. Clark, Glendale, CA. Long presented Harlan with a selection of materials from the lick that likely had been gathered in 1824 (p. 139).

## 1967

Anonymous. 1967. The Legacy of Big Bone Lick. *Cincinnati Automobile Club Motour* 60(6): 6-7, 11. Description and photographs of the University of Nebraska 1962-1966 excavations.

Bell, Whitfield J. 1967. The Cabinet of the American Philosophical Society. In Whitehill, Walter Muir. ed. 1967. *A Cabinet of Curiosities*. University Press of Virginia, Charlottesville. Succinctly reviews how mastodon bones collected at the lick in 1766 by Croghan and Morgan led to Peale's excavation of a complete mastodon skeleton in New York in 1801 (p. 11).

Ives, Patricia C., Betsy Levin, Charles L. Oman, and Meyer Rubin. 1967. U.S. Geological Survey Radiocarbon Dates IX. *Radiocarbon* 9: 507. Pollen-bearing silt sample W-1617 dated approximately 15,250 BC taken from the cranial cavity of a helmeted musk ox collected in 1807 by William Clark.

Martin, Paul S. 1967. Pleistocene Overkill. In Martin, Paul S., and H. E. Wright Jr., eds. 1967. *Pleistocene Extinctions*. Yale University Press, New Haven. Refers to the lick as "one of the richest late-Pleistocene deposits in eastern North America" (p. 88).

Schultz, C. Bertrand, Lloyd G. Tanner, Frank C. Whitmore Jr., Louis L. Ray, and Ellis C. Crawford. 1967. Big Bone Lick, Kentucky. University of Nebraska News, Museum Notes No. 33. Report on the university-sponsored 1962-1966 excavations at the lick (pp. 1-12).

Thomas, Samuel W., and Eugene H. Conner. 1967. George Rogers Clark (1752-1818): Natural Scientist and Historian. *The Filson Club History Quarterly* 41: 202-226. Reviews Clark's collecting activities at the lick.

## **1968**

Cutright, Paul Russell. 1968. Meriwether Lewis, Zoologist. *Oregon Historical Quarterly* 69(1): 4-28. Suggests that some fossils from the lick were successfully transferred from Lewis to Jefferson (p. 17).

Hadley, Bruce. 1968. Doubts Big Bone Will Get Lodge, Major Park Rank. *Kentucky Post*, May 9, pp. 1-2. Kentucky Parks Commissioner sees lick as a "day park."

Jakle, John A. 1968. The American Bison and the Human Occupance of the Ohio Valley. *Proceedings of the American Philosophical Society* 112: 299-305. Reviews the buffalo traces connecting the lick to other licks in Kentucky and Indiana.

Jillson, Willard Rouse. 1968. *The Extinct Vertebrata of the Pleistocene in Kentucky*. Roberts Printing Company, Frankfort. Lists major fossil collectors at the lick and estimates that between 5,500 and 6,500 Pleistocene fossils have been collected since 1739; contains bibliography of 1923-1966 newspaper stories about the lick (pp. 23-41, 113-122).

## **1969**

Becker, Lee. 1969. Big Plans in Making for Big Bone Park. *The Enquirer*, May 15, p. 45. Lick is proposed to become part of a national park. Also May 27, p. 40.

Cutright, Paul Russell. 1969. *Lewis and Clark: Pioneering Naturalists*. University of Illinois Press, Urbana. States that Meriwether Lewis's 1803 visit to the lick was probably at the prompting of Caspar Wistar (p. 26).

Jakle, John A. 1969. Salt on the Ohio Valley Frontier, 1770-1820. *Annals of the Association of American Geographers* 59(4): 687-709. Maps buffalo traces leading to the lick.

Schultz, C. Bertrand, Lloyd G. Tanner, Frank C. Whitmore Jr., and Louis L. Ray. 1969. Geologic and Faunal Evidence of the Quaternary Deposits at Big Bone Lick, Kentucky (Abstract). *Geological Society of America Abstracts with Programs, Part 2*. Reports that no bones of the giant bison have been found at the lick, and that no bones of the ancient bison have been found with those of the modern bison (pp. 24-25).

Swadley, W. C. 1969. Geologic Map of part of the Rising Sun Quadrangle, Boone County, Kentucky. U.S. Geological Survey GQ-929. Contains a portion of the lick region.

Swadley, W. C. 1969. Geologic Map of parts of the Patriot and Florence Quadrangles, North-Central Kentucky. U.S. Geological Survey GQ-846. Contains a portion of the lick region.

Swadley, W. C. 1969. Geologic Map of the Union Quadrangle, Boone County, Kentucky. U.S. Geological Survey GQ-779. Contains a portion of the lick region.

Swadley, W. C. 1969. Geologic Map of the Verona Quadrangle, North-Central Kentucky. U.S. Geological Survey GQ-819. Contains a portion of the lick region.

## **1970**

Burress, Marjorie Byrnside. 1970. *It Happened 'Round North Bend*. Self-published, Cincinnati. The lick was explored in 1785-86 by soldiers stationed at Fort Finney.

Havighurst, Walter. 1970. *River to the West: Three Centuries of the Ohio*. G. P. Putnam's Sons, New York. Chapter Ten outlines the historical events at the lick (pp. 128-134).

Labaree, Leonard W., ed. 1970. *The Papers of Benjamin Franklin, Volume 14*. Yale University Press, New Haven. Discusses the fossils in Croghan's 1766 collection and summarizes the conclusions of natural historians who examined the bones (pp. 25-28).

Roe, Frank Gilbert. 1970. *The North American Buffalo, Second Edition*. University of Toronto Press, Toronto. Contains references to bison at the lick (pp. 27, 234-235, 335, 857).

#### **1971**

Anonymous. 1971. Big and Welcome Plans for Big Bone. *The Kentucky Post*, July 14, p. 6. Editorial welcomes proposed \$1 million development program for the park.

Anonymous. 1971. Bring the Big Bones Home. *The Kentucky Post*, February 23. Local scientist wishes to have museums return bones to lick's museum.

Busch, Moritz, and Norman H. Binger. 1971. *Travels between the Hudson and the Mississippi: 1851-1852*. University Press of Kentucky, Lexington. Writing of the lick's fossils as his steamboat passes by in 1851, German visitor Busch refers to the mastodon as the antediluvian mammoth and to the mammoth as the arctic elephant (p. 207).

#### **1972**

Rudwick, Martin J. S. 1972. *The Meaning of Fossils: Episodes in the History of Palaeontology*. American Elsevier Inc., New York. Relates the discovery of the mastodon at the lick to the discovery of extinction by Cuvier (pp. 105-107).

#### **1973**

Cunningham, Roger M. 1973. Paleo-hunters along the Ohio River. *Archaeology of Eastern North America* 1: 118-126. The lick likely was a Paleoindian hunting site (p. 121).

Weisenberger, B. C., C. W. Dowell, T. R. Leathers, H. B. Odor, and A. J. Richardson. 1973. *Soil Survey of Boone, Campbell, and Kenton Counties, Kentucky*. U.S. Department of Agriculture Soil Conservation Service in Cooperation with the Kentucky Agricultural Experimentation Station. U.S. Government Printing Office, Washington, D.C. Includes soil and climate information of the area.

#### **1974**

Ettensohn, Frank R. 1974. The Pre-Illinoian Lake Clays of the Cincinnati Region. *The Ohio Journal of Science* 74(4): 214-226. Places lick in the pre-Illinoian valley of Eagle Creek.

Hammon, Neal O. 1974. Captain Harrod's Company, 1774: A Reappraisal. *Register of the Kentucky Historical Society* 72(3): 224-242. John Smith was at the lick in 1774 and 1775.

Ray, Louis L. 1974. *Geomorphology and Quaternary Geology of the Glaciated Ohio River Valley—A Reconnaissance Study*. Geological Survey Professional Paper 826. Government Printing Office, Washington, D.C. Geology of the lick (pp. 70-71).

#### **1975**

Chinn, George Morgan. 1975. *Kentucky Settlement and Statehood, 1750-1800*. The Kentucky Historical Society, Frankfort. Indian and pioneer roads connected the lick to other Kentucky locations (pp. 374-375).

Howard, Robert West. 1975. *The Dawnseekers*. Harcourt Brace Jovanovich, New York. A popular history of American paleontology that includes many references to the lick.

Simpson, George Gaylord. 1975. [Untitled Note]. *Society of Vertebrate Paleontology News Bulletin* 105: 42-43. Locates the present whereabouts of Longueuil-collected specimens from the lick.

## 1976

Gillette, David D., and Edwin H. Colbert. 1976. Catalogue of Type Specimens of Fossil Vertebrates, Academy of Natural Sciences, Philadelphia, Part II: Terrestrial Mammals. *Proceedings of the Academy of Natural Sciences of Philadelphia* 128: 25-38. Lists many type specimens collected at the lick.

Quinn, C. Edward. 1976. Thomas Jefferson and the Fossil Record. *Bios* 47: 159-167. Jefferson's ties to the lick up to 1785.

Rice, Howard C. 1976. *Thomas Jefferson's Paris*. Princeton University Press, Princeton. Provides the reasons behind Jefferson's 1808 gift of bones from the lick to the natural history museum in Paris (p. 86).

Vitz, C. Robert. 1976. General James Taylor and the Beginnings of Newport, Kentucky. *Filson Club Quarterly* 50: 353-368. A bison hunt at the lick in 1793 yielded 23 animals (pp. 357-358).

## 1977

Field, Thomas P. 1977. The Indian Place Names of Kentucky. In Harrison, Lowell, and Nelson L. Dawson, eds. *A Kentucky Sampler*. The University Press of Kentucky, Lexington. The Native American names for the lick are unknown (p. 20).

Schultz, C. Bertrand, and John M. Hillerud. 1977. The Antiquity of *Bison latifrons* (Harlan) in the Great Plains of North America. *Transactions of the Nebraska Academy of Sciences* 4: 103-116. Summarizes research showing that *Bison latifrons* has not been found at the lick (pp. 103, 107).

## 1978

Berry, Wendell. 1978. Two Kentucky River Poems. *The American Poetry Review* 7(4): 40-41. A poem incorporates a 1773 visit to the lick (p. 40).

Fenwick, Jason M., and Marcia K. Weinland. 1978. A Reconnaissance and Evaluation of Archaeological Sites in Boone County, Kentucky. Archaeological Report No. 8. Kentucky Heritage Commission, Frankfort. Environmental background including geology and topography of the lick is discussed as well as archaeological research conducted at the park.

Hansen, Michael C., et al. 1978. A Radiocarbon-Dated Mammoth Site, Marion County, Ohio. *Ohio Journal of Science* 78: 103-105. The Marion County and the lick's mammoth remains date from near the terminal date for the species in east-central North America.

Hicks, Jack. 1978. Little Publicized Big Bone Park Has Its Own Theme. *Enquirer*, May 16. Columnist asks state for more attention to the development of the park.

Quarterman, Elsie, and Richard L. Powell. 1978. Potential Ecological/Geological Natural Landmarks on the Interior Low Plateaus. National Park Service, Washington, D.C. The lick is judged to have a high degree of national significance as a geologic site (pp. 334-336).

## 1979

Irwin, Helen Deiss. 1979. *Women in Kentucky*. University Press of Kentucky, Lexington. Relates the story of Mary Draper Ingles' escape from Shawnee salt-gatherers at the lick (pp. 21-23).

## 1980

Blincoe, Caden. 1980. Big Bone Lick State Park Ready for Visitors. Cincinnati Enquirer, May 25, p. B-6. Announces the abandonment of plans to add a resort lodge and golf course at the lick.

Brown, Ian W. 1980. Salt and the Eastern North American Indian: An Archaeological Study. Harvard University, Cambridge. The lick is one of the major salines in the eastern United States (p. 17).

Lankford, George E. 1980. Pleistocene Animals in Folk Memory. The Journal of American Folklore 93: 293-304. Doubts that the Indian stories of proboscideans at the lick had been passed down from the period when the animals became extinct.

Madden, Cary T. 1980. *Zygodon* from Subsaharan Africa, with Observations on the Systematics of Palaeomastodontid Proboscideans. Journal of Paleontology 54: 57-64. Reports that the mastodon species discovered at the lick was the first known representative of the elephant family Palaeomastodontidae.

Sellers, Charles Coleman. 1980. Mr. Peale's Museum. W. W. Norton and Company, New York. At his Philadelphia studio in 1784, Charles Willson Peale made drawings of John Morgan's collection of fossils that his brother George Morgan had gathered at the lick in 1766. Studio visitors' admiration for the fossils persuaded Peale to found his museum, a forerunner of the Smithsonian Institution (pp. 9-11).

### 1981

Davis, Richard A. 1981. Big Bone! Kentucky's Original Stick-in-the-Mud. Rocks and Minerals 56: 114-118. Succinct history of the lick.

McDonald, Jerry N. 1981. North American Bison: Their Classification and Evolution. University of California Press, Berkeley. Considers *Bison antiquus* specimen from the lick to be a hybrid individual containing genes of *B. priscus* (p. 84).

Tanner, Ray, and Dennis Vesper. 1981. A Fossil Bone Collection from Big Bone Lick, Kentucky. Ohio Archaeologist 31(4): 11-13. Lists species included in the Parker Melvin collection housed at Big Bone Lick State Park.

### 1982

Anonymous. 1982. Big Bone Resort—Glorious Page of Boone's Past. Boone County Recorder, February 4, p. 2. History of the resort hotel built in 1870 and razed in about 1944.

Fossett, Jay. 1982. Students "Looking through the Attic" at Big Bone. The Cincinnati Post, July 19, p. 10B. Reports on University of Kentucky archaeological field school at the lick.

Howe, John A. 1982. Fossil Horse from Big Bone Lick, Kentucky (Abstract). Ohio Journal of Science 82(2): 26. Equine materials collected by the University of Nebraska State Museum are those of the complex-toothed horse.

Steele, Roberta Ingles, and Andrew Lewis Ingles, eds. 1982. Escape from Indian Activity: The Story of Mary Draper Ingles and Son Thomas Ingles as Told by John Ingles, Sr., Second Edition. Radford, VA. Indian salt-making activity at the lick in 1755, the year captive Mary Ingles was taken to the lick to gather salt (pp. 11-12).

Williams, Joel. 1982. Big Bone Resort—Glorious Page of Boone's Past. Boone County Recorder, February 4, p. 2. Reviews the health resorts built at the lick in the 19<sup>th</sup> century.

### 1983

Anonymous. 1983. Archaeology Magazine: Travel Guide to North America, 1983. Archaeology 36(3): 35-49. Archaic Culture site at the lick to be excavated in summer, 1983 (p. 43).

Lundelius Jr., Ernest L. 1983. Terrestrial Vertebrate Faunas. *In* Wright Jr., H. E., ed. 1983. Late-Quaternary Environments of the United States, Volume 1. University of Minnesota Press, Minneapolis. Lists the lick as one of 30 localities producing major faunas of Pleistocene age for the Northeast Region of the United States (p. 314).

Meltzer, David J., and Jim I. Mead. 1983. The Timing of Late Pleistocene Mammalian Extinctions in North America. *Quaternary Research* 19: 130-135. A radiocarbon date from a helmeted musk ox skull found at the lick was used in this study (p. 133).

Miller, Lillian B. 1983. The Selected Papers of Charles Willson Peale and His Family. National Portrait Gallery, Smithsonian Institution, Washington DC. Bones from the lick inspired Peale to form the nation's first scientifically organized natural history museum (Vol. 1, p. 445; Vol. 5, pp. 112-113).

## **1984**

Dunlop, M. H. 1984. Curiosities Too Numerous to Mention: Early Regionalism and Cincinnati's Western Museum. *American Quarterly* 36: 524-548. Robert Best, the first curator of the Western Museum, led collecting expeditions to the lick. In the 1820s, the museum sold some of the lick's fossils to the Academy of Natural Sciences in Philadelphia (pp. 526, 531-532).

Grayson, Donald K. 1984. Nineteenth-Century Explanations of Pleistocene Extinctions: A Review and Analysis. *In* Martin, Paul S., and Richard G. Klein, eds. 1984. *Quaternary Extinctions: A Prehistoric Revolution*. The University of Arizona Press, Tucson. Reports Turner's 1799 view that the carnivorous nature of the mastodons at the lick caused frightened people to exterminate the species, and connects this view with the 20<sup>th</sup> century hypothesis of Pleistocene overkill (p. 20).

Quinn, C. Edward. 1984. The Biological Training of Thomas Jefferson. *Bios* 55: 151-157. Jefferson's sponsorship of expeditions to the lick was one of his greatest scientific achievements (pp. 154-155).

Ray, Clayton E., and Albert E. Sanders. 1984. Pleistocene Tapirs in the Eastern United States. *In* Genoways, Hugh H., and Mary R. Dawson, eds. 1984. *Contributions in Quaternary Vertebrate Paleontology*. Carnegie Museum of Natural History, Pittsburgh. Tapir fossils have not been found at the lick, but their presence there has been mistakenly reported (pp. 284, 288).

## **1985**

Bedini, Silvio A. 1985. Thomas Jefferson and American Vertebrate Paleontology. Virginia Division of Mineral Resources, Charlottesville. Contains photographs of fossils collected at the lick.

Tankersley, Kenneth B. 1985. The Potential for Early-Man Sites at Big Bone Lick, Kentucky. *Tennessee Anthropologist* 10(1): 27-49. Concludes that the lick likely holds evidence of the association of Clovis artifacts with the remains of megafauna.

Visser, Robert Paul Willem. 1985. The Zoological Work of Petrus Camper (1722-1789). Rodopi, Amsterdam. Reports on Camper's interpretations of mastodon teeth and jaw fragments collected at the lick (pp. 125-127).

## **1986**

Boisvert, Richard A. 1986. Late Archaic Settlement Models in the Middle Ohio Valley: A Perspective from Big Bone Lick, Kentucky. Ph.D. Dissertation, University of Kentucky. Discusses Native American use of lick as a hunting area during the period 3000 to 4000 years ago.

Henson, E. 1986. Ancient Thunder. Kentucky Parks, Spring. A trip through time at the lick (pp. 24-27).

Nelson, Paul David. 1986. General Charles Scott, the Kentucky Volunteers, and the Northwest Indian Wars, 1784-1794. *Journal of the Early Republic* 6(3): 219-251. In 1791, Native Americans unsuccessfully attempted to seize the lick and deny settlers access to salt (p. 233).

Tankersley, Kenneth B. 1986. Bison Exploitation by Late Fort Ancient Peoples in the Central Ohio River Valley. *North American Archaeologist* 7(4): 289-303. Concentration of bison bones at the lick demonstrates that it was a site for procuring bison in both late prehistoric and early historic times.

## 1987

Buffetaut, Eric. 1987. *A Short History of Vertebrate Palaeontology*. Croom Helm, London. William Hunter was the first scientist to suggest that proboscidean bones at the lick were those of an extinct animal (p. 39). Gideon Mantell reported that mastodon remains from the lick were sold in London in 1836 (p. 73).

Conrad, William. 1987. *Yesterdays: An Enriching Adventure in Boone County's Past*. Boone County Schools, Florence. Reviews the historical events at the lick.

Livingstone, David N. 1987. *Nathaniel Southgate Shaler and the Culture of American Science*. University of Alabama Press, Tuscaloosa. Lick is mentioned (pp. 31, 234).

Matijasic, Thomas D. 1987. Big Bone Lick and the American Enlightenment. *The Filson Club History Quarterly* 61(4): 466-477. The fossil discoveries at the lick introduced the reality of past extinctions.

Matijasic, Thomas D. 1987. Science, Religion, and the Fossils at Big Bone Lick. *Journal of the History of Biology* 20(3): 413-421. Role of lick in supporting the theory of catastrophism.

Tankersley, Kenneth B. 1987. Big Bone Lick, A Clovis Site in Northcentral Kentucky. *Current Research in the Pleistocene* 4: 36-37. Summary of Paleoindian points found at the lick.

## 1988

Churcher, C. S., and J. D. Pinsof. 1988. Variations in the Antlers of North American *Cervalces* (Mammalia; Cervidae): Review of New and Previously Recorded Specimens. *Journal of Vertebrate Paleontology* 7: 373-397. Lists measurements of five elk-moose antlers from the lick, where the animal first became known to science.

Kohlstedt, Sally Gregory. 1988. *Curiosities and Cabinets: Natural History Museums and Education on the Antebellum Campus*. *Isis* 79(3): 405-426. David McClure acquired proboscidean vertebrae from the lick while on a trip to Pittsburgh in 1772; he donated the fossils to the new museum at Dartmouth College (p. 409).

## 1989

McDonald, Jerry N., and Clayton E. Ray. 1989. The Autochthonous North American Musk Oxen *Bootherium*, *Symbos*, and *Gidleya* (Mammalia: Artiodactyla: Bovidae). *Smithsonian Contributions to Paleobiology*, Number 66. Recounts the discovery of the woodland musk ox at the lick (p. 3).

Schofield, Robert E. 1989. The Science Education of an Enlightened Entrepreneur: Charles Willson Peale and His Philadelphia Museum, 1784-1827. *American Studies* 30(2): 21-40. Bones from the lick were the impetus for the establishment of Peale's Museum (p. 23).

Tankersley, Kenneth B. 1989. A Close Look at the Big Picture: Early Paleoindian Lithic Procurement in the Midwestern United States. In Ellis, Christopher, and Jonathon Lothrop, eds. 1989. *Eastern Paleoindian Lithic Resource Use*. Westview Press, Boulder, CO. Reports that most fluted points at the lick were derived from sources located more than 100 km distant.

U.S. Department of Agriculture. 1989. *Soil Survey of Boone, Campell, and Kenton Counties, Kentucky*. U.S. Department of Agriculture Soil Conservation Service in Cooperation with the Kentucky Agricultural Experimentation Station. U.S. Government Printing Office, Washington, D.C. Includes soil and climate information of the area.

## 1990

Bedini, Silvio A. 1990. Thomas Jefferson: Statesman of Science. Macmillan Publishing Company, New York. Many references to the lick as a site which greatly interested Jefferson.

Churcher, C. S., and M. C. Wilson. 1990. Methods in Quaternary Ecology #12. Vertebrates. Geoscience Canada 17(2): 59-78. Quaternary explorations in North America began in the 18<sup>th</sup> century at the lick (p. 60).

Dott, R. H. 1990. The American Countercurrent—Eastward Flow of Geologists and Their Ideas in the Late Nineteenth Century. Earth Science History 9: 158-162. The finding of extinct mammal fossils at the lick is a notable example of a New World discovery that affected European geologists (p. 158).

Tankersley, Kenneth B. 1990. Late Pleistocene Lithic Exploitation in the Midwest and Midsouth: Indiana, Ohio, and Kentucky. In Tankersley, Kenneth B., and Barry L. Isaac. 1990. Early Paleoindian Economies of Eastern North America. JAI Press, Greenwich, CT. Because it attracted a large number of game animals, the lick likely was a social interaction site for bands of Paleoindians (p. 292).

Tankersley, Kenneth B. 1990. Paleoindian Period. In Pollack, David, ed. 1990. The Archaeology of Kentucky: Past Accomplishments and Future Directions. Kentucky Heritage Council, Lexington. Five Paleoindian sites are located in Big Bone Lick State Park (pp. 73-76, 117, 121).

## 1991

Churcher, C. S. 1991. The Status of *Giraffa nebrascensis*, the Synonymies of *Cervalces* and *Cervus*, and Additional Records of *Cervalces scotti*. Journal of Vertebrate Paleontology 11(3): 391-397. The first evidence of the elk-moose was found at the lick (p. 393).

Woodward, Susan L. 1991. Late Pleistocene North American Equids: Why a Widespread Large Mammal May Be Sparsely Represented in Early Archaeological Sites. In Purdue, James R., Walter E. Klippel, and Bonnie W. Styles, eds. 1991. Beamers, Bobwhites, and Blue-Points: Tributes to the Career of Paul W. Parmalee. Illinois State Museum Scientific Papers, Volume 23. North American map shows lick as one of many sites reporting native *Equus* material (p. 262).

## 1992

Conrad, William, ed. 1992. Boone County: The Top of Kentucky, 1792-1992. Picture This! Books, Fort Mitchell. Use of the lick as a health resort (pp. 19-21).

Covell, Charles V., and Eric H. Metzler. 1992. Two New Species of Moths (Noctuidae: Acronictinae, Cucullinae) from Midland United States. Journal of the Lepidopterists' Society 46: 220-232. Records collection of paratypes of two new moth species at the lick.

Hassert, Dan. 1992. Kentucky Wants "Dem Dry Bones" at Big Bone Park. Kentucky Post, September 24, pp. 1K-2K. Reports talks underway to return bones obtained by the University of Nebraska to park museum.

Rainger, Ronald. 1992. The Rise and Decline of a Science: Vertebrate Paleontology at Philadelphia's Academy of Natural Sciences, 1820-1900. Proceedings of the American Philosophical Society 136: 1-32. Refers to the activities of the American Philosophical Society relative to the lick (pp. 2-3).

Tankersley, Kenneth B. 1992. Big Bone Lick, Kentucky: Late Pleistocene Archaeology. In Dalby, Timothy S., ed. 1992. Geological Aspects of Key Archaeological Sites in Northern Kentucky and Southern Ohio. Ohio Geological Survey, Columbus. Reviews the history of discovery of Paleoindian artifacts at the lick (pp. 45-50).

Tankersley, Kenneth B. 1992. Bison and Subsistence Change: The Protohistoric Ohio Valley and Illinois Valley Connection. In Croes, Dale R., Rebecca A. Hawkins, and Barry L. Isaac, eds. 1992. Research in Economic Anthropology, Supplement 6. JAI Press, Greenwich, CT. Reports on the exploitation of bison at the lick by Fort Ancient people (pp. 103-130).

Yochelson, Ellis L. 1992. Mr. Peale and His Mammoth Museum. Proceedings of the American Philosophical Society 136: 487-506. Contains several references to mastodon remains from the lick.

### **1993**

Dott, Robert H. 1993. Charles Lyell's Debt to North America: His Lectures and Travels from 1841 to 1853. Geological Society, London, Special Publications 143: 53-69. Dott incorrectly states that *Megalonyx* was first discovered at the lick (p. 69).

Rice, Otis K. 1993. Frontier Kentucky. University Press of Kentucky, Lexington. Surveyor Thomas Bullitt in 1773 selected the lick as a townsite (p. 50).

Stein, Susan R. 1993. The Worlds of Tomas Jefferson at Monticello. Harry N. Abrams, New York. Collected at the lick by William Clark, a mastodon femur, mandible, and tusk were among Jefferson's prized possessions (p. 64).

### **1994**

Barbeau, Charles M. 1994. Mythologie Huronne et Wyandotte. University of Montreal Press, Montreal. Indian story (pp. 276-278) of Little People who killed the Witch Buffalo, leaving their big bones scattered about the lick.

Clell, James. 1994. Bones Prove That Kentucky Was Once Home to Huge Prehistoric Beasts. The Kentucky Explorer, October. Contains references to the lick.

### **1995**

Deloria Jr., Vine. 1995. Red Earth, White Lies. Scribner, New York. Author believes the proboscidean bones Native Americans found at the lick were relatively recent since they had not disintegrated while lying on the surface of the site (pp. 120-121, 144-145, 155).

Miller, Donald A., and Ken Duerksen. 1995. Excavation of a Prehistoric Feature at Big Bone Lick, Boone County, Kentucky. In Doershuk, John F., Christopher A. Bergman, and David Pollack, eds. 1965. Current Archaeological Research in Kentucky, Volume 3. Kentucky Heritage Council, Frankfort. Describes a possible hearth that may have been used for cooking or salt-making.

Robinson, Joyce Henri. 1995. An American Cabinet of Curiosities: Thomas Jefferson's Indian Hall at Monticello. Winterthur Portfolio 30(1): 41-58. Bones from the lick were included in Jefferson's paleontological collection at Monticello (p. 50).

Silliman, Robert H. 1995. The Hamlet Affair. Isis 86: 541-561. Refers to Lyell's letter to John Anthony posing ten questions about the lick.

Spamer, Earle E., Edward Daeschler, and Gay Vostreys-Shapiro. 1995. A Study of Fossil Vertebrate Types in the Academy of Natural Sciences of Philadelphia: Taxonomic, Systematic, and Historical Perspectives. Academy of Natural Sciences of Philadelphia, Philadelphia. Describes the lick as a notable type locality (pp. 22-23).

### **1996**

Freeman, Andrea K. L., Edward E. Smith Jr., and Kenneth B. Tankersley. 1996. A Stone's Throw from Kimmswick: Clovis Period Research in Kentucky. *In* Anderson, David G., and Kenneth E. Sassaman. 1996. *The Paleoindian and Early Archaic Southeast*. The University of Alabama Press, Tuscaloosa. Reviews the investigations of Paleoindian presence at the lick and concludes that the site provides the potential of finding a Paleoindian kill site (pp. 385-403).

McDonald, Jerry N., Clayton E. Ray, and Frederick Grady. 1996. Pleistocene Caribou (*Rangifer tarandus*) in the Eastern United States: New Records and Range Extensions. *In* Stewart, Kathlyn M. and Kevin L. Seymour, eds. 1996. *Palaeoecology and Palaeoenvironments of Late Cenozoic Mammals: Tributes to the Career of C. A. (Rufus) Churcher*. University of Toronto Press, Toronto. The lick is one of two Kentucky sites from which caribous fossils have been taken (p. 411).

Rigal, Laura. 1996. Empire of Birds, Alexander Wilson's American Ornithology, 1807-1814. *The Huntington Library Quarterly* 59: 232-268. Reads Alexander Wilson's story of his sinking into the lick as a metaphor of Wilson's place in American society (p. 267-268).

Tankersley, Kenneth B. 1996. Ice Age Hunters and Gatherers. *In* Lewis, R. Barry, ed. 1996. *Kentucky Archaeology*. The University Press of Kentucky, Lexington. Illustrates eleven Paleoindian artifacts from the lick, none of them found in direct association with Pleistocene megafauna (pp. 27-28).

## 1997

Drooker, Penelope Ballard. 1997. The View from Madisonville. University of Michigan Museum of Anthropology, Ann Arbor. Discusses relationship between the lick and bison remains at the Madisonville Fort Ancient Indian site (pp. 75, 83, 203, 316, 331).

Roter, Betty Jo. 1997. White Kittens and Four-Leaf Clovers. Windmill Publications, Inc., Mount Vernon, IN. Late-1940s visit to the decaying resort hotel at the lick (pp. 237-239).

Rudwick, Martin J. S. 1997. *Georges Cuvier, Fossil Bones, and Geological Catastrophes: New Translations and Interpretations of the Primary Texts*. The University of Chicago Press, Chicago. Contains translations of the 1796 "Memoir on the species of elephants, both living and fossil" and the 1800 "Extract from a work on the species of quadrupeds of which the bones have been found in the interior of the earth," papers that contain references to the mastodon at the lick.

Ward, Peter D. 1997. *The Call of Distant Mammoths: Why the Ice Age Mammals Disappeared*. Copernicus, New York. Cites George Turner's 1799 report on the lick as the first paper to conclude that Native Americans were responsible for the extinction of North American Ice Age proboscideans (p. 138).

## 1998

Blackmore, Nancy Jordan. 1998. *The Story of Big Bone Lick*. Thoroughbred Publishing, unknown location. Introduces the extinct fauna of the lick to young readers.

Cabot, Susan M., and Michael D. Rouse. 1998. *Boone County*. Arcadia Publishing, Charleston, SC. Historic photograph of a wellhead at the lick (p. 82).

Draper, Lyman C. 1998. *The Life of Daniel Boone*. Edited by Ted F. Belue. Stackpole, Mechanicsburg, PA. Daniel Boone visited the lick in 1770 (pp. 46, 84, 244, 248-249).

French, Michael W., and A. Gwynn Henderson. 1998. Results of the 1996 Boone County Mound Survey. *Archaeological Report 382*. Program for Archaeological Research, Kentucky. Archaeological research conducted at the lick.

Lowthert, William Hughes. 1998. *Resource Use and Settlement Patterning around the Saline Springs and Salt Licks in Big Bone Lick State Park, Boone County, Kentucky*. MA Thesis, University of Kentucky. Explores how Native Americans and Early Euro-Americans used the springs and surrounding saline-enriched soil at the lick.

Warner, Jennifer. 1998. Boone County: From Mastodons to the Millennium. Boone County Bicentennial Books, Burlington. Includes several historical events that took place at the lick.

Wilson, Leonard G. 1998. Lyell in America: Transatlantic Geology, 1841-1853. The Johns Hopkins University Press, Baltimore. Outlines Lyell's trip to the lick in 1842 (pp. 106-107).

## **1999**

Flynn, Terry. 1999. A New Look at Big Bone Lick. Cincinnati Enquirer, May 22, p. B.1. An outdoor diorama with fiberglass Pleistocene animals is installed at the lick.

## **2000**

Finch, Robert. 2000. Death of a Hornet. Counterpoint, Washington, D.C. Writes (pp. 106-110) of the bison herd kept at the lick.

Harrell, Lorna Petty. 2000. The Legacy of Ellis Crawford and Behringer-Crawford Museum. Northern Kentucky Heritage 8(1): 15-20. Reviews the history of the mastodon mandible from the lick that is displayed at the Behringer-Crawford museum.

Schmedtmann, E. T., et al. 2000. Soil Chemistries Define Aquatic Habitats with Immature Populations of the *Culicoides varcipennis* Complex (Diptera: Ceratopogonidae). Journal of Medical Entomology 37(1): 58-64. Biting midge larvae at the lick.

Semonin, Paul. 2000. American Monster: How the Nation's First Prehistoric Creature Became a Symbol of National Identity. New York University Press, New York. This history of the discovery of the mastodon has numerous references to the lick.

## **2001**

Mayor, Adrienne, and William A. S. Sarjeant. 2001. The Folklore of Footprints in Stone: From Classical Antiquity to the Present. Ichnos 8: 143-163. Refers to the Delaware Indian legend that the Great Spirit destroyed the huge animals at the lick and that his seat and the prints of his feet may be seen on the hill overlooking the site.

Sayre, Gordon. 2001. The Mammoth: Endangered Species or Vanishing Race? Journal for Early Modern Cultural Studies 1: 63-87. Contains a brief history of interpretations of the early discoveries at the lick (pp. 70-76).

## **2002**

Barrett, Andrea. 2002. Servants of the Map. W. W. Norton and Company, New York. The lick is a destination for a fictional fossil collector in the short story "Two Rivers" (p. 140).

Bedini, Silvio A. 2002. Jefferson and Science. Thomas Jefferson Foundation, Charlottesville. Briefly describes the distribution of William Clark's collection from the lick (pp. 62-64).

Cohen, Claudine. 2002. The Fate of the Mammoth: Fossils, Myth, and History. The University of Chicago Press, Chicago. Chapter 7 covers the 18<sup>th</sup> century difficulty of identifying the mastodon bones from the lick.

Tankersley, Kenneth B. 2002. In Search of Ice Age Americans. Gibbs Smith, Salt Lake City. Includes the story of the Clovis points found at the lick in 1807. The three points comprised the first discovered evidence of American Paleoindians (pp. 48-59).

Tassy, Pascal. 2002. L'émergence du concept d'espèce fossile: le mastodonte américain (Proboscidea, Mammalia) entre claret et confusion. *Geodiversitas* 24(2): 263-294. Discussion and illustrations of the mastodon materials collected at the lick in 1739 by Longueuil.

### 2003

Anderson, Stanley P. 2003. Soil Sampling by the Lewis and Clark Expedition. *Soil Horizons* 44(1): 1-5. Meriwether Lewis in 1803 sent Thomas Jefferson a sample of the lick's clay, attached to a mammoth's tooth. The specimen was lost at Natchez, Mississippi (p. 1).

Clare, Don. 2003. Big Bone Lick: The Thomas Jefferson/Lewis & Clark Connection. *Northern Kentucky Heritage* 10(2): 2-13. Recounts separate visits to the lick by Lewis and Clark.

Kelly, Brenna R. 2003. Lewis and Clark Come Alive at Kentucky's Big Bone Lick. *Cincinnati Enquirer*, October 3, p. B.1. Celebration of Lewis visit to the lick 200 years ago.

McAndrews, John H. 2003. Postglacial Ecology of the Hiscock Site. *Bulletin of the Buffalo Society of Natural Sciences* 37: 190-198. Contains a chemical analysis of the lick's spring water (p. 196).

Prince, Sue Ann, et al. 2003. Stuffing Birds, Pressing Plants, Shaping Knowledge: Natural History in North America, 1730-1860. *Transactions of the American Philosophical Society* 93(4): i-xviii, 1-113. Photograph of mastodon humerus collected at the lick by William Clark in 1807.

Zedeno, Maria Nieves, and Richard W. Stoffle. 2003. Tracking the Role of Pathways in the Evolution of a Human Landscape. In Rockman, Marcy, and James Steele, eds. 2003. *Colonization of Unfamiliar Landscapes*. Routledge, New York. Cites Native American use of the buffalo roads to the lick (p. 62).

### 2004

Duvall, James. 2004. Christopher Columbus Graham: Kentucky Man of Science. *Journal of the Kentucky Academy of Science* 65: 140-153. Summary of Graham's 1876 excavation at the lick (146-147).

Holmberg, James J. 2004. "Fairly Launched on My Voyage of Discovery": Meriwether Lewis's Expedition Letters to James Findlay. *Ohio Valley History* 4: 19-30. Findlay accompanied Lewis to the lick in October 1803 (p. 29).

Jengo, John W. 2004. "Mineral Productions of Every Kind." In Cox, Robert A., ed. 2004. *The Shortest and Most Convenient Route: Lewis and Clark in Context*. *Transactions of the American Philosophical Society* 94, Part 5. Caspar Wistar, along with Jefferson, asked Meriwether Lewis to stop at the lick in 1803 (p. 189).

Souder, William. 2004. *Under a Wild Sky*. North Point Press, New York. Reviews the 1739 discovery of the mastodon at the lick as an important moment in the development of science in America. Also mentions Alexander Wilson's visit to the locality (pp. 39, 109).

Tankersley, Kenneth B. 2004. The Concept of Clovis and the Peopling of North America. In Barton, C. Michael, et al., eds. *The Settlement of the American Continents*. University of Arizona Press, Tucson. Refers to Clovis artifacts found at the lick (pp. 49, 55).

Thompson, Barbara. 2004. The African Collection at the Hood Museum of Art. *African Arts* 37: 14-33, 93. In 1772, David McClure collected bones at the lick for the Dartmouth College museum (p. 14).

### 2005

Crowley, Patrick. 2005. Big Bone Lick State Park Gets \$600,000 for Museum. *Cincinnati Enquirer*, October 23, p. C.3. U.S. Senator Jim Bunning provided a \$600,000 boost to the museum planned for Big Bone Lick State Park.

Gramly, Richard Michael, and Dennis Vesper. 2005. Excavations at the "Big Bone" Clovis Site, Kentucky. *The Amateur Archaeologist* 11: 73-90. Well-illustrated results of a 2002 excavation of a Paleoindian site on the border of Big Bone Lick State Park.

Humpala, James, et al. 2005. Extinct Moose-Elk (*Cervalces*): Phylogenetic Information Revealed through Mass Spectrometry (Abstract). *Journal of Vertebrate Paleontology* 25(3): 72A. The relationship among the elk, moose, and elk-moose is investigated by using elk-moose bone from the lick.

Johnson, Sarah, and William M. Andrews. 2005. Inter-Disciplinary Cooperative Investigations at Big Bone Lick State Park, Northern Kentucky (Abstract). *Geological Society of America Abstracts with Programs* 37(5): 14. Brief overview of the lick's geology.

Kennedy, Deborah. 2005. Mary Ingles Descendants to Gather. *Cincinnati Enquirer*, July 13, p. C.3. The descendants of a woman famous for escaping her Shawnee captors 250 years ago will be gathering at the lick to celebrate her heroic journey to freedom.

Mayor, Adrienne. 2005. *Fossil Legends of the First Americans*. Princeton University Press, Princeton. Several references to the fossils of the lick and their inclusion in Native American stories.

McCartney, Deidre M., Megan A. Finney, and J. Barry Maynard. 2005. Sources of the Salt in the Big Bone Lick Springs, Northern Kentucky (Abstract). *Geological Society of America Abstracts with Programs* 37(5): 34. Sources of springs appear to be in rocks of Cambrian to Lower Ordovician age.

Rudwick, Martin. 2005. *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution*. University of Chicago Press, Chicago. An excellent summary of the 18th century confusion surrounding the identity of mastodon bones from the lick (pp. 266-271).

Rudwick, Martin. 2005. Picturing Nature in the Age of Enlightenment. *Proceedings of the American Philosophical Society* 149: 279-303. Contains illustrations of a mastodon femur and molar from the lick.

Von Mann, Rachel A., William M. Andrews, Rachel Galvin, Daniel Brown, Susan Rimmer, and Harry Rowe. 2005. Developing the Paleoenvironmental Record from Big Bone Lick, KY: Mineralogical, Geochemical, and Isotopic Constraints (Abstract). *Geological Society of America Abstracts with Programs* 37(5): 14. Preliminary results from sediment coring of the lick.

## **2006**

Crowley, Patrick. 2006. Big Bone Park Gets \$2.5M for ReDo. *Cincinnati Enquirer*, April 14, p. B.1. In the final hours of the General Assembly's 2006 legislative session, two Northern Kentucky lawmakers secured \$2.5 million for the planned expansion of Big Bone Lick State Park's museum.

Hedeem, Stanley. 2006. *Natural History of the Cincinnati Region*, Cincinnati Museum Center Scientific Contributions No. 1. Relates the history of the lick and places it in the Outer Bluegrass Ecoregion (pp. 18-23, 66).

Henderson, A. Gwynn. 2006. *The Prehistoric Farmers of Boone County, Kentucky*. Kentucky Archaeological Survey, Frankfort. There is meager proof of Indian salt-making at the lick (p. 43).

Widga, Chris. 2006. Niche Variability in Late Holocene Bison: A Perspective from Big Bone Lick, KY. *Journal of Archaeological Science* 33: 1237-1255. The lick bison occupied a different ecological niche than those in the Great Plains.

## **2007**

Clare, Don. 2007. William Clark at Big Bone Lick, Kentucky, 1807. *Northern Kentucky Heritage* 14(2): 3-10. Reviews Clark's excavation of fossils for Thomas Jefferson.

Lister, Adrian, and Paul Bahn. 2007. *Mammoths: Giants of the Ice Age*, Revised Edition. University of California Press, Berkeley. Cites the lick as having some of the latest Columbian mammoth remains and no woolly mammoth remains (pp. 180-181).

Mayor, Adrienne. 2007. Place Names Describing Fossils in Oral Traditions. In Piccardi, L., and W. B. Masse, eds. 2007. *Myth and Geology*. Geological Society of London Special Publication 273. Relates several Native American narratives concerning the lick.

Moore, Randy, and Mark D. Decker. 2007. *More Than Darwin: An Encyclopedia of the People and Places of the Evolution-Creationism Controversy*. Greenwood Press, Westport, CT. The lick is included in this encyclopedia (p. 28).

Tankersley, Kenneth B. 2007. Stop 1: Big Bone Lick, Kentucky—Late Pleistocene Archaeology. In Dalbey, Timothy S., ed. *Geological Aspects of Key Archaeological Sites in Northern Kentucky and Southern Ohio*. Ohio Division of Geological Survey Guidebook No. 11. Reviews the major fossil and archaeological studies conducted at the lick (pp. 45-49).

## 2008

Hedeen, Stanley. 2008. *Big Bone Lick: The Cradle of American Paleontology*. The University Press of Kentucky, Lexington. Comprehensive history of the lick.

Hedeen, Stanley. 2008. Lessons for Earth Live On at Big Bone Lick. *Cincinnati Enquirer*, February 19, p. B.6. Relates the current problem of global warming with the fossils at the lick.

Hill, Matthew E., Matthew G. Hill, and Christopher C. Widga. 2008. Late Quaternary Bison Diminution on the Great Plains of North America: Evaluating the Role of Hunting Versus Climate Change. *Quaternary Science Reviews* 27: 1752-1771. Fossils of 24 bison from the lick were examined in this study (pp. 1757, 1761).

Pollack, David, ed. 2008. *The Archaeology of Kentucky: An Update*. State Historic Preservation Comprehensive Plan Report No. 3. Kentucky Heritage Council, Frankfort. Several references to artifacts collected from the area of the lick.

Thomson, Keith. 2008. *A Passion for Nature*. Thomas Jefferson Foundation, Charlottesville. Describes Jefferson's ties to the lick (pp. 73-89).

Thomson, Keith. 2008. *The Legacy of the Mastodon*. Yale University Press, New Haven. Reviews the 18<sup>th</sup> century discoveries of mastodon bones at the lick (pp. 10-33).

Van Benschoten, Amanda. 2008. Big Bone nears Status Upgrade. *Cincinnati Enquirer*, December 7, p. B.3. The National Park System Advisory Board unanimously recommended the lick for National Natural Landmark status, a designation that acknowledges its biological, geological and historical significance. Jeannine Kreinbrink, an archaeologist who co-authored the nomination paper, said the advisory board's science committee was impressed with the number of letters in support of designation.

Wethington, Kari. 2008. Two Nearby Sites Differ on Life's Start. *Cincinnati Enquirer*, May 25, p. A.10. Contrasts the Creation Museum with Big Bone Lick State Park.

## 2009

Barrow, Mark V. 2009. *Nature's Ghosts: Confronting Extinction from the Age of Jefferson to the Age of Ecology*. The University of Chicago Press, Chicago. Chapter 1 reviews importance of the mastodon remains at the lick in the discovery of extinction.

Claypool, James C., and Don Clare. 2009. *Big Bone Lick*. In Teakotte, Paul A., and James C. Claypool. 2009. *The Encyclopedia of Northern Kentucky*. University Press of Kentucky, Lexington. History of the lick (pp. 87-89).

Davis, Richard A., H. Gregory McDonald, Glenn W. Storrs, Robert A. Genheimer, Stanley E. Hedeon, and Kenneth B. Tankersley. 2009. "Big Bone Lick": The Premier Fossil Vertebrate Locality in North America. Field-Trip No. 4, North American Paleontological Convention 2009. Guidebook for June 21 field trip.

Dean, Dennis R. 2009. Benjamin Franklin and Geology. *In* Rosenberg, G. D., ed. *The Revolution in Geology from the Renaissance to the Enlightenment*. Geological Society of America Memoir 203: 209-223. Franklin's interests in the history of the earth, including the mastodon fossils collected at the lick (pp. 216-217).

Dugatkin, Lee Alan. 2009. *Mr. Jefferson and the Giant Moose*. University of Chicago Press, Chicago. Jefferson's use of the lick's mastodon fossils to counter Buffon's theory of degeneracy (pp. 84-90).

Duvall, James. 2009. *Mary Ingles and the Escape from Big Bone Lick*. Boone County Public Library, Burlington. Recounts Ingles' escape from the Shawnee in 1755 (pp. 6-8).

Duvall, James. 2009. *Mary Ingles: Truth and Myth*. *Northern Kentucky Heritage* 17(1): 17-22. Reviews historical writings and concludes that Ingles did not have an infant that she would have abandoned when she escaped her Shawnee captors at the lick.

Hansel, Mark. 2009. *Friends of Big Bone Have Ambitious Plans*. *Cincinnati Enquirer*, December 1. In addition to its support of annual events such as the Bad-to-the-Bone Duathlon, the Great Outdoor Weekend and the Salt Fest, the group also has an ambitious list of activities planned to help raise the profile of the park.

McDonald, H. Gregory. 2009. *The Pleistocene Fauna of Big Bone Lick*. *In* Davis, Richard A., et al. 2009. "Big Bone Lick": The Premier Fossil Vertebrate Locality in North America. Field-Trip No. 4, North American Paleontological Convention 2009. Descriptions of the animal types that have been found at the lick, the type-locality of five species (pp. 7-37).

Rowland, Stephen M. 2009. *Thomas Jefferson, Extinction, and the Evolving View of Earth History in the Late Eighteenth and Early Nineteenth Centuries*. *In* Rosenberg, G. D., ed. *The Revolution in Geology from the Renaissance to the Enlightenment*. Geological Society of America Memoir 203: 225-246. The role of the lick's mastodon fossils in the debate about extinction.

Storrs, Glenn W., Robert A. Genheimer, and Stanley E. Hedeon. 2009. *In the Footsteps of Lewis and Clark—New Zooarchaeological Excavation at Big Bone Lick, Kentucky (Abstract)*. *In* Storrs, Glenn W., ed. 2009. *9<sup>th</sup> North American Paleontological Convention Abstracts*, Cincinnati Museum Center Scientific Contributions No. 3. Description of a 2008 excavation of American bison bones and Native American lithics, suggesting human predation of bison (p. 236).

Storrs, Glenn W., Robert A. Genheimer, and Stanley E. Hedeon. 2009. *A New Prehistoric Butchering-Site at Big Bone Lick, Kentucky*. *In* Davis, Richard A., et al. 2009. "Big Bone Lick": The Premier Fossil Vertebrate Locality in North America. Field-Trip No. 4, North American Paleontological Convention 2009. Description of a 2008 excavation of American bison bones and Native American lithics, suggesting human predation of bison (pp. 38-61).

Tankersley, Kenneth B. 2009. *Late Pleistocene Paleontology and Archaeology of Big Bone Lick, Kentucky*. *In* Davis, Richard A., et al. 2009. "Big Bone Lick": The Premier Fossil Vertebrate Locality in North America. Field-Trip No. 4, North American Paleontological Convention 2009. Presence of weaponry along with butchering and hide processing tools from radiocarbon-dated Clovis-age strata at the lick suggests that late Pleistocene mammals were hunted or scavenged by Clovis peoples (pp. 95-124).

Tankersley, Kenneth B., M. R. Waters, and T. W. Stafford Jr. 2009. *Clovis and the American Mastodon at Big Bone Lick, Kentucky*. *American Antiquity* 74(3): 558-567. Reports that there is no direct evidence that Paleoindians hunted mastodons at the lick.

Van Benschoten, Amanda. 2009. Big Bone Celebrates Landmark Status. Cincinnati Enquirer, May 1. Dozens of supporters of Big Bone Lick State Park gathered to celebrate a milestone for the park: being named a National Natural Landmark.

Van Benschoten, Amanda. 2009. Big Bone Lick Now a Natural Landmark. Cincinnati Enquirer, February 4. Lick is now recognized as a National Natural Landmark.

## **2010**

Hedeem, Stanley. 2010. From Billions to None: Destruction of the Passenger Pigeon in the Ohio Valley. *Ohio Valley History* 10(3): 27-45. Alexander Wilson and William Clark observed the pigeon obtaining salt from the lick (p. 33).

Krasinski, K. E. 2010. Broken Bones and Cutmarks: Taphonomic Analyses and Implications for the Peopling of North America. Ph.D. Dissertation, University of Nevada, Reno. Five cutmarks observed on mastodon bones from the lick.

Switek, Brian. 2010. *Written in Stone*. Bellevue Literary Press, New York. Credits men from the Abenaki tribe with the 1735 discovery of the lick's fossils that they brought to the commander Charles le Moyne, who in 1740 carried the fossils to France (p. 177).

## **2011**

Morgan, Robert. 2011. Big Bone Lick. *Southern Cultures Journal* 17(3): 116. This is a 16-line poem about the lick.

Thomson, Keith. 2011. Jefferson's Old Bones. *American Scientist* 200(3): 200. Several references to the lick are contained in this examination of Jefferson's use of the term "fossil."

Thomson, Keith. 2011. The "Great-Claw" and the Science of Thomas Jefferson. *Proceedings of the American Philosophical Society* 155: 394-403. Examines how the mastodon remains of the lick contributed to Jefferson's reputation as a scientist.

Yokota, Kariann Akemi. 2011. *Unbecoming British: How Revolutionary America Became a Postcolonial Nation*. Oxford University Press, New York. Contains a photograph of mastodon fossils from the lick at Thomas Jefferson's Monticello home (p. 7).

## **2012**

Pasenko, Michael R. 2012. New Mastodont and Mammoth Remains from Pleistocene Deposits in Southeastern Arizona. *Journal of the Arizona-Nevada Academy of Science* 44: 22-37. Most authorities agree that the lick is the type locality for the mastodon (p. 25).

Ramage, James A, and Andrea A. Watkins. 2012. *Kentucky Rising: Democracy, Slavery, and Culture from the Early Republic to the Civil War*. University Press of Kentucky, Lexington. In 1959, the Big Bone Lick Association purchased about sixteen acres at the lick and presented them to the State of Kentucky for Big Bone Lick State Park, established in 1960 (p. 381).

Rutledge, Mike. 2012. Boone County Home to Birthplace of Paleontology. Cincinnati Enquirer, July 15, p. B5. Because both Meriwether Lewis and William Clark collected fossils from the location for President Jefferson, the lick is one of only four Lewis and Clark Heritage Sites east of the Mississippi River.

Thomson, Keith. 2012. *Jefferson's Shadow: The Story of His Science*. Yale University Press, New Haven. Mistakenly ascribes Meriwether Lewis's 1803 visit at the lick to William Clark (p. 60).

## **2013**

Frost, Cecil, Jesse A. Burton, and Lillian Scoggins. 2013. Fire Regimes, Buffalo and the Resettlement Landscape of Mammoth Cave National Park. Pp. 9-16 in Mammoth Cave National Park's 10th Research Symposium. Maintains that the disappearance of Pleistocene megafauna from the lick was due to hunting by Paleoindians (pp. 9-10).

Genheimer, Robert A. 2013. Investigation into a Late Prehistoric Bison Kill/Butchering Event at Big Bone Lick State Park, Boone County, Kentucky. *Current Research into Ohio Archaeology* 2013. <http://www.ohioarchaeology.org/joomla/images/stories/figures/2012/genheimer-current%20research%202013%20final.pdf>. Description of a 2008 excavation of American bison bones and Native American lithics, suggesting human predation of bison.

Hedeen, Stanley E. 2013. The Carolina Parakeet Vanishes: Extinction of the Ohio Valley's Only Parrot. *Ohio Valley History* 13(1): 3-21. The Carolina parakeet visited the lick for salt (pp. 4, 7).

Kolbert, Elizabeth. 2013. The Lost World. *The New Yorker* 84(41): 28-38. Mastodon molar found at the lick in 1739 is described as the Mona Lisa of paleontology (p. 30).

Mortensen, Litsa A. 2013. The Chronostratigraphy of Big Bone Lick and its Archaeological Implications. M. A. Thesis, University of Cincinnati. Outlines the lick's environment at different periods of human habitation.

Speth, John D. et al. 2013. Early Paleoindian Big-Game Hunting in North America: Provisioning or Politics? *Quaternary International* 285: 111-139. Lick is listed as one of the five archaeological sites where there is possible evidence that Paleoindians utilized mastodons (p. 114).

Truman, Cheryl. 2013. Archaeology Professor, Students Uncover History at Big Bone Lick State Park. *Lexington Herald-Leader*, June 10. University of Cincinnati archaeological field school at the lick.

## 2014

Davis, Feoshia. 2014. 1870s Piner Farm at Big Bone Lick to Be Restored. *The River City News*, August 30. Big Bone Lick State Historic Site will be expanded through the addition of adjacent farm acreage.

Kolbert, Elizabeth. 2014. *The Sixth Extinction*. Henry Holt and Company, New York. Reviews the 1739 discovery of the mastodon at the lick and the author's own visit to the locality (pp. 33, 227-229).

MacLoed, Norman. 2014. The Geological Extinction Record: History, Data, Biases, and Testing. Pp. *In* *Volcanism, Impacts, and Mass Extinctions: Causes and Effects*. Geological Society of America Special Papers 505. The 1739 discovery of mastodon bones and teeth at the lick begins a chronological history of the concept of extinction (p. 2).

Moore, Randy. 2014. Big Bone Lick. *Reports of the National Center for Science Education* 34(4). Three page summary of the history of the lick.

Survant, Joe. 2014. *The Land We Dreamed: Poems*. The University Press of Kentucky, Lexington. Contains a poem entitled "Big Bone Lick" (pp. 86-88).

Willis, Michael G., and David S. Treves. 2014. Isolation and Characterization of Halotolerant 2,4-Dichlorophenoxyacetic Acid Degrading Bacteria from Sulfidic, Low Salinity Salt Springs. *Fine Focus* 1: 39-50. Identifies bacteria present in two salt springs at the lick.

## 2015

Barnhart, Terry A. 2015. *American Antiquities: Revisiting the Origins of American Archaeology*. University of Nebraska Press, Lincoln. The lick was the source of many fossil specimens in the Western Museum in early-nineteenth-century Cincinnati (p. 171).

Baumann Jr., Eric J., and Brooke E. Crowley. 2015. Stable Isotopes Reveal Ecological Differences amongst Now-Extinct Proboscideans from the Cincinnati Region, USA. *Boreas* 44(1): 240-254. Lists strontium isotope ratios for waters from the lick's springs and streams.

Deurell, Sara Marian. 2015. Kentucky Mineral Spring Resorts : An Archaeological Reconnaissance of Medical Trends and Land Use. College of Arts & Sciences Senior Honors Theses. Paper 70. Includes historical data on resorts at the lick.

Grayson, Donald K., and David J. Meltzer. 2015. Revisiting Paleoindian Exploitation of Extinct North American Mammals. *Journal of Archaeological Science* 56: 177-193. Rejects the lick as "having provided strong evidence for human interaction with mastodons" (p. 187).

Prothero, Donald R. 2015. *The Story of Life in 25 Fossils*. Columbia University Press, New York. Horses were believed to be exclusively Eurasian until William Clark in 1807 found bones of a North American horse at the lick (p. 301).

Tankersley, Kenneth B., Madhavi Krishna Murari, Brooke E. Crowley, Lewis A. Owen, Glenn W. Storr, and Litsa Mortensen. 2015. Quaternary Chronostratigraphy and Stable Isotope Paleocology of Big Bone Lick, Kentucky, USA. *Quaternary Research* 83(3): 479-487. Sedimentology, geoarchaeology, paleontology, accelerator mass spectrometry radiocarbon and optically stimulated luminescence dating, and stable carbon and nitrogen isotope analyses were undertaken to develop a chronostratigraphy and history of erosion and deposition for the lick.

## 2016

Adovasio, J. M., and David Pedler. 2016. Strangers in a New Land: What Archaeology Reveals About the First Americans. Firefly Books, Buffalo. Reports that the Cincinnati Museum of Natural History (now Cincinnati Museum Center) has since 1817 housed three of the five fluted points that William Clark collected at the lick in 1807 (p. 24). However, the points were curated elsewhere before they arrived at the museum.

Enk, Jacob, et al. 2016. *Mammuthus* Population Dynamics in Late Pleistocene North America: Divergence, Phylogeography, and Introgression. *Frontiers in Ecology and Evolution* 4, Article 42. Five mammoth specimens from the lick were among the North American fossils utilized in this genome study.

Sweet, Timothy. 2016. The Eighteenth-Century *Archives du monde*: The Question of Agency in Extinction Stories. In Eburne, Jonathan P., and Judith Roof. 2016. *The Year's Work in the Oddball Archive*. Indiana University Press, Bloomington. Contrasts Native American narratives about the extinction of the big-boned animal at the lick (pp. 219-245).

## 2017

Greb, Stephen F. 2017. Kentucky Stratigraphy. Kentucky Geological Survey Map and Chart. 210. States that most lick fossils are less than 10,600 years old.

Heringman, Noah. 2017. The Anthropocene Reads Buffon; or, Reading Like Geology. In Menely, Tobias, and Jesse Oak Taylor. 2017. *Anthropocene Reading*. The Pennsylvania State University Press, University Park. The large number of mastodon fossils found at the lick "gave a certain symbolic weight to the thesis of extinction long before it was generally accepted" (p. 70).

O'Dell, Gary A. 2017. Springs and the Settlement of Pioneer Kentucky. In Lee, Brian D., Alice L. Jones, and Daniel I. Carrey. *Water in Kentucky: Natural History, Communities, and Conservation*. University Press of Kentucky, Lexington. Three bison traces led to the lick (p. 30).

Pecnerova, Patricia, et al. 2017. Genome-Based Sexing Provides Clues about Behavior and Social Structure in the Woolly Mammoth. *Current Biology* 27(22): 3505-3510. Refers to the lick as a "non-natural trap site" for mastodons and mammoths, implying that the accumulation of bones at the lick was not due to the animals becoming stuck in the soft earth surrounding the salt springs.

Sweeney, Carissa, Tucker Jett, and Jen O'Keefe. 2017. Palynology of Big Bone Lick: Evidence for Megaherbivores and High Salinity. Celebration of Student Scholarship Posters Archive. 72. [http://scholarworks.moreheadstate.edu/scholarship\\_posters/72](http://scholarworks.moreheadstate.edu/scholarship_posters/72). Palynological evidence for high saline conditions at the lick during the Oldest Dryas.

van Asperen, Eline N., and Ralf-Dietrich Kahlke. 2017. Dietary Traits of the Early Pleistocene *Bison manneri* (Bovidae, Mammalia) from Its Type Site Untermassfeld (Central Germany) and the Problem of Pleistocene 'Wood Bison.' *Quaternary Science Reviews* 177: 299-313. Reference is made to the dental wear of Late Holocene bison from the lick (p. 308).

Widga, Chris, et al. 2017. Late Pleistocene Proboscidean Population Dynamics in the North American Midcontinent. *Boreas* 46: 772-782. Fossils from the lick were examined for this study.

## 2018

Fiedel, Stuart J. 2018. The Spore Conundrum: Does a Dung Fungus Decline Signal Humans' Arrival in the Eastern United States? *Quaternary International* 466, Part B: 247-255. The presence of mastodon bones at the lick suggest that an absence of dung fungus spores does not indicate the absence of Pleistocene megafauna.

Heringman, Noah. 2018. Calabrian Hounds and Roasted Ivory (Or, Swerving from the Anthropocentrism). *In* Birch, Suzanne Pilaar, ed. 2018. *Multispecies Archaeology*. Routledge, New York. Buffon utilized the fossils from the lick to support his hypotheses of prehistoric gigantism, global cooling, and continental separation (pp. 13-19).

Kauffman, Danielle M. 2018. History/Architecture Survey for Big Bone Lick, Boone County, Kentucky. Gray and Pape, Cincinnati. [https://bcp.ent.sirsi.net/client/en\\_US/search/asset/39401/0](https://bcp.ent.sirsi.net/client/en_US/search/asset/39401/0). History of the lick and the adjacent resort/residential community.

Massey, Matthew A., William Andrews, Steven L. Martin, Maxwell Hammond III, and Antonia E. Bottoms. 2018. Significance of Pleistocene Fluvial Systems and Glaciations on the Landscape Evolution of Northern Kentucky. *In* Florea, Lee J., ed. 2018. *Ancient Oceans, Orogenic Uplifts, and Glacial Ice: Geological Crossroads in America's Heartland*. Geological and Water Survey, Indiana University, Bloomington. Includes a geology map of the lick (p. 178).

Schrage, Robert, and David. E. Schroeder. 2018. *Lost Northern Kentucky*. The History Press, Charleston. Discusses the nineteenth-century resort hotels at the lick (pp. 27-28).

Tankersley, Kenneth Barnett, Nicholas P. Dunning, Lewis A. Owen, Warren D. Huff, Ji Hoon Park, Changjoo Kim, David L. Lentz, and Dominique Sparks-Stokes. 2018. Positive Platinum Anomalies at Three Late Holocene High Magnitude Volcanic Events in Western Hemisphere Sediments. *Scientific Reports* 8, Article 11298. Lick sediments contain platinum anomalies corresponding to two volcanic events that can serve as chronostratigraphic markers.

Treves, D. S., et al. 2018. Draft Genome Sequence of the Moderately Halophilic Bacterium *Halobacillus* sp. BBL2006. Data in Brief, <https://doi.org/10.1016/j.dib.2018.11.076j>. The bacterium was collected from a salt spring at the lick.

Williams, Paige. 2018. *The Dinosaur Artist*. Hachette Books, New York. States that the Native Americans that brought mastodon fossils from the lick to Longueuil's camp in 1739 knew that ivory was a material valued by European traders (pp.295-296).

## 2019

Bicha, Wesley and Nathan Schiff. 2019. A New Species of Scorpionfly from the Bluegrass Region of Kentucky (Mecoptera: Panorpidae). *Entomological News* 128(4): 356-364. Specimens were collected at the lick.

Dauer, Julia. 2019. Creation, Mastodons, and Natural History in Kentucky. *Edge Effects* (digital magazine), <https://edgeeffects.net/natural-history-kentucky/> Explores contrasts between the lick and two nearby creationist sites, the Creation Museum and the Ark Encounter.

Manca, Joseph. 2019. *Shaker Vision: Seeing Beauty in Early America*. University of Massachusetts Press, Amherst. Reports an observation at the lick of a nine-pound tooth found eighteen feet below the surface in 1810 or earlier (p. 109).

Rivals, Florent, Gina M. Semprebon, and Adrian M. Lister. 2019. Feeding Traits and Dietary Variation in Pleistocene Proboscideans: A Tooth Microwear Review. *Quaternary Science Reviews* 219: 145-153. Includes data from mastodon specimens collected at the lick (pp. 146-147).

Steiner, Lucille M., F. Maggie Stephenson, Sara S. Olmsted, Jen O'Keefe, and William Andrews Jr. 2019. Palynology of Pleistocene and Holocene Sediment Core BBL 3, Big Bone Lick, Kentucky (poster abstract). Celebration of Student Scholarship, Morehead State University. Charcoal, pollen, and fungal spores, including those of dung fungi, are present in the sediment of the lick (p. 24).

Storrs, Glenn W. 2019. Big Bone Lick. *Ohio Valley History* 19(3): 82-90. A review of paleontological and archaeological research at the lick, including a reproduction of a letter from William Clark at the lick to James Findlay in Cincinnati, September 21, 1807 (p. 86).

Tankersley, Kenneth B., and Nichelle Lyle. 2019. Holocene Faunal Procurement and Species Response to Climate Change in the Ohio River Valley. *North American Archaeologist* 40(4): 192-235. The lick's fossils provide evidence for climatic change.

Tankersley, Kenneth B., et al. 2019. The Impact of Maize (*Zea mays*) on the Stable Carbon Isotope Values of Archaeological Soil Organic Matter. *Journal of Archaeological Science: Reports* 24: 324-329. Soil samples from an uncultivated area and a former cornfield at the lick were utilized in the study.

Webster, Robert D. 2019. *A Brief History of Northern Kentucky*. South Limestone Books, Lexington. Contains numerous references to the lick.

## 2020

Anderson, Chad L. 2020. The Storied Landscape of Iroquoia: History, Conquest, and Memory in the Native Northeast. University of Nebraska Press, Lincoln. According to 18th-century Native American stories, the hill overlooking the lick contained a threatening mythical being (pp. 9-10, 41-42).

Barnett, Lydia. 2020. Showing and Hiding: The Flickering Visibility of Earthworkers in the Archives of Earth Science. *History of Science* 58(3): 245-274. Relates that Native Americans presented fossils from the lick to Longueuil in 1739 and documents that Michaelis failed to organize an expedition to the lick in 1784 (pp. 259, 266).

Chervinsky, Lindsay. 2020. "Having been a member of the first administration under Genl. Washington": Thomas Jefferson, George Washington, and the Development of the President's Cabinet. *Journal of the Early Republic* 40(4): 635-663. American mastodon fossils from the lick were displayed in Jefferson's library at the White House (p. 637).

Dugatkin, Lee Alan. 2020. *Behind the Crimson Curtain: The Rise and Fall of Peale's Museum*. Butler Books, Louisville. Fossils from the lick were the impetus for the formation of Charles Willson Peale's museum in Philadelphia (pp. 27, 31).

Mead, Jim I., Justin S. Tweet, Vincent L. Santucci, Jeffrey T. Rasic, and Sharon E. Holte. 2020. Proboscideans from US National Park Service Lands. *Eastern Paleontologist* 6: 1-48. The lick is one of 63 NPS administrated and affiliated sites that contain proboscidean fossils (p. 11).

Prothero, Donald R. 2020. *The Story of Evolution in 25 Discoveries*. Columbia University, New York. States that Lougueil collected his museum-bound fossils at the lick in 1740, the year following his first visit to the site (p.209).

Saab, A. Joan. 2020. *Objects of Vision: Making Sense of What We See*. Pennsylvania State University Press, University Park. States that the impetus for Charles Willson Peale's Philadelphia Museum came from a gift he received in the early 1780s of mastodon bones recovered at the lick (p. 67).

Sweet, Timothy. 2020. Environment and Environmentalism. In Belasco, Susan, ed. 2020. *A Companion to American Literature, Volume 1, Origins to 1820*. John Wiley and Sons, Hoboken NJ. Thomas Jefferson held that the mastodon found at the lick was not extinct because (1) it helped him refute Buffon's argument that there were no large mammals in the Americas and (2) Jefferson had faith in the rational order of nature (p. 143).

Wilson, Kurt M., and Matthew G. Hill. 2020. Synthesis and Assessment of the Flat-headed Peccary Record in North America. *Quaternary Science Reviews* 248. Maps a record of the peccary from the lick, but see pages 135-136 in Hedeon (2008).

## 2021

Brand, Nickolas A. 2021. Gravel Geology and Muskoxen Paleontology of a Late Pleistocene Fossil Site in Saltville, Virginia. M.S. Thesis, East Tennessee University. History of the identification of the Harlan's muskox discovered at the lick (pp. 78-79).

Carbot-Chanona, G., E. Jiménez-Hidalgo, F. J. Jiménez-Moreno, and E. Benítez-Gálvez. 2021. A New Record of *Paramylodon harlani* (Owen 1840) (Xenarthra, Pilosa, Mylodontidae) from the Late Pleistocene of Valsequillo, Puebla, with Comments on its Paleobiogeography and Paleoecology in Mexico. *Boletín de la Sociedad Geológica Mexicana* 73(1). A100720. <http://dx.doi.org/10.18268/BSGM2021v73n1a100720> Reviews the varying names of the genus of Harlan's ground sloth, originally placed in the genus *Myiodon* when Owen (1840) described the new species based on material from the lick.

Haynes, Gary, and Kathryn Krasinski. 2021. Butchering Marks on Bones of *Loxodonta africana* (African Savanna Elephant): Implications for Interpreting Marks on Fossil Proboscidean Bones. *Journal of Archaeological Science: Reports* 37. The lick is one of 51 prehistoric proboscidean butchering sites in the world.

Htun, Thein, et al. 2021. How Did Mastodons Grow? Ontogenetic Long Bone Growth in American Mastodons. In Lucas, A. G., A. P. Hunt, and A. J. Lichtig, eds. 2021. *Fossil Record* 7. New Mexico Museum of Natural History and Science Bulletin 82. States that the first mastodon fossils from the lick were believed by some scholars to be the remains of gigantic turtles with tusks (p. 145).

Koslow, Jennifer L. 2021. *Public History: An Introduction from Theory to Application*. John Wiley and Sons, Hoboken. Fossils from the lick caused Charles Willson Peale to open his Philadelphia institution, the first successful museum in the United States (pp. 18-19).

Mueller, Natalie G., Robert N. Spengler III, Ashley Glenn, and Kunsang Lama. 2021. Bison, Anthropogenic Fire, and the Origins of Agriculture in Eastern North America. *Anthropocene Review* 8: 141-158. Refers to the lick as the most famous Holocene bison kill site in Eastern North America (p. 154).

Mullis, Justin. 2021. Thomas Jefferson: The First Cryptozoologist? In Mikkles, Natasha L., and Joseph P. Laycock, eds. 2021. *Religion, Culture, and the Monstrous*. Lexington Books, Lanham, Maryland. Jefferson's writings concerning the lick's mastodon bones show that Jefferson was a pioneer in cryptozoology, the study of animals that are rumored to exist (pp. 185-197).

Sweet, Timothy. 2021. *Extinction and the Human: Four American Encounters*. University of Pennsylvania Press, Philadelphia. Reviews the Native American stories concerning the disappearance of the proboscideans from the lick (pp. 49-75).

## 2022

Haynes, Gary. 2022. Sites in the Americas with Possible or Probable Evidence for the Butchering of Proboscideans. *PaleoAmerica*. PaleoAmerica, DOI: [10.1080/20555563.2022.2057834](https://doi.org/10.1080/20555563.2022.2057834). Photo of a mastodon bone from the lick shows inscribed initials RW and the date 1809 (fig. 4).

Meredith, Steven M. 2022. Salines in the Late Pleistocene Human Landscape of Southeastern North America. *In* Dumas, Ashley A., and Paul N. Eubanks, eds. 2022. *Salt in Eastern North America and the Caribbean*. University of Alabama Press, Tuscaloosa. The lick is among several North American salines yielding both megafauna fossils and Clovis points (pp. 88-97).

Panno, S. V. 2022. Stratigraphic and Structural Controls on the Occurrence of Saline Springs within the Illinois Basin, U.S. *Journal of Hydrology* 610, 127823. Saline water emerging from the lick's springs support sulfur-oxidizing bacteria and may be Cambrian in age (pp. 4, 7-8, 10)

Stackelbeck, Kary L., and Greg J. Maggard. 2022. An Overview of Paleoindian Occupations in Kentucky. *In* Miller, D. Shane, Ashley M. Smallwood, and Jesse W. Tune, eds. 2022. *The American Southeast at the End of the Ice Age*. University of Alabama Press, Tuscaloosa. The lick is a possible Paleoindian kill/butchering site (p. 106).

Steves, Paulette F. C. 2022. *The Indigenous Paleolithic of the Western Hemisphere*. University of Nebraska Press, Lincoln. Reports that three fluted points from the lick have been curated at the Cincinnati Museum of Natural History (now Museum Center) since 1817 (p. 3). However, the points were curated elsewhere before they arrived at the museum.

Sumrall, Colin D. 2022. Presentation of the 2021 Harrell L. Strimple Award of the Paleontological Society to Daniel Phelps. *Journal of Paleontology* 96: 1231. Phelps successfully led the campaign to stop Answers in Genesis from opening its creation museum near the lick.

Sweet, Timothy. 2022. Extinction. *In* Remien, Peter, and Scott Slovic, eds. 2022. *Nature and Literary Studies*. Cambridge University Press, Cambridge. Thomas Jefferson agreed with the Native American belief that the large bones at the lick were those of a species that still existed (pp. 232-234).

Tankersley, Kenneth B., and Louis Herzner. 2022. Geochronological Aspects of Terminal Late Fort Ancient Sites in the Little Miami-Ohio Rivers Confluence Area and Their Archaeological Significance. *North American Archaeologist* 43(2): 124-150. Bison material is found at a Fort Ancient site in the region of the lick (pp. 130, 141-142).

Tweet, Justin S., and Vincent L. Santucci. 2022. The Geochronological Story of National Park Service Paleontology. *In* Lucas, A. G., et al., eds. 2022. *Fossil Record 8*. New Mexico Museum of Natural History and Science Bulletin 90. Reports that the 2019 expansion of Lewis & Clark National Historic Trail added the lick, "one of the most significant early North American paleontological localities" (p. 404).