Transylvania University and its Hemp Connection

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Repository Citation
Ambrose, Charles T., "Transylvania University and its Hemp Connection" (2015). Microbiology, Immunology, and Molecular Genetics Faculty Publications. 60.
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Notes/Citation Information
Published in Transylvania Treasures, v. 7, no. 1, p. 2-21.

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This issue of Transylvania Treasures details the growing of hemp and production of hemp products and proposes that this plant—by virtue of its status as the major cash crop in Kentucky in the early nineteenth century—was vital to Transylvania University’s existence in those early years.

Transylvania and Its Hemp Connection
is presented in two parts:

Early History & Finances
concerns the nascent history of Transylvania Seminary/University, its financial struggles, and the early history of hemp in America—particularly Kentucky. Five Transylvania trustees are highlighted because of their support of the university, which derived in part from their hemp-based wealth.

Hemp in Agriculture & Manufacturing
discusses the agricultural and manufacturing aspects of hemp during the early 1800s in Kentucky, and notably in Lexington.

Charles T. Ambrose (right), author of the essay, has published widely in recent years on medical history and has extensively researched the history of hemp. He is a professor in the Department of Microbiology, Immunology, and Molecular Genetics at the University of Kentucky College of Medicine.

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For the past 77 years, hemp has been a federally outlawed farm crop in the United States, but 200 years ago it was decisive in the economic development of Kentucky and the emergence of Transylvania Seminary, the first institution of higher learning west of the Allegheny Mountains.

The Virginia Assembly founded Transylvania in 1780 in its far western reaches, which in 1792 became Kentucky, the fifteenth state of the Union. The Seminary was eventually located in Lexington and was later renamed Transylvania University. Its early financial solvency depended in great part on the local economy, which for many decades relied largely on both hemp and enslaved Africans recently introduced into the state. According to eminent historian Thomas D. Clark, “the crop was a mainstay of slavery in Kentucky and conversely slavery was a mainstay of hemp growing and processing.”

Until the 1850s, Kentucky produced “most of the hemp grown in this country.” During this period, it was “the leading cash crop . . . in the Bluegrass” and accounted for much of Lexington’s early farming and manufacturing-based prosperity. Local hemp-based wealth contributed to student tuition and fees and the private bequests vital to Transylvania Seminary’s early existence. This essay proposes that if hemp had not been the major cash crop in Kentucky during the early 1800s, the school might not have survived its fiscally uncertain initial decades.
PART ONE:

The Early History of Transylvania Seminary/University

In 1780 the outcome of the American War of Independence was unsettled. Charleston, South Carolina, had fallen to the British in May of that year, and General Charles Cornwallis seemed poised to move north. Yet that same month, the Virginia Assembly passed a charter entitled "An Act to vest certain Escheated Lands in the County of Kentucke in Trustees for a Public School." The Assembly members apparently were confident about the outcome of the Revolution, for the adjective "escheated" referred to local lands that were owned by British subjects who would no longer legally be allowed to own them at the war’s end. Their property ultimately reverted to the state of Virginia.

The Peace of Paris, signed in 1783, confirmed the Virginians’ expectations. Their 1780 Assembly had deeded 8,000 acres of such land for support of the proposed school in "the land beyond the great forest," and Daniel Boone, acting as a surveyor, had "helped confiscate 4,000 acres of blue grass land for the benefit of the nascent school." In 1783, the Assembly granted an additional 12,000 acres "in the barbarous neighborhood. . . on the extreme verge of civilization." This pioneering educational venture west of the Allegheny Mountains began its various incarnations as Transylvania Seminary on the outskirts of Danville, Ky., where the first classes were taught at the Reverend David Rice’s cabin in 1785. Support for the school was at risk from 1783-90 when seven of the original 13 trustees were killed by Indians. In 1789, the fledgling seminary had found a safer home in Lexington, then a settlement of 100 or so log houses with a 1788 census of 1,424 tithables (i.e., whites), 621 slaves, and 2,466 horses. Transylvania Seminary occupied a cabin on the south edge of town (at the current southeast corner of Nicholasville Road and Cooper Drive), where Isaac Wilson was the first teacher.
When Kentucky became a state in 1792, laws were passed that deprived the new school of all the escheated lands except the original 8,000 acres. These—or some part—were sold for $30,000 and invested in The Bank of Kentucky stock. The bank’s charter was later repealed, and the shares suffered a two-thirds loss in value. Transylvania’s financial “outlook was not encouraging.”

Transylvania Seminary’s existence was further threatened by internal religious conflict. James Moore, the school’s first president for only six months, was replaced in 1794 by Unitarian minister Harry Toulmin (1766-1823). After becoming better known, Toulmin seemed too secular to the local Presbyterians, who reacted by making plans for a rival seminary, Kentucky Academy, to be located at Pisgah, eight miles southwest of Lexington. In 1795, several Presbyterian supporters traveled to eastern cities to solicit funds from “friends of learning and virtue,” including five U.S. senators. Many on the coast and even some from abroad contributed. In 1798, the Kentucky legislature also granted the academy 6,000 acres of land.

When Toulmin resigned under pressure in 1796 and the Kentucky Academy never fully materialized, the two nascent schools (the seminary and the academy) merged and in 1799 were re-chartered as Transylvania University. The newly named institution began with an eastern infusion of £621—somewhat less than the pledges promised but with additional Kentucky lands for lease and sale.

Meanwhile, in 1793 the Transylvania Land Company, a group of public spirited citizens, had purchased a new site for the school several blocks north of Main Street—Out Lot No. 6. This was initially called College Lawn and is now known as Gratz Park. The school began holding classes the following year in a small brick building at the south end, the current site of the Carnegie Center for Literacy and Learning. In 1818 the original building was replaced by the Principal Building, a three-story structure with a tall ornamental cupola, located at the north end of the park. When it burned down in 1829, the campus was moved north across Third Street into a stately columned Greek Revival building, designated initially as Morrison College. All that remains today of Transylvania’s early presence on Gratz Park is “the Kitchen,” a long, one story brick building at the northeast corner of the park near the bronze statue of two children playing.

Hemp was important in Colonial times because of the utility of its products and its value as a substitute for currency. Hemp provided cordage (rope and twine), fabric (clothes, bags, and canvas), and seeds (lamp oil, butter, flour, and chicken feed). Up through the Revolutionary War period, Virginia was the major American...
source of hemp. Five of this country’s first seven presidents (from Washington through Jackson) grew hemp on their farms in the South and had slaves for this purpose. In his various letters and farm journal entries, George Washington mentioned hemp cultivation in nearly 30 places. For example, he ordered the manager of his estate to sow the hemp seed saved from the previous summer and “to disseminate the seed to others.” 15 Fifty miles to the south at Monticello, Thomas Jefferson preferred hemp over flax, which “is so injurious to our lands.” 16

Settlers crossing the Appalachian Mountains brought with them farm animals and seeds. They were counseled to grow corn for food as their first crop, followed the next year by hemp or flax, whose fibers would be needed for making rope and clothing. Hemp offered longer, stronger fibers than flax and was “the more certain [fiber] crop,” since it is pest tolerant and hardier. 17

The first recorded hemp crop in Kentucky was grown in 1775 by Archibald McNeill outside Danville on Clark’s Creek. 18

The nitrogen-rich soil of the Bluegrass region produced abundant yields of hemp seeds and fiber, and the plant’s many useful products led to a local hemp industry in the early 1800s that made Lexington the leading commercial city in the state for a decade or so, overshadowing Louisville and Cincinnati before the advent of the steamboat. 19

During the early period of the Republic, when money in the form of coins (species) or paper bills was scarce, hemp and its products substituted for currency. 20 Hemp was commonly accepted to pay debts, including one-fourth of tax bills. 21 During the Revolutionary War, the Virginia General Assembly used hemp as the major medium of exchange in Baltimore and Philadelphia to purchase military stores and supplies for its troops serving in the Continental Army. 22

In Kentucky the stud fees of several early stallions were paid in hemp. During the spring of 1789 the race horse Tippoo Saib stood at stud for “thirty shillings cash, or forty shillings in hemp.” 23 In 1794 the Kentucke Gazette advertised that a thoroughbred named Union “makes the season” for 30 shillings or “two hundred weight of merchantable hemp.” 24 In 1804, Americanus stood at “eight dollars the season . . . which [could] be discharged in hemp, at four dollars per hundredweight, delivered in Lexington.” 25

Hemp in Nineteenth Century Kentucky

In the early 1800s and before, the transport of Kentucky farm produce and animal pelts to the East Coast was slow and arduous by pack horse over the Cumberland Gap or by tow barge up the Ohio River to Pittsburgh. To reach markets there or in Europe, most hemp and its products were shipped down the Mississippi River to New Orleans and around Florida. The latter traffic flourished or flagged in response to the whims of the Spanish authorities who controlled the port until the Louisiana Purchase in 1803.
Afterwards, the hemp business in Kentucky fluctuated with the economic conditions in the country, improving with the 1808-09 embargo on European imports and the War of 1812, and then declining during the depressions of 1819, 1847, and the several in between. Competition from European hemp—mainly Russian—was a perennial problem for farmers. The price of hemp imported from Europe in 1802 can be estimated at around $112 per ton, while that produced in the U.S. in 1809 was quoted at “$8.00 a hundredweight,” or $160 per ton.\(^{26}\) The Kentucky hemp market was at an economic disadvantage. In 1802, 65 Kentucky farmers petitioned Congress for “protection from foreign competition in the matter of hemp, cordage, and sail duck.” Alexander Hamilton (d. 1804), secretary of the Treasury, led the early efforts to impose tariffs on imported hemp. Years later, statesman Henry Clay (d. 1852) continued that aim. The tax on foreign hemp ranged from $40 per ton in 1792 and $22.40 in 1802 to $60 in 1828.\(^{27}\)

The advent of steam driven ships had a mixed effect on the hemp industry in Kentucky. By 1820, steamboats were regularly carrying cargo north up the Mississippi River and east up the Ohio River to Louisville and Pittsburgh, as initiated by John Wesley Hunt for hemp in 1810 (see later). Louisville and Cincinnati grew in size and commercial importance at the expense of inland Lexington. Riverboats and sea ships soon converted to coal power and dispensed with hemp sails, thus also reducing the need for the associated hempen tackle (halyards and other rigging). By the time of the Civil War most navy ships no longer carried canvas sails. But in the 1820s, a demand for local hemp products arose with the growth of cotton farming in the southern states. Three hundred pounds of cotton bales included five percent by weight hemp in the form of bagging and binders. Several decades later, the rise of the wheat industry in the Midwest created a similar market for strong binder twine made from local hemp. During the 1840s, Kentucky produced 15,000 tons of hemp annually, and in the 1850s up to 40,000 tons per year.\(^{28}\)

Starting in the 1840s, American hemp had competition in the form of abaca fibers from Manila hemp, which is not a form of Cannabis but is the wild banana plant of the Philippine Islands (Musa textilis). Its fibers are from six to 10 feet long, pliable, and cheaper to obtain than that from local Cannabis sativa. In 1839, around 3,000 tons of Manila hemp were imported, and the amount increased in later years.\(^{29,30}\) The U.S. merchant fleet began using it immediately. During the Civil War the U.S. Navy continued to rely on Russian hemp, but afterwards switched to this cheaper but equally strong fiber. Also after the Civil War, sisal fiber began to be imported from the Mexican state of Yucatan and was widely used for making binder twine and other less sturdy cordage.\(^{31}\)
The Early Financial Status of Transylvania

Support for the fledgling Transylvania Seminary/University came from three main sources:

1) State legislatures in the form of
   a) bank stock obtained from the sale of escheated lands,
   b) sale or rental of these and other Kentucky acres owned by the school,
   c) 1/6th of all fees earned by state land surveyors,
   d) monetary grants from the Virginia or Kentucky General Assembly.
2) Student tuition and fees.
3) Donations from trustees and benefactors.

State Sources

Land grants from the Virginia or Kentucky legislatures were traded for bank stock, sold for homesteading, or rented for farming. For example, in 1802 lands “south of Hickman and Elkhorn” were sold for $10,000, and in March 1822, the sale of 25 shares of bank stock brought the university $87 per share. The vast tracts of Kentucky land open for settlement had to be surveyed and registered in deed and plat records. By state law, one-sixth of the surveyor’s fee in Kentucky was paid to Transylvania University. This law was repealed in 1802.

Appropriations from the Virginia and Kentucky state legislatures for the seminary/university were often sought but rarely granted. (See Transylvania Records: October 1796, November, 1783B-iv, B-xvi, and 1828. G-28/30)

Student tuition and fees

Tuition at Transylvania Seminary/University was four pistoles in 1783, £4 in 1791, £2½ in 1799, and £4-6 in 1801. These different types of payment reflect the unsettled form of currency used in the U.S. during its first half century. Later tuitions were listed as $20 in 1801, $50 in 1821, $40 in 1822, and $30 in 1828. The declining fees may have reflected difficulty the school had in attracting students during the period of economic distress—including depression and bank failures—after the War of 1812.

In addition to tuition, students had to pay for room, board, and washing, which amounted to £15 per term in 1799. They also were expected to provide their own bedding, firewood, and candles. In 1827, room and board cost $1.50 per week but no longer included laundry. The term lasted only six months or so, beginning in the fall after the harvest.
Students of the Medical Department (1799-1859) and the Law Department (operating irregularly from 1799-1895) had somewhat higher tuitions and also were assessed a library fee. For example, in 1799 law students paid $20 per term and $4 for library use. In 1806 they paid $30 per annum.

The production of hemp fiber and seeds "contributed to the income of many Kentucky farms and . . . Kentucky families," so the bills of many university students were likely paid from their parents’ hemp-based income.

Trustees’ donations

During the first decades of its existence, Transylvania Seminary/University depended for additional financial assistance on wealthy Lexington residents, many of whom served as trustees. In 1783 the Virginia Assembly raised the number of trustees of the seminary from 13 to 25, presumably to ensure monetary support from a goodly number of committed patrons and perhaps to offset the attrition of trustees from Indian attacks. Records of Board meetings generally include the names of the Trustees attending. On one occasion in 1794, the Board decided that only seven trustees were needed to meet formally for business instead of a previous 13 (a quorum), thus indicating a reduced membership. But in 1796, the number of trustees was recorded as 41. In January 1799, the number of trustees “willing to act” (contribute financially) was increased but not stated. The records show that in October 1799 each trustee donated £15 per annum, and in 1827 each subscribed $500 per year.

Other Gifts

Apart from their individual bequests, the trustees regularly sought donations from concerned local citizens. In November 1783, they solicited funds “from those whose public spirit and generosity would induce them to encourage the promotion of useful knowledge." A list in 1795 included 30 contributors, each of whom gave $10.

In April 1810, Thomas Hard & Co. gave $600 to purchase bank stock from which the university would earn dividends or interest. In January 1812, Robert Wickliff gave $100 to the medical school. In 1824, $6,000 was obtained for the university by “the Trustees of the Town of Lexington.”

During the next year, “pecuniary aid from citizens of the Town” again provided $3,300 to the university. In 1828, the trustees collected $6,000 for the university during a general economic crisis. Numerous Lexington citizens also provided large sums ad hoc, such as in Colonel James Morrison’s will (see later). John Jacob Astor of New York gave money to Transylvania in 1830, but the amount was not recorded.

Donations in installments were commonly sought by way of subscriptions. In May 1821, the Board was asked in a letter from J. Humphrey whether “subscribers to the Medical Library shall be sued and compelled to pay the whole amount of their subscription.” Records of the Board of Trustees include many other references to pending subscriptions, including a reminder in July 1822 about collecting “the third installment of subscription to the medical school.” That same year subscriptions of $1,000 per annum for three years were sought from “distinguished members of the bar residents at a distance removed from Lexington," perhaps to support the Law Department, which would close for a time in 1826. Recourse to a lottery also was mentioned in the minutes of the Board in 1792.
Five Hemp-Enriched Transylvania Trustees

Financially, hemp fiber was a volatile commodity in the early nineteenth century, fluctuating in price from a high of $330 per ton in 1810 to as low as $40-60 per ton in 1824.\(^{36}\) It was said then that one became rich not so much by growing hemp but rather by manufacturing and marketing its products: oil, cordage, and textiles.\(^{37}\) As previously noted, the hemp-wealthy merchants of the Transylvania Company provided the university’s first building of its own. Early supporters included Nathaniel and Thomas Hart, Peyton Short, Thomas January, and Charles Wilkins.\(^{38,39}\) Notable were numerous early trustees and especially the hemp-rich quintet of James Morrison, John Wesley Hunt, Robert Smith Todd, Henry Clay, and Benjamin Gratz.

James Morrison (1755-1823)

fought as a captain during the Revolutionary War. He migrated to Kentucky in 1792 and helped begin the cordage-bagging industry in Lexington. In 1794 he advertised for “a quantity of well cleaned hemp” and joined other merchants in floating their hemp down the Mississippi River to markets in New Orleans.\(^{40}\) During the War of 1812, he was quartermaster general and promoted the use of Kentucky hemp products in U.S. naval ships.

Morrison served as chairman of Transylvania’s Board of Trustees from 1819 until his death in 1823. He bequeathed $20,000 for a professorship at the university and willed the bulk of his estate, which was expected to be around $50,000, to Transylvania. Settling the estate took over six years, however, and it is unclear how much of this sum was finally obtained.\(^{41}\) Nevertheless, the expectation of it had the effect of insuring construction of an impressive home for the newly named Morrison College (1831-34), which also replaced the Principal Building in Gratz Park that was destroyed by fire in 1829. The presence of this grand landmark may have helped the university survive during financially stressed periods. To concerned Lexingtonians, it would have seemed inconceivable that there could be no Transylvania University while the Old Morrison building still stood.

John Wesley Hunt (1773-1849)

is most remembered today as the first millionaire west of the Alleghenies. In 1795, his uncle, a prosperous wholesaler in Cincinnati, helped him establish a general store in Lexington. Hunt purchased goods in Philadelphia, transported them by wagon 320 miles to Pittsburgh and 400 miles down the Ohio River to Limestone (now Maysville), and then a final 65 miles overland to Lexington—all in the course of 55 days. In 1803, he began marketing hemp bagging and heavy hemp cord for binding bales of cotton, an agricultural product just beginning to enrich the states farther south. Around 1810, Hunt began transporting hemp products by steamboat up the Ohio River to Pittsburgh, from where they were distributed to other eastern cities. His hemp factory operated from 1803-13 and helped make Lexington the center of the hemp trade.

Hunt was a member of the Transylvania Board of Trustees from 1819-35. In 1802 he was among the local citizens who pledged an annual gift of $1,000 if the university raised its tuition. Hunt was chairman of the committee responsible for building Morrison College. His estate was conservatively estimated at $887,000, most of which went to his family, an asylum for the insane, and an orphans’ home.\(^{42}\) If he had adhered to his pledge of 1802, he would have contributed $47,000 to Transylvania by the time of his death in 1849, but there are no records to confirm this.
Robert Smith Todd (1791-1849) was the son of Levi Todd, one of the founders of Lexington, and the father of Mary Todd Lincoln, wife of President Abraham Lincoln. Todd attended Transylvania, later became a trustee, and “gave more than 5,000 acres” to the university. In 1819, in the midst of a depression, he joined with Edward Oldham to buy a hemp factory “for a bargain price.” He later owned a 175-acre farm on which he produced 10 tons of hemp fiber and 100 bushels of hemp seed in 1850.

Henry Clay (1777-1852) was born in Virginia and acquired his law training while serving four years as secretary to a learned Virginia jurist. Years before, his widowed mother had remarried and lived in Versailles, Ky. Clay moved to Lexington in 1797 to practice law. He was so personable and politically astute that by 1806 he had commenced his memorable career in the federal government, alternating as senator and representative, serving as Secretary of State, and running unsuccessfully three times for the U.S. presidency.

In 1799, Clay married Lucretia Hart, the daughter of Thomas Hart, another wealthy hemp merchant in Lexington. Clay gained a sizable dowry, which formed the basis of his later fortune. Within a few years he owned more than 2,500 acres and had begun raising fine-blooded horses and growing hemp. Early in his Congressional tenure, he advocated for tariffs against imported hemp. During the War of 1812, like Colonel Morrison, Clay sought to interest the U.S. Navy in buying Kentucky cordage for its ships. After the war, hemp and hempen products imported from Russian again imperiled the local market. In 1832, Clay again promoted tariffs against hemp.

For a time, Clay was a professor in the Transylvania Law Department. He was elected a trustee in 1807 and served on the board for 27 years in spite of his frequent absences in Washington. Bernard Mayo’s 1937 biography of Clay describes him as “ever the devoted, self-sacrificing, friend of Transylvania University . . . The national prestige which [the university] later attained was in a great degree directly traceable to Clay’s efforts in strengthening it financially.”

Benjamin Gratz (1792-1884) served as a second lieutenant in the Pennsylvania Volunteers during the War of 1812. Afterwards, he studied law and was admitted to the bar. In 1819 he moved to Lexington, where his father owned land. He soon developed a partnership with Colonel James Morrison and John Bruce in manufacturing hemp products. After the deaths of both, Gratz became the sole owner of the business and over the next 25 years expanded it. Gratz was a trustee of Transylvania from 1823-65 and continued supporting it until his death in 1884. His name and memory live on in the house he occupied at 231 North Mill Street and the park it faces.
The Later Financial Story of Transylvania University

The records in Transylvania’s Special Collections do not include treasurers’ reports or pre-Civil War data on the school’s relative income from the three sources: investments, tuition, and bequests. Therefore, it is impossible to determine how much income from these sources derived from hemp, but it likely paralleled data from Kentucky’s overall economy. In 1810, manufactured goods of all kinds in the state were worth $4 million, of which $1.2 million came from hemp. In 1811, the manufacture of hemp goods at Lexington was valued at $900,000. Exports of hemp and hempen fabric from the Bluegrass region in 1831 were judged worth $750,000. And in 1844, hemp products from Kentucky were appraised at $2 million.

John D. Wright Jr. wrote that in 1804 the university’s “annual income amounted to 477 pounds [£], of which 326£ came from rents, the rest being derived from tuition.” Missing here are figures for expenditures such as salaries and maintenance. Repeated requests for contributions, subscriptions, and lotteries in the Minutes of the Trustees suggest deficits were an ongoing financial concern. Thus the monetary gifts from the trustees and other loyal friends were essential. Even today, the prestige of being a university trustee is linked tacitly to the expectation of a regular financial contribution.

In summary, the university’s initial survival depended heavily on many benefactors whose fortunes derived from marketing hemp and manufacturing hempen goods. The wealth of other donors may have come from banking and shipping, which during this period likely involved hemp at some level. And as inferred previously, the tuition from many early students derived from the hemp income of their parents.

Finally, much like the fluctuating history of hemp after the Civil War, the later course of Transylvania University was unsettled. Its convoluted history is summarized in an end note. Currently, Transylvania occupies a verdant campus of 48 acres several blocks north of downtown Lexington and in a neighborhood rich with imposing old mansions on Second and Third Streets and historical homes facing Gratz Park. It has a diversified student body of approximately 1,100, a dedicated full-time faculty of about 100, new athletics facilities, and an inviting library filled with portraits from the school’s past. Its Special Collections of old medical books and the Moosnick Museum of early philosophical apparatus are unique in being pre-Civil War acquisitions and not purchased during a modern period. The Board of Trustees and the university’s Finance Committee oversee an endowment of more than $134 million while confronting the perennial problems of maintaining and improving the campus and balancing a challenging budget.

While the future of Transylvania University is well assured, the fate of hemp in Kentucky has yet to be played out. The restrictive policies of the federal government for nearly 80 years are now being vigorously contested. Many citizens of the Commonwealth anticipate the eventual return of industrial hemp to the state as a legal cash crop.
The earliest reference to hemp in Western literature was by the Greek historian Herodotus in the fifth century B.C. In *The Histories*, he wrote about Scythians and Thracians—people occupying the lands immediately west and north of the Black Sea, which is Transylvania in modern Romania. They made clothes from hemp, “a plant resembling flax but much coarser and taller. It grows wild as well as under cultivation.” During their westward migration from Central Asia, the Scythians may have introduced wild hemp into this area of Southern Europe as early as 1500 B.C. via undigested seeds in the dung of their horses.

The hemp plant, Cannabis sativa, is herbaceous (being an annual) and dioecious (having the sexual organs on different plants). In the same sowing there are both pollen-shedding male plants and seed-bearing female plants. The former have yellow flowers (stamen), while the latter have green flowers (pistil) and heavy foliage on the top, if not densely sown. In general, male plants are shorter with sparse leaves compared with female plants. At the end of the branching stalks of either sex is a distinctive dark green palmate leaf (palm-like with radiating fingers) that is composed of five to 11 narrow lancet-shaped leaflets whose edges are dentated, like the blade of a saw. 55

Prehistoric people, while still hunter-gatherers, probably first encountered hemp as food as they sought out berries, seeds, nuts, and edible plants. Only later was hemp exploited for its fibers. Over many centuries European peasants made porridge (gruel) from hemp seeds cooked with barley and other grains. Ultimately, it was recognized that optimal production of either seeds or fiber was obtained by sowing the previous year’s seeds in two different patterns, as described below—one pattern for an ample supply of seeds and the other for a good harvest of fiber. The cultivation of hemp is labor-intensive and contributed to the important role of slavery in Kentucky’s early growth and prosperity.
Hemp seeds and hemp oil

When seeds and oil were the main products sought from hemp, seven to eight seeds from the previous season were planted in separate small hills spaced four or so feet apart. The plants sprouting up were later winnowed down to four per hill. Because of their wide spacing, they produced leafy top growth. Before the plant’s full height was reached, separate male and female stalks could be readily distinguished by the male stalks giving off their yellow pollen. Most of the male stalks were cut away, leaving only one every few feet to pollinate the female plants. When no more pollen was shed, all male stalks were eliminated, allowing the soil nutrients and moisture to be absorbed by just the seed-bearing female plants and allowing still more space for them to flourish.

About four months later, when the first seed pods opened, the stalks were pulled from the ground or cut close to it with a hemp hook, an 18-inch curved blade fixed at a right angle to the handle. One man could pull up the hemp in a quarter-acre field in a day, but with such a knife he could cut down half an acre. The stalks were stacked in shocks resembling those of corn and were left to dry before gathering the seeds. Then the tops of the dried stalks were beaten against a tilted board placed on a tarpaulin spread on the ground or the barn floor. The dark gray, egg-shaped seeds rolled to the ground and were collected and stored in a dry place protected from rats, mice, and birds.

Typically, an acre produced 20-40 bushels of seeds. Hemp seeds for planting were first advertised for sale by Robert Barr in Lexington’s Kentucke Gazette in 1788.56

In September 1804, George Leibe, who managed a brick yard and hemp walk on Limestone Street (earlier called Mulberry Street), advertised his oil mill at the same location “on Limestone Road, one half mile from the courthouse.”59

An oil mill worked by horses could produce 1,500 gallons of oil per year.60 Crushing and putting the hemp seeds under great pressure yields 30-35 percent by weight of a greenish-yellow oil that darkens with age and has a relatively short shelf life. Compared with other oils, hemp oil produces a very bright light in a lamp, perhaps because of its higher ignition point.

Oil for the lamps of Lexington

In Russia, where hemp was a major crop, hemp oil lamps illuminated the streets of Moscow until the mid-nineteenth century.61 The earliest mention of street lights in Lexington that this writer could find was in the Minute Book of the Lexington Trustees dated April 2, 1812, which reads as follows (somewhat edited):

And be it further ordained that if any person or persons shall disturb or break the lamps or lamp posts in said town, on being duly [sic] convicted by one or more witnesses before a Justice of the peace . . . , he, she, or they so offending shall be fined not less than one dollar nor more than ten Dollars—if a minor the fine to be paid by the Parents, guardian, or master; if by a slave, the master or owner shall be bound to pay the said fine . . . if by a wagon, Cart or Carriage of any kind, the same shall be Liable and bound for the aforesaid fine.62

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At left: Oil lamp in historic Gratz Park in the 1800s

Transylvania Special Collections: J. Winston Coleman Jr. Collection
The Minute Book, which began in 1781, does not indicate how much earlier than 1812 the lamps were installed on the streets. In January 1804, the clerk of the town market had been ordered to light the “three glass lanterns” one hour before daybreak. In his history of Transylvania University, John D. Wright Jr. wrote that Lexington was “the first western town to provide streets lighting, starting with 20 oil lamps.” Because hemp oil was produced locally, it likely was the illuminant used rather than whale oil imported from the east. Natural gas was burned in Lexington street lights beginning in 1853.

Marijuana
During the long history of its cultivation, the mood altering potential of the hemp plant was a minor consideration compared with the practical worth of its oil and fiber. There is evidence that the hemp plant was smoked by some early U.S. presidents, but these aspects of the hemp story are not the concern of this monograph.

Hemp Fibers
When fiber was the main product sought from hemp, a suitable field was plowed very deep in the fall and again the following spring at the time of sowing. The seeds were broadcast as uniformly as possible at a bushel to an acre. Generally, within a week a green carpet of shoots covered the area, and within a month they reached a height of two to three feet. One hundred days after sowing, the field contained a dense, impenetrable, weedless thicket of stalks that stood six to 14 feet tall. (Farmers and their families sometimes hid in their hemp fields from marauding Indian bands.) The top growth of each plant cultivated for fiber is far less abundant than in those more widely spaced and intended for seed. Up to 120 days were sometimes required for full maturation of the fiber. It reached the best stage for harvesting before seeds did, and thus plants grown for fiber were cut down four to six weeks before those grown for seed.

Extracting the fibers from hemp stalks involved two steps: retting or rotting, and breaking or crushing. The fibers are bound by resinous gums (pectins) in the stalk’s vascular layer (the blast), which lies between the outer bark and an inner woody core (hurds). The fibers are loosened from the bark and hurds by dissolving the pectins during a rotting (enzymatic) process termed retting. Early Americans used several methods of retting in this initial step. Dew-retting and winter-rotting involved leaving the stalks lying on the ground during the wet fall and winter months to complete separation of the fibers, while water-retting shortened the process to several weeks by submerging the stalks in a pond or stream.

The second step, breaking or crushing, involved separating the loosened fibers of retted hemp from the bark and hurds. The ancient method had involved beating dried stalks with a log or mallet to break the woody parts into small pieces, which were then separated and discarded, leaving behind the long fibers.

The mechanical hemp brake/break appeared in America around 1810. It was a wooden contraption about six feet long, several feet wide, and supported on legs at a convenient height above the ground much like a narrow work table. The functional part of the brake involved five parallel wooden slats, each three to four feet long. Two slats (Numbers 2 and 4) were hinged at one end and linked so that the pair could close like a jaw and fill the corresponding spaces between the three fixed slats below (Numbers 1, 3, and 5). Clumps of retted, dried hemp stalks were laid across the open device at right angles to its length. Upon forcefully closing the hinged, linked upper two slats, they smashed into the part of the stalks lying below, fracturing the outer bark and inner woody core into small pieces (shives) at that section. Repeating the procedure while feeding the stalk progressively into the device broke the bark and core along
the entire length. All the fragments (small pieces of the bark and shives of the core) would fall from the brake or be shaken away, leaving the intact flexible fiber strands, sometimes three to 15 feet long, lying on the device. Thomas Jefferson devised a horse-driven device capable, he claimed, of doing the work of 10 men, but his invention never caught on. During the nineteenth century Kentucky hemp farms employed the labor-intensive, hand-worked hemp brake vividly described by James Lane Allen in his A Tale of the Kentucky Hemp Fields (1900).

Finally, the freed fibers were gathered up, cleaned of debris, straightened, and tied into bundles to be processed still further at a local hemp walk or packed into large bales (200-500 pounds) to be shipped down the Mississippi or in later decades carried by rail to cities in the East. At the end of the working day, the piles of broken bark and shives in a field were set on fire, releasing a distinctive odor from the smoke and returning valuable nutrients to the soil.

**Hemp Cordage**

Cordage is a generic term that includes yarn, thread, string, twine, cords, rope, and cables. Throughout history cordage has been made from various plant fibers such as flax, hemp, jute, sisal, and cotton, while in modern times plastics such as nylon have also been used. When twisted together in opposite directions, several yarns form a strand. Two or more strands make up a string or twine. A thick string is termed a cord, and three or more twisted together make a rope.

Hemp cordage of various sizes form ties, plow ropes, bed cords, swings, ladders, nets, halters, and nooses. It has multiple marine uses as ropes, rigging, bumpers, nets, and hawsers (heavy towing and mooring lines) for ships.

**Nautical uses**

In nautical jargon, a line is a rope or cable of any size. Because lines on ocean ships become weakened by exposure to the briny sea water, the strands destined for marine use are impregnated with boiling tar before being twisted together to make cords and ropes. Three ropes so twisted form a hawser and three hawsers make a cable. The largest hemp cable made in the U.S. was 25 inches in circumference (eight inches in diameter) and has been preserved in the Charlestown Navy Yard rope-walk. During the processing of hemp, some fibers are too short for making strong rope and are termed the tow. These are matted together and tared to form oakum and used to caulk seams and joints of wooden ships.

American hemp growers had competition from foreign sources, notably Russia. Henry Clay, who produced dew-retted hemp on his farm outside Lexington, was a staunch advocate for the local hemp market, promoting protective tariffs. The U.S. Navy favored Russian hemp because dew-retted fibers supposedly did not retain the tar necessary for its protection from the corrosive sea waters. Clay and others repeatedly badgered naval officials to employ American hemp, but with little success. However, the Navy was obliged to employ it during the War of 1812, when European imports were lacking.

**Hemp Walks**

Processing dressed (retted and carded) hemp fibers to make rope was originally performed in an open field. But for protection against bad weather and for many decades into the early nineteenth century, this work was done in 600 to 1,250-foot-long buildings called rope walks, or hemp walks. Few had upper floors for later operations, storage of hemp in its various forms, and quarters for workers, but most were single-storied. Rope walks were built wherever hemp, flax, or cotton were grown and made into rope—on farms and in towns.

The original process involved a workman feeding dressed hemp fibers from a large sack attached to his waist onto a
beginning strand attached to a hoop that was being rotated at the starting point. He slowly walked backwards down the length of the walk, all the while adding to and lengthening the original strand as it was being turned. At the far end of the walk, the first long strand was rolled onto a reel as the man returned to the starting point to begin again. More strands were added to earlier strands until the reel sometimes weighed 100 pounds. The process actually required the simultaneous efforts of several men. Later in the nineteenth century, machines were developed that accomplished the entire process without the lengthy building.

In 1810, there were 173 rope walks in the country, primarily in Atlantic coastal cities where the demand for cordage came from the growing fleet of fishing boats and merchant vessels and the U.S. Navy. The first hemp walk in Kentucky was built at Danville in 1775. Around 1809, there were 15 such rope walks in Kentucky using 1,000 tons of hemp per year.

Kentucky Rope Walks

The first hemp walk in Kentucky was built at Danville in 1775. Around 1809, there were 15 such rope walks in Kentucky using 1,000 tons of hemp per year. In 1810, the 38 hemp walks throughout the state produced 2,000 tons of cordage valued at $400,000. By 1811 the number of hemp walks in Kentucky had increased to 60 with several in Louisville but the majority in Lexington. Here in 1796, Colonel Thomas Hart, a Revolutionary War veteran, advertised for “a few Journeymen Rope Makers” to work in his hemp walk, which he operated until his death in 1808. It was likely located in the north end of town, where hemp walks were prized commercial properties that were frequently traded. For example, in the 1790s John and George Leiby managed a hemp walk on the east side of Limestone Road on two lots.

Locations of Hemp/Rope Walks in the Vicinity of Transylvania University

Note: Today, Mulberry Street is Limestone and Cross Street is Broadway.
between Fourth and Fifth Streets. This property had three successive owners before it was purchased in 1809 by Colonel Hart’s son, Nathaniel G. S. Hart, who managed his hemp walk on the southern lot. On the north lot another hemp walk was run by John Wesley Hunt. A year later Nathaniel Hart sold his part of the block and purchased land at “the head of North Broadway” to establish still another rope walk.75

The Transylvania campus was bordered by hemp walks in the early decades of the nineteenth century. Hemp walks also were scattered around town adjacent to private residences, such as that built by Peter January on the northwestern corner of Second Street and North Mill Street. As early as 1791 he was buying raw hemp.76 In March 1801, he advertised in the Kentucky Gazette for “two good rope makers, who are sober.”77 This hemp walk continued until 1814, when the lot was purchased by J. W. Hunt as the site for Hopemont, now called the Hunt-Morgan House. Also on the northeastern corner of Second Street and the future Market Street was the rope walk of John Kerns, where now stands the Bodley-Bullock house, also built in 1814.78

**Hemp Mills and Textiles**

Harry Toulmin, the second president of Transylvania Seminary (1795-96), noted in his 1793 Reports on Kentucky and Virginia that “Planters usually make their own cordage, and it is very common for all the linen which is used in the family to be made at home.”79 The term linen has had several interpretations, generally referring to light cloth made from flax but sometimes also from hemp.

In 1787 Thomas Jefferson wrote that during the “present contest . . . we have manufactured within our families the most necessary articles of cloathing [sic]. Those of cotton will bear some comparison with the same kinds of manufacture in Europe; but those of wool, flax, and hemp are very coarse, unsightly, and unpleasant.”80 During the War of 1812, he needed 2,000 yards of linen, cotton, and wool yearly to clothe “his family” (relatives and slaves). Spinning and weaving were the perennial occupations of many women at Monticello.

**Bagging Mills and Hempen Cloth**

Most cloth and canvas were manufactured at bagging or hemp mills in towns and cities. Bagging refers to the material used to make cloth bags. In the U.S., this cloth was first manufactured in Providence, Rhode Island, in 1788, but the carding and spinning machines of the day were not efficient. For many years before and after this period, native clothing was spun at home, mainly from wool, hemp, or—to a lesser extent—flax. The hemp yarn used for clothes was generally coarse, as in canvas, while fibers of flax or cotton had a softer feel.

In 1810, there were 13 bagging mills in Kentucky, five of which were in Lexington. These were nondescript buildings, often two stories tall, and sometimes next to a hemp walk. In 1813, eight bagging factories operating in Lexington produced about 250,000 yards of hempen duck (canvas) and hempen bagging annually. By 1828, the 10 rope-bagging factories in the city employed 500 men. The total output of hemp rope from all of Kentucky that year was two million pounds (2,000 tons) and one million yards of bagging.81 During the 1830s, machines were producing bagging supe-
rior to that made by hand. One of the largest such mechanized establishments in Lexington was operated by Benjamin Gratz and John Bruce. Their factory included a building for storing 200 tons of raw hemp fiber, a hackling house, separate spinning and weaving houses, another building for storing 200 tons of bagging (cloth), and a 600-foot-long rope walk.82

**Canvas**
The word canvas is derived from canavaccio, the Italian name of the hemp plant Cannabis. This calls to mind Renaissance artists who switched from painting on wood to canvas—a heavy textile of flax or hemp stretched on a rectangular frame. Canvas had more practical uses in the U.S. It was used to cover the prairie schooners that sheltered pioneers going west beyond the Mississippi and to make the tents under which they slept. In California during the 1850s, Levi Strauss converted hemp canvas used for wagons and tents into heavy duty pants for miners and other laborers. Homespun cloth made of hemp (and sometimes mixed with flax, wool, or cotton) was worn mainly by people with less disposable income. Trousers made of this coarse fabric were called Kentucky jeans.83 Later, this rough material was replaced by a softer, twilled (double-threaded) cotton cloth that became known as denim, and the trousers became known as blue jeans.

**Hempen sails**
Canvas has been used since antiquity for the sails of ships and windmills. Roman ships used hemp for cordage and for the canvas of their broad, square sails, while Phoenician and Carthaginian ships bore flaxen sailcloth.84 Hempen sails made in Europe, or likely imported from Russia, held the winds that brought Columbus (d. 1506) to the New World four times and carried the one surviving vessel of Magellan (d. 1521) around the globe. During the Revolutionary War and the War of 1812, when Russian canvas was unavailable for American ships, U.S. hemp merchants supplied the Navy with hempen sails.85 Around 1829, however, American frigates began using cotton sails. One Navy report concluded that cotton was suitable for light sails but that top sails on large ships required hemp sheets.86 Nevertheless, hempen sailcloth never regained its earlier dominance in the nautical market.

**Oil Cloth**
Among Lexington’s industries during the early 1800s was an “oil floor-cloth factory” that produced oil cloth (or floor cloth). This was canvas containing a mixture of hemp and flax and given a thick coat of linseed oil, which soon hardened. Linoleum is a type of floor cloth consisting of ground cork and linseed oil spread on hemp or flax-based canvas.87
Kentucky paper
In 1789, Elijah Craig (d. 1808) established a hemp walk on Big Spring Branch in Georgetown, Ky., and opened a paper mill there—the first such mill in the West.\textsuperscript{88} By 1810, Lexington had four paper mills.\textsuperscript{89} Craig regularly advertised for discarded clothes. Before the early 1800s, almost all cotton clothing worn in the U.S. had been imported from Europe by the rich and thus was not usually found among ordinary rags. Most American clothes before then and for several decades afterwards were home spun and homemade from hemp, flax, or wool. (Wool could not be used in making paper because the retained body oils of sheep prevent ink adhering.) By the time of the American Civil War, cotton clothes were becoming common, and so the cotton of rags began replacing hemp and flax in paper making. In the late nineteenth century, wood pulp replaced plant fibers in the manufacture of paper.

Hemp Storage and Fires
As noted earlier, factories in towns had specific buildings for storing hemp and its products, just as farms had barns. One of the latter used for storing hemp is a familiar sight on the corner of Iron Works Pike and Newtown Pike. As much as 60 tons of hemp fibers and seeds were sometimes stored at such sites. Because hemp in any form is very combustible, these buildings were occasionally gutted by fires.

In Lexington and other cities where the houses, shops, and factories were originally crowded together, there was always danger of fire spreading from hemp works. Needham Parry, a visitor to Lexington in 1794, estimated that the town included 350 houses, many close together on narrow streets.\textsuperscript{90} The Union Fire Company had been organized in the city in 1790 with local volunteers ready to respond.\textsuperscript{91} Fire destroyed the hemp factory on High Street owned by Thomas Hart and David Dodge in 1806 and that of James Weir in 1812.\textsuperscript{92} John Wesley Hunt's factory burned down twice—the last time in 1812 at an estimated loss of $20,000.\textsuperscript{93} That year a fire insurance company was organized in Lexington with agents throughout the central part of the
state. Kentucky laws enacted in 1798 against arson were severe. The Hunt factory fire in 1812 was set by two black youths who confessed, were sentenced to be hanged, but “were reprieved by the governor as they stood on the gallows” with hemp nooses around their necks.94

**Conclusion**

With the emancipation of slaves in 1863 and the end of the Civil War, the cultivation of hemp and the manufacture of hempen products in Kentucky declined in large part because of an inadequate work force. Tobacco, requiring somewhat less labor, became the principal profitable crop in the Commonwealth. In the early 1900s, hemp imported to the U.S. amounted to 11,000 tons per year and equaled all home grown hemp.95 During the 1930s, the linkage of marijuana with industrial hemp in the mind of one federal official, Harry J. Anslinger, and in some newspapers led to the Marihuana Tax Act of 1937, which essentially outlawed the cultivation or sale of hemp in this country, as explained in an end note.96 Yet during World War II, when Manila hemp from the Philippines was unavailable for use in nautical cordage, this ban was lifted for several years and 42,000 tons of hemp fiber and 180 tons of hemp seed were produced—much of it in Kentucky.97, 98 After the war, the Marihuana Tax Act was reinstated and vigorously enforced by the Drug Enforcement Agency of the U.S. Justice Department. 

**Acknowledgements**

I thank Roger Hamperian of the Records Center and Archives of the Lexington-Fayette Urban County Government for his help with the *Minute Book (1781-1832) of the Board of Trustees of Lexington*. I am greatly indebted to B. J. Gooch, Special Collections Librarian at Transylvania University, for access to the early university records and her editorial comments. For countless other library source materials, I am grateful to Amanda Williams, Medical Librarian at the University of Kentucky. Finally, I acknowledge the support of Ch. Tray and I. S. Tray II during the decade of this study.
References and End Notes

2. Ibid, p. 68.
5. Minutes of the Board, Documents of Transylvania University, E-1849 (See reference 15.) Three such British landowners in Kentucky were Robert McKenney, Henry Collins, and Alexander McKee.
7. Minutes, E-1802.
8. Wright, Tutor, 12.
9. Documents in Trustees, Early General Information. The trustees killed were John Todd (1782), Stephen Trigg, John Floyd, Walker Daniel, William Christian, Isaac Cox, and John May (1790). Between 1783-90, Indians killed or abducted 1,500 people in Kentucky (See Wright, Tutor, 21).
12. Peter, History of Fayette County, 292-293.
13. Robert Peter, Transylvania University, Its Origin, Rise, Decline, and Fall (Louisville, Ky.: John P. Morton, 1896), 61-71. Among the donations were $100 each from George Washington and John Adams and $40 from Aaron Burr. Different sources record these sums variously in pounds or dollars.
17. Hopkins, Hemp, 71.
18. Ibid., 69.
19. Ibid., 121.
20. Staples, Pioneer Lexington, 32.
22. Ibid., 182-185.
24. Ibid, 22.
26. Moore, Hemp Industry, 27-28. The figure of $112 was based on Moore’s statement that the import duty placed on it by Congress in 1802 was $22.40 per ton, “which was twenty percent of its prime cost in Europe.”
29. Hopkins, Hemp, 98.
32. Most references in this section come from various records of the Board of Trustees of Transylvania Seminary and Transylvania University, dating from 1783 onward. They are in the Special Collections of the Transylvania University Library. The records listed below have been given a letter designation A- for use in the superscript citations. Several of these volumes lack page numbers, so using dates in the text helps locate cited passages. For example, references may read C-31 (meaning page 33 of Record C) or E-379 (meaning in Record E on the page citing that year somewhere).
   A. Rough Minutes, 1794-1825.
   B. Record of Transylvania Seminary, 1783-98.
   C. Record of Transylvania University, 1799-1810.
   E. Extracts from the Minutes of the Board, Documents of Transylvania University, 1783-1849.
   F. Record of the Proceedings of the Trustees of Transylvania University, 1810-17.
   G. Record Book of Transylvania University, 1827-39.
   H. Minutes of Standing Committee, 1799-1806.
33. Notable surveyors in Kentucky included Daniel Boone, Isaac Shelby, George Rogers Clark, and Abraham Lincoln.
34. One pistol was equal to two escudo, a Spanish gold coin. The escudo was minted in denominations of one-half, two, four, and eight. Until the time of the Louisiana Purchase in 1803, Spain controlled trade up the Mississippi and southern Ohio Rivers and thus influenced the currency in use there. Elsewhere in North America, the English pound dominated, but because British coinage was scarce in the colonies and during the decades afterwards, the $2.50 tuition was probably paid in the form of the Spanish milled dollar known as the Reales, a currency that Thomas Jefferson sanctioned in the U.S. and that remained legal tender until Congress replaced it with the U.S. silver dollar in 1857.
35. Hopkins, Hemp, 38.
36. Hopkins, Hemp, 82.
37. Ibid, 38, n. 100.
38. Peter, Transylvania University, 45.
40. Hopkins, Hemp, 75-76.
42. Ramage, John Wesley Hunt, 88-94.
44. Ibid, 55.
45. Hopkins, Hemp, 36.
47. Ibid, 212.
50. Moore, Hemp Industry, 38.
51. Ibid, 44.
52. Ibid, 53.
53. Wright, Tutor, 50-51.
54. To survive financially, Transylvania University merged with three other regional educational institutions in 1865: Kentucky University (formerly Bacon College of Harrodsburg, Ky.), a newly created College of the Bible, and the recently established Agricultural and Mechanical College (based on the federally mandated Land-Grant College Act of 1862—the Morrill Act). The merged entity became Kentucky University. Over the next several decades it was plagued by sectarian controversy. In 1878 the College of the Bible was chartered as an independent institution; it moved to buildings on the west side of South Limestone Street in 1950 and was renamed Lexington Theological Seminary in 1965. The A&M College also became a separate institution, moved to a new campus on the east side of South Limestone, and was later renamed the University of Kentucky. The remaining institution on the North Broadway campus kept the name Kentucky University. It reclaimed the name Transylvania University in 1908, was renamed Transylvania College in 1915, and finally resumed being called Transylvania University in 1969. See Kentucky Encyclopedia, 514-515 and 894-896.
56. Staples, Pioneer Lexington, 32 and 54.
57. Ibid, 94.
In Early Annals and Recent Progress (Cincinnati: Robert Clarke & Co., 1872), 240.
60 Ibid, 53.
63 Wright, *Heart of the Bluegrass*, 54.
65 In 1930 Harry J. Anslinger (1892-1975) became director of the U.S. Treasury’s newly created Federal Bureau of Narcotics, which later became the Drug Enforcement Agency of the Justice Department. Initially, Anslinger focused on the international trafficking of narcotics, which later became the Drug Enforcement Agency of the Justice Department. Initially, Anslinger focused on the international trafficking of opium and cocaine and dismissed local marijuana use as a minor issue. During the Depression, federal funds were cut and government departments sought to boost their budgets by raising public perception of their importance. J. Edgar Hoover (1895-1972), head of the Federal Bureau of Investigation, gained support by focusing on the threat to the country from Nazis and Communists. Anslinger, his rival for funds, achieved the same end by suddenly projecting his FBI as guarding American youth from the local danger of pot, thus reversing his earlier view of it being a minor issue. He seeded the American press with lurid articles warning about “reefer madness,” with the end result that Congress passed the Marihuana Act of 1937, which indirectly regulated the U.S. hemp industry out of existence. See Booth, *Cannabis*.
73 Hopkins, *Hemp*, 121.
78 Peter, *Transylvania University*, 4-47.
80 Jefferson, *Farm Book*, 464.
83 Ibid, 113.
86 Moore, *Hemp Industry*, 44.
87 *Encyclopedia Americana*, 17: 426.
94 Booth, *Cannabis*, 35.
95 Encyclopedia Americana, 21: 264-5.