The Gideon Lincecum Herbarium:
A Floristic and Ethnobotanic Analysis

by

Joanne Lemay Birch, B.S.

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by

Joanne Lemay Birch, M. A.
The University of Texas at Austin, 2004
Supervisor: Beryl B. Simpson

Abstract

The Gideon Lincecum Herbarium represents the primary pharmacopoeia of a botanic physician working in the southeastern United States in the nineteenth century. It contains 313 voucher specimens including 309 species in 96 families and 241 genera; 5 families in the Polypodiophyta (ferns: 6 genera, 9 species); 2 families in the Pinophyta (conifers: 5 genera, 5 species); and, within the Magnoliophyta (flowering plants) 10 families in the Liliopsida (monocotyledons: 18 genera and 24 species) and 79 families in the Magnoliopsida (dicotyledons: 213 genera, 271 species). Asteraceae is the largest family represented in the collection with 40 species, followed by Lamiaceae (36 species), Fabaceae (15 species), Liliaceae (13 species), Apiaceae (12 species), and Rosaceae (10 species). Two hundred and thirty-six specimens (68.8%) retained the identification assigned by Lincecum including 70 (20.4%) specimens for which the nomenclature was updated for the current correct name. Sixty-seven (19.5%) of

the specimens were incorrectly identified by Lincecum. The identification of eight specimens (2.3%) whose utilization by Native American groups is cited solely to this collection has changed as a result of this research.

Fifteen specimens contain location and/or date of collection providing evidence that the collection was made during the period 1835 to 1852 in Mississippi and Texas. The floristic composition of the herbarium indicates strong affinities with the flora of Mississippi suggesting that the majority of the specimens were collected during Lincecum's practice as a botanic physician from 1830 to 1848 in Mississippi with a smaller number of specimens collected following Lincecum's migration to Texas in April, 1848. Analysis of the herbarium specimens in the Gideon Lincecum Herbarium and additional botanic manuscripts within the Gideon Lincecum Collection does not support the suggestion by Burkhalter that this herbarium collection is the manuscript for "The Moccasin Tracks, or Home Medicines for Home Diseases" which I suggest is represented in the Gideon Lincecum Collection by only three manuscripts which provide botanic and ethnobotanic data for *Martynia louisianica* (as syn. *Martynia proboscidea), Verbesina virginica*, *and Argemone mexicana* var. *albiflora*.

The Gideon Lincecum Herbarium provides ethnobotanic data for 286 medicinal plant taxa including 22 taxa utilized by the Creek, Choctaw and Chickasaw Indians. The medicinal use of 22 taxa documented in the Gideon

Lincecum Herbarium, including five taxa utilized by Native American Indians, not previously included in the ethnobotanic literature is here cited to the Gideon Lincecum Herbarium. Eight species (2.0%) whose utilization by Native Americans (Campbell 1951, Moerman 1998) is based solely on a specimen in this collection can no longer be considered as medicinal plants because their original determinations were incorrect.

The ethnobotanic data and knowledge contained in the Gideon Lincecum Herbarium strongly reflects Lincecum's affiliation within the botanic medical tradition, and he identifies the use of 68 taxa representing 35.6% of the botanic materia medica. While distinct medical traditions were identified in North America during the first half of the nineteenth century a composite pharmacopoeia was utilized within these traditions that shared a large number of botanic articles and the large number of taxa in Lincecum's pharmacopoeia that were also present in the pharmacopoeia of the other medical traditions in North America during the nineteenth century reflects the extensive overlap between these pharmacopoeia. The Gideon Lincecum Herbarium documents the integration of ethnobotanic knowledge from diverse sources into a single pharmacopoeia utilized in the provision of health care within frontier communities of both Mississippi and Texas during the nineteenth century.

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CHAPTER 1

The Gideon Lincecum Herbarium

The subject of this thesis is the Gideon Lincecum Herbarium (GLH) which contains 313 herbarium specimens collected and annotated with ethnobotanic information by Gideon Lincecum. A taxonomic review of the herbarium specimens and an analysis of the ethnobotanic data were conducted to assess Lincecum's medical practice and pharmacopoeia within the context of nineteenth century frontier life in the southeastern United States. With the exception of 22 specimens considered by Campbell (1951) this is the first taxonomic treatment of the specimens within the Gideon Lincecum Herbarium. The ethnobotanic data for 22 taxa in the collection, documented by Campbell, that were utilized by the Creek, Choctaw, and Chickasaw Indians span the period immediately prior to enforced removal of these tribes from Georgia and Mississippi and contribute to the limited literature documenting Native American Indian plant use prior to 1830 (Campbell 1951).

The Gideon Lincecum Herbarium is currently archived as part of the Gideon Lincecum Collection at The University of Texas Center for American History. The herbarium collection was obtained as a single accession by J. Evetts Haley of The University of Texas at Austin History Department on July 4, 1930 from Clyde Brian Doran and Frank Lincecum Doran, sons of Lincecum's youngest daughter Sallie Doran (Burkhalter 1965, Center for American History Librarian pers. comm.).

The specimens that contain either a collection date and/or locality indicate that those specimens were collected during the period 1835 to 1852 in Mississippi and Texas (Campbell 1951). The total collection was most likely made during the years 1830 to 1868 in which Lincecum practiced as a botanical physician. The collection represents a primary pharmacopoeia of a botanic physician working in the southeastern United States in the nineteenth century and the ethnobotanic data provide extensive detail of Lincecum's personal experience of medical practice utilizing the plant species in the collection.

The Gideon Lincecum Collection has provided the basis for historical works that document Lincecum's experience as a pioneer on the transitional Euro-American settlement frontier in the southeastern United States during the nineteenth century (Burkhalter 1965, Clay 1953, Geiser 1948, Lincecum 1994, 1997). A single autobiographical work was published by Lincecum during his lifetime as "Personal Reminiscences of an Octogenarian" in "The American Sportsman" magazine as a series of articles largely focusing on Lincecum's hunting and fishing experiences (Lincecum 1874-1875). Additional autobiographical works taken from his published writings, manuscripts, and letters have been published since his death (Lincecum 1904, 1994, 1997). Lincecum preserved his correspondence during the years 1850 to 1868 through his use of a letter press and these letters are also contained in the Gideon Lincecum Collection and are extensively cited in his biographical works (Burkhalter 1965).

Manuscripts within the Gideon Lincecum Collection document Lincecum's interaction with Native American Indians including those written during his residence in the Choctaw Nation from 1822 to1825. These manuscripts are the earliest dated records contained in the Gideon Lincecum Collection (Burkhalter 1965). Lincecum's manuscripts on the traditional history of the Chahta people represent the earliest recorded account of the traditional history of the Chahta Nation, dictated to Lincecum by *Chahta-Immataha*, an elderly Choctaw man, and contain 650 pages that chronicle the origins, existence, migration, settlement, and treaties of the Choctaw (Campbell 1959, Galloway 1995, Wolfe 1993). These manuscripts are considered among the most complete of the early sources that document the traditional origin of the Choctaw Nation and are comprehensively discussed in other works (Burkhalter 1965, Galloway 1995, Lincecum 1904, Wolfe 1993). Campbell (1959) notes the extensive information contained within the "Traditional History of the Chahta People" on Choctaw subsistence including material not found elsewhere in the literature as well as information confirmed by other ethnographic sources.

Other manuscripts within the Gideon Lincecum Collection have been referenced during this research in order to study Lincecum's contributions to the study of botany in the southern United States. Lincecum was particularly productive as a naturalist during his residence at Long Point, Texas, making extensive floral and faunal collections that were recorded in his Botanic Notebooks (1810-1864), diaries, and letters. These collections were sent to scientists at the Philadelphia Academy of Natural Sciences and the Smithsonian Institution in exchange for collection equipment and scientific literature (Geiser 1948, Lincecum 1997). Although Lincecum retained the letters he received during this correspondence, few of these letters are contained within the GLC and references to these letters and quotes from them provide only excerpts from those letters (Burkhalter 1965). Lincecum's diary entitled "Journal of the travels of Gideon Lincecum from Monroe County, Mississippi" has been published (Bradford and Campbell 1949) and details Lincecum's seven month expedition to Texas, undertaken to assess the potential for migration to Texas with his family. Lincecum's "receipt book" provides notes and recipes utilized in his medical practice. Lincecum's residence in Texas from 1848 to 1967 spanned the Civil War and his manuscripts represent an important account of conditions in the south during this time (Lincecum et al. 2001).

GIDEON LINCECUM (1793-1774)

The following biographical information provides the historical context for Lincecum's work as a physician and naturalist in the southeastern United States during the early nineteenth century. This cultural environment provides the necessary background for a critical analysis of the botanic and ethnobotanic data contained in the Gideon Lincecum Herbarium.

Lincecum's Childhood in Georgia (1793-1814)

Gideon Lincecum was born to Hezekiah and Sarah Lincecum on April 22, 1793 in Warren County, Georgia. This was a time of expansive growth in the colony of Georgia with the population growing from 33,000 individuals in 1773 to 162,686 individuals in 1800 (Wilson 1959). Lincecum's family moved extensively throughout eastern Georgia and western South Carolina during his early childhood largely as a result of his father's desire to reside outside of the Euro-American settlements developing in the increasingly populous state.

In 1790, as a result of The Treaty of New York (August 7, 1790), the Creek (Muskogee) Indians ceded lands south of the Ogeechee River and north of the Oconee River and later, from 1802 to 1805, ceded land east of the Oconee River (Lincecum 1994, Purdue and Green 2001). As a child during his family's residence in the southeastern region of Georgia Lincecum had extensive contact with Muskogee children, stating,

> I was educated by the Muskogee Indians and hunters of a frontier country until I was fifteen, having the Muskogee children for my playmates and the bow and arrows and the blow-gun for my hunting implements (Lincecum 1994).

Of this early contact with Muskogee children Lincecum states,

> My Indian companions were frequently changed, but the new ones I came in contact with at our removes on the borders always seemed proud of me

> on account of my being able to talk with them, and my sports would be continued with new life (Lincecum 1994).

This period of time is significant for Lincecum's extensive contact with Creek culture and language in addition to his development of an appreciation of the flora and fauna in which he spent his leisure time. Lincecum's later autobiographical works focus extensively on the hunting and fishing skills developed during this time in addition to skills learned in species recognition and ecology. Lincecum states

> These boys could [,] and so could I, imitate the call-notes of all the birds […] I knew upon what kind of soil to look for any tree or plant […] in short I was high larnt [*sic*] in the woods (Lincecum 1874-1875).

The enjoyment and ease with which Lincecum spent long hours in the pursuit and observation of wildlife and the detail with which these skills were learned undoubtedly provided the basis for their application in his later work as a naturalist. It is clear from Lincecum's autobiography that he held the Native American Indians with whom he interacted in high regard and his early contact with the Creek Indians as a child may have contributed to the ongoing respect with which he approached his later interactions with the Choctaw and Chickasaw (Geiser 1948).

Lincecum attended school for five months at the age of fourteen and of his schooling he states,

> At the end of five months I could read, the master said, "very well," could write a pretty fair hand by a copy, had progressed in arithmetic to the double root of three, and had committed Webster's spelling book entirely to memory (Geiser 1948).

This period of time and the skills learned constitute Lincecum's entire education under the supervision of a teacher, yet provide the basis for an education that Lincecum continued throughout his life in independent investigation and reading (Lincecum 1997).

Lincecum left the family farm in 1808 at the age of fifteen and went to live in Eatonton, Georgia where he worked as a clerk to merchants for the next three years (Lincecum 1994). Lincecum notes his limited access to books during the period immediately after his schooling stating, "I had read all the books I could borrow, an old Bible and the Arabian Nights" (Lincecum 1994). In addition to his employment as a clerk Lincecum was employed as the supervisor of a traveling library which greatly extended the diversity of reading material available to him. Lincecum states,

> Oh! This had been a glorious year for me! It tore open the windows of my abode of darkness, let in the light of science on my awakening faculties and left me with enough of good books on my shelf to nourish and feed the divine flame another year (Lincecum 1994).

Lincecum considered his own an "uncultivated intellect" upon which the reading of scientific texts "changed my crude notions in almost everything" (Lincecum 1994) noting that "the scientific truths and systematic methods of investigating them" provided a challenge to the "intellectual cowardice, checking and forbidding inquiry into any subject that was said to belong to the business of the gods" (Lincecum 1994). Throughout his life Lincecum maintained a belief in the "known laws of the natural sciences" above a religious and faith based world view which is evident in his descriptions of his early readings (Burkhalter 1965).

Prior to the War of 1812 Lincecum, having "studied medicine during odd moments" while working as a clerk, left this employment to study medicine full time (Lincecum 1904). This came at the suggestion of Dr. Henry Branham who considered that Lincecum's knowledge of the "medical resources of our forests" would be aptly complimented by a "touch of scientific medicine" (Lincecum 1994). Dr. Branham appears to take the role of a mentor to Lincecum, and Lincecum's biographer, Burkhalter (1965), suggests that it was Dr. Branham who directed Lincecum's attention to scientific and medical works including the writings of Erasmus Darwin. Lincecum states, "When I read medicine, Darwin's "Zoonomia" was the text-book of practice for the United States, and I viewed the work as the finishing stroke on that subject" (Lincecum 1994).

Lincecum married Sally Bryan on October 25, 1813. The Battle of Horseshoe Bend (March 27, 1814) and the subsequent Treaty of Fort Jackson (August 9, 1814) (Keenan 1997, Lincecum 1997) made available for settlement land east of the Ocmulgee River in Georgia which "at that time was a dividing line between the Georgians and the Creek Indians" (Lincecum 1904). Lincecum and his father's family moved to the region immediately east of the Ocmulgee

River in anticipation of a move into the newly ceded land and Lincecum taught school here for a term (Lincecum 1994). On March 10, 1818 three Lincecum families (his parents, Gideon and Sally, and Gideon's sister Mary and her husband Joseph) moved to Tuscaloosa, Alabama (Lincecum 1904). The rapid population growth in Tuscaloosa led Lincecum to move again on November 1, 1818 with his family to Columbus, Mississippi where he would remain for the next 30 years (Lincecum 1904).

Lincecum's Early Mississippi Years (1818-1830)

Prior to an official survey of the Alabama-Mississippi boundary line in 1820, the land east of the Tombigbee River on which Lincecum lived was considered part of Marion County, Alabama (Lincecum 1994). Munroe County was created by the Mississippi Legislature in 1821 with the town of Columbus chartered as the county seat on February 10, 1821 (Lincecum 1994). Lincecum played a significant role in the establishment of Columbus in his appointment as chief justice "with the authority to appoint all the officers necessary to organize the county" and chairman of the school commissioners that were responsible for the establishment of the Franklin Academy (Lincecum 1904, 1994).

Lincecum's original residence three miles north of Columbus, Mississippi situated him adjacent to the boundary line separating the Choctaw and the Chickasaw Indians. During his residence in Mississippi Lincecum became fluent in both the Choctaw and Chickasaw languages (Campbell 1951, Geiser 1948), but prior to acquiring fluency in these languages Lincecum states that "communication was altogether by signs" (Lincecum 1994). Lincecum states that "until I had raised a crop of corn we procured all our provisions from our Chahta neighbors, on very good terms" (Lincecum 1994). In his autobiographical works Lincecum provides numerous examples whereby Choctaw individuals provided expertise in agriculture and the use of medicinal herbs during the early period of his settlement in Mississippi (Lincecum 1994).

On completion of his official duties for the town of Columbus on August 1, 1821, Lincecum moved to the Choctaw Nation where he resided from 1822 to 1825 managing a trading establishment in a business venture undertaken in partnership with John Pitchlynn Jr. (Lincecum 1904). This partnership allowed Lincecum to circumvent the federal regulation of the time that prevented white citizens from owning property within an Indian nation (Lincecum 1904). Lincecum documents that "he made it a rule to purchase (at some price) everything they brought to the store" obtaining

> Every kind of produce, consisting of cowhides, deer skins, all kinds of fur and skins, as well as buckhorns, cowhorns, peas, beans, peanuts, pecans, shellbarks, hickory nuts, honey, beeswax, blowguns and blowgun arrows; bacon and venison hams and big gobblers (Lincecum 1904).

Lincecum also "made frequent trips to Mobile" where he procured supplies of "groceries, sugar, coffee, whiskey, etc" (Lincecum 1994).

During his residence within the Choctaw Nation Lincecum visited extensively with an elderly Choctaw member, *Chahta Immataha*. Lincecum transcribed the "Traditional History of the Chahta People" from material dictated by Chahta Immataha. Lincecum originally transcribed the document in the Choctaw language using the Roman alphabet and diacritical marks and did not translate the document into English until 1859 (Burkhalter 1965). The English translation is the only manuscript preserved and is contained within the GLC (Campbell 1951, Wolfe 1993). Lincecum also wrote an account of the life of *Apushimataha*, one of three Choctaw chiefs within the Choctaw Nation, and this manuscript was published after Lincecum's death by Lincecum's daughter Sally Doran within the Publications of the Mississippi Historical Society (Lincecum 1906). In 1825 Lincecum moved to Cotton Gin Port, Monroe County, Mississippi on the east bank of the Tombigbee River on the border between the Chickasaw Indians and European settlers. In an ongoing business arrangement with John Pitchlynn Jr. Lincecum managed a second trading post, doing the majority of his business with the Chickasaw Indians (Lincecum 1994).

During his residence in Cotton Gin Port while on a bear hunt in the canebrake of the Tombigbee River Lincecum developed severe heatstroke (Lincecum 1994). He sought treatment from allopathic physicians who prescribed bleeding, mercury, and calomel (mercurous chloride) to treat the resulting symptoms of fatigue and pulmonary stress (Lincecum 1994). Lincecum states that

> Bleeding was the remedy most universally believed in by them. And I also had more faith in it, so I bled myself every day. In 20 days I had taken 22.5 pounds of blood; and hoping to salivate myself had taken 10 grain doses of calomel daily and rubbed on myself 1.5 pounds of strong blue ointment (mercurial ointment) (Lincecum 1994).

In an article prepared for the Botanico-Medical Recorder in 1840 Lincecum states his prescribed course of treatment was "20 grains of calomel every day for 118 days" (Lincecum 1840-1841b). Lincecum considered that his "condition was made worse daily by the kind attentions of my medical friends" stating, "the depletion of the lancet and mercury had laid me pretty low" (Lincecum 1994). Lincecum's complete recovery took three months and was achieved through his own treatment according to his medical knowledge of his condition and a strict diet in which he ate and drank sparingly of "a corn meal waffle and a cup of sassafras tea, with a heaping teaspoonful of sugar, three times a day" (Lincecum 1994).

Allopathic Physician (1830-1835)

Lincecum commenced his medical practice on August 10, 1830, on the suggestion of several friends, whom he had previously treated, with a loan of $100 in order to buy medical supplies (Lincecum 1994). Lincecum considered himself well prepared for work as a physician stating "I had, during my whole life, done all my reading in medical works, and knew all that had been published on that subject" (Lincecum 1994). He practiced medicine according to the allopathic system, establishing a "drug store" from which he dispensed medicine and conducted house visits to a radius of "forty to fifty miles" (Lincecum 1994). Lincecum states

> The allopathic system needs no great amount of medicines. I got $100 worth of the crude concentrated poisons, $150 worth of nice furniture for a practice shop, three dozen gallon bottles and all the smaller vessels in

> proportionate quantities down to pints with an equal number of glass jars of the same sizes and sufficient instruments for a country practice (Lincecum 1994).

Manuscripts in the GLC detail the allopathic medicinal supplies obtained by Lincecum within his practice (2E366 GLC).

Lincecum's claim to know "all that had been published on the subject [of medicine]" may indeed be exaggerated given the widespread lack of availability of medical texts in Mississippi and the southern United States at this time (Clay 1953). Evidence of Lincecum's access to medical texts of this period is however documented in his ethnobotanic annotations in which he cites prominent nineteenth century physicians including Benjamin Rush (1746-1813) and Thomas Sydenham (1624-89), both of whom published allopathic medicinal texts in the late eighteenth century. Geiser (1948) considers that despite Lincecum's somewhat overstated claims in his autobiographical works he was "to a high degree successful" in his practice as a physician, being perhaps "more highly regarded than most of his colleagues" despite their formal training within the preceptor system of the time.

Lincecum was practicing allopathic medicine during the cholera epidemic that was widespread in Mississippi in 1833 (Lincecum 1994, Rothstein 1972). Lincecum describes cholera as "a very fatal type of dysentery …. they called it bloody flux, and it killed two to the hundred of the population" (Lincecum 1904). Rothstein (1972) notes that in the New Orleans epidemic of 1832, the death rate for the population "reached the almost incredible figure of 140.9 per 1,000." Lincecum considers that he was largely successful in the treatment of dysentery associated with cholera, but that the subsequent fever proved fatal for many patients (Lincecum 1904). Allopathic physicians utilized a range of practices including calomel, bloodletting, and mustard plasters for the treatment of cholera, with treatment becoming so extreme that Rothstein states "the danger from the physicians may have exceeded the danger from the disease in many cases" (Rothstein 1972).

Lincecum lost several patients during this epidemic and became skeptical of the efficacy of the allopathic medical system. In his manuscripts he states

> I began to suspect the treatment that was practical, and watched the effects of our remedies very carefully […] the hundreds that were dying all around me in the hands of other physicians, convinced me that our remedies were impotent, or that they were even worse than that, for they seemed to increase the force of the disease (Lincecum 1994).

Lincecum closed his medical practice and pursued his interest in investigating alternative medicinal systems specifically suited to "diseases of the south" (Lincecum 1904).

Lincecum arranged to meet *Alikchi chito*, or "Big Doctor," of the Southern or Sixtown group of the Choctaw with the intention of learning Choctaw botanical remedies. Lincecum states in this autobiography that Alikchi chito was willing to teach him about the plants used for medicine in order that his medicinal knowledge could be preserved (Lincecum 1904). The arrangement involved Lincecum's payment to Alikchi chito of 50 cents per day in addition to the provision of supplies (Lincecum 1904). Lincecum preserved botanic specimens of the plant species utilized by this doctor for medicine and took a written description of the medicinal use of the plants in the Choctaw language (Lincecum 1904). At the conclusion of the field trip Lincecum recited what he had written back to Alikchi chito in order that corrections and additions could be made (Lincecum 1904). This herbarium collection documenting the medical use of plants by the Choctaw is not contained within the GLC (Campbell 1951) and further information on it has not been published (Clay 1953).

The knowledge obtained by Lincecum during this time is significant as it represents information on the medicinal use of plants learned directly from a Native American medical practitioner collected during the Choctaw residence in their traditional lands east of the Mississippi prior to their removal west of the Mississippi, commencing in 1831 (Campbell 1951, Purdue and Green 2001). Lincecum's ability to speak the languages of both the Choctaw and Chickasaw Indians potentially enabled him to provide the plant names in Choctaw, Chickasaw or Creek in addition to providing Latin binomials. Lincecum's contact with the Choctaw and Chickasaw early in the period of increasing Euro-American settlement in Mississippi facilitates documentation of plants species utilized for medicine prior to significant European influence on the native pharmacopoeia (Vogel 1970). Lincecum's knowledge of the use of plants by Native American

Indians provided by this contact with a Native American medical practitioner provides a direct source for the incorporation of medicinal plant species into the Euro-American pharmacopoeia at a time when a large number of references to the native pharmacopoeia were of limited reliability as a result of increasingly indirect transmission of ethnobotanic information (Rothstein 1988).

Botanic Physician (1835-1848)

Lincecum reopened his medical practice at Cotton Gin Port initially employing the allopathic system (see page 22) and finally, in response to the request of patients, incorporating botanic medicine (see page 24) into his practice. Botanic medicine, made popular by Samuel Thomson, was experiencing an increase in popularity during this time to such an extent that in 1830 the governor of Mississippi claimed over half of the population supported the Thomsonian system (Rothstein 1972). Lincecum proceeded to treat patients with both medical systems according to their preference stating “I had large saddlebags made, and I carried the Thomsonian medicines in one and the old school drugs in the other” (Lincecum 1904).

Lincecum continued to develop his “double practice” gaining more confidence in the efficacy of the Thomsonian system stating,

> The fact that the cases treated with the botanic agents recovered sooner every time and that under the treatment there were no deaths could not be concealed; and the people in my region of practice began to turn over to it in many families” (Lincecum 1904).

Finally, the loss of a young patient "under circumstances leaving me no ground to doubt the fact that the death was occasioned by the allopathic remedies" led Lincecum to cease treatment with allopathic medicines and turned exclusively to the use of botanic remedies in his practice (Lincecum 1904).

Lincecum used the botanic medical reference written by Horton Howard, "An Improved System of Botanic Medicine," the first edition of which was published in 1833 stating that he considers it to be "written in better style and spirit than Thomson's books were" (Lincecum 1904). Howard included a "New Vegetable Materia Medica" in his three volume publication providing Latin binomials and a short description of the plant species utilized in addition to illustrations of 37 plant species. Howard includes references to botanic physicians (Thomson 1835), and Materia Medica (Barton 1798-1804, Bigelow 1817-1820, Cullen 1812, Rafinesque 1828, Thacher 1810) which may have provided the "medical science" that Lincecum had originally sought in Thomson's "New Guide to Health." The inclusion of Latin binomials in Howard's book may have inspired Lincecum's belief that he "very much needed [a] knowledge of systematic botany, and I studied it on horseback as I rode from place to place until I understood all that was known about it then" (Lincecum 1904). Following Howard's death in 1833, Lincecum was appointed an agent with the rights to "compound and use the medicines of Howard's improved system" within the state of Mississippi which is archived in the Gideon Lincecum Collection (2E363 GLC).

Lincecum published several articles in the years 1839 to 1844 as letters to the editor of the Botanico-Medical Recorder, the journal associated with the Botanico-Medical School in, Ohio established by Alva Curtis (Rothstein 1972). Lincecum's son, Leonidas, studied medicine with Dr. Alva Curtis at the Botanico-Medical College in 1844 (Burkhalter 1965, Lincecum 1844). The articles written by Lincecum provide detail of his medical practice during this time; he provides case histories of several unusual cases and the course of treatment prescribed (Lincecum 1839-1840b, 1840-1841a), details of plant species utilized for medicine (Lincecum 1840-1841c), and discusses the benefits of botanic over allopathic medicine (Lincecum 1840-1841b, 1844) including details of allopathic physicians who have converted to the practice of botanical medicine and are currently under his instruction (Lincecum 1839-1840a).

Lincecum moved his practice to Columbus, Mississippi in 1841 and maintained a successful practice there until his departure for Texas in 1848. During this time (1841-1848) Lincecum claims his registered earnings for medical services was $51,000, not including $7,500 in debt which he wrote off prior to his departure for Texas (Burkhalter 1965).

Texas (1848-1874)

Lincecum first traveled to Texas in 1835 on an expedition to investigate potential immigration to Texas and to survey land suitable for purchase. He left

Columbus, Mississippi on January 9, 1835, and returned to Mississippi on August 5, 1835, during which time he kept a diary documenting the geology, vegetation, and soils of the counties through which he traveled in addition to recording the suitability of land for agriculture and regulations regarding land titles pertinent to potential immigrants (2E366 GLC). An analysis and edited transcript of this diary was published by Bradford and Campbell (1949).

Lincecum's permanent immigration to Texas occurred 13 years after this initial expedition following the annexation of the Republic of Texas into the United States. Lincecum and his family left Columbus, Mississippi on March 30, 1848, and traveled by steamboat to Houston via New Orleans and Galveston (Lincecum 1994). In Houston, Lincecum was met by two of his sons who had arrived in July 1847 having traveled overland from Columbus with the family possessions (Lincecum 1994). The family then traveled by "road wagon" from Houston arriving in Long Point, Washington County, Texas on April 22, 1848 (Lincecum 1994).

Lincecum's migration from his birthplace in Georgia to his final residence in Texas reflects the westward progression of migration characteristic of the United States in the early nineteenth century (Lathrop 1949). Analysis of the official census data from 1860 to 1880 indicates that over half the settlers of east Texas followed a similar migration course arriving in east Texas indirectly from North and South Carolina after subsequent residence in one or more of the states of Alabama, Mississippi, Louisiana, and Arkansas (Lathrop 1949). Direct immigration into east Texas was dominated prior to 1850 by settlers from Alabama, Tennessee, and Mississippi, and during the period 1848 to 1852 these three states accounted for 63.4% of all families arriving in east Texas (Lathrop 1949).

Lincecum continued his practice of medicine from his residence in Long Point, Texas. An 1850 announcement notifying residents of the establishment of a botanical medicinal practice by "Dr. G. Lincecum and Son" is archived in the Gideon Lincecum Collection (2E363 GLC). Lincecum's involvement during the 1850's in daily medical practice declined as more of his time was dedicated to the observation, description, and collection of the flora and fauna of Texas. Lincecum's sons Leonidas, Lucullus, and Lysander all practiced medicine (Burkhalter 1965) with Lucullus in particular taking on the responsibility for maintaining the medical practice (Lincecum 1997).

The shortage of medical care and resources during the Civil War led Lincecum to recommence the practice of medicine which he then continued out of economic necessity following the conclusion of the war. Medicines and hospital supplies were in short supply during the war and Lincecum published numerous articles in the Houston Tri-Weekly Telegraph in 1864-1865 on the treatment of common diseases with medicinal plants. In their need for large quantities of medicinal products military authorities encouraged the widespread cultivation of

Papaver somniferum (Papaveraceae) (opium poppies) for the production of morphine (Richardson et al. 1997) and *Sinapis nigra* (Brassicaceae) (black mustard) for the treatment of yellow fever, and Lincecum also contributed articles to the Houston Tri-Weekly Telegraph describing methods for the successful cultivation and harvesting of these plants.

Following the death of his wife, Sally, on February 2, 1867, Lincecum left Long Point on June 9, 1868, and traveled to Tuxpan, Mexico traveling from Galveston on the schooner *San Carlos* (Burkhalter 1965). Lincecum bought a house established on two acres of cleared land and an additional seventeen acres of forested land which he cleared for the cultivation of crops. Lincecum lived in Tuxpan until his return to Texas in May 1873 (Burkhalter 1965). Lincecum died at Long Point, Texas on November 28, 1874, and is buried in the State Cemetery in Austin, Texas (Burkhalter 1965). The date on Lincecum's tombstone erroneously reports his date of death as November 28, 1873 (Lincecum 1994).

EARLY NINETEENTH CENTURY MEDICINE

The medical profession underwent significant change in the United States during the first half on the nineteenth century and Lincecum's medical practice reflects many of the developments in the profession during this time (Haller 1981). Medical treatment was provided by a range of practitioners including physicians, apothecaries (who prepared and dispensed drugs), lay practitioners such as midwives, and "empirics" also known as "root and herb" or "Indian" doctors (Osborne 1977, Rothstein 1988). While medical treatment varied widely according to the education level and clinical experience of individual practitioners the provision of medical care was universally limited by the lack of scientific basis within medical theory and the etiology of disease during this time (Haller 1981, Rothstein 1972).

Allopathic Medicine

Allopathic medicine, an amalgam of botanical and mineral drugs, was the dominant system of medicine during the nineteenth century and was strongly influenced by the research and traditions of the large medical institutions of Europe. Physicians trained in medical colleges, many of whom had completed their training in Europe, represented only a small proportion of practicing physicians and were primarily located in the large urban centers (Rothstein 1988). Many of the medicines utilized were imported from Europe or derived from European plants cultivated locally (Rothstein 1988).

In the second quarter of the nineteenth century the establishment of medical schools facilitated the training of professional physicians within a formal education system. Prior to this time the vast majority of physicians trained under the preceptor system, whereby they were certified following an average of three years instruction working alongside a physician in their clinical practice (Rothstein 1972). The standard of training achieved in this system varied widely according to the education and clinical experience of the preceptor (Rothstein

1972). A second type of practitioner known collectively as “empirics” was particularly common in rural and frontier settlements during this time (Rothstein 1972). “Empirics” were often trained informally through apprenticeships with certified physicians and many practiced extensively with botanical remedies. Lincecum’s supervision in his reading of medicine by Dr. H. Branham and his ongoing support from other physicians in the establishment of his medical practice reflects the informal arrangement common amongst “empiric” practitioners. During his early practice in Columbus, Mississippi Lincecum had ongoing associations with several physicians trained under the preceptor system including Drs. S. B. Malone and D. Lipscomb (Geiser 1948).

The establishment of medical schools facilitated the transition of this largely individualized medical system into an increasingly standardized discipline (Rothstein 1988). The publication of medical journals by medical schools provided a significant source of information to physicians regarding ongoing developments within medical practice (Rothstein 1972). The establishment of medical societies in the southern states in Georgia between 1800 and 1819, in Louisiana and Tennessee between 1820 and 1839, and in Alabama and Mississippi between 1840 and 1859 reflected the organization of an increasing number of physicians with a formal medical education in these states and further enhanced standardization within medical practice (Rothstein 1972).

Allopathic medicine during the early nineteenth century was based on humoral theory, with diseased states considered to reflect temporal imbalance within the individual (Haller 1981). Lacking an etiology of disease, physicians classified diseases by the symptoms associated with the disease and medical treatment was therefore based on the amelioration of those symptoms. Short-term change in the symptoms of the disease was considered evidence of the removal of disease and provided the standard for success within medical treatment (Rothstein 1972). Allopathic physicians increasingly relied on “heroic” treatments: bloodletting, the use of mineral purgatives such as mercury, calomel, and tartar emetic, and blistering that produced profound changes in the symptoms of a disease. The widespread use of increasingly potent remedies as “panaceas” for the treatment of disease resulted in increasing hostility by the public to the use of “heroic” practices in medicine (Rothstein 1972).

Botanic Medicine

The emergence of the medical tradition historically known as *botanic* medical at this time provided an alternative to the traditional allopathic system sought by both physicians and the public. The most successful practitioner of botanic medicine during its early development was Samuel Thomson (1769-1843), who published his system of botanic medicine in his book “New Guide to Health: or, Botanic Family Physician” in 1814 and by 1822 had published the third edition (Clay 1953, Rothstein 1972). Thomson obtained the first patent for his “System of Botanical Medicine” on March 3, 1813, and a second on January

28, 1823 (Rothstein 1972). Thomson's medical system involved an initial treatment with purgatives to clear the body of disease followed by the use of tonics to restore the body to full health, a practice established by allopathic physicians, which Thomson achieved through the use of botanic medicines (Rothstein 1972). Thomson claimed as his own the discovery of the emetic properties of *Lobelia inflata*, stating, "[it] is the most important article made use of in my system of practice" (Thomson 1835). Herbals prior to 1825 record the use of *Lobelia inflata* (Campanulaceae) by both Native American Indians and early settlers prior to Thomson's use of this species as an emetic and cathartic (Vogel 1970).

The success of Thomson's system of botanic medicine practiced provided a challenge to the newly established medical profession producing a conflict between allopathic and botanic physicians that was maintained well into the second half of the nineteenth century (Rothstein 1972). Thomson condemned many of the practices of the regular medical profession including bloodletting, blistering, and the treatment with mineral preparations stating that

> The greatest difficulty I have had to encounter in removing the complaints which my patients labored under, has been to clear the system of mercury, nitre or opium, and bring them back to the same state they were in before taking them (Thomson 1835).

Allopathic physicians responded to Thomson's claims by questioning the scientific basis of the Thomsonian practice which they dismissed as "quakery," attempting to prevent botanical practitioners from obtaining licenses to practice medicine (Rothstein 1972). The popularity of the Thomsonian movement between 1830 and 1840 resulted in widespread repeal of medical licensing laws or inclusion of botanical practitioners into such laws in many states (Rothstein 1972).

It was not until the second half of the nineteenth century that a shift away from the concept of disease resulting from an individual's constitutional pathology towards that of disease as a result of cellular pathology was made possible by increasing knowledge of physiology, pathology, chemistry, and pharmacy (Haller 1981). Prior to this transition the tendency to use increasingly large doses of medicine in response to an escalating severity of disease was observed within both medical systems and reflected the inadequacy of medical knowledge in the treatment of disease. Both allopathic and botanic physicians employed therapies during this period that are now recognized as lacking a scientific basis and ineffective in their medicinal application. The innocuous nature of many of the remedies utilized within the botanical medicinal system and their replacement of often debilitating allopathic remedies meant that the botanic system was effective in reducing the harmful effects of heroic therapy during this time (Rothstein 1972).

The conflict that developed between allopathic and botanic physicians extended beyond treatment methods into the underlying doctrine of these systems. Rather than provide a long-standing alternative to allopathic medical practice, botanic medicine instead challenged the emerging doctrine that placed exclusive rights to medical knowledge and the practice of medicine with allopathic physicians. In the colonial period in America during the late eighteenth century, medicines were prepared according to recipes obtained from almanacs, newspapers, and traditional family practice in the form of simples (a medicinal preparation derived from a single medicinal taxon) (Rothstein 1988). Thomson (1835) advocated that medical knowledge, including medical reference books, should be available to the public in order to maintain the control of individual health for the individual. He established the Friendly Botanical Societies in order to provide "instruction and assistance in sickness" to members nationwide on the preparation and administration of his botanical remedies. Thomson built upon the work of John Wesley, whose book "Primitive Physic," published in 1747, outlined his belief that traditional medicinal knowledge, developed through experimentation rather than medical theories, should remain the property of the common people (Vogel 1970).

The predominance of "Indian doctors" in frontier settlements not served by formally trained physicians led Vogel (1970) to state that "Most of these white medicine men claimed to have learned their lore from the red men; so common was this claim that, whether true or not, it suggests that Indian medicine enjoyed a high reputation among the frontiersmen." The marketing of "Native American remedies" and the prevalence of claims by practitioners to practice with them may have answered to the ongoing public demand for remedies based on traditional practices rather than the empiricism of contemporary medical theory. Vogel (1970) considers that the ingredients and preparations in many of the "Indian remedies" utilized by physicians provide evidence of a European origin.

Lincecum's Medical Practice

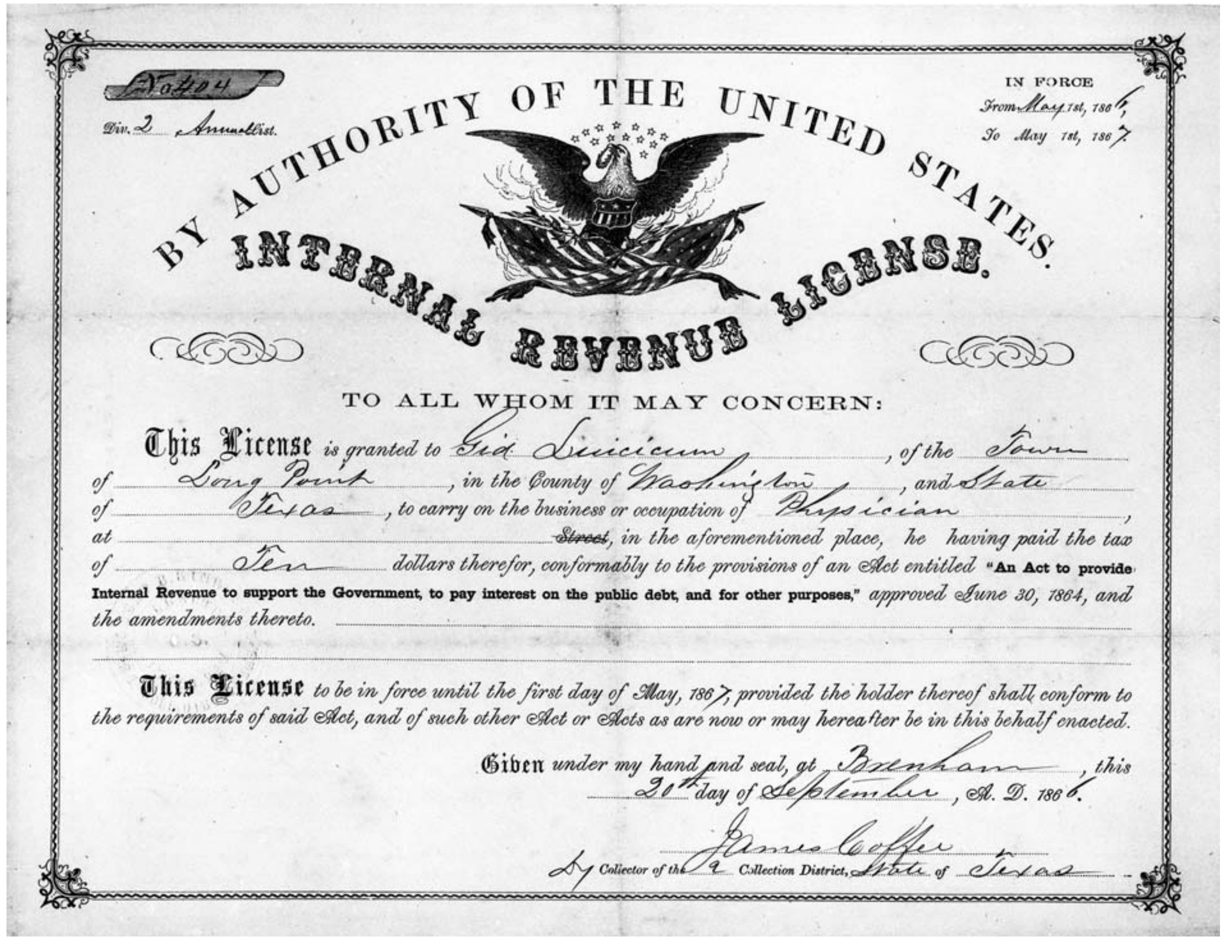
This conflict and the resulting "dialogue" between allopathic and botanic physicians are evident throughout the ethnobotanic data in Lincecum's herbarium collection. Having completed his reading in medicine within the allopathic tradition Lincecum was initially dismissive of Thomson's system of botanic medicine for what he considered its independence from standard medical practice. In his autobiography Lincecum states,

> I listened at [*sic*] the bragging and prating amongst the steam doctors (Thomsonian practitioners), as all those who had purchased Thomson's patent were called and I verily thought it to be the most perfect tomfoolery I had ever heard in all my life. I considered that the medical science was invaded (Lincecum 1904).

Following his transition to the exclusive practice of botanical medicine Lincecum became outspoken regarding the detrimental effects of allopathic medicine on patient health.

While Thomson limited his criticism of allopathic medicine to the "heroic" methods practiced (Rothstein 1988), Lincecum showed no such restraint and was equally scathing of allopathic physicians and "heroic" treatments. Lincecum's derision of the treatments utilized by allopathic physicians is observed throughout his data within the herbarium collection. Lincecum was particularly critical of the use of both mineral and plant products by allopathic physicians that he considered to be poisonous. In reference to the use of *Hyoscyamus niger* (Solanaceae) Lincecum states "All poisons diminish the vital energies. Lessens the principle of life. So does disease. Now when you find the vital action already considerably diminished by the disease, there is no sense in giving the patient an article that is known to have power to diminish vitality further. But the doctors will tell us that in some cases the patient has too much of the living principle [*sic*] and it becomes necessary to deplete. Phaw!" Lincecum contributed enthusiastically to the public debate between allopathic and botanic physicians and was both the author and subject of published articles undermining the competence and effectiveness of both medical systems (Burkhalter 1965, Lincecum 1840-1841b).

Lincecum maintained his advocacy for the rights of botanic practitioners throughout his practice in both Mississippi and Texas. Following his return to medical practice during the Civil War, Lincecum applied for and received a license to practice medicine in Washington County. This license, issued on September 24, 1866, is contained within the Gideon Lincecum Collection (Figure



No. 404

Div. 2 Annual list.

IN FORCE
From May 1st, 1866,
To May 1st, 1867.

BY AUTHORITY OF THE UNITED STATES.

INTERNAL REVENUE LICENSE.

TO ALL WHOM IT MAY CONCERN:

This License is granted to Gid Lincecum, of the Town of Long Point, in the County of Washington, and State of Texas, to carry on the business or occupation of Physician, at ~~Street~~, in the aforementioned place, he having paid the tax of Ten dollars therefor, conformably to the provisions of an Act entitled "An Act to provide Internal Revenue to support the Government, to pay interest on the public debt, and for other purposes," approved June 30, 1864, and the amendments thereto.

This License to be in force until the first day of May, 1867, provided the holder thereof shall conform to the requirements of said Act, and of such other Act or Acts as are now or may hereafter be in this behalf enacted.

Given under my hand and seal, at Brenham, this 20th day of September, A. D. 1866.

James Coffee

by Collector of the 2 Collection District, State of Texas

FIG. 1.1. GIDEON LINCECUM'S FEDERAL LICENSE TO PRACTICE MEDICINE ISSUED ON SEPTEMBER 20, 1866, IN WASHINGTON COUNTY, TEXAS (GIDEON LINCECUM COLLECTION (1821-1933), THE CENTER FOR AMERICAN HISTORY, THE UNIVERSITY OF TEXAS AT AUSTIN).

1.1) (2E365 GLC) (Burkhalter 1965). Lincecum also opposed the initiative by the Medical Association of Texas in 1865 to exclude botanical physicians from medical practice which he considered an attempt to monopolize and provide "exclusive privilege" to allopathic physicians.

CONCLUSIONS

The ethnobotanic data contained in the Gideon Lincecum Herbarium closely reflects conditions within the practice of medicine in the southeastern United States during the nineteenth century. Lincecum's lack of formal medical education was characteristic of many "empirics" practicing in rural and frontier settlements during the first half of the nineteenth century. His choice not to train as a physician within the preceptor system, an opportunity which would have been available to him in Columbus, Mississippi in the early 1830's, may reflect both his independent style and a necessity to maintain an income for his family. The education of Lincecum's son Leonidas at a botanic medical college in Ohio in 1844 reflects the rapid transition through which a formal medical education became more widely available soon after Lincecum established his medical practice.

Lincecum's lack of formal education did not prevent his establishment of a successful practice in both Mississippi and Texas and his ongoing activity within the botanical system of medicine. Lincecum maintained correspondences with Dr. H. Howard and Dr. A. Curtis, both of whom were directly involved in the development of the botanic movement within the United States. Lincecum provides information for other botanic physicians in his articles in the Botanico-Medical journal in addition to supervising the transition of allopathic physicians into botanic practice (Lincecum 1840-1841b). His desire to build upon Howard's system of botanic practice by "combining my Indian medicines with it" in an attempt to "establish a Southern system of practice that would be more applicable to Southern disease" (Lincecum 1874-1875) was a common theme amongst early medical practitioners in the southeast during this time and reflected the unique experience of settlers in the south where malaria and dysentery were particularly common (see also Porcher (1869) for his assessment of the need for remedies drawn from the Southern flora).

During the first half of the nineteenth century both allopathic and botanic medicine lacked a sound scientific basis for the etiology of disease and many of the techniques administered by physicians during this time have since proven to be ineffectual. By the 1830's and 1840's several allopathic physicians, including Jacob Bigelow in his published article "A discourse on self limited disease," questioned the beneficial contribution of "heroic" practices to health care (Bigelow 1835). Lincecum's outspoken opposition to the use of such treatments within the allopathic system of medicine therefore reflects the debate that deeply divided both physicians and the public during this time. Lincecum's personal style, particularly in the ease with which he provides opinions on current issues, is easily recognized throughout his manuscripts and is undeniably evident in the ethnobotanic data associated with his herbarium collection. The medical detail within this collection from the perspective of a botanical medical practitioner is, for the most part, readily separated from those personal opinions and contributes a great deal to an understanding of the practice of medicine and treatments utilized in a botanic practice during the nineteenth century.

CHAPTER 2

An Annotated Checklist of the Gideon Lincecum Herbarium

The Gideon Lincecum Herbarium contains 313 herbarium sheets: 343 specimens (some sheets have more than one species) representing 309 species. The specimens were mounted on a sheet of paper on the reverse side of which Lincecum provided a taxonomic identification and ethnobotanical data associated with the plant taxa. Markings on the specimen sheets indicate that the plants were originally attached with adhesive to the paper; 107 specimens remain attached to the specimen sheet underneath a mesh weave that has been laid over the specimen to aid in preservation, while 236 specimens have been placed in sealed Mylar envelopes that are inserted into the folded specimen sheet. Two specimen sheets containing taxonomic identifications and ethnobotanic data lack plant material.

Lincecum identified 319 specimens (92.7%) to level of genus and 316 (91.9%) to level of species in the collection, also providing the common name and the Indian name of the plant where it was known to him. The species are placed within the "artificial" classes and orders of the Linnaean classification system and in the "natural" orders of de Jussieu. Lincecum cites Eaton's "Manual of Botany for North America," 7th edition (1836) and Darby's "Botany of the Southern States" (ed. not specified) as the references for his taxonomic identifications.

Lincecum did not assign collection numbers to the specimens and accession numbers have been assigned by the present author.

METHODS

After receiving the Lincecum collection on loan from the University of Texas Center for American History, identification of the specimens was carried out at the Plant Resources Center (TEX/LL) of the University of Texas using the following as primary references: Bailey (2001), Correll and Johnston (1970), Diggs et al. (1999), Flora of North America (Flora of North America Editorial Committee 1993+), Gleason and Cronquist (1991), Isely (1998) and Radford et al. (1968). Comparison with herbarium specimens at TEX/LL was carried out for verification of the taxonomic identification.

While 265 specimens (76.8%) contained both vegetative and reproductive material, 69 specimens (20%) contained solely vegetative material and nine specimens (2.6%) contained solely reproductive material. It was not stated by Lincecum and therefore unknown *a priori* whether a given specimen is a native, naturalized, or cultivated plant. These features make botanical identification more difficult, although the use of the large TEX/LL herbarium, in many cases allows precise identification even when "key" characters are lacking. Nevertheless, it should be noted that the resultant list may contain taxonomic errors due to these considerations.

The ethnobotanic data contained within the Gideon Lincecum Herbarium were categorized utilizing the standards for Economic Botany Collections into food, medicines, materials, and poisons (Cook 1995). Ethnobotanic data for medicinal plants documents the plant part utilized, medicinal effect, disorders treated, methods of processing, medical application, and dosage. Data for food plants documents the plant part utilized, food type, and method of preparation. Data for species utilized as materials documents the material type, products produced, and plant part utilized. Data for species utilized as poisons document the organism affected, poisonous plant part, body part/processes affected, harmful effects, and group/culture that utilized the species as a poison.

A literature review of the ethnobotanic literature documenting medicinal plant use in the southeastern United States was conducted for comparison with the ethnobotanic data provided by Lincecum. References were included that document historical plant use according to an identified medical tradition: European (Brande 1839, Grieve 1974), allopathic Euro-American (National Medical Convention 1831, Porcher 1869), botanic Euro-American (Howard 1833, Thomson 1835), and Native American Indian (Campbell 1951, Moerman 1998, Taylor 1940, Vogel 1970). These references primarily document medicinal plant use within a single medical tradition. Where authors provide information associated with another medical tradition the primary source for the medicinal plant use was investigated and cited. Primary sources were referenced for Native Americans with whom Lincecum documents extended periods of direct contact:

Chickasaw (Swanton 1926-25), Choctaw (Bushnell 1909, Swanton [1931] 2001, Taylor 1940), and Creek (Swanton [1928]2000). Plant uses by the Alabama (Swanton [1928]2000), Cherokee (Hamel and Chiltoskey 1975 in Moerman 1998), Houma (Speck 1941), and Natchez Indians (Swanton [1928]2000) were included in the literature review due to their presence and potential influence within the southeastern United States during the period of Lincecum's residence and medicinal practice.

The references cited in this research all utilized botanic names of the medicinal plant species documented with the exception of Thomson's "New Guide to Health; or Botanic Family Physician" (1835). Howard's "An Improved System of Botanic Medicine" (1833) was referenced to determine the species associated with the common names provided by Thomson. Thomson's publication was included due to the significant contribution it made to the practice of botanic medicine in the United States during the nineteenth century, however the potential source of error introduced through references providing solely a common name for a species is regrettable. Reference in this thesis to plant species documented by Thomson (1835) include the Latin binomial assigned followed in parentheses by the common name that Thomson utilized in order to allow for cross-referencing by the reader.

The number of plant species represented in both the Gideon Lincecum Herbarium and the pharmacopoeia of each of the medical traditions were calculated to assess the similarity of Lincecum's pharmacopoeia to other contemporary pharmacopoeia. Due to incomplete historical evidence documenting the incorporation of medicinal species into a pharmacopoeia, the presence of a plant species identifies usage rather than inferring an origin for medicinal usage. The incorporation of a medicinal species into a pharmacopoeia may have occurred as a single event followed by transmission of knowledge locally and globally or as independent events at multiple locations. The earliest historical medicinal use of a plant species is included in the literature review where available. Plant species utilized for medicine by Lincecum that are not elsewhere documented in the ethnobotanic literature were identified and are here cited to the Gideon Lincecum Herbarium.

RESULTS

The Gideon Lincecum Herbarium (GLH) contains 309 species in 96 families and 242 genera. The collection includes 5 families in the Polypodiophyta (ferns: 5 genera, 9 species); 2 families in the Pinophyta (conifers: 5 genera, 5 species); and, within the Magnoliophyta (flowering plants) 10 families in the Liliopsida (monocotyledons: 18 genera and 24 species) and 79 families in the Magnoliopsida (dicotyledons: 213 genera, 271 species). Taxonomic representation of the specimens among major plant groups within the collection is detailed in Figure 2.1. Asteraceae is the largest family represented in the collection with 40 species, followed by Lamiaceae (36 species), Fabaceae (15 species), Liliaceae (13 species), Apiaceae (12 species), and Rosaceae (10 species). Forty-one families are represented by a single taxon.

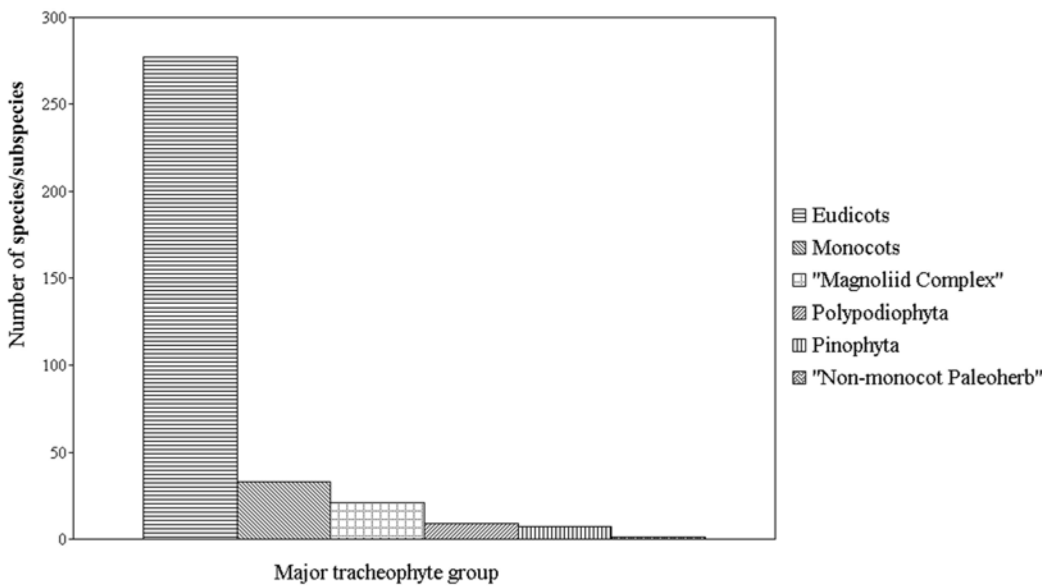


FIG. 2.1. REPRESENTATION IN THE GIDEON LINCECUM HERBARIUM OF THE MAJOR TRACHEOPHYTE GROUPS FOLLOWING JUDD ET AL. (1999).

Of the 343 specimens in the herbarium two hundred and thirty-six (68.8%) retained the identification assigned by Lincecum including 70 (20.4%) specimens for which the nomenclature was updated for the current correct name. Sixty-seven (19.5%) of the specimens were incorrectly identified by Lincecum. Twenty-three specimens (6.7%) were taxonomically identified for the first time including 8 specimens previously identified with a common name only. The identification of eight specimens (2.3%) whose utilization by Native American groups is cited solely to this collection has changed as a result of this research (Campbell

1951, Moerman 1998). Fifteen specimens (4.4%) containing multiple taxa were independently identified. Two herbarium specimens (0.6%) lack botanic material for verification of Lincecum's identification. Of the 343 specimens, 273 (79.1%) contain reproductive material.

Lincecum provided ethnobotanic data on 293 (93.0%) of the 313 herbarium sheets contained in the Gideon Lincecum Herbarium including 286 species (91.4%) utilized for medicine, 38 species (12.1%) utilized for food, 11 species (3.5%) utilized as materials, 7 species (2.2%) utilized as poisons, and 27 species (8.6%) with no identified ethnobotanic use. The utilization of 22 plant species not documented in the scientific literature is here cited to the Gideon Lincecum Herbarium.

Of the 286 species utilized for medicine, Lincecum documents the medicinal effect (260: 90.9%), plant part utilized (238: 83.2%), disorder treated (171: 59.8%), method of processing (138: 48.3%), medical application (121: 42.3%), and dosage (68: 23.8%). Quantification of the ethnobotanic data provided for medicinal taxa by Lincecum is presented in Figure 2.2. Of the 28 species utilized for food Lincecum documents the plant part utilized (25: 89.3%), food type (17: 60.7%), type of food preparation (4:14.3%) and specific situations for food utilization (2:7.1%). Food types identified include starch products, beverages, condiments, nuts, and green vegetables. The small number of plant taxa identified as materials in the collection includes ornamental, fiber, and dye plants. Six species identified as poisonous in the collection were all utilized by allopathic physicians for medicine in the nineteenth century (Porcher 1869).

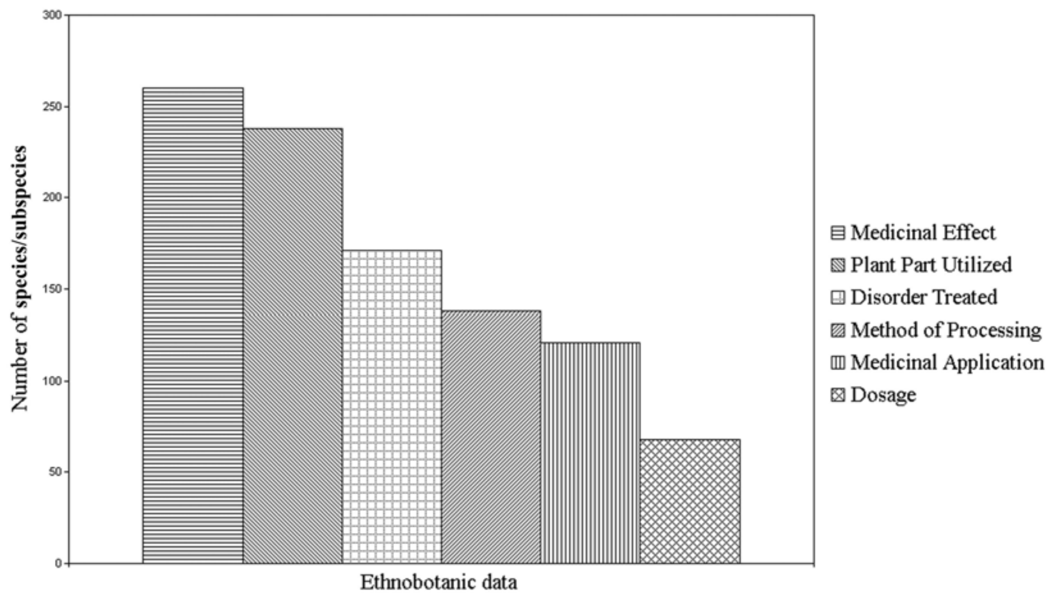


FIG. 2.2. NUMBER OF SPECIES/SUBSPECIES AND TYPE OF ETHNOBOTANIC DATA RECORDED BY LINCECUM IN THE GIDEON LINCECUM HERBARIUM

Of the 238 taxa for which the parts utilized for medicine are documented by Lincecum the largest number of use reports were documented for roots (127: 53.4%), followed by the entire plant (48: 20.2%), leaves (47: 19.8%), and bark (28: 11.8%) (Table 2.1). Lincecum documented the use of multiple plant structures for forty-one (17.2%) taxa utilized for medicine.

TABLE 2.1. PLANT STRUCTURES UTILIZED FOR MEDICINE BY GIDEON LINCECUM

Plant structure	Number of species
Entire Plant	48
Roots	127
Above Ground Parts	10
Stems	3
Bark	28
Buds	3
Leaves	47
Flowers	10
Fruit	25
Seeds	15
Other	5

Lincecum identified the medicinal effects of 260 taxa within his pharmacopoeia recognizing 55 major medicinal effect categories. These categories were standardized where possible according to the Economic Botany Data Collection Standards (Cook 1995) however the historical nature of the medicinal effect data required retention of several categories not recognized in the standards. The largest number of taxa of Lincecum's medicinal plants are considered tonic (99: 38.1%) followed by taxa that are diuretic (37: 14.2%), diaphoretic (35: 13.5%), aromatic (29: 11.1%) and stomachic (28: 10.8%) (Table 2.2). One hundred and eighty taxa were identified as producing more than one medicinal effect.

The ethnobotanic data provided by Lincecum documents the disorder treated for one hundred and seventy one plant taxa (59.7%). The disorders treated were standardized to the body systems affected according to the Economic Botany Data Collection Standards (Cook 1995). The taxa for which the disorders

TABLE 2.2. REPORTED MEDICINAL EFFECTS OF SPECIES IN GIDEON LINCECUM COLLECTION.[(* = NON-STANDARD MEDICINAL EFFECT (COOK, 1995)].

	Medicinal Effect	Number of species
Tonic	99	
Diuretic	37	
Diaphoretic	35	
Aromatic*	29	
Stomachic	28	
Stimulant	28	
Expectorant	24	
Emetic	21	
Demulcent	20	
Carminative	19	
Purgative	18	
Antiscorbutic*	16	
Sudorific*	14	
Anthelmintic	14	
Laxative	13	
Febrifuge*	13	
Anodyne	11	
Sedative	11	
Secernant*	9	
Narcotic	8	
Refrigerant	8	
Emmenagogue	6	
Antiseptic	6	
Deobstruent	6	
Antispasmodic*	5	
Acrid*	5	
Oleaginous*	5	
Antivenereal*	4	
Alterant*	4	
Balsamic*	4	
Astringent	4	
Detergent	3	
Discutient*	3	
Rubefacient	3	
Restorative	3	
Antidysenteric*	2	
Epispastic	2	
Antidiuretic*	1	
Anti-fungal	1	
Anti-poison	1	
Antibilious*	1	

treated are provided by Lincecum include three hundred and five reports of treatment within a body system therefore on average each taxon treats disorders in 1.8 body systems. Lincecum's pharmacopoeia contains 72 (42.1%) taxa that treat infections and/or infestations, 47 taxa (27.5%) that treat digestive disorders, 26 taxa (15.2%) that treat respiratory disorders and 25 taxa (14.6%) that treat genito-urinary disorders (Table 2.3).

Lincecum documents the preparation type for 138 taxa (48.2%) providing a total of 202 reports overall (Table 2.4). Where multiple plant structures are utilized or multiple disorders are treated the processing techniques are reported separately for each condition where this information is provided by Lincecum. A small number of preparation types were extensively utilized in the production of medicines including those yielding decoctions (65; 32.2%), tinctures (29; 14.4%), and infusions (19; 9.4%), as well as fresh preparations (18; 8.9%) and powders (15; 7.4%). The extensive use of such preparations reflects the simplicity of the methods and the availability of the resources utilized in such preparations. More complex techniques such as those yielding extracts (13; 6.4%), concretes (8; 3.9%), and steam distillation (2; 0.1%) were less frequently reported.

TABLE 2.3 NUMBER OF REPORTS FOR EACH OF THE BODY SYSTEMS BASED ON DISORDERS TREATED WITHIN THE GIDEON LINCECUM HERBARIUM.

Disorder	Number of reports
Infections/Infestations	72
Digestive	47
Respiratory	26
Genito-Urinary	25
Abnormalities	19
Injuries	19
Muscular-Skeletal	18
Skin/Subcutaneous Cellular	13
Inflammation	8
Poisonings	7
Ill-defined	7
Sensory	6
Circulatory	6
Blood	6
Mental Disorders	5
Pregnancy/Birth	4
Nervous	3
Pain	3
Endocrine	1
Nutritional	0
Metabolic	0

Lincecum documents the method of application of the medicines derived from 122 taxa (42.6%) producing 143 application reports (Table 2.5). The medicinal applications were standardized according to the Economic Botany Data Collection Standards (Cook 1995). A larger percentage of the medicines were taken internally (86 reports; 60.1%) than were externally applied (57 reports; 39.9%).

TABLE 2.4. PROCESSING TECHNIQUES REPORTED IN THE GIDEON LINCECUM HERBARIUM.

Preparation type	Number of Reports
Decoction	65
Tincture	29
Infusion	19
Fresh	18
Powder	15
Oil	14
Extract	13
Concrete	8
Dried	7
Mixed with other items	6
Distillation	2
Bruised	2
Expressed	1
Roasted	1
Mashed	1
Fermented	1

Details on the dosage of the medicines utilized were provided for 59 taxa (20.6%) within the collection. Where multiple medicinal preparations are utilized the dosage is reported separately for each preparation if this information is provided by Lincecum. Lincecum quantifies dosages units consistent with those utilized in the 1831 US Pharmacopoeia (National Medical Convention 1831) measuring weight in pounds (lb.), ounces, drachms (ʒ), scruples (϶) and grains (gr.) and volume in gallons, quarts and pints. Where dosage information is provided Lincecum usually states the quantity of the dosage and the frequency with which it should be taken. Less specific directions include dosage quantities "as much as the stomach will bear" or "taken freely."

TABLE 2.5. APPLICATION METHODS REPORTED IN THE GIDEON LINCECUM HERBARIUM.

Method of application	Number of Reports
Oral ingestion - tea	34
Poultice	28
Oral ingestion - syrup	19
Ointment/Liniment	16
Oral ingestion - chewed	9
Plaster	7
Oral injestion - juice	5
Suppositories - vaginal	4
Inhaled - vapor bath	3
Injection	3
Dressing	2
Inhaled - snuff	2
Oral ingestion - cordial	2
Suppositories - urethral	2
External (unspecified)	1
Internal (unspecified)	1
Drops - ear	1
Wash - mouth	1
Wash - bath	1
Suppositories - rectal	1
Inhaled - smoke	1

Of the 293 specimens containing ethnobotanic data Lincecum cited an ethnobotanic source for 52 taxa (17.7%) in the collection including 22 taxa whose utilization was adopted from Native American groups, ten species utilized by botanic physicians, and nine species utilized by allopathic physicians. A review of the ethnobotanic literature identified 203 species within Lincecum's pharmacopoeia that were utilized by Native American Indians, 79 taxa that were utilized by European physicians, 77 taxa that were utilized by American allopathic physicians and 79 taxa that were utilized by American botanic physicians. Three taxa cited by Lincecum referenced to the botanic physician

Howard were not found in either the 1832 or 1856 edition of Howard's "Improved System of Botanic Medicine" (Howard 1833, 1861).

ANNOTATED CHECKLIST

In the annotated checklist specimens are arranged alphabetically by family. Delimitation of the families in the Polypodiophyta and Pinophyta follow Kartesz (Kartesz 1999). Delimitation of families in the Liliopsida, follows the Flora of North America (2002) which retains the circumscription of the Liliaceae s.l. by Cronquist (1993) and includes the Alliaceae, Amaryllidaceae, Asparagaceae, Convallariaceae, Hemerocallidaceae, Hyacinthaceae and Hypoxidaceae while recognizing the Agavaceae and Smilacaceae as distinct (Diggs et al. 1999). Delimitation of families in the Magnoliopsida follows Kartesz (1999) with the exception of Scrophulariaceae in which genera are placed according to Olmstead (2001).

Species nomenclature follows Kartesz (1999) unless otherwise noted. Alternative references utilized for taxonomic classification/nomenclature accompany the entry in parentheses. Lincecum's identification is included for reference and is included in parentheses after the present author's taxonomic identification. The relationship between the taxonomic determination of this author to that provided by Lincecum is included in parentheses and notes those taxa for which Lincecum's taxonomic determination was confirmed ("no change" in the determination), those taxa for which the nomenclature was updated to currently accepted nomenclature (a "nomenclatural change" in the determination), and those taxa for which the determination made by the current author is different to that made by Lincecum (a "taxonomic change" in the determination). A unique accession number assigned by the present author to each botanic specimen within the Gideon Lincecum Herbarium follows the taxonomic identification. Location and date of collection of the specimen is given if this information was provided by Lincecum.

Taxonomic data are presented as follows:

Latin binomial (species and infraspecific taxa), authority (Brummitt & Powell, 1992), (reference to treatment followed if differing from Kartesz, 1999), (Lincecum's taxonomic identification), (relationship between the taxonomic determination of this author to that provided by Lincecum), accession number (assigned by the current author according to the order in which the specimens were collated within the Gideon Lincecum Collection), locality of specimen collection (where provided), and date of specimen collection (where provided).

Ethnobotanic data of Lincecum presented as follows:

Plant species are presented within use categories according to the standards for Economic Botany Collections (Cook 1995) and the usage data provided varies according to these categories. Within a usage category (e.g. medicine, food, etc.) absence of data indicates that no information was provided by Lincecum regarding that aspect of plant usage (e.g. plant part utilized, medicinal effect). Current medical terminology for historically recognized medical disorders (e.g., intermittents (malaria)) accompanies the disorder in parentheses (Steadman 1961). References for disorders no longer recognized (e.g., "scrofula" applied historically in reference to a constitutional state) are included in quotation marks. Species for which Lincecum provides no ethnobotanic data are so indicated. Species utilized by allopathic doctors that Lincecum considers to be poisonous are noted as both medicines (as "medicine*") and poisons.

The literature review includes references identified by the author concerning the use of taxa within the ethnobotanic literature. Species for which Lincecum provides either the sole ethnobotanic reference or an original medicinal application are indicated. Species for which no ethnobotanic utilization was found are also noted.

ACERACEAE

Acer spicatum Lam. (No original identification), (Fragment), 69.2.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

AGAVACEAE

Manfreda virginica (L.) Rose ssp. virginica (Diggs, Lipscomb and O'Keenan, 1999), (Agave virginica), (Nomenclatural Change), 19.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Demulcent. Disorder Treated: Rattlesnake bite. Processing Technique: Fresh, Decoction in sweet milk.

Literature Review:

The root of this species is chewed in the treatment of diarrhea by the Cherokee Indians (Moerman 1988). The Creek Indians utilized the root of *Manfreda virginica* in decoction as a wash for the treatment of snake bite and the bite of a centipede (Swanton [1928]2000).

ANACARDIACEAE

***Cotinus coggygria* Scop. *(Rhus cotinus)*, (Nomenclatural Change), 53.**

Ethnobotanic Data:

Poison.

Literature Review:

No ethnobotanic utilization found.

Rhus glabra L.   (Rhus glabra), (No Change), 118.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Astringent, Diuretic, Tonic. Disorder Treated: Uterine hemorrhage. Medicinal Application: Vaginal pessary. Processing Technique: Decoction. Dosage: One half teacup doses as often as the stomach will bear. Cited Origin: Botanic physicians.

Literature Review:

Allopathic physicians utilized the fruit of *Rhus glabra* as a refrigerant and febrifuge and an infusion of the bark or root was utilized as a gargle for sore mouth resulting from mercurial treatment, and in syrup for the treatment of "fall fluxes" (dysentery) (Porcher 1869). The fruit of *Rhus glabra* was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). The bark, leaves, and berries of this species were utilized by botanic physicians in decoction for their astringent, diuretic, and tonic properties (Howard 1833, Thomson 1835). The Cherokee utilized a decoction of the bark as a wash for blisters (Mooney 1932) and the Creek Indians utilized a decoction of the root for dysentery (Moerman 1998).

***Toxicodendron radicans* (L.) Kuntze ssp. negundo (Greene) Reveal, (Rhus quercifolium), (Nomenclatural Change), 4.**

Ethnobotanic Data:

Medicine*. Plant Part Used: Leaves. Medical Effect: Acrid, Poisonous. Disorder Treated: Paralysis. Cited Origin: Allopathic physicians.

Materials. Material Used For: Dye. Plant Part Used: Sap. Dye/Pigment Color: Not given. Poison. Plant Part Used: Leaves. System Effected: Nervous System. Harmful Effect: Paralysis, Prickling sensation, opening of the bowels.

Literature Review:

Lincecum considers this species poisonous and does not utilize it as a medicine however notes that it is utilized extensively by allopathic doctors. Allopathic physicians utilized the leaves in powder, infusion or extract for the treatment of anasarca, paralysis, rheumatism, skin disorders and as a vesicant for the production of blisters on account of their irritant, narcotic, rubefacient and stimulant properties (Brande 1839, Grieve 1974, Porcher 1869). The leaves of *Toxicodendron radicans* were official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). In small doses the leaves act as a sedative on the nervous system however larger doses produce gastric intestinal irritation, drowsiness and delirium (Grieve 1974). The Cherokee Indians used a decoction of the inner bark of this species as an emetic (Moerman 1998). The Houma utilized a decoction of the leaves as a tea as a tonic (Speck 1941).

APIACEAE

Angelica atropurpurea L. (Angelica atropurpurea), (No Change), 93.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Aromatic, Carminative, Stimulant, Stomachic. Disorder Treated: Gripes in suckling children. Medicinal Application: Tea.

Materials. Material Used For: Flour/Starch. Plant Part Used: Roots.

Literature Review:

The root and leaves of *Angelica atropurpurea* were considered carminative, diaphoretic, expectorant, stomachic, stimulant and tonic and were utilized for the treatment of colic, coughs, and diseases of the urinary system (Grieve 1974). *Angelica atropurpurea* has similar medicinal properties as the European *Angelica archangelica* without the potency of that species (Grieve 1974). The root of Angelica atropurpurea was official in the US Pharmacopoeia from 1820 to 1860 (Gathercoal 1942). The Cherokee Indians utilize a “root tonic” as a carminative, febrifuge, sedative and for the treatment of colic, colds, fever, “obstructed menses," sore throat or mouth, and "nervous females" (Moerman 1998).

Coriandrum sativum L. (Coriandrum sativum), (No Change), 88.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Carminative, Stomachic. Disorder Treated: Windy bowels in infants.

Literature Review:

The fruit of *Coriandrum sativum* are aromatic, carminative, and stimulant and have been utilized for their aromatic and carminative properties in purgative compounds (Grieve 1974). The fruit and the oil obtained from the fruit of *Coriandrum sativum* were official in the US Pharmacopoeia from 1820 to 1916 and 1880 to 1942 respectively (Gathercoal 1942). Botanic physicians considered the root diuretic, stimulant, and expectorant (Howard 1833).

Daucus carota L. (Carum carvi), (Taxonomic Change), 90.

Ethnobotanic Data:

Medicine. Plant Part Used: Seeds. Medical Effect: Aromatic, carminative, stomachic.

Literature Review:

The fruits and oil of both *Daucus carota* and *Carum carvi* were considered aromatic, carminative and stimulant (Grieve, 1974) and were official in the United States Pharmacopoeia from 1820 to 1870 and 1820 to 1932 respectively

(Gathercoal 1942). The seeds of *Daucus carota* were utilized by allopathic physicians as a diuretic taken internally for the treatment of urinary disorders, and applied topically as a poultice for their anodyne and anti-septic activity (Porcher 1869). The seeds of *Carum carvi* were utilized by allopathic physicians for the treatment of colic (Brande 1839). Lincecum states that this species is equal in medicinal value to fennel (*Foeniculum vulgare*) which was also considered carminative and was utilized by botanic physicians for the treatment of

flatulence (Howard 1833). The ethnobotanical data associated with this specimen is consistent with the medicinal properties documented for both *Daucus carota* and *Carum carvi*.

Daucus carota L. (Daucus carota), (No Change), 92.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Emollient. Medicinal Application: Poultice.

Food.

Literature Review:

The seeds of *Daucus carota* were official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The root and seeds were considered carminative, diuretic and stimulant by allopathic physicians and were taken internally in infusion for the treatment of stranguary and suppression of urine. The oil obtained from the seeds was considered emmenagogue and anti-hysteric (Porcher 1869).

***Daucus pusillus* Michx. (*Daucus pusillus*), (No Change), 87.**

Ethnobotanic Data:

Medicine. Plant Part Used: Seeds. Medical Effect: Diuretic. Disorder Treated: "Dropsy," Gonorrhea, "Kidney problems."

Literature Review:

The seeds of *Daucus pusillus* possess similar medicinal properties to those documented for *Daucus carota* and were considered to provide a larger volume of volatile oil (Porcher 1869). The seeds of *Daucus carota* were considered carminative, diuretic and stimulant by allopathic physicians and were taken internally in infusion for the treatment of kidney disorders (Porcher 1869).

***Eryngium yuccifolium* Michx. (*Eryngium aquaticum*), (Nomenclatural Change), 199. Collection Date: 1846.**

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Tops. Medical Effect: Diuretic, Expectorant, Stimulant. Disorder Treated: Gonorrhea. Medicinal Application: Tea. Processing Technique: Tincture. Dosage: Gonorrhea: Three ounces tinctured in one quart of whisky. Tea of tops in half teacup doses three to four times a day. Cited Origin: Choctaw, Mr Hardiman.

Literature Review:

The nomenclature of *Eryngium aquaticum* has been misapplied to *Eryngium* *yuccifolium* (Gleason 1991) and the ethnobotanic data associated with this specimen has been incorrectly applied to *Eryngium aquaticum* (Campbell 1951, Moerman 1998). The Cherokee Indians used the root of *E. yuccifolium* as a snakebite remedy and in decoction as a pulmonary aid (Moerman 1998). Creek Indians used an infusion of the root of *E. yuccifolium* as a treatment for snakebite, kidney problems, gonnorhea, and rheumatism (Moerman 1998, Swanton [1928]2000, Taylor 1942). The Cherokee Indians also administered a decoction of *Eryngium yuccifolium* for the prevention of whooping cough (Mooney 1932). The root of *Eryngium aquaticum* was official in the US Pharmacopoeia from 1820 to 1860 (Gathercoal 1942). Botanic physicians utilized the root for its diuretic, stimulant, and expectorant properties in addition to its topical use for snakebite (Howard 1833). The ethnobotanic data associated with this specimen is consistent with the medicinal use of *Eryngium yuccifolium* by Native American Indians in the southeastern United States and documents the use of the root and tops by Lincecum and the Choctaw. No further references to Mr Hardiman are found in Lincecum's manuscripts for identification of this individual.

Foeniculum vulgare Mill. (Anethum foeniculum), (Nomenclatural Change), 198.

Ethnobotanic Data:

Medicine. Plant Part Used: Seeds. Medical Effect: Aromatic, Stomachic. Medicinal Application: Compound (Bitter).

Literature Review:

The seeds and young shoots of *Foeniculum vulgare* were utilized by Roman physicians and the medicinal use of this species was documented in early English herbals (Grieve 1974). The essential oil obtained from the seeds is aromatic and carminative and was utilized by allopathic physicians as a carminative combined with purgative compounds to treat the gripes (bowel pain) associated with such medicine and as an antispasmodic for the treatment of coughs and hiccoughs (Porcher 1869, Grieve 1974). The fruit of *Foeniculum vulgare* was official in the US Pharmacopoeia from 1820 to 1942 (Gathercoal 1942). Botanic physicians utilized the oil obtained from the seeds for their carminative and diuretic properties and added the seeds to bitter compounds for their aromatic properties (Howard 1833). The Cherokee utilized this species as a tonic and carminative for the treatment for colic and flatulence (Moerman 1998).

Osmorhiza longistylis (Torr.) DC. (Chaerophyllum procumbens), (Taxonomic Change), 86.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Emetic. Disorder Treated: "Carrying of the morbid." Cited Origin: Chickasaw.

Literature Review:

This specimen was misidentified by Lincecum and the ethnobotanic data documenting the use of the root as an emetic by the Chickasaw Indians has been incorrectly applied to *Chaerophyllum procumbens* (Campbell 1951, Moerman 1998). No references were found documenting the use of *Osmorhiza longistylis* as an emetic by Native American Indians of the southeastern United States however the Cheyenne and the Potawatomi Indians utilize *Osmorhiza longistylis* (leaves, stems and root and root respectively) as a gastrointestinal aid and the Pawnee utilize the root in decoction as a stimulant taken for the treatment of "general debility" (Moerman 1998). Lincecum notes the use of this species with application similar to the use of *Lobelia inflata* which was extensively utilized by Thomsonian practitioners and Native American Indians as an emetic (Thomson 1835). No references were found documenting the medicinal use of *Chaerophyllum procumbens* as an emetic. Based on the correct identification of this specimen the ethnobotanic data associated with this specimen documents the medicinal use of the root of *Osmorhiza longistylis* as an emetic by Lincecum and the Chickasaw Indians.

Pastinaca sativa L. (Pastinaca sativa), (No Change), 39.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Aromatic, Carminative, Odoriferous.

Food. Plant Part Used: Root.

Literature Review:

The root of *Pastinaca sativa* was documented in eighteenth century English herbals to be carminative and diuretic and was utilized in decoction for the treatment of flatulence, obstructions, jaundice, and gravel (Grieve 1974). The leaves and stalks were utilized within nineteenth century domestic medicine in North America for the treatment of cancer, asthma, and tuberculosis (Grieve 1974). Moerman (1998) documents the use of an unspecified plant structures of *Pastinaca sativa* by the Cherokee for the treatment of “sharp pains.”

Petroselinum crispum (Mill.) Nyman ex A. W. Hill (Apium petroselinum), (Nomenclatural Change), 91. Collection location: Mississippi.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Diuretic, Emetic. Disorder Treated: Colic, "Dropsy." Processing Technique: Decoction. Dosage: One teacup repeated at 15 minute intervals.

Literature Review:

The volatile oil obtained from the root, leaves and fruit of *Petroselinum crispum* was considered aperient, carminative, and tonic within European medicinal practice and was utilized for its diuretic properties for the treatment of kidney disorders including "dropsy", jaundice and kidney stones (Grieve 1974). The volatile oil was utilized in French medicinal practice for the treatment of malarial fever (Grieve 1974). The root was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). Botanic physicians utilized the root of this species in decoction as a diuretic for the treatment of "dropsy" and "urinary suppression" (stranguary) (Howard 1833). The Cherokee utilized both the top and root in infusion for the treatment of "dropsy," "female obstruction," and as a kidney aid (Moerman 1998).

Pimpinella saxifraga L. var. saxifraga (Pimpinella anisum), (Nomenclatural Change), 89.

Ethnobotanic Data:

Medicine. Plant Part Used: Essential Oil, Seeds. Medical Effect: Aromatic, Carminative, Stomachic. Medicinal Application: Compound. Processing Technique: Essential Oil.

Literature Review:

The root of *Pimpinella saxifraga* was considered diaphoretic, diuretic, resolvent, and stomachic and its use was documented in seventeeth century English herbals as a gargle for the treatment of sore throat and chewed fresh for the treatment of toothache (Grieve 1974). The seeds of *Pimpenella saxifraga* were utilized for their carminative effect (Grieve 1974). The fruit of Pimpinella saxifraga (*P. anisum* as syn.) was official in the US Pharmacopoeia from 1820 to 1926 (Gathercoal 1942). Botanic physicians considered the seeds carminative and utilized them for the treatment of flatulence (Howard 1933). The Cherokee utilized an infusion of this species for the treatment of catarrh (Moerman 1998). The root is currently utilized for the treatment of respiratory membrane inflammation and the above ground parts are utilized as a digestive stimulant and respiratory aid (Jellin et al. 2002).

Sanicula marilandica L. (Sanicula marilandica), (No Change), 33.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Deobstruant, Diaphoretic, Diuretic, Stimulating, Stomachic. Disorder Treated: Colds, "Eruptive diseases," Fevers, Sore throats. Processing Technique: Decoction.

Literature Review:

The root was utilized as a powder for the treatment of "intermittent" fever (malaria) within domestic medicinal practice in North America during the nineteenth century (Porcher 1869). Porcher (1869) documents that Native American Indians utilized this species for the treatment of syphilis. The common name "Black Snakeroot" has been applied to this species in addition to *Cimicifuga racemosa* and *Aristolochia serpentaria* introducing inconsistency in the interpretation of historical references referenced solely with a common name (Vogel 1974). The above ground parts of this species are currently utilized for the treatment of respiratory membrane inflammation (Jellin et al. 2002).

APOCYNACEAE

Amsonia ciliata Walter var. texana (A. Gray) J. M. Coult., (Diggs, Lipscomb and O'Keenan, 1999), (Amsonia salicifolia), (Taxonomic Change), 30.

Ethnobotanic Data:

Use unknown to Lincecum.

Literature Review:

No ethnobotanic utilization found.

Apocynum cannabinum L. (Apocynum androsaemifolium), (Taxonomic Change), 278.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antivenerial, Diaphoretic, Diuretic, Emetic, Expectorant, Purgative, Tonic. Disorder Treated: Gonorrhea, Syphilis, Rheumatism. Medicinal Application: Addition to tonic laxative compound.

Literature Review:

Apocynum cannibinum and *A. androsaemifoium* were both considered diaphoretic and emetic however *A. cannibinum* was utilized in smaller doses than the latter and produced drowsiness which was not observed following treatment with *A. androsaemifolium* (Porcher 1869). The root of *A. androsaemifolium* was considered cathartic and tonic by both allopathic and botanic physicians and was utilized extensively as a laxative and emetic (Howard 1833, Porcher 1869, Thomson 1835). *Apocynum cannabinum* was utilized by allopathic physicians in decoction as a diuretic for the treatment of “dropsy” (Porcher 1869). The root of both *Apocynum cannabinum* and *A. androsaemifolium* were official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). The Cherokee utilized the root of *A. cannabinum* as an infusion for the treatment of “dropsy” and as a deobstruent in the treatment of “uterine obstructions” (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the medicinal use of both *Apocynum cannabinum* and *A. androsaemifolium*.

AQUIFOLIACEAE

Ilex opaca Aiton (Ilex opaca), (No Change), 138.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Astringent, Diaphoretic, Tonic. Disorder Treated: Colds, Intermittents (Malaria), Pleurisy. Medicinal Application: Tea. Processing Technique: Decoction.

Food.

Literature Review:

Allopathic physicians utilized the bark of the root of *Ilex opaca* in decoction as a demulcent, expectorant, and tonic for the treatment of colds and coughs, the leaves in infusion as a diaphoretic for the treatment of fever, and the fruit as an emetic and purgative (Porcher 1869). The leaves in infusion or decoction were considered to produce abortion (Porcher 1869). The Cherokee applied the leaves topically to sore eyes and cramping muscles and the fresh berries were utilized as a gastrointestinal aid in the treatment of colic and dyspepsia (Moerman 1998).

ARACEAE

Arisaema dracontium (L.) Schott (Arum dracontium), (Nomenclatural Change), 218.

Ethnobotanic Data:

No use documented.

Literature Review:

Lincecum states that the root of *Arisaema dracontium* "when green is said to be poisonous" but does not document the medicinal use of this species. Native American Indians utilized the leaves of *Arisaema dracontium* applied topically for their diaphoretic and vesicant effect in the treatment of dropsy (Vogel 1970).

Arisaema dracontium (L.) Schott (No original identification), 69.4.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 218.

Arisaema dracontium (L.) Schott (No original identification), (Fragment), 230.3.

Ethnobotanic Data:

No use documented.

Literature Review:

See assession number 218.

Arisaema triphyllum (L.) Schott (Arum triphyllum), (No Change), 230.1.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Disorder Treated: Scrofulous (swollen) tumors. Medicinal Application: Poultice. Processing Technique: Fresh.

Literature Review:

The root of *Arisaema triphyllum* (*Arisaema atrorubens* as syn.) was official in the US Pharmacopoeia from 1820 to 1860 (Gathercoal 1942).The root was considered expectorant and was utilized by allopathic physicians for the treatment of asthma and whooping cough and an ointment prepared from the root was applied topically for the treatment of ringworm (Porcher 1869). Botanic physicians utilized the fresh roots prepared in a conserve and taken in teaspoonful doses for the treatment of cold symptoms and the bruised root and leaves, applied topically, for the treatment of swelling associated with "scrofula" (an obsolete term applied to a constitutional state often associated with eczema, ulcerations, glandular swellings, and respiratory catarrhs) (Howard 1833). The Cherokee utilized the plant as an expectorant for the treatment of dry coughs, throat irritations and colds. A poultice of the root was utilized by the Cherokee for the treatment of skin conditions including boils, ringworm and "scrofulous sores" (Moerman 1998).

Arisaema triphyllum (L.) Schott (Arum triphyllum), (Nomenclatural Change), 68.3.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 230.1.

Arisaema triphyllum (L.) Schott (Arum triphyllum), (No Change), 230.2.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 230.1.

ARALIACEAE

Aralia racemosa L. (Aralia racemosa), (No Change), 101.

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Fruit. Medical Effect: Expectorant, Stimulant, Tonic. Disorder Treated: Colic, Cough, Gripes. Medicinal Application:

Syrup. Processing Technique: Decoction. Dosage: Freely taken. Cited Origin: Choctaw.

Literature Review:

The roots and berries were utilized by botanic physicians as a general tonic in the form of a tea or syrup for the treatment of coughs and "female weakness" (Howard 1833). The Cherokee utilized an infusion of the roots and berries as a diphoretic and tonic, a preparation (part unspecified) as an expectorant and for the treatment of coughs and lung diseases, and the bruised roots as a wash for burns and fresh wounds (Moerman 1998). No other reference to the application of the steam from the boiled root to sore eyes is documented for southeastern Indian tribes (Moerman 1998). The Gideon Lincecum Herbarium provides the sole reference for the use of *Aralia racemosa* by the Choctaw.

Panax quinquefolius L. (Gleason and Cronquist, 1991), (Panax quinquefolium), (Nomenclatural Change), 41.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Laxative, Tonic.

Literature Review:

During the eighteenth century the root of *Panax quinquefolium* was exported in large quantities from Virginia, North Carolina and Canada to China and Europe where it was utilized for medicine as a substitute for *Panax ginseng* (Grieve 1974, Vogel 1970). The root of *Panax quinquefolium* was utilized in North America by allopathic physicians as a demulcent, stimulant and tonic (Grieve 1974, Porcher 1869). The root was official in the US Pharmacopoeia from 1840 to 1870 (Gathercoal 1942). Botanic physicians utilized the root of this species as a powder, decoction or tincture for its stimulant and nervine properties (Howard 1833). The Cherokee utilized the root as an expectorant, tonic, and anticonvulsive (Moerman 1998). The Creek utilized the whole plant in decoction to produce sweating in the treatment of fevers and as a poultice for the treatment of wounds (Moerman 1998). The Houma Indians utilized a decoction or infusion to relieve vomiting and the infusion is taken with the addition of whiskey for the treatment of rheumatism (Speck 1941). Vogel (1970) considers that the use of this species by Native American Indians may be associated with a European influence particularly within the tribes who collected the roots for supply to the export market.

ARISTOLOCHIACEAE

Aristolochia serpentaria L. (Aristolochia serpentaria), (No Change), 277.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Anodyne, Antiseptic, Antispasmodic, Cordial, Diaphoretic, Stimulant, Tonic. Disorder Treated: Rheumatism. Processing Technique: Pulverised.

Literature Review:

The root of *Aristolochia serpentaria* was official in the US Pharmacopoeia from 1820 to1842 (Gathercoal 1942). Allopathic physicians considered the root diaphoretic, stimulant, and tonic and utilized an infusion for the treatment of fever and dyspepsia and a gargle for the treatment of sore throat (Brande 1839, Grieve 1974). The root was utilized as an adjunct to quinine for the treatment of malerial fever for both its diaphoretic and stomachic properties (Millspaugh [1892]1974). Botanic physicians considered the root to be antiseptic, diaphoretic, stimulant, and tonic and utilized a tea or tincture in the treatment of pleurisy, rheumatism, and remittent fevers (Howard 1833). The Cherokee considered the plant abortifacient, antirheumatic, antiseptic, diuretic, febrifuge, and stimulant and utilized an infusion for the treament of obstructions (Moerman 1998), an infusion as an anodyne for the treatment of breast pain or headaches (Bushnell 1985, Taylor 1941), and an infusion of the root for the treatment of venereal itching (Mooney 1932). The Choctaw soaked the roots in water and the resulting beverage was taken for the relief of stomach pains (Bushnell 1985, Taylor 1941). The Natchez Indians of Louisiana utilized an infusion of the whole plant for the treatment of fever (Taylor 1941). Lincecum cites "Dr. Yongue of Mississipp," for the use of *Aristolochia serpentaria* stating that it was utilized for the "same purpose that ergot (*Claviceps purpurea*) is recommend *[sic]* for by the books. It has a specific action on the uterus, particularly the gravid uterus and in those cases requiring stimulants." In the nineteenth century allopathic physicians utilized ergot to stimulate uterine contraction during labor and for its astringent properties in the treatment of uterine hemorrhage (Grieve 1974). Lincecum states "the advantages in the use of this article over ergot are great, there is no danger of exciting inflammation in stomach and bowels, and its power in equalizing circulatory fluids is universally acknowledged." No further references to the practice of Dr. Yongue are found in Lincecum's manuscripts for determination of the medical tradition in which he practiced.

Aristolochia tomentosa Sims (Aristolochia sipho), (Nomenclatural Change), 270.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Stimulating, Tonic. Disorder Treated: Birth Labor.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the medicinal use of the root of *Aristolochia tomentosa* as a stimulant and tonic during labor. Lincecum states that the specimen collected was "equal to the serpentaria (*Aristolochia serpentaria*) for the same purposes and is much better during labours *[sic]* than ergot (*Claviceps purpurea*)." For a complete discussion of the medicinal use of *A. serpentaria* see accession number 277.

***Asarum canadense* L. (*Asarum canadense*), (No Change), 280.**

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant, Root. Medical Effect: Diaphoretic, Emetic, Errhine, Expectorant, Pectoral, Stimulant, Tonic. Disorder Treated: Colds, Coughs and Pulmonary diseases. Processing Technique: Decoction.

Literature Review:

Allopathic physicians utilized the root for its aromatic, diaphoretic, diuretic, stimulant, and tonic properties for the treatment of coughs, colds, dropsy, and colic (Porcher 1869). The root of *Asarum candense* was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). Botanic physicians considered the root to be diaphoretic and stimulant, and they utilized a tea of the root for the treatment of fevers and colds and the dried leaves as a snuff (Howard 1833). The Cherokee considered the root anthelmintic, febrifuge, and stimulant and utilized an infusion of the root for the treatment of worms, fever, coughs and colds, "scant or painful menstruation," and "heart trouble" (Moerman 1998). The fresh leaves were applied by the Cherokee to wounds and sores and the dried leaves were utilized as a snuff (Moerman 1998). The Cherokee utilized the whole plant in decoction or infusion as an emetic for the treatment of "swollen breasts and stomach pain," and as an infusion to stimulate digestion (Moerman 1998).

***Hexastylis arifolia* (Michx.) Small (*Asarum arifolium*), (Nomenclatural**

Change), 281.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Expectorant, Stimulating tonic. Medicinal Application: Ointment. Processing Technique: Concrete.

Literature Review:

The Catawba Indians utilize the leaves of *Hexastylis arifolia* in infusion for the treatment of back pain, stomach pains, and "heart trouble" (Moerman 1998).

ASCLEPIADACEAE

Asclepias amplexicaulis Sm. (Asclepias obtusifolia), (Taxonomic Change), 274.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Asclepias purpurascens L. (Asclepias amoena), (Nomenclatural Change), 273.

Ethnobotanic Data:

Medicine. Plant Part Used: Root.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference to the medicinal use of the root of *Asclepias purpurascens* (as *A. amoena*). Lincecum utilized this species as a substitute for *Asclepias syriaca*, the root of which was considered diaphoretic, diuretic, and an emmenagogue and was utilized in the treatments of colds and "dropsy" (Howard 1833).

Asclepias tuberosa L. ssp. interior Woodson, (Asclepias tuberosa), (Nomenclatural Change), 276.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Diaphoretic, Pectoral, Stimulant. Disorder Treated: Colds, Influenza, Pleurisy. Processing Technique: Decoction.

Literature Review:

The root of *Asclepias tuberosa* was utilized by European physicians in both England and France as an antispasmodic, carminative, diaphoretic, expectorant, and tonic for the treatment of chest complaints, including pulmonary catarrh and pleurisy, and diarrhea and dysentery (Grieve 1974, Porcher 1869). The root was utilized by allopathic physicians as a diaphoretic and expectorant for the treatment of catarrh, pleurisy, pneumonia, rheumatism, and dysentery (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942). The root was utilized by botanic physicians in decoction for the treatment of lung complaints including pleurisy, and shortness of breath and as a purgative to treat bowel complaints in children (Howard 1833). The Cherokee utilized this species as an expectorant in the treatment of pleurisy and the seeds and root were utilized as a gentle laxative (Moerman 1998).

Asclepias variegata L. (Asclepias syriaca), (Taxonomic Change), 235.1.

Ethnobotanic Data:

Medicine. Medical Effect: Diaphoretic.

Literature Review:

The root and rhizome of *Asclepias syriaca* possess the antispasmodic, expectorant and febrifuge properties of *A. tuberosa* in reduced potency and were utilized as a substitute for that species in powder and infusion (Howard 1833). The root of *Asclepias syriaca* was considered diaphoretic, diuretic, and emmenagogue by botanic physicians and was utilized for the treatment of colds and "dropsy" (Howard 1833). Porcher (1869) documents the use of a decoction of the root of *Asclepias syriaca* by "Indian doctors" for the treatment of gonorrhea. The root of *Asclepias syriaca* was official in the US Pharmacopoeia from 1820 to 1850 (Gathercoal 1942). The Cherokee utilized *A. syriaca* for the treatment of "dropsy" and "gravel" (Moerman 1998). No references were found documenting the medicinal use of *Asclepias variegata*. The ethnobotanical data associated with this specimen is consistent with the medicinal use of *Asclepias syriaca*.

Asclepias verticillata L. (Asclepias verticillata), (No Change), 12.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Diaphoretic. Disorder Treated: All cases requiring sweating. Medicinal Application: Tea.

Literature Review:

A preparation of *Asclepias verticillata* (part unspecified) was utilized within "domestic" medical practice in the southeastern United States as a treatment for snakebite (Porcher 1869). The Gideon Lincecum Herbarium provides the sole reference for the use of the root of this species by the Choctaw Indians.

Asclepias viridis Walter (Asclepias phytolaccoides), (Taxonomic Change), 275.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Diaphoretic, Expectorant, Purgative, Tonic.

Literature Review:

This specimen provides the only reference to the medicinal use of the root of *Asclepias viridis* as a substitute for *A. tuberosa*. Lincecum notes that this species "does very well in place of the butterfly root root (*Asclepias tuberosa*)" which was perhaps "more tonic and perhaps a better expectorant". The root of *A. tuberosa* is considered expectorant and laxative and was utilized for the treatment of lung diseases and bowel complaints (Howard 1833, Moerman 1998). Based on the correct identification the ethnobotanic data associated with this specimen documents the medicinal use of *A. viridis* for its diaphoretic, expectorant, and laxative properties.

Asclepias viridis Walter (Asclepias connivens), (Nomenclatural Change), 269.

Ethnobotanic Data:

Medicine. Plant Part Used: Root.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the medicinal use of the root of *Asclepias viridis* according to medicinal properties documented for *A. tuberosa*. *A. tuberosa* was utilized extensively as a diaphoretic and stimulant by both allopathic and botanic physicians (see accession number 276) (Howard 1833, Moerman 1998, Porcher 1869).

Matelea carolinensis (Jacq.) Woodson (Radford, Ahles and Bell, 1968), (Gonolubus hirsutus), (Nomenclatural Change), 279.1.

Ethnobotanic Data:

Use unknown to Lincecum.

Literature Review:

Lincecum states that this species is "a well marked plant, and it is no doubt a good medicine" reflecting the use of the doctrine of signatures within Lincecum's pharmacopoeia that was characteristic of the herbals of the seventeenth and eighteenth century and still evident in aspects of the selection of medical taxa during the nineteenth century (Gifford 1978). The Houma Indians utilized an infusion of the roots of a *Gonolobus* species as a tea for the treatment of “sick stomach.”

Matelea obliqua (Jacq.) Woodson (Radford, Ahles and Bell,1968), (Gonolubus hirsutus), (Fragment), 279.2.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

ASPLENIACEAE

Asplenium pinnatifidum Nutt. (No original identification), (Fragment), 209.2.

Ethnobotanic Data:

No use documented. Medicine.Cited Origin: "The ancients."

Literature Review:

No ethnobotanic utilization found.

Asplenium platyneuron (L.) Britton, Sterns & Poggenb. (Asplenium ebeneum), (Nomenclatural Change), 204.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Mucilaginous, Secernant, Stimulant.

Literature Review:

Lincecum states that this species is "as good as any in the family," a reference to the medicinal use of the genus *Asplenium* by the ancients for the treatment of disorders of the spleen (Grieve 1974). Members of this genus were considered to possess deobstruent, mucilaginous and stimulant properties (Grieve 1974). The Gideon Lincecum Herbarium provides the only reference to the medicinal use of the leaves of *Asplenium platyneuron* in the southeastern United States for its mucilaginous, secernant, and stimulant properties.

Asplenium rhizophyllum L. (Asplenium rhizophyllum), (No Change), 209.1.

Ethnobotanic Data:

Medicine. Medical Effect: Secernant, Stimulant. Disorder Treated: Spleen disorders. Cited Origin: "The ancients."

Literature Review:

Lincecum notes that this plant was used by "the ancients" for the treatment of diseases of the spleen in reference to the properties assigned to the genus within ancient Greek and Roman medical practice (Grieve 1974). Lincecum indicated that he did not utilize this species in his practice. The Cherokee utilized this species in decoction applied topically and taken internally as an emetic to relieve swollen breasts (Moerman 1998).

ASTERACEAE

(Taraxacum officinale (Leontodon taraxacum as syn.)), (No specimen), 252.

Ethnobotanic Data:

Medicine. Medical Effect: Deobstruent, Diuretic, Hepatic, Laxative, Tonic, etc.. Disorder Treated: "Dropsy," Jaundice, Hypochondriasis, Liver complaints, Obstructions. Cited Origin: Drs. Rush, Zimmerman, Bergins, Pemberton, Thompson, Howard.

Literature Review:

The voucher specimen for this accession is not collated with the herbarium sheet and is not present in the Gideon Lincecum Herbarium. The leaves of *Taraxacum officinale* were included in early Arabian works from the tenth century and was utilized in Welsh medicine from the thirteenth century (Grieve 1974). The English herbals fron the sixteenth century document that the leaves and root were considered aperient, diuretic, and tonic and are utilized in decoction for the treatment of kidney and liver disorders (Grieve 1974). Lincecum cites the medicinal use of *Leontodon taraxacum* to Dr. Rush (among other physicians noted), an allopathic physician who published the medical text "Medical Inquires and Observations" in 1789, and the botanic physicians Howard and Thomson. Allopathic physicians utilized the root as a cathartic, deobstruent, and diuretic for the treatment of jaundice, disorders of the liver and gall-bladder, and uterine obstructions (Porcher 1869). The root of *Taraxacum officinale* was official in the

US Pharmacopoeia from 1830 to 1916 (Gathercoal 1942). Botanic physicians utilized the juice expressed from the entire plant or a decoction of the roots for its aperient, alterative, anti-spasmodic, expectorant, diaphoretic and tonic properties. The Cherokee utilized an infusion of the root as a blood medicine, an infusion of the herb to "calm nerves," and an unspecified plant part was chewed fresh for the treatment of toothache (Moerman 1998).

Achillea millefolium L. (Achillea millefolium), (No Change), 124.

Ethnobotanic Data:

Medicine. Plant Part Used: Plant. Medical Effect: Deobstruent. Disorder Treated: Blood purification, Opens pores. Processing Technique: Decoction.

Literature Review:

This species has a long history of utilization in both European and Native American Indian traditions (Blumenthal et al. 2000). The use of the herb was documented in the English herbarls of the sixteenth century for its astringent, aromatic, diaphoretic, stimulant, tonic, vulnerary properties and was utilized for the treatment of colds, fever, and in decoction for the treatment of hemorrhoids (Grieve 1974). Allopathic physicians utilized the herb as an astringent for the treatment of hemorrhoids, dysentery, tuberculosis, leukorrhea, and "hysterical affections" (Porcher 1869). The herb was official in the USP from 1860-1870 (Gathercoal 1942). The Cherokee utilized the leaves of *Achillea millefolium* as an astringent in the treatment of hemorrhages and hemorrhoids, as a gastrointestinal aid for the treatment of bowel complaints, and as an infusion for the treatment of fever (Moerman 1998). The Creek utilized the plant for the treatment of toothache (Moerman 1998).

Ageratina aromatica (L.) Spach var. aromatica (Eupatorium ageratoides), (Taxonomic Change), 40.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Disorder Treated: Toothache. Processing Technique: Fresh. Cited Origin: Choctaw, Chickasaw.

Literature Review:

This specimen was misidentified by Lincecum and the ethnobotanic data documenting the use of the root by the Choctaw and Chickasaw for the treatment of toothache has been incorrectly applied to *Eupatorium ageratoides* (Campbell 1951) and *Ageratina altissima* var. *roanensis* by (Moerman 1998). Based on the correct identification this specimen provides the sole reference for the medicinal use of the fresh root of *Ageratina aromatica* var. *aromatica* chewed by the Choctaw and Chickasaw Indians for the treatment of toothache.

Antennaria plantaginifolia (L.) Richardson var. plantaginifolia (Gleason and Cronquist, 1991), (Gnaphalium alpinum), (Taxonomic Change), 125.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant. Disorder Treated: Colds. Processing

Technique: Decoction.

Literature Review:

The Natchez Indians utilized an infusion of the tops and roots of an Antennaria species for the treatment of coughs and colds (Swanton [1928]2000, Taylor 1940). Moerman (1998) documents the use of an infusion of *Antennaria plantaginifolia* by the Cherokee as a gynecological aid and for the treatment of bowel complaints in children.

Anthemis cotula L. (Anthemis cotula), (No Change), 258.

Ethnobotanic Data:

Medicine. Medical Effect: Anodyne, Emetic, Sudorific, Tonic.

Literature Review:

The flowers of *Anthemis cotula* were official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The leaves and flowers were considered anodyne, antispasmodic, diuretic, stomachic, and tonic as documented in the English herbals of the sixteenth century and were utilized for the treatment of asthma, dysentery, hemorrhoids, and aching muscles (Grieve 1974). Botanic physicians utilized the above ground plant parts taken internally as a tea as an emetic, sudorific and tonic, and applied externally as a poultice for the treatment of rheumatism, hemorrhoids, and bruises (Howard 1833). The Cherokee considered this species anodyne, diaphoretic, emetic, febrifuge, and tonic and utilized it in the treatment of colds, taken internally as a treatment for rheumatism, and applied externally to draw blisters (Moerman 1998).

***Arctium minus* Bernh. (*Arctium lappa*), (Nomenclatural Change), 129.**

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Disorder Treated: "Scrofulous children". Medicinal Application: Tea.

Literature Review:

The root, leaves, and seeds of *Arctium lappa* were utilized within European medical practice for their alterative, diuretic, and diaphoretic effects for the treatment of skin disorders, in decoction for the treatment of scurvy, applied topically as a wash for ulcers, and as a poultice for the relief of tumors, inflammation and bruises (Grieve 1974). The root of *Arctium lappa* was official in the USP from 1850 to 1900 (Gathercoal 1942). *Artium lappa* was used extensively by botanic physicians; the root was utilized in decoction as a diuretic and diaphoretic, the leaves were applied topically as an anodyne and to remove inflammation from sprains or bruises (Thomson 1835), and the seeds, which were considered more potent by Howard (1833), were utilized for the treatment of rheumatism, scurvy, gout, inflammation of the kidneys, and veneral disease. The Cherokee utilized the boiled root of *Arctium minus* applied topically for the treatment of leg ulcers and swollen legs (Moerman 1998).The Cherokee used

Arctium lappa taken internally for the treatment of rheumatism, for the treatment of venereal disease, and an infusion of the root or seed was utilized to cleanse the blood (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the use of *Arctium minus* according to the medicinal properties documented for *Arctium lappa*.

Artemisia abrotanum L. (Artimisia abrotanum), (No Change), 257.

Ethnobotanic Data:

Medicine. Medical Effect: Anthelmintic, Detergent, Stimulent and Sudorific. Disorder Treated: Skin sores. Medicinal Application: Ointment. Processing Technique: Concrete (sweet lard or oil).

Literature Review:

The herb of *Artemisia abrotanum* is anthelmintic, antiseptic, emmenagogue and tonic and was utilized in Europe in infusion as an emmenagogue and as an anthelmintic for the treatment of worms (Grieve 1974). The ashes of *Artemisia abrotanum* were documented for their use in English herbals of the sixteenth century to aid healing in ulcers without inflammation, and the leaves applied as a poultice ease pain, dipserse swelling, and prevent the spread of gangrene (Grieve 1974).

Artemisia absinthium L. (Artimisia absinthium), (No Change), 260.

Ethnobotanic Data:

Medicine. Medicinal Application: Poultice. Processing Technique: Powder, Decoction.

Literature Review:

The medicinal use of the leaves and tops of *Artemisia absinthium* was documented by the ancients who considered it an antidote to poison (Grieve 1974). The sixteenth century English herbals document the use of the herb as an anthelmintic, febrifuge, stomachic, and tonic utilized for the treatment of fever, flatulence, worms, and to stimulate digestive function (Grieve 1974). The leaves of *Artemisia absinthium* were official in the USP from 1830 to 1870 (Gethercoal 1942).

Bidens aristosa (Michx.) Britton (Bidens pilosa), (Taxonomic Change), 130.

Ethnobotanic Data:

Medicine. Plant Part Used: Above ground parts. Medical Effect: Diuretic. Processing Technique: Decoction.

Literature Review:

The root and seeds of several species in the genus *Bidens* were considered by allopathic physicians to be emmenagugue and expectorant (Porcher 1869). No other references for the medicinal use of *Bidens pilosa* within the ethnobotanic literature were found. Based on the correct identification the ethnobotanic data associated with this specimen provides the sole ethnobotanic reference for the medicinal use of a decoction of *Bidens aristosa* as a diuretic.

Cnicus benedictus L. (Centaurea benedicta), (Nomenclatural Change), 264.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant, Seeds. Medical Effect: Tonic. Processing Technique: Infusion, Decoction, Extract.

Literature Review:

Botanic physicians utilized the leaves, flowers, and seeds of *Cnicus benedictus* (*Centaurea benedicta* as syn.) as an infusion for their stomachic and tonic properties (Howard 1833). Lincecum states that *Cnicus benedictus* is is used like the Boneset (*Eupatorium perfoliatum*) in infusion, decoction and extract". *Eupatorium perfoliatum* was utilized as a cathartic, diaphoretic, and emetic for the treatment of coughs, colic, constipation, and fever.

Conyza canadensis (L.) Cronquist (Erigeron canadense), (Nomenclatural Change), 251.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Disorder Treated: Hemorrhage in any organ. Medicinal Application: Juice.

Literature Review:

Conyza canadense (*Erigeron canadensis* as syn.) contains the same medicinal properties as *Erigeron philadelphicus* both of which were utilized by botanic physicians for their tonic, diuretic, sudorific and astringent properties (Howard 1833). The entire plant was utilized by botanic physicians, fresh, dry, in infusion, decoction, tincture, or as an extract, for the treatment of hemorrhage, diseases of the kidney, "dropsy" and for suppressed menstruation (Howard 1833). A tea of the green roots and leaves was utilized by botanic physicians for the treatment of canker sores (*Aphthous stomatitis*) (Thomson 1835). *Conyza canadensis* was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). The Houma Indians utilized a tea made from the roots for the treatment of leucorrhea (Speck 1941).

Echinacea purpurea (L.) Moench (Rudbeckia purpurea), (Nomenclatural Change), 122.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Disorder Treated: Cough, dyspepsia. Medicinal Application: Chewed. Processing Technique: Fresh, Tincture. Dosage: Less than one half wine glass, three times a day. Cited Origin: Choctaw.

Literature Review:

The root of *Echinacea purpurea* contains similar medicinal properties to that of *E. angustifolia* (Grieve 1974) which was utilized extensively by the Plains Indians as a painkiller and for the treatment of coughs, colds, sore throat, snakebite and toothache (Kindscher 1989). The Gideon Lincecum Herbarium provides the sole reference to the use of *E. purpurea* by the Choctaw Indians who utilized the entire plant both fresh and in tincture for the treatment of coughs and dyspepsia.

Elephantopus tomentosus L. (Elephantopus carolinianus), (Taxonomic Change), 120.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant. Medical Effect: Diuretic, "Secernant," Stimulant, Tonic. Disorder Treated: "Dropsy," Gravel and kidney complaints.

Literature Review:

Lincecum states that this species is "a common application among the common people for "cancer" however no other references to the medicinal use of this species were found within the ethnobotanic literature. Lincecum cites Dr. Rabb for the use of this species as a antidote for snakebite however no further information is provided by Lincecum for the identification of this physician. Based on the current identification the ethnobotanic data associated with this specimen provides the sole reference for the medicinal use of *Elephantopus tomentosus* as a stimulant, diuretic, for application to "cancer," and as an antidote for snakebite.

Eupatorium perfoliatum L. var. perfoliatum (Eupatorium perfoliatum), (No

Change), 255.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, flowers. Medical Effect: Sudorific, Tonic. Disorder Treated: Fever, "Ague”. Medicinal Application: Tea. Processing Technique: Extract, Powder.

Literature Review:

The medicinal use of *Eupatorium perfoliatum* for medicine commenced in the early 1800's in both the United States and Europe (Millspaugh [1892]1974). The herb was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). Allopathic physicians utilized a decoction of the plant for the treatment of fever, influenza and rheumatism and a warm decoction or infusion as an emetic and cathartic for the treatment of colic and constipation (Porcher 1869). Botanic physicians considered it cathartic, diaphoretic, diuretic, emetic, and tonic, and utilized an infusion for the treatment of coughs, colic, constipation, "dropsy," and fever (Howard 1833, Thomson 1935). The Cherokee considered this species to be emetic, cathartic and diaphoretic and utilized an infusion for the treatment of colds, fever and "aque" (malaria) (Moerman 1998).

Eupatorium rotundifolium L. var. rotundifolium (Eupatorium pubescens), (Taxonomic Change), 127.

Ethnobotanic Data:

Medicine. Plant Part Used: Above ground parts. Medical Effect: Diaphoretic, Diuretic, Febrifuge, Laxative, Secernant, Stimulant, Tonic. Disorder Treated: Bilious complaints, Intermittents (Malaria). Processing Technique: Infusion (One ounce of the dried herb to a quart of boiling water). Dosage: Taken every two hours, regulating the doses so as to consume a quart daily.

Literature Review:

Porcher (1869) documents the use of an infusion of *Eupatorium rotundifolium* by allopathic physicians for the treatment of intermittent fevers and "consumption" (tuberculosis). Lincecum notes that "either this species or *E. teucrifolium* (*E. verbenaefolium* as syn.) can be used in place of quinine" (the alkaloid obtained from *Cinchona officinalis* and *C. cordifolia* utilized for the treatment of fever). *Eupatorium teucrifolium* was considered tonic, diaphoretic, diuretic and aperient and was utilized by allopathic physicians for the treatment of fevers, particularly "intermittents" (malaria) and colds (Porcher 1869). The ethnobotanic data associated with this specimen is consistent with the documented medicinal use of *Eupatorium rotundifolium*.

Eupatorium serotinum Michx. (Eupatorium), (No Original Identification), 119.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, tops. Disorder Treated: Profuse menstruation, Uterine hemorrhage. Medicinal Application: Tea. Dosage: One half teacup every hour.

Literature Review:

The Houma Indians utilized a decoction of the flowers as a tea for the relief of typhoid fever (Speck 1941).

Gamochaeta falcata (Lam.) Cabrera (No original identification), (Fragment), 244.4.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Helenium autumnale L. (Leptopoda), (Nomenclatural Change), 3.

Ethnobotanic Data:

Medicine. Plant Part Used: Flowers. Medical Effect: Acrid, Stimulatory. Disorder Treated: Asthma, colds, headaches, sore eyes. Processing Technique: Dried.

Literature Review:

The Cherokee utilized the powdered, dried leaves of *Helenium autumnale* to induce sneezing (Moerman 1998).

***Helianthus mollis* Lam. (*Helianthus pubescens*), (Nomenclatural Change), 263.**

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant.Cited Origin: Howard.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference to the medicinal use of *Helianthus mollis* (*H. pubescens* as syn.). Lincecum cites "Howard's Improved System" for his use of this plant, however, neither the genus or species is documented in the materia medica contained within "An Improved System of Botanic Medicine" (Howard 1833).

***Helianthus pauciflorus* Nutt. var. *pauciflorus* (*Helianthus hispidulus*), (TaxonomicChange), 268.**

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Diaphoretic, diuretic. Disorder Treated: Fever, Snakebite. Processing Technique: Decoction.

Literature Review:

No references were found documenting the medicinal use of either *Helianthus pauciflorus* var. *pauciflorus* or *H. hispidulus*. Based on the current identification the ethnobotanic data associated with this specimen provides the sole reference to the medicinal use of a decoction of the root of *Helianthus pauciflorus* as a diaphoretic, diuretic, and for the treatment of snakebite.

Hieracium gronovii L. (Hieracium marianum), (Taxonomic Change), 259.

Ethnobotanic Data:

Medicine. Medical Effect: Anodyne, Securnent, Stimulant.

Literature Review:

Allopathic physicians utilized the bruised leaves of *Hieracium gronovii* applied topically for the removal of warts (Porcher 1869). Lincecum provides little information regarding the medicinal use of this species noting only the medicinal effect of preparations derived from this species.

Inula helenium L. (Inula helenium), (No Change), 266.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Tonic. Disorder Treated: Colds, Coughs, Pulmonary irritation. Processing Technique: Powder, Infusion, Decoction.

Literature Review:

Howard (1833) documents that this species "possesses the general properties of a strengthening restorative medicine" and was utilized in the treatment of diseases of the lungs and as a syrup for the treatment of coughs (Thomson 1835).

Allopathic physicians considered the root tonic and stimulant utilized for the treatment of lung disorders (Porcher 1869). The root of *Inula helenium* was official in the US Pharmacopoeia from 1820 to 1900 (Galthercoal 1942). The root of this species was utilized by the Cherokee for the treatment of lung disorders and the symptoms of tuberculosis (Moerman 1998).

Krigia dandelion (L.) Nutt. (Krigia dandelion), (No Change), 123.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant. Medical Effect: Anodyne, Secernant, Stimulant.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the medicinal use of *Krigia dandelion* as an anodyne, secernant, and stimulant.Lincecum states that this species is “utilized in place of the *Leontodon* (*Taraxacum officinale* (*Leontodon taraxacum* as syn.)). *Taraxacum officinale* was utilized by botanic physicians as an alterative, aperient, diuretic, diaphoretic, and expectorant (Howard 1833) and by allopathic physicians for its cathartic, deobstruent, and diuretic properties in the treatment of jaundice, disorders of the liver and gall-bladder, and uterine obstructions (Porcher 1869).

Packera aurea (L.) A. & D. Love (Senecio gracilis), (Nomenclatural Change), 121.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant. Medical Effect: Secernant, Stimulant. Disorder Treated: Rheumatism. Processing Technique: Tincture. Dosage: One half wine glass of the tincture three times a day.

Literature Review:

The seeds of *Packera aurea* (*Senecio aureus* as syn.) were utilized in tincture within domestic medicinal practice in North America as a diuretic, diaphoretic, pectoral, and tonic in the treatment of hemorrhage and uterine disorders (Millspaugh [1892]1974).

***Prenanthes autumnalis* Walter (Radford, Ahles and Bell, 1968), (Prenanthes virgata), (Taxonomic), 254.**

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Tops. Medical Effect: Anodyne, Diuretic, Secernent, Stimulant. Processing Technique: Decoction. Cited Origin: Choctaw (Alikchi chito).

Literature Review:

This specimen was misidentified by Lincecum as *Prenanthes virgata* however he noted that "this species blooms in November, it is a distinct species and should have retained its old name *P. autumnalis*." The ethnobotanic data documenting the use of the root by the Choctaw Indians has been incorrectly applied to *Nabalus asper* (Campbell 1951) and *Prenanthes aspera* (Moerman 1998). This specimen provides the sole reference for the use of the root and tops of *Prenanthes autumnalis* in decoction as a diuretic and anodyne by the Choctaw Indians.

Pseudognaphalium obtusifolium (L.) Hilliard & B. L. Burtt (Gnaphalium polycephalum), (Nomenclatural Change), 126.

Ethnobotanic Data:

Medicine. Plant Part Used: Tops. Medical Effect: Diaphoretic, Febrifuge, Secernant, Stimulant, Sudorific, Tonic. Disorder Treated: Bowel complaints including obstructions. Processing Technique: Decoction. Dosage: One half teacup repeated hourly.

Literature Review:

The Cherokee, Choctaw, and Creek all utilize a decoction of the leaves and blossoms of this species as a cough syrup and in the treatment of colds (Moerman 1998, Mooney 1932). The Choctaw treat colds and "pain in the lungs" with a decoction of the leaves and tops (Bushnell [1909] 1985). The Koasati Indians of Texas utilize a decoction of the leaves as a febrifuge particularly for the treatment of fever in children (Moerman 1998).

Pyrrhopappus pauciflorus (D. Don) DC. (Apargia autumnalis), (Taxonomic Change), 132.

Collection location: Mexico.

Ethnobotanic Data:

Medicine. Plant Part Used: Root.

Literature Review:

Lincecum states that the root of *Pyrrhopappus pauciflorus* was utilized in place of *Taraxacum officinale* (*Leontodon taraxacum* as syn.). The root of *Taraxacum officinale* was considered alterative, cathartic, deobstruent, diuretic, and tonic (Porcher 1869, Grieve 1974). Lincecum misidentified this specimen as *Leontodon autumnalis* (*Apargia autumnalis* as syn.) which was utilized by allopathic physicians as a diuretic for the treatment of jaundice and "dropsy" (Grieve 1974). The ethnobotanical data associated with this specimen is consistent with the historical utilization of *Leontodon autumnalis*.

Silphium perfoliatum L. (Silphium perfoliatum), (No Change), 262.

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Seeds. Medical Effect: Deobstruent, Tonic. Disorder Treated: Chronic enlargement of the spleen. Processing Technique: Decoction.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the utilization of a decoction of the root and seeds of *Silphium perfoliatum* in the southeastern United States for the treatment of chronic enlargement of the spleen.

***Solidago caesia* L. (*Solidago axillaris*), (Nomenclatural Change), 267.**

Ethnobotanic Data:

Medicine. Medical Effect: Diaphoretic.

Food. Plant Part Used: Greens.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the utilization of *Solidago caesia* as a diaphoretic.

***Solidago odora* Aiton (No original identification), (Fragment), 244.3.**

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

***Solidago odora* Aiton (No original identification), (Fragment), 244.2.**

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

***Solidago odora* Aiton (No original identification), (Fragment), 244.8.**

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Solidago odora Aiton (Gleason and Cronquist, 1991), (Solidago odora), (No Change), 253.

Ethnobotanic Data:

Medicine. Medical Effect: Diaphoretic, Stimulant. Disorder Treated: Croup, Fever. Medicinal Application: Tea. Dosage: Compound made from one cup of the goldenrod tea with one teaspoonful of the antispasmodic tincture and four teaspoonsful of lobelia tincture taken in one teaspoonful doses every hour.

Literature Review:

The leaves of *Solidago odora* were considered aromatic, astringent, carminative, diaphoretic, and diuretic and were utilized by allopathic physicians for the treatment of dysentery and were applied topically for the treatment of headaches (Grieve 1974, Porcher 1869). The leaves were official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942).

Sonchus oleraceus L. (Sonchus oleraceus), (No Change), 128.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant. Medical Effect: Anodyne, Diuretic, Secernant, Stimulant.

Food.

Literature Review:

Greek and Roman physicians utilized the juice obtained from the stem and leaves of *Sonchus oleraceus* as a diuretic and refrigerant for the treatment of kidney stones, inflammation and hemorrhoids (Grieve 1974). Allopathic physicians utilized the leaves applied topically as an emollient for the treatment of inflammation. The Houma Indians utilized an infusion of the entire plant as a beverage for children during teething, an infusion to stimulate delayed menstruation and an unspecified preparation to prevent diarrhea (Speck 1941).

Tanacetum parthenium (L.) Sch.Bip. (Chrysanthemum parthenium), (Nomenclatural Change), 131.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, Flowers. Medical Effect: Carminative, Emmenague, Laxative, Secernant, Stimulant, Tonic. Disorder Treated: Relieves "hysterical complaints," worms. Processing Technique: Infusion (A quart of boiling water may be poured on a handful of the tops). Dosage: One teaspoonful three to four times a day.

Literature Review:

Tanacetum parthenium (*Chrysanthemum parthenium* as syn.) was documented to be aperient, bitter, carminative, emmenagogue and stimulant in the English herbals of the sixteenth century that was taken internally for the treatment of "hysterical complaints" and coughs, and applied topically for the treatment of rheumatic pain, colic, and the relief of insect bites (Grieve 1974). The Cherokee utilize an infusion for the relief of swollen feet (Moerman 1998).

Tanacetum parthenium (L.) Sch.Bip. (Chrysanthimum parthenium), (Nomenclatural Change), 261.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant, Flowers. Medical Effect: update.

Literature Review:

See accession number 131.

Tanacetum vulgare L. (Tanacetum vulgare), (No Change), 256.

Ethnobotanic Data:

Medicine. Plant Part Used: Above ground parts. Medical Effect: Carminative, Deobstruent, Emmenagogue, Stomachic, Sudorific, Tonic and Vermifuge. Medicinal Application: Tea. Processing Technique: Decoction.

Literature Review:

The use of various species within the genus *Tanacetum* was documented in the English herbals of the sixteenth century (Grieve 1974). The plant was considered anthelmintic, carminative, emmenagogue, stimulant, and tonic and was utilized, taken internally, for the treatment of worms, fever, "hysterical and nervous affections" and the leaves, applied externally, were utilized for the relief of sprains and swelling (Grieve 1974). The herb was utilized by allopathic physicians in the United States as an anthelmintic and tonic (Porcher 1869) and was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942). Botanic physicians considered this species to be a "warm bitter" and utilized a tea for the treatment of hysteria, "female complaints," in the treatment of worms, and the leaves were applied topically to treat swelling associated with bruises and sprains (Howard 1833, Thomson 1835). The Cherokee utilized the anthelmintic properties of this species for the treatment of worms in children, and an infusion was utilized for the treatment of backache (Moerman 1998).

Tragopogon porrifolius L. (Tragopogon porrifolius), (No Change), 265.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiscorbutic, Securnant.

Literature Review:

While the roots of this species are considered edible and nutricious (Millspaugh [1892]1974) the Gideon Lincecum Herbarium provides the sole reference for the utilization of the root of this species for the treatment of scurvy in the southeastern United States.

Verbesina virginica L. (Verbesina virginica), (No Change), 133. Collection

Date: 1846.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiveneral, Deobstruant, Diuretic, Stimulant. Disorder Treated: Fluor Albus (Leukorrhea), Uterine weakness. Medicinal Application: Tea. Processing Technique: Decoction, Tincture. Dosage: One pint of the strong decoction, taken at four or five doses in the course of the day. Cited Origin: Chickasaw.

Literature Review:

The Choctaw soaked the pulverized root in water and the resulting extract was taken internally as a diaphoretic for the treatment of fever (Bushnell, 1985, Taylor 1941). This specimen in the Gideon Lincecum Herbarium is the sole reference for the utilization of the root of this species by the Chickasaw in decoction or tincture for the treatment of leukorrhea and uterine haemorrage.

Vernonia noveboracensis (L.) Michx. (Vernonia noveboracensis), (No Change), 35. Collection Date: 1852.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent, Stimulant, Tonic. Disorder Treated: Rheumatism. Medicinal Application: Liniment. Processing Technique: Concrete.

Literature Review:

The root was utilized by the Cherokee as an infusion for its astringent properties in the treatment of stomach ulcers or hemorrhage and in decoction to ease the pain associated with childbirth (Moerman 1998). The Natchez Indians of Louisiana utilized a *Vernonia* species in infusion for the treatment of dysentery (Swanton [1928]2000).

BALSAMINACEAE

Impatiens capensis Meerb. (Impatiens fulva), (Nomenclatural Change), 13.

Ethnobotanic Data:

Medicine. Plant Part Used: Exudate. Medical Effect: Purgative. Disorder Treated: Sore eyes, remove film from eyes, Piles (Hemorrhoids). Medicinal Application: Ointment. Processing Technique: Mixed with cream, fresh butter or breast milk. Dosage: Mixed with enough milk to remove acrimony.

Literature Review:

The Cherokee utilized an infusion of the leaves applied topically for the treatment of measles, an infusion of the root for the treatment of hives in children, and the juice from the crushed leaves applied topically to treat the effects of poison ivy (Moerman 1998). A decoction of the stems was utilized by the Cherokee to ease childbirth (Moerman 1998).

BERBERIDACEAE

Caulophyllum thalictroides (L.) Michx. (Leontice thalictroides),

(Nomenclatural Change), 304.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antispasmodic, Calming, Tonic. Disorder Treated: Cholera morbus, Colic, Difficult Labors, Epilepsy, Hiccoughs, hysterics. Medicinal Application: Cordial, Syrup. Processing Technique: Decoction, Tincture.

Literature Review:

The root of *Caulophyllum thalictroides* was official in the US Pharmacopoiea from 1870 to 1890 (Gathercoal 1942). In his "Medical Flora" Rafinesque cited the medicinal use of this species to the "Indians" stating also that he had "found it often used in the country and by Indian doctors" (Vogel 1970). The Cherokee utilized the plant as a gynocological aid to facilitate and ease labor, the root in syrup or decoction as an anticonvulsive to calm "fits and hysterics", as a gastrointestinal aid in the treatment of colic, the juice obtained from macerating the root applied topically for the treatment of toothache, and for the treatment of rheumatism (Moerman 1998). Botanic physicians utilized the root in tea, tincture, syrup, or cordial for the treatment of hiccups, colic, cholera morbus, epilepsy, hysterics, and difficult childbirth (Howard 1833). Howard (1833) notes that this species was considered by Elisha Smith (botanic physician) to be "the most powerful anti-spasmodic in the compass of medicine."

Podophyllum peltatum L.* *(Podophyllum peltatum), (No Change), 314.

Ethnobotanic Data:

Medicine. Medical Effect: Cathartic, Poison.

Food. Plant Part Used: Fruit.

Literature Review:

The Cherokee utilized the boiled root as a purgative and laxative in the treatment of constipation, the powdered root was applied topically for the treatment of ulcers and sores, and as an anthelmintic for the treatment of worms (Moerman 1998). The Cherokee utilized the fresh juice of the root as eardrops for the treatment of deafness (Moerman 1998). The root was utilized by botanic physicians for its cathartic properties however Howard (1833) notes that it is considered poisonous by some practitioners. Lincecum notes that he considers this species to be poisonous and provides no detail regarding its medicinal use. The root of this species was official in the US Pharmacopoeia from 1820 to 1936 (Gathercoal 1942).

BETULACEAE

Corylus americana Walter (Corylus americana), (No Change), 222.

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit . Medical Effect: Oleaginous, Tonic.

Food. Plant Part Used: Fruit.

Literature Review:

The Cherokee utilized a decoction as an emetic and an infusion of the bark for the treatment of hives and a decoction (Moerman 1998).

BIGNONIACEAE

Bignonia capreolata L. (Bignonia capreoloata), (No Change), 178.

Ethnobotanic Data:

Medicine. Plant Part Used: Defoliated stems. Medical Effect: Diaphoretic.

Food. Plant Part Used: Defoliated stems, Preparations: Tea.

Literature Review:

Allopathic physicians considered the root and vine to be alterative, aperient, detergent, and sudorific utilized, in infusion or decoction, for the treatment of syphilis, chronic rheumatism, and "impurities of the blood" (Porcher 1869). The Cherokee utilize an infusion of the leaf as a blood cleanser (Moerman 1998). The Choctaw utilize the macerated bark in decoction in the treatment of “dropsy” (Moerman 1998). Utilization by the Creek Indians is documented although the specific parts and the medicinal usage is not detailed (Moerman 1998). The Houma Indians utilized an infusion of the macerated root as a gargle in the treatment of diptheria (Speck 1941).

BORAGINACEAE

Cynoglossum virginianum L. var. virginianum (Cynoglossum amplexicaule), (Nomenclatural Change), 102.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Disorder Treated: Breast pain. Medicinal Application: Chewed, saliva swallowed. Processing Technique: Fresh. Dosage: Freely taken.

Literature Review:

Porcher (1833) documents that the root of *Cynoglossum virginianum* was considered astringent and was utilized in domestic medicinal practice, taken internally, for the treatment of lung complaints and diarrhea, and applied topically as a poultice for the treatment of sprains and bruises. Lincecum documents that his use of this species is consistent with that of *Symphytum officinale* a claim which is supported by Porcher (1869). The Cherokee utilized the root of this species as a decoction applied topically to relieve itching and taken internally to treat "bad memory" (Moerman 1998, Mooney 1932).

Hackelia virginiana (L.) I.M. Johnst. (Hackelia virginiana), (No Change), 58.

Ethnobotanic Data:

Medicine. Medical Effect: Expectorant, Tonic.

Literature Review:

Lincecum documents that he utilizes this species in the same way as *Symphytum officinalis* which was utilized by Lincecum for the treatment of chest complaints including coughs. The Cherokee utilized a decoction of the root taken internally for the treatment of kidney disorders and applied topically as a wash for the treatment of itching (Moerman 1998).

***Lithospermum latifolium* Michx. (*Onosmodium dicotimosa*), (Taxonomic Change), 63.**

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

***Onosmodium bejariense* DC. Ex A. DC. var. *hispidissimum* (Mack.) B.L.Turner, (Turner 1995), (*Onosmodium hispidum*), (Taxonomic Change), 215. Collection location: Ohio**

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Seeds. Medical Effect: Purgative, Diuretic. Disorder Treated: Kidney stones. Processing Technique: Decoction (Half a pound of the bruised roots steeped in 3 pints of boiling water, poured over two tablespoonfuls of the pulverized seeds). Dosage: A teacupful of preparation once in two hours for twelve hours, or until it operates on the bowels as a cathartic.

Cited Origin: Howard.

Literature Review:

Lincecum cites the use of this species to Howard (publication date not provided) and includes in the ethnobotanic data a quote regarding the preparation and dosage of this remedy. This taxa was not present in the 2nd and 4th editions of Howard's "An Improved System of Botanic Medicine" (that were available to this author for reference). Due to the absence of this taxon within the ethnobotanic references cited the ethnobotanic data associated with this specimen provides the sole ethnobotanic reference for the medicinal use of its root and seeds.

Onosmodium bejariense DC. Ex A. DC. var. bejariense (Turner B. L., 1995), (Onosmodium molle), (Taxonomic Change), 60.

Ethnobotanic Data:

Medicine. Plant Part Used: Roots, Seeds. Medical Effect: Purgative, Diuretic.

Literature Review:

Lincecum notes that this species is "equal to *Onosmodium hispidum*" of which the root and seeds are utilized as a cathartic and diuretic. No references were found for the medicinal use of *Onosmodium bejariense* var. *bejariense*. The identification of this specimen and the ethnobotanic data associated with it provide the sole reference for the utilization of the roots and seeds of

Onosmodium bejariense var. *bejariense* as a cathartic and diuretic.

Onosmodium virginianum (L.) A. DC. (Onosmodium lenticum), 61.

Ethnobotanic Data:

No use documented.

Literature Review:

Lincecum notes that this species "May be as good as any in the family" but provides no ethnobotanic data regarding its medicinal use.

Symphytum officinale L. (Symphytum officinale), (No Change), 115.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Emollient, Demulcent. Disorder Treated Chest complaints, Cough.

Literature Review:

The root of *Symphytum officinale* was documented as astringent, expectrant, and mucilaginous in the English herbals of the sixteenth century and was utilized in decoctions as a demulcent for the treatment of diarrhea, dysentery, whooping cough, tuberculosis, and for internal hemorrhage (Grieve 1974). The leaves were applied topically as a poultice for the treatment of boils, inflammation, bruises and sprains (Grieve 1974). The Cherokee utilized a preparation for the treatment of dysentery, heartburn, sprains, bruises, and gonorrhea (Moerman 1998). The roots and leaves are currently utilized taken internally as a tea for the treatment of ulcers, excessive menstrual flow, persistent cough, and diarrhea and applied topically in the treatment of bruises and sprains (Jellin et al. 2002).

BRASSICACEAE

Armoracia rusticana Gaertn., Meyer, & Scherb. (Cochlearia armoracia), (Nomenclatural Change), 182.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiscorbutic, Rubefacient, Stimulant . Disorder Treated: Rheumatism. Processing Technique: Infusion (One ounce of scraped root to two pints of hot water). Dosage: One wine cup three times a day.

Literature Review:

The medicinal use of the root and leaves of *Armoracia rusticana* was documented within Greek medicine (Grieve 1974) and a compound of the root combined with other articles was official in the London Pharmacopoeia of 1720 for use as an antiscorbutic (Brande 1839). The root was documented to be anti-septic, aperient, diuretic, and rubefacient in the English herbals of the sixteenth century and was utilized as a diuretic in the treatment of "dropsy," to stimulate the appetite, and for the treatment of rheumatism (Grieve 1974). The root was official in the United States Pharmacopoeia from 1830 to 1890 (Gathercoal 1942). Botanic physicians utilized the root as a digestive aid, the leaves were applied topically as a counter-irratant with the cautionary note that they can result in the production of a blister (Thomson 1835). The Cherokee Indians utilized an infusion gargled for the treatment of a sore throat, the fresh root chewed in the treatment of mouth diseases, and preparations to stimulate the appetite, as a digestive aid, and for the treatment of gravel (Moerman 1998).

Brassica oleracea L. (Brassica oleracea), (No Change), 184.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Antiscorbutic. Disorder Treated: Jaundice. Medicinal Application: Juice. Processing Technique: Expressed. Dosage: One tablespoonful every morning on an empty stomach.

Food. Plant Part Used: Leaves.

Literature Review:

The Cherokee applied the wilted leaves as a poultice in the treatment of boils (Moerman 1998). Jellin et al. (2000) document the use of an extract obtained from the leaves applied topically to relieve swelling.

Brassica rapa L. (Brassica rapa), (No Change), 181.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiseptic, Antiscorbutic, Emollient.Food. Plant Part Used: Root.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the medicinal use of the root for its antiseptic, antiscorbutic, and emollient properties.

Lepidium sativum L. (Lepidium sativum), (No Change), 96.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant, Seeds. Medical Effect: Antiscorbutic, Diaphoretic. Medicinal Application: Plaster, Poultice.

Food. Plant Part Used: Entire Plant, Seeds.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference found for the medicinal use of *Lepidium sativum* as a diaphoretic and antiscorbutic. Lincecum states that the seeds of this species are "equal to the mustard seed (*Sinapsis alba* or *S. nigra*), perhaps more active, as a sinapism." The leaves and seeds of *Sinapsis alba* and *S. nigra* were official in the London Pharmacopoeia and were utilized for their diuretic, emetic, rubefacient and vesicant properties (Brande 1839). Mustard poultices (sinapisms) were utilized in nineteenth century medicine applied topically for their counter-irrantant properties (Brande 1839).

Raphanus raphanistrum L. (Raphanus sativus), (Taxonomic Change), 183.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiscorbutic.

Food. Plant Part Used: Root.

Literature Review:

The "root" (tuber) of *Raphanus sativus* was eaten as a medicinal food item for the treatment of scorbutic conditions and kidney stones (Grieve 1974). Lincecum provides little ethnobotanic detail regarding the medicinal use of this species noting that "all the varieties" of this taxa are considered antiscorbutic and nutritious. The ethnobotanic data associated with this specimen are consistent with the nutricious and medicinal use of both *R. raphanistrum* and *R. sativus*.

Sinapis alba L. (Sinapis alba), (No Change), 38.

Ethnobotanic Data:

Medicine. Plant Part Used: Seeds. Medical Effect: Stimulant, Vesicant, Warming.

Food. Plant Part Used: Seeds.

Literature Review:

The use of the seeds of *Sinapis alba* as a counter-irritant taken internally and applied topically for the treatment of digestive disorders was documented by Hippocrates (Grieve 1974). The oil extracted from the seeds was utilized within European medical practise for their diuretic, emetic, rubefacient, and vesicant properties (Brande 1839). Poultices made from *Sinapis alba* (sinapisms) were topically applied for their counter-irritant porperties in both European and American medicinal practice during the nineteenth century (Brande 1839, Porcher

1869). The seed was official in the US Pharmacopoeia from 1830 to 1942 (Gathercoal 1942).

BROMELIACEAE

Tillandsia usneoides (L.) L. (Tillandsia usneoides), (No Change), 293. Collection Location: Texas. Collection Date: 1850.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Demulcent, Sedative, Refrigerant. Disorder Treated: Hemorrhoids. Medicinal Application: Vapor bath. Dosage: Bath for 30-45 minutes. Single application, repeated if necessary.

Materials.

Literature Review:

Lincecum states that the use of *Tillandsia usneoides* as a vapor bath for the treatment of hemorrhoids "is not extensively known as a medicine." Porcher (1869) documents the inclusion of this species in a Franch Materia Medica published in 1837 for the treatment of hemorrhoids noting however that its use was not documented "in the American works." The Houma Indians utilized a tea of the whole plant in the treatment of both chills and fevers (Speck 1941).

CALYCANTHACEAE

Calycanthus floridus L. var. floridus (Calycanthus floridus), (No Change), 82.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the root. Medical Effect: Aromatic, Tonic. Disorder Treated: Colic . Medicinal Application: Decoction. Processing Technique: Decoction.

Literature Review:

Allopathic physicians utilized a decoction of the bark of the root or the seeds as an anti-spasmodic tonic for the treatment of "ague" (malaria) (Porcher 1869). The Cherokee utilized the juice obtained from the bark for the treatment of sores, an infusion for topical application to hives, and the root as an emetic (Moerman 1998).

CAMPANULACEAE

Lobelia appendiculata A. DC. (Lobelia glabra), (Taxonomic Change), 11.

Collection Location: Noxuba Co, Mississippi.

Ethnobotanic Data:

Use unknown to Lincecum.

Literature Review:

Lincecum notes that this species is not described in the botanic references he utilized and therefore provided a Latin binomial for it. Lincecum provided no botanic description of the species and the nomenclature was not effectively published. The binomial provided does not therefore refer to the taxon *Scaevola* *glabra* for which *Lobelia glabra* is considered a synomym. The specimen is correctly identified as *Lobelia appendiculata*.

***Lobelia appendiculata* A. DC. (*Lobelia glandulosa*), (Taxonomic Change), 110.**

Ethnobotanic Data:

Medicine. Medical Effect: Emetic.

Literature Review:

Lincecum considers this species emetic based on the medicinal properties ascribed to the genus *Lobelia* and states that "No doubt like all the other species of this valuable family of plants" it contains medicinal value. The limited ethnobotanic data associated with this specimen is consistent with the use of several *Lobelia* species, most commonly *Lobelia inflata*, as emetics. Based on the correct identification the ethnobotanic data associated with this specimen documents the use of *Lobelia appendiculata* as an emetic.

***Lobelia cardinalis* L. (*Lobelia cardinalis*), (No Change), 7.**

Ethnobotanic Data:

Medicine. Medical Effect: Sedative.

Literature Review:

The Cherokee utilized an infusion of the root of *Lobelia cardinalis* as a digestive aid and as an anthelmintic, an infusion of the leaves as a cold remedy and for the treatment of fever, and a poultice of the crushed leaves as an analgesic for the treatment of heachaches (Moerman 1998).

Lobelia inflata L. (Lobelia inflata), (No Change), 48. Collection date: 1846.

Ethnobotanic Data:

Medicine. Medical Effect: Antispasmodic, Diaphoretic, Emetic and Expectorant.

Literature Review:

The medicinal use of this plant is considered to be derived from Native American Indians who utilized a preparation of this species for the treatment of sore eyes and as an emetic (Millspaugh [1892]1974). In small doses the plant acts as an antispasmodic, expectorant, diaphoretic, and diuretic and in large doses is strongly purgative (Brande 1839). The Cherokee utilized the entire plant as an emetic. A poultice of the root was applied to bites and sores, a poultice of both the roots and leafs was applied topically for the relief of "aches," and a tincture was utilized to prevent colic and croup (Moerman 1998). The botanic physician Thomson (1835) considers the medicinal use of this plant to be his discovery and stated that this species is the "most important article made use of in my system of practice." Botanic physicians utilized the leaves, fruit and seeds in powder, tincture or compound as an antispasmodic, emetic, expectorant, and stimulant (Howard 1833). Botanic physicians also utilized this species for the treatment of asthma (Howard 1833, Thomson 1835). Allopathic physicians utilized this species as a diaphoretic, diuretic, expectorant, and sialagogue for the treatment of asthma, colic, and croup and the tincture applied topically was utilized for the treatment of pain associated with insect and spider bites (Porcher 1869). The herb was official in the US Pharmacopoeia from 1820 to 1926 (Gathercoal 1942). The herb was utilized in powder, infusion, or tincture in England as an antispasmodic, expectorant, diuretic, diaphoretic, and sialagogue (Brande 1839), and was official in the British Pharmacopoeia (Grieve 1974).

Lobelia siphilitica L. var. siphilitica (Lobelia siphilitica), (Nomenclatural Change), 113.1.

Ethnobotanic Data:

Medicine. Medical Effect: Emetic. Cited Origin: Texas.

Literature Review:

Botanic physicians considered the root of *Lobelia siphilitica* to be anti-syphilitic, diuretic, and sudorific and utilized a decoction as a purgative for the treatment of diarrhea and dysentery (Howard 1833). The Cherokee considered this plant analgesic, anthelmintic, anti-venereal and febrifuge and utilized an unspecified preparation for the treatment of syphilis, an infusion of the root as a digestive aid, an infusion of the leaves as a cold remedy, and a poultice of the crushed leaves for the treatment of headaches (Moerman 1998).

Lobelia siphilitica L. var. siphilitica (Lobelia siphilitica var. obtundifolia),

(Taxonomic Change), 113.2.

Ethnobotanic Data:

Medicine. Medical Effect: Emetic.

Literature Review:

The ethnobotanic data associated with this specimen is consistent with the medicinal properties of *Lobelia* and therefore can be accurately applied to both *Lobelia siphilitica* var. *siphilitica* and *L. siphilitica* var. *obtundifolia*.

Lobelia spicata Lam. var. leptostachys (A. DC.) Mack. & Bush, (Lobelia puberula), (Taxonomic Change), 51.

Ethnobotanic Data:

Use unknown to Lincecum.

Literature Review:

Lincecum states that "Like the other species [of *Lobelia*] it is milky and acrid" however provides no further ethnobotanic data regarding the medicinal use of this taxa. The Cherokee utilized an infusion of the roots for the treatment of "shaking arms and trembles" (Moerman 1998).

Lobelia spicata Lam. var. spicata (Lobelia claytoniana), (Nomenclatural Change), 56.

Ethnobotanic Data:

No use documented.

Literature Review:

The Cherokee utilized an infusion of the roots for the treatment of "shaking arms and trembles" (Moerman 1998).

CANNABACEAE

Humulus lupulus L. (Humulus lupulus), (No Change), 239.

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit. Medical Effect: Tonic. Disorder Treated: Dyspepsia, Gravel, Inflammation of the kidneys. Medicinal Application: Urethral suppository. Processing Technique: Decoction.

Literature Review:

The use of the inflorescence for food was documented by Pliny within Greek medicinal works (Grieve 1974). During the eighteenth century they were utilized in Europe for their anodyne, diuretic, sedative, stomachic and tonic properties (Grieve 1974, Millspaugh [1892]1974) and were utilized, taken internally, in infusion or tincture, to stimulate digestive function, to induce sleep, for the treatment of neuralgia, jaundice, and nervous disorders (Grieve 1974). Allopathic physicians utilized the inflorescence as a securnant, sedative, and for the treatment of pain and irritability. The inflorescence were official in the US Pharmacopoeia from 1820 to 1916 (Gathercoal 1942). Botanic physicians considered the inflorescence to be anodyne and sedative, and preparations were utilized to induce sleep without the "languor" associated with opium, a poultice was utilized for the treatment of pain, and an infusion was injected into the bladder for the treatment of kidney inflammation and kidney stones (Howard 1833). The Cherokee utilized the plant as an analgesic in the treatment of pain and rheumatism, as a sedative, for the treatment of kidney disorders and gravel, and as a tonic in the treatment of "female complaints where (the) womb is debilitated" (Moerman 1998).

CAPRIFOLIACEAE

Triosteum angustifolium L. (Triosteum angustifolium), (No Change), 103.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Bitter, Tonic, Warming. Disorder Treated: Debility of the tissues, Female weakness. Cited Origin: Individual (no name provided).

Literature Review:

Millspaugh ([1892]1974) states that this species was the first of the *Triosteum* species utilized as an emetic from which the more widespread utilization of both species derived. Lincecum notes that this species is "equal to *Triosteum perfoliatum*" in its medicinal properties which was utilized by allopathic physicians as a cathartic, diaphoretic, and emetic (Millspaugh [1892]1974, Porcher 1869).

Triosteum perfoliatum L. (Triosteum perfoliatum), (No Change), 104.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Stimulating, Warming tonic. Disorder Treated: Debility, Leukorrhea. Processing Technique: Tincture. Dosage: One tablespoonful three to four times a day.

Literature Review:

Allopathic physicians considered the bark of the root to be emetic and cathartic and utilized them in a powder or decoction as a purgative, the leaves as a diaphoretic (Porcher 1869), and a poultice to reduce swelling ([1892]1974). The root was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The Cherokee utilized this species as an emetic and febrifuge and applied an infusion as a wash for sore feet and swollen legs (Moerman 1998).

Viburnum opulus L. var. opulus (Viburnum opulis var. rosum (opulus var. roseum)), (No Change), 212.

Ethnobotanic Data:

Materials. Material Used For: Ornamental.

Literature Review:

No ethnobotanic utilization found.

Viburnum prunifolium L. (Vibernum prunifolium), (No Change), 111.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Alterative, Astringent, Tonic Medicinal Application: Compound.

Literature Review:

The Cherokee utilized an infusion for the treatment of fever, smallpox and ague, and for the prevention of recurrent spasms (Moerman 1998).

CARYOPHYLLACEAE

Silene caroliniana Walter var. pensylvanica (Michx.) Fern., (Silene pennsylvanica), (Nomenclatural Change), 288.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant. Medical Effect: Emollient, Demulcent. Disorder Treated: Burns, Inflammation. Medicinal Application: Poultice.

Literature Review:

Lincecum provides the sole reference for the medicinal use of *Silene caroliniana* var. *pensylvanica* in poultice for the treatment of burns and inflammation.

CELASTRACEAE

Celastrus scandens L. (Celastrus scandens), (No Change), 49.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Detergent, Diaphoretic, Discutient, Diuretic, Cardiac stimulant.

Literature Review:

Botanic physicians considered the bark of the root tonic and diuretic and utilized a tea for the treatment of liver and spleen obstructions and a poultice, applied topically, for the treatment of cancerous tumors and ulcers (Howard 1833). Thomson (1835) utilized the bark of the root in combination with chamomile and wormwood applied externally as an ointment in the treatment of bruises, sprains, and skin disorders. The Cherokee utilized the leaves in decoction for the treatment of bowel complaints, an infusion as an analgesic for the treatment of pain during childbirth, and an infusion of the bark as a carminative (Moerman 1998).

Euonymus atropurpurea Jacq. var. cheatumii Lundell, (Radford, Ahles and Bell, 1968), (Euonymus americanus), (No Change), 107. Collection Location: "On the Brazos, Texas".

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Laxative bitter tonic. Disorder Treated: Debility. Processing Technique: Powder. Dosage: One half to one teaspoonful three times a day. Cited Origin: Howard, Botanic physicians.

Literature Review:

Lincecum notes that this species is utilized extensively by Howard and other botanic physicians. The medicinal utilization is not documented in the second or forth edition of Howard's "An Improved System of Botanic Medicine" (Howard 1833, 1861). The Cherokee considered *Euonymus americanus* to be anti-septic, antihemorrhagic, astringent, and expectorant, and utilized an infusion for the treatment of stomachache, sinus problems, "irregular urination," and an infusion of the root for the treatment of "falling of the womb" (Moerman 1998).

CHENOPODIACEAE

Chenopodium ambrosioides L. (Chenopodium anthelminticum), (Nomenclatural Change), 54.

Ethnobotanic Data:

Medicine. Plant Part Used: Seeds. Medical Effect: Anthelmintic.

Literature Review:

This species was introduced into England from the New World in 1732 (Millspaugh [1892]1974). The entire plant is anthelmintic, however the seeds and the volatile oil obtained from them are most extensively used (Grieve 1974).

Allopathic physicians utilized the essential oil as a anti-spasmodic and tonic (Porcher 1869). The oil obtained from the seeds was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942).Botanic physicians utilized a tea of the herb for its bitter properties to stimulate and aid digestion, a tincture of the above ground part of the plant applied to bruises and sprains, and the seeds, in decoction, pulverized or as an expressed oil as a vermifuge for the treatment of worms (Howard 1833, Thomson 1835). The Creek Indians utilized this species as a tonic and febrifuge (Moerman 1998). The Houma Indians boiled the leaves in milk for the treatment of worms in children and utilized the leaves in a poultice for the treatment of headaches (Speck 1941). The Natchez Indians utilized this species as a vermifuge and febrifuge (Moerman 1998).

Spinacea oleracea L. (Spinacia oleracea), (No Change), 238.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Antiscorbutic, Laxative.

Food. Plant Part Used: Leaves.

Literature Review:

Lincecum notes that this species has limited use other than to provide "variety." Although he documents the medicinal properties of the species, the primary use of this species "for variety" suggests use as a food rather than as a medicine.

CLUSIACEAE

Hypericum hypericoides (L.) Crantz (Hypericum crux-andreae), (Taxonomic Change), 20.

Ethnobotanic Data:

Medicine. Plant Part Used: Above ground parts. Medical Effect: Febrifuge. Disorder Treated: Scarlet fever. Processing Technique: Decoction. Dosage: Freely taken.

Literature Review:

The Cherokee utilized *Hypericum hypericoides* as a febrifuge, a "milky substance" obtained from this species was utilized as a dermatological aid for application to sores, and a poultice of the root was applied for the treatment of snakebite (Moerman 1998). The Houma Indians utilized an infusion of the bark and roots (*Ascyrum hypericoides* as syn.) for the treatment of fever, the macerated bark was held in the mouth for the treatment of toothache, and a decoction of the roots was utilized as an anodyne for the treatment of labor pains (Speck 1941). The Natchez Indians utilized *H. hypericoides* in infusion for its diuretic properties (Moerman 1998). The Choctaw utilized the root of *H. hypericoides* and *Ascyrum crux-andreae* (*H. crux-andreae* as syn.) in decoction for the treatment of colic and the leaves in decoction as a wash for sore eyes (Moerman 1998). Porcher (1869) documents the topical application of *Ascyrum crux-andreae* in infusion as a discutient to wounds, ulcers and to reduce glandular inflammation. The ethnobotanic data associated with this specimen is consistent with the medicinal use of both *Hypericum hypericoides* and *Hypericum crux-andrea*.

CONVOLVULACEAE

Ipomoea batatas (L.) Lam. (Convolvulus batatus), (Nomenclatural Change), 117.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent. Disorder Treated: Bowel complaints, Diarrhea, "Summer complaints of children" (Cholera infantum). Medicinal Application: Ingestion. Processing Technique: Roasted.

Food. Plant Part Used: Root, Preparations: Bread.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference found for the medicinal use of the root of *Ipomoea batatas* for the treatment of bowel complaints and the leaves in poultice for the treatment of "inflamed risings."

Ipomoea pandurata (L.) G. Mey. (Convolvulus pandurata), (Nomenclatural Change), 109.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Laxative, Purgative.

Literature Review:

Allopathic physicians utilized the root of *Ipomoea pandurata* in infusion as a diuretic (Porcher 1869).The root was official in the US Pharmacopoeia from 1820 to 1850 (Gathercoal 1942). Botanic physicians considered the root of *Ipomoea pandurata* to be cathartic, diuretic, and pectoral and utilized it in decoction for the treatment of dropsy, gravel, coughs, consumption and asthma (Howard 1833). The Cherokee utilized a poultice of the root in the treatment of rheumatism, as an expectorant in the treatment of coughs, as a respiratory aid for the treatment of asthma, and as a laxative (Moerman 1998). Both the Creek and the Cherokee utilized the plant as a diuretic in the treatment of dropsy and gravel (Moerman 1998).

CORNACEAE

Cornus alternifolia L. f. (No original identification), 69.3.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Cornus florida L. (Cornus florida), (No Change), 64.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Fruit. Medical Effect: Astringent, Tonic, Febrifuge.

Literature Review:

Allopathic physicians considered the bark of *Cornus florida* to be antiseptic, febrifuge, and tonic and utilized a powder and decoction for the treatment of fever (Porcher 1869). The bark was official in the US Pharmacopoeia from 1820 to 1880 (Gathercoal 1942). The bark, flowers, and berries were utilized by botanic physicians in powder, tea or tincture as an astringent and tonic. The medicinal activity of the bark was "considered equal to the chinchona bark" for the treatment of fever (Porcher 1869) although it is documented to be less potent than that of *Chinchona officinalis* (Millspaugh [1892]1974, Porcher 1869). The Houma Indians utilized the roots and bark in decoction for the treatment of fever and malaria (Speck 1941). The Cherokee Indians chewed the bark for the treatment of headache and an infusion of the bark was utilized by women for the treatment of backache (Moerman 1998). The Cherokee utilized a compound infusion of the bark of the root and stem for the treatment of diarrhea and as an anthelmintic for the treatment of worms in children (Moerman 1998, Mooney 1932). The Cherokee utilized the root bark as a febrifuge and applied as a poultice for its antiseptic properties (Moerman 1998).

CUCURBITACEAE

Momordica charantia L. (Momordica balsamina), (Taxonomic Change), 28.

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit. Disorder Treated: Bronchitis, Colic. Processing Technique: Tincture.

Literature Review:

No references were found documenting the medicinal use of either *Momordica charantia* or *M. balsamina*. Based on the correct identification the ethnobotanic data associated with this specimen documents the medicinal use of the fruit of *Momordica charantia*.

CUPRESSACEAE

Juniperus virginiana L. (Diggs, Lipscomb, and O'Keenan, 1999), (No original identification) (Fragment), 244.6.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 246.

Juniperus virginiana L. (Juniperus virginiana), (No Change), 250.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, Fruit, Oil. Medical Effect: Diaphoretic, Emmenagogue, Stimulant. Disorder Treated: Rheumatism. Medicinal Application: Liniment. Processing Technique: Pulverized, Macerated, Oil. Dosage: 10-15 grains.

Literature Review:

The leaves of *Juniperus virginiana* were official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The oil expressed from the "shavings" of *J. virginiana* was applied topically for the treatment of rheumatic pain and joint inflammation (Porcher 1869). The leaves were utilized as a diuretic, stimulant, and emmenagogue for the treatment of obstruction (Grieve 1974, Porcher 1869). The berries in decoction were considered diaphoretic and were utilized for the treatment of rheumatic pain and joint inflammation (Porcher 1869). The Cherokee considered *Juniperus virginiana* abortifacient, anthelmintic, antirheumatic, and diaphoretic and a preparation was utilized for the treatment of "female obstructions," taken internally for the treatment of rheumatism, applied topically as a dermatological aid, and an infusion was utilized for the treatment of colds (Moerman 1998). The berries in decoction are anthelmintic and were utilized for the treatment of worms (Moerman 1998). Lincecum notes its use for similar purposes to that of *J. communis*. The oil obtained by distillation of the 'berries' (cones) of both is diuretic and was utilized in the treatment of “dropsy” (Grieve 1974, Porcher 1869).

Juniperus virginiana L. (Juniperus sabina), (Taxonomic Change), 246.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, Tops. Medical Effect: Emmenagogue. Medicinal Application: Salve. Processing Technique: Decoction.

Literature Review:

The leaves and tops of *Juniperus virginiana* and *Juniperus sabina* were utilized for medicine and were official in the US Pharmacopoeia from 1820 to 1870 and 1820 to 1900 respectively (Gathercoal 1942). The leaves of *J. virginiana* were utilized as a substitute for *J. sabina* in the commercial production of the essential oil (Grieve 1974) however produce less oil than a similar quantity of the leaves of *J. sabina* (Millspaugh [1892]1974). The oil was applied topically as an ointment or dressing to promote discharge from blisters and was utilized in the treatment of syphilitic sores (Grieve 1974). The oil is strongly emmenagogue and when taken internally will produce abortion (Grieve 1974). The Cherokee utilized *Juniperus virginiana* taken internally for the treatment of "female obstructions", as an antirheumatic, and an infusion is utilized for its diaphoretic properties for the treatment of colds (Moerman 1998). Applied topically *J. virginiana* is utilized by the Cherokee as a dermatological aid (Moerman 1998). Lincecum includes another specimen in his collection for which ethnobotanic data is also provided (see accession number 250). The ethnobotanical data associated with this specimen is consistent with the medicinal utilization of both *J.*

virginiana and *J. sabina*.

Platycladus orientalis (L.) Franco (Thuja occidentalis), (Taxonomic Change), 29.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, Tops. Medical Effect: Antiscorbutic, Aromatic, Balsamic. Disorder Treated: Coughs, Intermittents (Malaria), Scurvy. Medicinal Application: Oral. Processing Technique: Decoction.

Literature Review:

The oil obtained from the leaves of *Thuja occidentalis* was official in the 1880 edition of the US Pharmacopoeia (Gathercoal 1942). The leaves and twigs are aromatic, astringent, diuretic and emmenagogue and a decoction was utilized for the treatment of fever, coughs, "dropsy," and scurvy (Grieve 1974, Millspaugh [1892]1974, Porcher 1869). The leaves prepared as an ointment were utilized as a counter-irritant for the treatment of rheumatism and the oil obtained from them is anthelmintic and was utilized as a vermifuge (Porcher 1869). *Ptatycladus orientalis* (*Thuja orientalis* as syn.) possesses similar medicinal properties to those documented for *Thuja occidentalis* (Grieve 1974). The ethnobotanic data associated with this specimen is consistent with the medicinal properties documented for both *Thuja occidentalis* and *Platycladus orientalis*.

Taxodium disticum (L.) Rich. var. imbricarium (Nuttall) Croom, (Watson,

1993), (Cupressus distica), (Nomenclatural Change), 225.

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit, Oil. Medical Effect: Diuretic. Disorder Treated: Urinary obstructions. Medicinal Application: Tea. Processing Technique: Distillation of oil. Dosage: Five or six drops of the oil taken in half teacup doses of spearmint tea, and repeated at intervals of 20 or 30 minutes. Cited Origin: Lincecum.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference found for the utilization of the oil of *Taxodium distichum* var. *imbricarium* which was extracted by distillation from the strobili. Lincecum states "the oil and its uses as far as known are my own discoveries. I commenced the use of it as early as 1831." Lincecum considered the oil anodyne, antivenereal, and diuretic, and utilized it applied topically for the treatment of rheumatic pain, taken as a tea for the treatment of urinary obstructions, and in tincture for the treatment of leucorrhea.

DIOSCOREACEAE

Dioscorea quaternata J. F. Gmel. (Dioscorea villosa), (Taxonomic Change), 242.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Disorder Treated: “Ague” (Malarial fever), Colic. Processing Technique: Infusion. Dosage: Quantity and frequency as much as the stomach will bear.

Literature Review:

A tincture of the 'root' (rhizome) of *Dioscorea villosa* is antispasmodic, diaphoretic, emetic and expectorant and was utilized for the treatment of cramps associated with asthma, cholera morbus (gastroenteritis), colic, and spasmodic hiccoughs (Grieve 1974, Millspaugh [1892]1974). The ethnobotanic data associated with this specimen is consistent with historical medicinal utilization documented in the ethnobotanic literature.

DROSERACEAE

Drosera brevifolia Pursh (Drosera brevifolia), (No Change), 98.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

DRYOPTERIDACEAE

Athyrium filix-femina (L.) Roth var. asplenioides (Michaux) Farwell, (Asplenium angustifolium), (Taxonomic Change), 208.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Emollient, Mucilaginous, Secernent.

Literature Review:

Lincecum misidentified this specimen as *Asplenium angustifolium*. The ethnobotanic data associated with this specimen is consistent with the medicinal use of *Diplazium pycnocarpon* (Dryopteridaceae) (*Asplenium angustifolium* as syn.). The genus *Asplenium* was considered by the ancients to be deobstruent, mucilaginous and stimulant (Grieve 1974).

EBENACEAE

Diospyros virginiana L. (Diospyros virginiana), (No Change), 245.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Astringent Tonic, Emollient, Expectorant . Disorder Treated: Cough. Medicinal Application: Syrup. Processing Technique: Decoction. Dosage: One tablespoonful, four times a day.

Food. Plant Part Used: Fruit.

Literature Review:

Allopathic physicians utilized the bark of *Diospyros virginiana* as an astringent, febrifuge and tonic for the treatment of diarrhea, dysentery, fever, and sore throat and the unripe fruit, fresh or dried, as an astringent for the treatment of diarrhea, dysentery, and uterine hemorrhage (Porcher 1869). The bark was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The Cherokee chewed the fresh bark for the treatment of heartburn, utilized an infusion of the bark as a liver aid, and a compound infusion for the treatment of toothache (Moerman 1998). A syrup was taken orally for the treatment of thrush and sore throats, a wash was applied topically for the treatment of hemorrhoids, and a preparation utilized for the treatment of venereal diseases (Moerman 1998). The fruit were utilized by the Cherokee for the treatment of "bloody discharge from bowels" (Mooney 1932).

ERICACEAE

Oxydendrum arboreum (L.) DC. (Andromeda arborea), (Nomenclatural Change), 290.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Leaves. Medical Effect: Deobstruant, Diuretic, Tonic. Disorder Treated: “Dropsy,” "Poor blooded condition."

Literature Review:

The bark and leaves were utilized as an astringent, febrifuge and refrigerant, by allopathic physicians with the leaves being used as a cooling drink in the treatment of fevers (Porcher 1869). The Cherokee considered this species to be sedative and tonic and utilized the bark as a dermatological aid in the treatment of mouth ulcers, dyspepsy, and lung disorders (Moerman 1998), and a compound infusion for the treatment of diarrhea (Moerman 1998, Mooney 1932).

Vaccinium corymbosum L. (Vaccinium var. lanceolatum), (Taxonomic Change), 292.

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Fruit. Medical Effect: Astringent, Diuretic, Refrigerant, Tonic. Disorder Treated: "Dropsy," gravelly complaints. Processing Technique: Decoction, Tincture. Dosage: As large and frequent doses as the stomach will bear.

Literature Review:

The bark of the root, leaves and fruit of numerous species of *Vaccinium* were utilized by allopathic physicians for their astringent properties in the treatment of diarrhea and dysentery (Grieve 1974, Porcher 1869). The bark of *Vaccinium corymbosum* is diuretic and the leaves possess astringent properties (Burlage 1968). The ethnobotanic data associated with this specimen is consistent with the documented use of many species of *Vaccinium* for their astringent and diuretic properties. The ethnobotanic data documents the use of *V. corymbosum* as an astringent and diuretic.

EUPHORBIACEAE

Euphorbia corollata L. var. paniculata Boiss, (Radford, Ahles and Bell, 1968), (Euphorbia pilosa), (Taxonomic Change), 27.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Antidiuretic. Disorder Treated: Diabetes. Medicinal Application: Tea. Dosage: As large doses as the stomach will bear, four to five times a day.

Literature Review:

The root of *Euphorbia corollata* was considered vesicant by allopathic physicians and was applied topically as a irritant for the production of blisters and as an emetic for which it was utilized as a substitute for *E. ipecacuanha* (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The Cherokee utilized the juice of the root of *Euphorbia corollata* as a dermatological aid for the treatment of skin eruptions, an infusion of the root in the treatment of urinary diseases (Moerman 1998, Mooney 1932), and an unspecified preparation was utilized as a cathartic (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the documented medicinal use of *E. corollata* indicating the use here of *E. corollata* var. *paniculata*.

Sebastiania fruticosa (Bartram) Fernald (Stillingia ligustrina), (Nomenclatural Change), 229.

Ethnobotanic Data:

No use documented.

Literature Review:

The fresh roots of *Sebastiania ligustrina* were chewed by the Alabama Indians for their cathartic effect (Swanton [1928] 2000).

Stillingia sylvatica Garden ex L. ssp. sylvatica (Stillingia sylvatica), (No Change), 226.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Deobstruent. Disorder Treated: Circulatory complaints. Processing Technique: Decoction. Dosage: Quantity and frequency sufficient to render the bowels a little loose.

Literature Review:

Allopathic physicians utilized the root of *Stillingia sylvatica* as an alterative, diaphoretic, expectorant, and purgative documenting that in large doses the taxa is cathartic and emetic (Millspaugh [1892]1974, Porcher 1869). The root was official in the US Pharmacopoeia from 1830 to 1916 (Gathercoal 1942). An infusion or decoction was utilized in the southeastern United States as a blood cleanser and for the treatment of syphilis, "scrofula," and fever (Porcher 1869). The Cherokee utilized a tincture or decoction of the root of this species for the treatment of venereal disease (Moerman 1998).

FABACEAE

Apios americana Medik. (Phaseolus, subgenus apios tuberosa), (Nomenclatural Change), 31.

Ethnobotanic Data:

Food. Plant Part Used: Fruit.

Literature Review:

No ethnobotanic utilization found.

Baptisia alba (L.) Vent. (Baptisia alba), (No Change), 289.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiseptic. Disorder Treated: Mortification (Gangrene). Medicinal Application: Wash, Poultice. Processing Technique: Decoction. Dosage: Applied over affected parts, renewed often.

Literature Review:

The Choctaw utilized a poultice of the roots and leaves of *Baptisia alba* var. *macrophylla* for the treatment of inflammation (Moerman 1998). The Creek utilized the root of an unspecified *Baptisia* species in decoction, taken internally and applied as a wash, for the treatment of "lifelessness" in children (Swanton [1928]2000). Porcher (1869) notes that the young shoots of *Baptisia alba* can be eaten until they become green at which time they become strongly purgative.

Botanic physicians considered the root and leaves of *Baptisia tinctoria* antiseptic and utilized a poultice, wash, fomentation, and ointment for the treatment of ulcers and mortification (gangrene) (Howard 1833).

Cercis canadensis L. var. canadensis (Cercis canadensis), (No Change), 282.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Antidysenteric, Antiscorbutic . Disorder Treated: Dysentery. Processing Technique: Boiled in sweet milk.

Literature Review:

The buds are astringent and are utilized in the treatment of chronic diarrhea and dysentery (Burlage 1968). The Alabama Indians utilized an infusion of the roots and inner bark for the treatment of fever and congestion (Moerman 1998).

Crotalaria sagittalis L. (Crotalaria sagittalis), (No Change), 192.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire plant, Root. Medical Effect: Antiscorbutic, Laxative.

Literature Review:

Lincecum documents the medicinal properties of this species however notes that this species "is not much utilized as a medicine." The Gideon Lincecum Herbarium provides the sole reference found for the antiscorbutic and laxative properties of *Crotalaria sagittalis*.

Cytisus scoparius (L.) Link (Spartium scoparium), (Nomenclatural Change), 191.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Defoliated stems. Medical Effect: Bitter tonic, Diaphoretic, Diuretic. Disorder Treated: Difficulty in urination. Processing Technique: Decoction.

Literature Review:

The medicinal use of this species is documented within early European herbals from 1485 onwards, was utilized in Anglo-Saxon and Welsh medicine during the Middle Ages, and was official in the London Pharmacopoeia as early as 1618 (Grieve 1974). A decoction of the tops (the herbaceous tips of the flowering branches) and seeds was utilized in early European medicinal practice as a diuretic for the treatment of "dropsy," for the treatment of liver disorders, jaundice, "ague," and gout (Grieve 1974). The tops of the plant were considered by "eclectic physicians" to be diuretic, emetic, and purgative and were utilized in infusion for the treatment of dropsy (Millspaugh [1892]1974). The tops were official in the US Pharmacopoeia from 1830 to 1900 (Gathercoal 1942).

Melilotus sp. Mill. (Melilotus alba), (No Change), 194.

Ethnobotanic Data:

Food.

Materials. Material Used For: Cosmetics. Plant Part Used: Leaves.

Literature Review:

The absence of reproductive material for this specimen prevents determination of this specimen to the specific level. The flowers of *Melilotus officinalis* (*Melilotus albus* as syn.) were utilized extensively for their aromatic properties and were added to ointments for applied topically to ulcers and sores (Millspaugh [1892]1974). Lincecum notes that the addition of the leaves of this species in the preparation of an ointment provides a pleasant aroma to the ointment without contributing to the medicinal effect.

Mimosa microphylla Dryand. (Schrankia uncinata), (Nomenclatural Change), 185.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiscorbutic. Disorder Treated: Syphilis. Processing Technique: Decoction.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the use of a decoction of the root of *Mimosa microphylla* for the treatment of syphilis and the utilization in a compound syrup as an alterative.

Orbexilum pedunculatum (Mill.) Rydb. var. pedunculatum (No original

identification), 294.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Diaphoresis, Diuretic. Disorder Treated: Anasarca, Fluid retention as a result of "negro poison". Processing Technique: Decoction. Dosage: Doses as large and frequent as the stomach can bear. Cited Origin: Black Doctor.

Literature Review:

Lincecum did not identify this specimen and states that "this plant was found by me in the hands of an old negro who was celebrated for curing negro poison." African Americans utilized *Orbexilum pedunculatum* var. *pedunculatum* (*Psoralea melilodoides* as syn.) in infusion for the treatment of the digestive disorder which they referred to as "poison" (Maisch 1889). The root was considered aromatic, bitter tonic and nervine and was utilized by allopathic physicians during the nineteenth century for the treatment of diarrhea (Carter 1888). The Cherokee utilized *Orbexilum pedunculatum* var. *pedunculatum* as a diaphoretic and tonic and an infusion was utilized as a gynecological aid to "check discharge" and for the treatment of interrupted menstruation (Moerman 1998).

Phaseolus vulgaris L. (Phaseolus proper var. nasus), (Nomenclatural Change), 195.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Emollient. Disorder Treated: Inflamed wounds, Mortification (Gangrene). Medicinal Application: Poultice.

Food.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference found for the medicinal utilization of the leaves of *Phaseolus vulgaris* as a poultice for the treatment of inflamed wounds. Lincecum states that he considers this preparation "the best application that was ever made to an inflamed wound".

Senna italica Mill. (Cassia senna), (Nomenclatural Change), 287.

Ethnobotanic Data:

Medicine. Medical Effect: Purgative.

Literature Review:

The medicinal use of *Cassia acutifolia* (*Cassia senna* pro parte as syn.) was first documented by Arabian physicians who utilized the seeds for medicinal purposes (Grieve 1974). The leaves and fruit of *Cassia acutifolia* were considered purgative in European medicine with the leaves containing a higher concentration of active ingredients (Grieve 1974). This species produces nausea when taken alone and therefore was often utilized as a compound with other aperient and purgative herbs (Brande 1839, Grieve 1974). The leaves of were official in the US Pharmacopoeia from 1820 to 1942 (Gathercoal 1942). The ethnobotanic data associated with this specimen is consistent with the medicinal properties documented for *Cassia acutifolia*.

Senna marilandica (L.) Link (Cassia marilandica), (Nomenclatural Change), 286.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves.

Literature Review:

Botanic physicians utilized the leaves and pods of *Senna marilandica* (*Cassia marilandica* as syn.) as a purgative in place of the Alexandrian senna (*Cassia acutifolia*) as it possesses milder medicinal properties (Howard 1883). *Senna marilandica* was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The Cherokee considered it to be analgesic, febrifuge, and purgative, and utilized an infusion for the treatment of pain associated with cramps, a poultice of the root applied to sores, and a preparation for the treatment of fever (Moerman 1998).

Tephrosia onobrychoides Nutt. (Tephrosia elegans), (Taxonomic Change), 188.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Disorder Treated: Coughs, Dyspepsia. Medicinal Application: Chewed, saliva swallowed. Processing Technique: Fresh. Dosage: Chewed frequently. If bowels become loose diminish quantity. Cited Origin: Native American Indians (group not specified).

Literature Review:

This species was misidentified by Lincecum as *Tephrosia elegans* and the ethnobotanic data documenting the medicinal use of the root by Native Americans has been incorrectly applied to *Tephrosia hispidula* (*T. elegans* as syn) (Campbell 1951, Moerman 1998). Campbell (1951) considered the medicinal application documented by Lincecum to be Choctaw in origin. Based on the current identification this specimen provides the sole reference for the medicinal use of the root of *T. onobrychoides* for the treatment of coughs and dypsepsia by Lincecum and Native American Indians.

Tephrosia virginiana (L.) Pers. (Tephrosia virginiana), (No Change), 189.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Anthelmintic. Disorder Treated: Worm treatment. Processing Technique: Powdered. Dosage: One teaspoonful repeated three mornings in succession.

Literature Review:

The Cherokee utilized an infusion of *Tephrosia virginica* as an anthelmintic for the treatment of worms and an infusion or decoction of the root to build strength in children (Moerman 1998). The Creek Indians utilized the root in the treatment of tuberculosis, as an infusion for the treatment of kidney and bladder problems, a compound decoction to stimulate menstruation, and an infusion of the root to restore potency in men (Moerman 1998). The Catawba Indians utilized the leaves for the treatment of rheumatism and fever (Moerman 1998). Porcher (1869) states that the use of this species as an anthelmintic originated with the Native American Indians and was subsequently adopted in "popular practice."

Trifolium pratense L. (Trifolium pratense), (No Change), 1.1.

Ethnobotanic Data:

Medicine. Plant Part Used: Flowers. Medical Effect: Antiscorbutic. Disorder Treated: Cancers, Ulcers. Processing Technique: Extract.

Literature Review:

The flowers of *Trifolium pratense* are alterative and antispasmodic and was utilized in extract or as a salve topically applied to sores and ulcers, and in infusion for the treatment of cough associated with whooping cough (Grieve 1974, Millspaugh [1892]1974). The Cherokee utilized an infusion for the treatment of fever and leucorrhea and as a kidney aid (Moerman 1998).

Trifolium reflexum L. (No original identification), (Fragment), 1.2.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

FAGACEAE

Castanea dentata (Marsh) Borkh. (Castanea vesca var. americana), (Taxonomic Change), 232.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Leaves. Medical Effect: Astringent, Tonic. Disorder Treated: Burns, Sores, Ulcers. Medicinal Application: Topical, "Sinus injection", Wash. Processing Technique: Decoction. Food. Plant Part Used: Fruit.

Literature Review:

Allopathic physicians considered the roots of *Castanea dentata* to be astringent and they were boiled in milk for the treatment of diarrhea in children while the leaves were utilized in decoction for the treatment of whooping cough (Porcher 1869). The leaves were official in the USP from 1820 to 1850 and 1870 to 1890 (Gathercoal 1942). The Cherokee utilized a decoction of the leaves as a cough syrup, the young leaves steeped in hot water applied topically as a dermatological aid to skin sores, and an infusion of the bark as an astringent to stop bleeding following childbirth (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the medicinal utilization of

Castanea dentata.

Castanea pumila (L.) Mill. (Castanea pumila), (No Change), 231.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Astringent. Medicinal Application: Poultice. Processing Technique: Decoction, mixed with cornmeal. Food. Plant Part Used: Fruit.

Literature Review:

Allopathic physicians utilized the bark for the treatment of intermittent fever (Porcher 1869). The bark was official in the US Pharmacopoeia (National Medical Convention 1831). The Cherokee utilized an infusion of the leaves in the treatment of fevers and chills and as a dermatological aid for the treatment of fever blisters (Moerman 1998).

Quercus alba L. (Quercus alba), (No Change), 223.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Astringent. Disorder Treated: Ulcers. Medicinal Application: Plaster. Processing Technique: Extract.

Literature Review:

Porcher (1869) states that astringent properties are ubiquitous in the genus *Quercus*, however, the bark of *Quercus alba* was preferred by allopathic physicians for use in fevers on account of "its not acting on the bowels." The bark was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). The Cherokee utilized the bark as an astringent, antiseptic, emetic, febrifuge, and tonic and for the treatment of chronic dysentery (Moerman 1998, Mooney 1932). The Houma Indians utilized a tincture of the crushed root applied topically for the treatment of rheumatism (Speck 1941). The bark was applied topically as a wash for gangrene and a decoction was administered by injection for the treatment of leucorrhoea and gonorrhea (Porcher 1869).

GENTIANACEAE

***Frasera caroliniensis* Walter (*Frazera caroliniensis*), (No Change), 67.**

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Cathartic, Emetic. Processing Technique: Fresh.

Literature Review:

The root of *Frasera caroliniensis* was utilized by allopathic physicians as a tonic and febrifuge in the treatment of fever, colic, indigestion, debility and diarrhea, and a poultice of the powdered plant was applied as an antiseptic to ulcers (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The root when fresh is considered cathartic and emetic and when dried acts as a stimulant and tonic (Grieve 1974). Botanic physicians utilized this species applied externally as an antiseptic and taken internally for the treatment of gangrene and as a tonic to stimulate the digestive system in the treatment of dyspepsia, and indigestion (Howard 1833). The root was utilized in infusion by both allopathic and botanic physicians for its laxative properties as a substitute for rhubarb (Howard 1833, Porcher 1869). The Cherokee considered the plant antiseptic and anti-emetic and utilized the root as a tonic in the treatment of diarrhea and dysentery and as a digestive aid in the treatment of indigestion, colic, cramps, and lack of appetite (Moerman 1998).

Gentiana saponaria L. (Gentiana saponaria), (No Change), 42.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Bitter tonic. Disorder Treated: Dyspepsia. Medicinal Application: Chewed. Processing Technique: Fresh.

Literature Review:

Lincecum documents the medicinal properties of the native *Gentiana saponaria* as being "equal or superior" to those of the European *Gentiana lutea* which was utilized in extract, compound infusion or tincture as a bitter tonic in the treatment of debility, dyspepsia, constipation and for stimulation of the digestive system (Brande 1839, Grieve 1974). The root of *Gentiana saponaria* possesses medicinal properties equal to those of *Gentiana lutea* (Grieve 1974).

Gentiana saponaria L. (Gentiana saponaria), (No Change), 211.2.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Anthelmintic, Antidyspeptic, Bitter, Tonic. Disorder Treated: Debility, Dyspepsia. Medicinal Application: Compound.

Literature Review:

See accession number 42.

Gentiana villosa L. (No original identification), (Fragment), 211.1.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Sabatia angularis (L.) Pursh (Sabbatia angularis), (No Change), 59.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Bitter Tonic. Disorder Treated: Yellow fever. Processing Technique: Infusion, Decoction. Dosage: Three to four times a day on an empty stomach in doses as the stomach will bear.

Literature Review:

Sabatia angularis was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The herb was utilized by allopathic physicians as an antiperiodic, stomachic, and tonic for the treatment of fevers associated with malaria and yellow fever and to stimulate digestion (Grieve 1974, Porcher 1869). The Cherokee utilized an infusion as an analgesic for the treatment of periodic pains (Moerman 1998).

GERANIACEAE

Geranium maculatum L. (Geranium maculatum), (No Change), 148.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent. Disorder Treated: Gonorrhea, Gleets (Medorrhea). Medicinal Application: Urethral suppository. Processing Technique: Infusion. Cited Origin: Choctaw.

Literature Review:

The Native American utilization of the root as an astringent and styptic resulted in the introduction of this species into widespread medicinal practice in the treatment of cholera infantum, dysentery, leucorrhoea, hemorrhage and sore throat (Millspaugh [1892]1974). The Cherokee considered this species to be astringent and hemostatic and utilized it in the treatment of open wounds and as a compound decoction for the treatment of oral thrush (Moerman 1998). This specimen in the Gideon Lincecum Herbarium provides the sole reference for the use of the root as an astringent in the treatment of venereal diseases by the Choctaw (Campbell 1951, Moerman 1998). Allopathic physicians utilized an extract of the root in injection for the treatment of gleets and leucorrhea, a decoction boiled in sweet milk for the treatment of cholera infantum, topical application for the treatment of sore throats and ulcerations accompanied by discharges, including mouth ulcers (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942).

HAMAMELIDACEAE

Hamamelis sp. L. (Hamamelis virginica), (No Change), 137.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Leaves. Medical Effect: Discutient, Sedative. Disorder Treated: Tumors, Inflammation, Inflammation of the eyes, Piles. Medicinal Application: Poultice. Processing Technique: Infusion.

Literature Review:

Porcher (1869) considers that the use of the bark and leaves as an astringent was derived from Indian use of this species. Howard (1833) documents that the "Indians" utilized a poultice or wash of the bark for the treatment of tumors, and inflammation particularly inflammations of the eye. The Cherokee utilized an infusion of the bark of *Hamamelis virginica* for the treatment of tuberculosis, a preparation (unspecified) as an analgesic for the treatment of pain, an infusion taken internally for the treatment of sore throat, a wash applied topically to sores, and a compound infusion for the treatment of fever (Moerman 1998). Allopathic physicians considered the bark to be anodyne, astringent, discutient, sedative and tonic and utilized a decoction of the bark for the treatment of lung and stomach hemorrhage and an ointment for the treatment of hemorrhoids (Porcher 1869). *Hamamelis virginica* was official in the US Pharmacopoeia from 1880 to 1900 (Gathercoal 1942). Botanic physicians utilized the bark and leaves for their astringent and hemostatic properties in the treatment of internal hemorrhage and bowel complaints (Howard 1833). Thomson (1835) utilized a tea of the leaves, fresh or dried, for the treatment of bleeding at the stomach and bowel complaints and includes this article in his compounnd "No. 2" and "No. 3."

Liquidambar styraciflua L. (Liquidambar styraciflua), (No Change), 227.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Buds, Leaves. Medical Effect: Astringent, Tonic. Disorder Treated: Bowel complaints. Medicinal Application: Tea, Ointment (Gum). Processing Technique: Tincture (gum), Decoction (bark). Dosage: One half teaspoonful of tincture of the gum added to one half teacupful of blackberry tea, taken three to four times.

Literature Review:

Liquidamber styraciflua is the source of the copal resin. The resin was utilized by allopathic physicians applied topically as an anthelmintic for the treatment of scabies and the inner bark was utilized in decoction as a mucilaginous astringent in the treatment of diarrhea and dysentery (Porcher 1869). The resin was official in the US Pharmacopoeia from 1830 to 1942 (Gathercoal 1942). The resin and inner bark was utilized by the Cherokee for the treatment of diarrhea, flux and dysentery, a salve was applied to wounds, sores and ulcers, and the resin was combined with animal tallow to treat itching (Moerman 1998). The Choctaw utilized a decoction of the root applied as a poultice to cuts and bruises (Bushnell 1985) and the Houma utilized a decoction of the root applied as a wash to sores ("caused by small worms in the skin") (Speck 1941).

HIPPOCASTANACEAE

Aesculus glabra Willd. (Aesculus glabra), (No Change), 201.

Ethnobotanic Data:

Medicine.

Literature Review:

Lincecum documents that this species is utilized similarly to the medicinal application of *Aesculus pavia* however he provides no ethnobotanic data documenting its medicinal use. The fruit of *Aesculus glabra* possesses similar properties to that of the *Aesculus pavia.* The Creek Indians utilized the root of

Aesculus sp. for the treatment of tuberculosis noting that it is a very potent medicine and is taken in very small doses (Swanton [1928]2000). The Kiowa Indians (Oklahoma) utilized an infusion of the fruit of *Aesculus glabra* var. *glabra* as an emetic (Moerman 1998).

Aesculus pavia L. var. pavia (Aesculus subgenus pavia discolor), (Nomenclatural Change), 84.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Emetic.

Literature Review:

Lincecum documents that the medicinal effect of this species "resembles [the] action of *Lobelia inflata*" which was utilized by botanic physicians as an emetic (Howard 1833, Thomson 1833). The fruit of *Aesculus pavia* is narcotic as a result of the presence of the glycoside aesculin (Burlage 1968). Allopathic physicians utilized a preparation of the fruit for application to gangrenous ulcers (Porcher 1869). Porcher (1869) considers that a powder produced from the "rind" of the fruit is more potent than the narcotic obtained from opium. The Cherokee utilized an infusion of the roots, taken internally and as a wash, for the treatment of dyspepia, a poultice of the pounded fruit for application to skin infections and tumors, the fruit was carried externally for the treatment of rheumatism and hemorrhoids (Moerman 1998). The fruit of this species macerated and mixed with wheat flour produces temporarily paralysis in fish when put into the water (Porcher 1869).

IRIDACEAE

Iris germanica L. (No original identification), (Fragment), 145.2.

Ethnobotanic Data:

No use documented.

Literature Review:

This fragment of *Iris germanica* was mounted alongside a specimen of *Iris virginica* suggesting that Lincecum did not distinguish between species in the collection of this specimen. The root of *Iris germanica* was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942). No other references were found documenting its medicinal use. See accession number 145.1 for a complete discussion of the ethnobotanic data associated with this specimen.

Iris virginica L. (Iris versicolor), (Taxonomic Change), 145.1.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Alterative, Antivenerial. Disorder Treated: Venereal complaints. Cited Origin: Botanic physicians.

Literature Review:

Allopathic physicians utilized the root of *Iris versicolor* in tincture as a diuretic and cathartic and the juice of the root was utilized in combination with

Eryngium yuccifolium as a treatment for dropsy (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942). *Iris versicolor* was one of the most extensively utilized species within the pharmacopoeia of Native American Indians (Vogel 1970). The Creek Indians cultivated this species and utilized it for its cathartic properties (Moerman 1998, Vogel 1974) and the Cherokee utilized a decoction of the root of *Iris virginica* as a salve for the treatment of ulcers and "yellowish urine" (Moerman 1998). Iris virginica was considered by Porcher (1869) to possess similar medicinal properties to that of *Iris versicolor*. Lincecum cites the use of this species for the treatment of venereal complaints to "Botanic physicians" however this species is not documented by Howard (1833) or Thomson (1835). The ethnobotanic data associated with this specimen is consistent with the alterative properties documented for *Iris versicolor* and provides the sole reference found documenting the antivenereal properties of *Iris virginica*.

Sisyrinchium langloisii Greene (Sisyrinchium anceps), (Taxonomic Change), 186.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiscorbutic. Disorder Treated: "Scurvy on the teeth". Medicinal Application: Chewed. Processing Technique: Fresh.

Literature Review:

The Cherokee utilized an infusion of the root of *Sisyrinchium angustifolium* (*S. anceps* as syn.) for the treatment of diarrhea (Moerman 1998). The ethnobotanic data associated with this specimen provides the sole reference for the use of the fresh root of *Sisyrinchium langloisii* as a dental treatment.

JUGLANDACEAE

Carya alba (L.) Nutt. ex Ell. (Gleason and Cronquist, 1991), (Carya myristicaeformis), (Taxonomic Change), 221.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Astringent, Styptic. Processing Technique: Powder, Decoction.

Literature Review:

Allopathic physicians utilized the bark of *Carya alba* as an astringent, the fresh bark was chewed for the treatment of dyspepsia, and a tincture was utilized for the treatment of intermittent fever (Porcher 1869). The Cherokee considered the bark astringent, diaphoretic, emetic, and analgesic and chewed the fresh bark for the treatment of sore mouth, applied the bark topically as a dressing for cuts, and utilized a preparation as a gastrointestinal aid, and for the treatment of pain associated with poliomyelitis (inflammation in the spinal column) (Moerman

1998).

Juglans cinerea L. (Juglans cinerea), (No Change), 224.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Anthelmintic. Medicinal Application: Cordial.

Literature Review:

The inner bark of the stem and root of *Juglans cinerea* was utilized by botanic physicians for its mild cathartic properties in the treatment of diarrhea and dysentery (Howard 1833, Thomson 1835). In large doses the extract of the inner bark is emetic (Thomson 1835). Thomson (1835) utilized a syrup produced from a decoction of the bark, twigs or buds as a treatment for worms. Allopathic physicians utilized the rind of the fruit and the skin of the seed for their anthelmintic properties (Porcher 1869). The inner bark of the root was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942). The Cherokee utilized an infusion of the bark as a cathartic and for the treatment of toothache (Moerman 1998).

Juglans nigra L. (Juglans nigra), (No Change), 234.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Fruit. Medical Effect: Astringent, Alterant, Purgative, Vesicant. Medicinal Application: Plaster. Processing Technique:

Bruised. Cited Origin: Dr. D. Lipscomb of Mississippi.

Literature Review:

The rind of the unripe fruit was utilized by allopathic physicians to remove ringworms (Porcher 1869). The Cherokee utilized an infusion as a wash topically applied to dermatological sores, an infusion of the inner bark for the treatment of small-pox, and the fresh bark, chewed, for the treatment of toothache (Moerman 1998). The bruised bark and fruit "husks" were considered rubefacient by both allopathic and botanic physicians and were applied topically for the production of blisters (Porcher 1869, Thomson 1835). The ethnobotanic data associated with this specimen is consistent with the application of the medicinal properties documented for *Juglans cinerea*.

LAMIACEAE

Calamintha nepeta (L.) Savi (Calamintha nepeta), (Nomenclatural Change), 173.

Ethnobotanic Data:

Medicine. Medical Effect: Diaphoretic, Pungent. Processing Technique: Oil.

Literature Review:

Calamintha nepeta possesses similar medicinal properties to those documented for *Calamintha officinalis* whose medicinal use was documented in the English herbals of the sixteenth century to be antispasmodic, carminative, and diaphoretic (Grieve 1974). This species is currently utilized along with *Calamintha officinalis* as a diaphoretic for the promotion of sweating (Jellin, 2000).

***Dracocephalum moldavica* L. (No original identification), 306.**

Ethnobotanic Data:

Medicine. Medical Effect: Diaphoretic. Disorder Treated: Scarlet fever, Eruptive disease. Medicinal Application: Tea. Cited Origin: Dr. Beach.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the medicinal use of *Dracocephalum moldavica* as a diaphoretic in the treatment of scarlet fever. Lincecum documents that this species possesses the medicinal properties of *Melissa officinalis* and *Nepeta cataria* (accession numbers 179 and 159 respectively) which were utilized by Lincecum as an astringent and carminative in the treatment of dysentery and diarrhea and as a sudorific.

***Glechoma hederacea* L. (*Glechoma hederacea*), (No Change), 168.**

Ethnobotanic Data:

Medicine. Medical Effect: Diuretic, Stomachic, Tonic.

Literature Review:

The Cherokee utilized an infusion for the treatment of colds and hives in babies (Moerman 1998).

Hedeoma pulegioides (L.) Pers. (Hedeoma pulegioides), (No Change), 160.1.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Carminative, Stomachic, Tonic.

Literature Review:

Botanic physicians utilized this species for its stimulant and diaphoretic properties in the treatment of colds and fever (Howard 1833, Thomson 1835). Thomson (1835) documents the use of the essential oil in warm water in the treatment of stomach and bowel pain in children. Allopathic physicians utilized an infusion as an emmenagogue to promote menstruation (Porcher 1968). The leaves were official in the US Pharmacopoeia from 1830 to 1900 (Gathercoal 1942). The Cherokee considered the plant diaphoretic, emmenagogue, expectorant, and febrifuge and utilized it in the treatment of colds, fever, and "obstructed menses" in addition to rubbing the leaves onto the skin as an insect repellent (Moerman 1998).

Hedeoma reverchonii (A. Gray) A. Gray var. reverchonii (Diggs, Lipscomb and O'Keenan, 1999), (No original identification), 149. Collection location: (Prairies of) Texas, Summer, 1848.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Aromatic, Carminative, Diaphoretic, Stomachic, Tonic. Disorder Treated: Colds, Fever, Pleurisy. Medicinal Application: Tea, Injection. Processing Technique: Infusion. Dosage: Freely taken.

Literature Review:

A tea of the leaves of *Hedeoma reverchonii* var. *reverchonii* was utilized in the treatment of "dropsy" and in the purification of drinking water and the oil extracted from the leaves was utilized to keep off mosquitoes (Burlage 1968).

Hyssopus officinalis L. (Hyssopus officinalis), (No Change), 174.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Carminative, Stomachic, Sudorific.

Literature Review:

Hyssopus officinalis was considered to be carminative, diaphoretic, emmenagogue, expectorant, pectoral, and stimulant and was utilized as an infusion for the treatment of catarrh and asthma. The Cherokee utilized a syrup in the treatment of "asthma and other lung and breast diseases" and an infusion as an abortifacient "to bring on the menses" (Moerman 1998). The leaves are currently utilized for their carminative properties in the treatment of mild cramping and digestive discomfort and applied topically in the treatment of burns and bruises (Jellin et al. 2002).

Lavandula angustifolia Mill. (Lavandula spica), (Nomenclatural Change),

164.1.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Carminative, Stomachic, Tonic. Disorder Treated: Painful bowels.

Literature Review:

The historical use of *Lavandula angustifolia* (*L. spica* as syn.) dates back to ancient Arabian, Greek and Roman civilizations (Blumenthal et al. 2000). The medicinal use is documented in the English herbals of the sixteenth century for its aromatic, carminative and nervine properties (Grieve 1974). The flowers were official in the London Pharmacopoeia and were prepared in a compound utilized for its restorative, carminative and antispasmodic properties (Brande 1839). The flowers were official in the US Pharmacopoeia from 1820 to 1880 (Gathercoal 1942). The flowers are currently included in the German Commission E monographs for internal use in the treatment of insomnia, restlessness, and nervous intestinal discomfort (Blumenthal et al. 2000).

Leonurus cardiaca L. (Leonurus cardiaca), (No Change), 176.

Ethnobotanic Data:

Medicine. Plant Part Used: Above ground parts. Medical Effect: Antispasmodic, Carminative, Emmenagogue, Sedative, Stomachic. Disorder Treated: Hysteria. Medicinal Application: Tea.

Literature Review:

Early English herbals from the late sixteenth century document the use of *Leonurus cardiaca* for the treatment of cardiac disorders (Blumenthal et al. 2000) as an antispasmodic, emmenagogue, diaphoretic, nervine, and tonic (Grieve 1974). Allopathic physicians considered the herb sedative and anti-hysteric and prepared a tea for the relief of heart palpitations and for the treatment of hysteria (Porcher 1869). The Cherokee utilized the plant as a stimulant for the treatment of fainting, and as a sedative for the treatment of "nervous and hysterical affections" (Moerman 1998). The herb is currently included in the German Commission E monographs as a sedative, hypotensive and cardiotonic for the treatment of nervous cardiac disorders (Blumenthal et al. 2000).

Lycopus americanus Muhl. ex W. Bartram (Lycopus europoeus), (Taxonomic Change), 157.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Disorder Treated: Asthma, Bleeding from the lungs (Tuberculosis). Processing Technique: Decoction. Dosage: Half teacup doses as often as stomach will bear.

Literature Review:

Lycopus europaeus was utilized in Europe as an astringent and sedative for the treatment of intermittent fevers (Grieve 1974). Allopathic physicians utilized *Lycopus europaeus* for the treatment of intermittent fevers (Porcher 1869). Porcher (1869) states that the botanic physicians in the United States utilized this species internally in the treatment of diarrhea and externally as a wash for sores however its medicinal use is not documented by Howard (1833) or Thomson (1835). No references were found for the medicinal use of *Lycopus americanus*. The ethnobotanic data associated with this specimen is consistent with the medicinal use of both *Lycopus europaeus*.

Lycopus rubellus Moench (Lycopus virginicus), (Taxonomic Change), 74.1.

Ethnobotanic Data:

Medicine. Medical Effect: Sedative, Sub-astringent, Sub-tonic. Disorder Treated: Hemoptysis.

Literature Review:

Lycopus virginicus was considered by allopathic physicians to be astringent, sedative and mildly narcotic, and was utilized for its haemostatic properties for the treatment of hemorrhage, particularly in hemorrhage of the lungs (Porcher, Millspaugh [1892]1974). Allopathic physicians utilized *Lycopus virginicus* as a sedative which was considered effective in slowing the pulse without "the disagreeable symptoms" observed with the use of *Digitalis purpurea* (Porcher 1869). *Lycopus virginicus* was official in the US Pharmacopoeia from 1830 to 1870 (Gathercoal 1942). The Cherokee utilized the root chewed and applied topically for the treatment of snakebite (Moerman 1998). No references to the medicinal use of *L. rubellus* were found. The ethnobotanic data associated with this specimen is consistent with the medicinal properties documented for *Lycopus virginicus*.

Lycopus rubellus Moench (Lycopus virginicus), (Taxonomic Change), 74.2.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 74.1.

Lycopus uniflorus Michx. (Lycopus purpuria), 75.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Majorana hortensis Moench (Bailey, 2001), (Origanum majorana), (Nomenclatural Change), 162.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Refrigerant, Oleaginous.

Literature Review:

Brande (1839) documents the use of *Majorana hortensis* as a culinary herb. This specimen provides the sole ethnobotanic reference found for the aromatic, oleaginous and refrigerant properties of *Majorana hortensis*.

Marrubium vulgare L. (Marrubium vulgare), (No Change), 170.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Bitter tonic, Expectorant. Disorder Treated: Colds, Coughs. Cited Origin: Common Usage.

Literature Review:

Marrubium vulgare was utilized by European physicians as a tonic, diuretic and expectorant and was utilized in the treatment of coughs and asthma (Brande 1839). Allopathic physicians considered the herb diuretic, laxative, and tonic and utilized it in infusions for the treatment of coughs, colds, fever, and rheumatism (Porcher 1869). It was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1842). Botanic physicians utilized *Marrubium vulgare* in a sweetened infusion for the treatment of coughs, asthma and prepared as a syrup for its expectorant properties (Howard 1833, Thomson 1835). In large doses it is laxative (Howard 1833). The Cherokee utilized an infusion for "breast complaints" in the treatment of colds, and as a cough syrup (Moerman 1998).

Melissa officinalis L. (Melissa officinalis), (No Change), 179.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Astringent, Carminative, Stomachic, Sudoric, Tonic. Disorder Treated: Diarrhea, Dysentery, "Summer complaints of children" (Cholera infantum). Medicinal Application: Syrup, Tea. Processing Technique: Decoction. Dosage: Tablespoonful doses, three to four times a day (Syrup), Freely (Tea).

Literature Review:

The medicinal use of this species was documented within ancient Greek and Roman medicinal texts for the treatment of venomous bites and as a surgical dressing for wounds (Blumenthal et al, 2000). The leaves were utilized during the nineteenth century for their carminative, antispasmodic, and emmenagogue properties for the treatment of amenorrhea, flatulence, and hypochondriasis (Millspaugh [1892]1974). It was official in the US Pharmacopoeia from 1840 to 1890 (Gathercoal 1942). The Cherokee considered the plant to be stimulant, tonic, and febrifuge and utilized it in the treatment of fevers, chills, and colds (Moerman 1998). The leaves are currently included in the German Commission E monographs as a sedative and carminative utilized for the treatment of sleeping disorders and gastrointestinal complaints (Blumenthal, 2000).

Mentha spicata L. (Mentha viridis), (Nomenclatural Change), 161.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Carminative, Oleaginous, Refrigerant. Processing Technique: Decoction.

Literature Review:

Mentha spicata (*M. viridis* as syn.) possesses similar medicinal properties to that of *Mentha piperita* and is considered antispasmodic and carminative and was utilized by English physicians for the treatment of nausea and spasmodic pain in the stomach and bowels (Brande 1839). Allopathic physicians considered the herb an antispasmodic and the herb and essential oil was official in the US Pharmacopoeia from 1820 to 1942 (Gathercoal 1942). Botanic physicians considered the essential antispasmodic and carminative, a decoction of the oil was applied topically for the treatment of hemorrhoids and a tea was taken to stop vomiting (Howard 1833, Thomson 1835).

Mentha x piperita L. (Mentha piperita), (No Change), 21.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Carminative, Oleaginous, Refrigerant.

Literature Review:

Mentha piperita was official in the London Pharmacopoeia from 1721 and the essential oil obtained from the leaves was utilized as an antispasmodic, carminative, and stomachic and was utilized in the treatment of spasmodic pains of the stomach and bowels, colic, dyspepsia and nausea (Brande 1839, Grieve 1974). Allopathic physicians utilized this species for their aromatic, antispasmodic and stimulant properties. The leaves were official in the US Pharmacopoeia from 1820 to 1942 (Gathercoal 1942). Botanic physicians utilized the plant as an antiemetic, for the treatment of nausea, to relieve hysterics (Howard 1933), as a tea to promote perspiration in the treatment of colds, and the essential oil was taken in hot water to relieve pain in the stomach and bowels of children (Thomson 1835). The leaves and the essential oil obtained from them was applied topically by "Eclectic" physicians as a rubefacient in the treatment of rheumatism and neuralgia for its anodyne properties (Millspaugh [1892]1974). The Cherokee utilized *Mentha piperita* for the treatment of pain associated with colic and cramps, as a gastrointestinal aid for the relief of flatulence, as an antiemetic, as an infusion for the treatment of fevers, and in tincture applied externally for the treatment of hemorrhoids (Moerman 1998). It is currently included in the German Commission E Monographs taken internally in the treatment of spastic discomfort of the upper gastrointestinal tract and inflammation of the oral membranes and externally for the treatment of myalgia and neuralgia (Blumenthal et al. 2000).

Monarda clinopodioides Gray (Monarda didyma), (Fragment), 73.2.

Ethnobotanic Data:

No use documented.

Literature Review:

This fragment is associated with a second specimen which was identified by Lincecum as *Monarda didyma* and has been assigned the accession number 73.1 by this author. The Cherokee utilized *M. didyma* extensively as a carminative, emmenagogue and febrifuge (Moerman 1998). No references for the medicinal use of *M. clinopodioides* were found. The ethnobotanic data associated with this specimen is considered by this author to refer to accession 73.1.

Monarda clinopodioides Gray (Monarda bradburiana), (Taxonomic Change), 150.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Aromatic, Carminative, Tonic.

Literature Review:

No references were found documenting the medicinal use of either *M. bradburiana* or *M. clinopodioides* for their aromatic, carminative, and tonic properties. Lincecum notes that he considers the medicinal properties of this species to be "feeble" in this plant species. The ethnobotanic data associated with this specimen is consistent with the aromatic and carminative properties documented for the genus *Monarda* and documents the extension of these properties to *Monarda clinopodioides*.

Monarda fistulosa L. ssp. fistulosa (Monarda didyma), (Taxonomic Change), 73.1.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Carminative, Diaphoretic, Stomachic. Processing Technique: Distillation, Infusion.

Food (Beverage).

Literature Review:

Monarda didyma was utilized as a secondary source of thymol in the United States during the nineteenth century and was considered rubefacient, stimulant, and carminative and was utilized in infusion as a diaphoretic, diuretic, and emmenagogue, and in the treatment of flatulent colic (Grieve 1974). The Cherokee utilized both *M. didyma* and *M. fistulosa* extensively as a carminative and gastrointestinal aid for the treatment of flatulence, colic, and as an emmenagogue for the treatment of "female obstructions" (Moerman 1998). A hot infusion of the leaves of either species were utilized by the Cherokee as a diaphoretic and febrifuge in the treatment of influenza and the measles (Moerman 1998). The Choctaw considered *M. fistulosa* to be analgesic and utilized the crushed leaves rubbed on the chest to relieve chest pain (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the medicinal use of both *M. didyma* and *M. fistulosa* as a carminative, diaphoretic and emmenagogue.

Monarda punctata L. var. intermedia (E.M. McClint. & Epling) Waterf., (Turner, B.L., 1994), (Monarda punctata), (No Change), 76.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Rubefacient. Disorder Treated: "Bloody flux," Bowel complaints. Medicinal Application: Tea. Processing Technique: Essential Oil.

Literature Review:

Allopathic physicians considered the essential oil obtained from this plant to be carminative, emmenagogue, rubefacient, and stimulant and utilized an infusion of the leaves to treat nausea accompanying fever (Millspaugh [1892]1974, Porcher 1869). The herb was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942).

Nepeta cataria L. (Nepeta cataria), (No Change), 159.

Ethnobotanic Data:

Medicine. Medical Effect: Sudorific.

Food.

Literature Review:

The use of the herb was documented in the English herbals of the sixteenth century to be anti-spasmodic, carminative, diaphoretic, emmenagogue, refrigerant, and stimulant and was utilized in infusion for the treatment of colic, fever, and nerves (Grieve 1974). Allopathic physicians considered the herb to be aromatic, carminative, stimulant, and tonic and utilized the herb for the treatment of colds, asthma, amenorrhea, colic, and flatulence in children (Porcher 1869). *Nepeta cataria* was official in the US Pharmacopoeia from 1840 to 1870 (Gathercoal 1942). The Cherokee utilized a poultice of the leaves for topical application to swellings and boils, an infusion as an anthelmintic for the treatment of worms, and unspecified preparations for their sedative and abortifacient effects (Moerman 1998). Botanic physicians utilized the herb applied as a poultice to swellings, as an antispasmodic and anticonvulsive, as an emmenagogue utilized in the treatment of female obstructions, and as a carminative for the treatment of colic and flatulence taken orally or administered by injection (Howard 1833).

Ocimum basilicum L. (Ocimum basilicum), (No Change), 166.

Ethnobotanic Data:

Medicine. Plant Part Used: Above ground parts. Medical Effect: Aromatic, Carminative, Produces abortion. Disorder Treated: Produces abortion. Medicinal Application: Tea.

Literature Review:

The use of *Ocimum basilicum* for the treatment of insect and snake bites was documented in the English herbals of the sixteenth century but was based on superstition rather than the medicinal properties of the plant (Grieve 1974).

Rosmarinus officinalis L. (Rosmarinus officinalis), (No Change), 114.

Ethnobotanic Data:

Medicine. Medical Effect: Diaphoretic. Medicinal Application: Tea.

Literature Review:

The medicinal use of this species has its origins in Greek medicine where it was utilized to strengthen memory and concentration (Blumenthal et al. 2000). The essential oil obtained from the stem, leaves and flowers was considered astringent, carminative, diaphoretic, rubefacient, and stimulant and was utilized in European medicine applied topically as a liniment for the treatment of circulatory problems, rheumatic diseases, and as an infusion for the treatment of dyspepsia (Blumenthal et al. 2000, Brande 1839). The herb was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). The herb is currently included in the German Commission E. Monographs taken internally for the treatment of dyspeptic complaints and applied topically for the treatment of circulatory problems (Blumenthal et al. 2000).

Rosmarinus officinalis L. (Rosmarinus officinalis), (No Change), 153.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Aromatic, Stomachic. Medicinal Application: Liniment. Plant Part Used: Leaves, Stem, Preparations: Preserved in lard.

Literature Review:

See accession number 153.

Salvia lyrata L. (Salvia lyrata), (No Change), 77.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Disorder Treated: Cancer. Medicinal Application: Plaster. Processing Technique: Extract. Cited Origin: Root Doctors.

Literature Review:

Allopathic physicians applied the bruised leaves of *Salvia lyrata* topically for the treatment of warts (Porcher 1869). The Cherokee utilized the leaves as a diaphoretic and an infusion for the treatment of coughs and colds (Moerman 1998). The Catawba Indians (South Carolina) utilized a preparation of the roots applied in a salve for the treatment of sores and the leaves were utilized in syrup as a sedative and antispasmodic for the treatment of asthma (Moerman 1998). Lincecum cites the medicinal use of *Salvia lyrata* to the "root doctors," however, the medicinal use of this species is not documented within the materia medica of the botanic physicians referenced (Howard 1833, Thomson 1835).

***Salvia lyrata* L. (No original identification), 151.**

Ethnobotanic Data:

Medicine. Plant Part Used: Above ground parts. Disorder Treated: Diseases of the kidneys, "Female weakness," Gravel. Processing Technique: Decoction.

Literature Review:

See accession number 77.

***Salvia officinalis* L. (*Salvia officinalis*), (No Change), 72.**

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Aromatic, Stomachic. Disorder Treated: Dyspepsia.

Food. Plant Part Used: Entire plant.

Literature Review:

Dioscorides documented the use of the leaves of *Salvia officinalis* in decoction for the topical application to wounds and sores (Blumenthal et al. 2000). The herb was utilized extensively during the Middle Ages and the English herbals of the sixteenth century document the use of the herb as an antispasmodic and stimulant that was utilized to strengthen the memory and for the treatment of snakebites (Grieve 1974). Lincecum notes that "A few centuries back this plant was considered by the faculty as being all the medicine that was necessary in all complaints" the extensive use of which is also noted by Porcher (1869). This species was introduced into North America in the seventeenth century (Blumenthal et al. 2000). Allopathic physicians considered the plant to be antispasmodic, carminative, emmenagogue, stomachic, and tonic and it was utilized to strengthen digestive function, in the treatment of dyspepsia, catarrh, as a gargle for sore throat, and an infusion was utilized as a diaphoretic for the treatment of fever (Porcher 1869). *Salvia officinalis* was official in the US Pharmacopoeia from 1840-1900 (Gathercoal 1942). The Cherokee utilized an infusion for the treatment of coughs and colds, a syrup of the leaves combined with honey for the treatment of asthma, and as a gynecological aid (Moerman 1998).

Salvia sclerea L. (Salvia sclarea), (No Change), 156.

Ethnobotanic Data:

Food.

Literature Review:

No ethnobotanic utilization found.

Scutellaria elliptica Muhl. var. elliptica (Gleason and Cronquist, 1991), (Scutellaria venosa), (Taxonomic Change), 175.

Ethnobotanic Data:

Medicine. Medical Effect: Bitter tonic, Sedative.

Literature Review:

The identification of this specimen by Lincecum as *Scutellaria velosa* is most likely a spelling error by Lincecum and the original identification should be recognized as *Scutellaria venosa*. The Cherokee utilized *Scutellaria elliptica* in decoction for the treatment of nerves, an infusion or decoction of the root was utilized as an emetic, to maintain regular menstruation, and to aid the expulsion of the afterbirth following labor (Moerman 1998). No ethnobotanic references documenting the medicinal use of *Scutellaria venosa* were found. The ethnobotanic data associated with this specimen is consistent with the nervine properties recognized for the genus *Scutellaria* and documents the medicinal use by Lincecum of *Scutellaria elliptica* var. *elliptica*.

Scutellaria ovata Hill ssp. mexicana Epling, (Scutellaria laevigata), (Taxonomic Change), 171.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Sedative, Tonic.

Literature Review:

The ethnobotanic data associated with this specimen is consistent with the nervine properties recognized for the genus *Scutellaria* (Grieve 1974) and documents the medicinal use of *Scutellaria ovata* ssp. *mexicana* by Lincecum.

Scutellaria parvula Michx. var. australis Fassett, (No original identification), (Fragment), 160.2.

Ethnobotanic Data:

No use documented.

Literature Review:

This specimen fragment was included with the herbarium specimen of *Hedeoma pulegioides* (accession number 160.1). The ethnobotanic data accompanying this specimen are consistent with the documented medicinal use of *Hedeoma pulegioides* to which these ethnobotanic data are applied.

Scutellaria parvula Michx. var. parvula (No original identification), (Fragment), 164.2.

Ethnobotanic Data:

Medicine.

Literature Review:

This specimen fragment was included with the herbarium specimen of *Lavandula angustifolia* (*L. spica* as syn.) (accession number 164.1). The ethnobotanic data accompanying this specimen are consistent with the medicinal use of *Lavandula angustifolia* to which these ethnobotanic data are applied.

Scutellaria parvula Michx. var. parvula (Scutellaria parvula), (No Change), 165.

Ethnobotanic Data:

No use documented.

Literature Review:

Lincecum notes that the medicinal properties of this species are not known to him; however, he considers it likely that it possesses nervine properties recognized for others in this genus.

Teucrium canadense L. (Teucrium var. virginicum), (No Change), 177.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Carminative, Stomachic, Tonic.

Literature Review:

Teucrium canadense is considered aromatic, bitter, stimulant and tonic and is utilized in infusion for the treatment of fevers, rheumatism, and gout (Burlage, 1968).

Thymus vulgaris L. (Thymus vulgaris), (No Change), 172.

Ethnobotanic Data:

Medicine. Medical Effect: Aromatic, Stomachic.

Food.

Literature Review:

The herb was contained in the English herbals of the sixteenth century and was documented to be antiseptic, anti-spasmodic, carminative, and tonic utilized, in infusion and tincture, for the treatment of cough, catarrh, sore throat, and colic (Grieve 1974). The oil extracted from the leaves is rubefacient and was utilized by English physicians as a counterirritant for the treatment of sciatica, headache, and rheumatism (Grieve 1974). The oil obtained from the herb was official in the US Pharmacopoeia from 1860 to 1916 (Gathercoal 1942). *Thymus vulgaris* is approved by the German Commission E monographs for the treatment of bronchitis, whooping cough, catarrh, and to aid digestion (Blumenthal et al. 2000).

LAURACEAE

Sassafras albidum (Nutt.) Nees (Laurus sassafras), (Nomenclatural Change), 271.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the root, Flowers. Medical Effect: Alterative, Rubifacient. Disorder Treated: Rheumatism. Medicinal Application: Liniment. Processing Technique: Oil. Food. Plant Part Used: Bark of the Root, Flowers.

Literature Review:

The medicinal use of *Sassafras albidum* was documented by the Spanish physician Nicholas Monardes in 1577, who described the use of the root in decoction for the treatment of "ague" (malaria), “dropsy,” and kidney disorders (Vogel 1970). Monardes attributed the knowledge of the medicinal properties to the teachings of Native American Indians conveyed to Heugenot settlers in Florida (Vogel 1970). The use of the bark of the root was documented in the Pharmacopoeia Londinensis as early as 1618 (Vogel 1970) and the root was official in the US Pharmacopoeia from 1820 to 1916 (Gathercoal 1942). The oil obtained from the bark of the root and stem by distillation was considered by allopathic physicians to be alterant, diuretic, diaphoretic, and stimulant (Brande 1839, Grieve 1974, Porcher 1869). An infusion of the root was applied topically to the sores associated with syphilis, was taken internally for the treatment of rheumatism and gout, and the bark, leaves, and pith, which produce large quantities of mucilage, were utilized for the treatment of dysentery, catarrh and for application to irritated eyes (Porcher 1869). Botanic physicians applied the bark as a poultice for its antiseptic properties in the treatment of gangrene. The oil obtained from the bark was applied topically to treat inflammation, and the mucilage obtained from the bark, leaves and pith utilized for the treatment of dysentery (Howard 1833). The Cherokee Indians utilized an infusion of the bark taken internally for the treatment of rheumatism, diarrhea, colds, to purify the blood, and an unspecified preparation was utilized for the treatment of "ague" (Moerman 1998). An infusion was applied topically by the Cherokee as a wash for sore eyes and for the treatment of worms in children, and a poultice was utilized for the treatment of skin diseases, wounds and sores (Moerman 1998). The Choctaw utilized a decoction of the roots taken internally "to thin the blood" (Bushnell 1985). The Houma Indians utilized an infusion for the roots as a tea for the treatment of measles and scarlet fever (Speck 1941). The Creek Indians utilized this taxa however details regarding the medicinal preparation and application were not provided (Moerman 1998).

LILIACEAE

Aletris farinosa L. (Aletris farinosa), (No Change), 17.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Emetic, Stomachic, Bitter tonic.

Literature Review:

The root was utilized by "country physicians and Indian doctors" as a bitter tonic, emmenagogue and stomachic (Vogel 1970) and was introduced into England in 1768 where it was utilized as a bitter tonic (Millspaugh [1892]1974). The root was official in the United States Pharmacopoeia from 1820 to 1873 (Gathercoal 1942). When taken in large doses ("above one of twenty grains") this species is narcotic producing nausea (Howard 1833, Porcher 1869, Vogel 1970). Botanic physicians considered the root of *Aletris farinosa* (*A. alba* as syn.)

expectorant and tonic and utilized a preparation as a "general strengthener of the system" and for the treatment of coughs and consumption (tuberculosis). Howard (1833) documents the use of this species by Botanic physicians to prevent abortion. The Cherokee Indians utilized the root as a carminative in the treatment of colic, for the treatment of colds, lung disease, and tuberculosis, and as a tonic to strengthen the womb and prevent abortion (Moerman 1998). The Catawba Indians utilized an infusion for the treatment of both colic and gastrointestinal disorders (Moerman 1998).

Allium sp. (Allium ascalonicum), (No Change), 302.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Absorbent, Expectorant, Stimulating. Disorder Treated: Cough. Medicinal Application: Syrup.

Food. Plant Part Used: Root.

Literature Review:

This specimen in the Gideon Lincecum Herbarium lacks the vegetative material necessary for identification to species. The "root" (=bulb) of the European *Allium sativum* was official in the US Pharmacopoeia from 1820 to 1905 (Gathercoal 1942). *Allium sativum* was official in the Pharmacopoeia Londinensis and was utilized by physicians as a diuretic, diaphoretic, expectorant and stimulant (Brande 1839). The native species *Allium canadense* was considered carminative, expectorant and stimulant and was widely utilized as a substitute for *Allium sativum* (Porcher 1869). The Cherokee utilized *Allium canadense* and *Allium sativum* for their carminative, diuretic, expectorant and stimulant properties, *Allium cernuum* as a febrifuge, for the treatment of colds, croup and "gravel and dropsy," and *Allium tricoccum* for the treatment of colds, and croup (Moerman 1998).

Asparagus officinalis L. (Asparagus officinalis), (No Change), 305.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Demulcent, Diuretic. Disorder Treated: "Dropsy". Cited Origin: Sydenham, Allopathic physicians.

Food.

Literature Review:

Asparagus officinalis was utilized by allopathic physicians in Europe as a diuretic and laxative for the treatment of kidney disorders and "dropsy" (Brande 1839). A syrup was utilized as a diuretic and sedative for the treatment of heart palpitations (Porcher 1869). The Cherokee utilized an infusion of the plant for the treatment of rickets (Moerman 1998).

Chamaelirium luteum (L.) Gray (Helonias diaica), (Nomenclatural Change), 296.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Tonic. Disorder Treated: Lung complaints: Colic, Cough, Consumption (Tuberculosis), "Female complaints", Obstructions, Jaundice, Rheumatism, Strangury.

Literature Review:

Allopathic physicians utilized a tincture as tonic for the treatment of nausea, vomiting, and atony of the generative organs (Porcher 1869). Porcher (1869) states that Botanic physicians utilized this species for the treatment of debility of the digestive organs however this species is not present in the materia medica of either Howard (1833) or Thomson (1835). Millspaugh ([1892]1974) states that the medicinal use of *Chamaelirium luteum* was derived from Native American Indian use of the species for the treatment of colic, fever, and worms. Moerman (1998) contains no references to the use of this species by Native American Indians in the southeastern United States. The common names Blazing Star and Devil's Bit that are widely associated with this species have been inconsistently applied resulting in confusion regarding the ethnobotanic history of this species (Vogel 1970).

Hemerocallis fulva (L.) L. (Iris tripetala), (Taxonomic Change), 71.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Alterative.

Literature Review:

No references were found for the medicinal use of either *Hemerocallis fulva* or *Iris tridentata* (*I. tripetala* as syn.). Lincecum states that this specimen is "perhaps as good as the (*Iris*) *versicolor*" suggesting the use of what he considered to be *Iris tridentata* as a substitute for *Iris versicolor*. Lincecum documents his use of *Iris versicolor* as an alterative in the ethnobotanic data associated with accession number 145.1. The ethnobotanic data associated with this specimen provides the sole reference for the use of *Iris tridentata* according to the medicinal properties documented for *Iris versicolor*.

Lilium candidum L. (Lilium candidum), (No Change), 300.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, Flowers. Medical Effect: Diuretic, Emollient. Medicinal Application: Ointment. Processing Technique: Concrete.

Literature Review:

The bulb of *Lilium candidum* is astringent, demulcent, and diuretic, and the English herbals of the seventeenth century document the medicinal use of the fresh bulb for the treatment of “dropsy,” applied topically, boiled in milk or water, for the treatment of inflammation, tumors, and ulcers, and made into an ointment for the treatment of burns (Grieve 1974).

Maiathemum racemosum (L.) Link ssp. racemosum (Convallaria racemosa), (Nomenclatural Change), 297.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Disorder Treated: Female weakness.

Literature Review:

The Cherokee utilized an infusion of the root of *Maiathemum racemosum* as a wash for sore eyes (Moerman, 1998). Lincecum documents the use of this species as a substitute for *Polygonatum multiflorum* (*Convallaria multiflora* as syn.). Botanic physicians utilized the root of *Polygonatum multiflorum* "for the treatment of female weakness" and as an emmenagogue for the treatment of leucorrhea (Howard 1833). *Polygonatum multiflorum* was utilized by the Cherokee as a gynecological aid in the treatment of "profuse menstruation (Moerman 1998). The ethnobotanic data associated with this specimen documents the use of *Maiathemum racemosum* ssp. *racemosum* according to the medicinal properties documented for *P. multiflorum*.

Polygonatum biflorum (Walter) Elliott. (Convallaria multiflora), (Nomenclatural), 299.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent, Restorative, Stomachic. Disorder Treated: Fluor albus (Leucorrhea), immoderate flowing of the menses.

Literature Review:

The North American native species *Polygonatum biflorum* possesses the properties documented for the European species *P. multiflorum* (*Convallaria multiflora* as syn.) which was astringent, demulcent, and tonic and was utilized in infusion for the treatment of "female complaints" stomach and bowel inflammation, and dysentery (Grieve 1974). The root of *P. multiflora* was considered astringent, demulcent and tonic (Grieve 1974). Botanic physicians considered the root of *P. multiflorum* to be restorative and utilized a tea, syrup or cordial for the treatment of "female weakness such as "whites" (leucorrhea) and “immoderate flowing of the menses" (Howard 1833). The macerated root was utilized by both botanic and allopathic physicians for its mucilaginous properties applied to inflammation, bruises, and in the treatment of hemorrhoids (Howard 1833, Grieve 1974). The Cherokee utilized a preparation of *P. biflorum* as a gynecological aid for the treatment of "profuse menstruation", as a restorative tonic for the treatment of dysentery, stomach disorders, and "general debility" and the bruised root was utilized as a poultice to "draw risings or carbuncles" (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the medicinal use of both *P. multiflorum* and *P. biflorum*.

Trillium cuneatum Raf. f. cuneatum (Freeman, 1975), (Trillium sessile), (Taxonomic Change), 210.2.

Ethnobotanic Data:

No use documented.

Literature Review:

Almost all species within the genus *Trillium* were considered astringent and tonic expectorant (Grieve, 1974; Howard, 1833; Vogel, 1974). The medicinal use of the genus *Trillium* was derived from the original use "among the aborigines and early settlers of North America" and is utilized "by the Indians in diseases of females, and as preparatory to parturition" (Porcher 1869). *Trillium* species were utilized by numerous Native American Indian groups for the treatment of leucorrhea and during preparations for labor (Vogel 1974). No references were found for the medicinal use of *T. cuneatum*. The ethnobotanic data associated with this species is consistent with the medicinal properties documented for the genus *Trillium*.

***Trillium cuneatum* Raf. *f. cuneatum* (Freeman, 1975), (Trillium sessile), (Taxonomic Change), 210.1.**

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiseptic, Astringent, Expectorant, Tonic, Styptic. Disorder Treated: Hemorrhage.

Literature Review:

See accession number 210.2.

Trillium cuneatum Raf. (No original identification), (Fragment), 69.1.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 210.2.

Trillium erectum L. var. erectum (Trillium erectum), (No Change), 295.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Asparagic.

Literature Review:

All species within the genus *Trillium* were considered astringent, tonic and alterative (Grieve 1974, Howard 1833, Vogel 1974) and *T. erectum* was considered the most active species medicinally (Porcher 1869). The medicinal use of this genus is derived from use "among the aborigines and early settlers of North America" including documented use by the Shakers (Grieve 1974). The roots boiled in milk were utilized for the treatment of diarrhea and dysentery (Grieve 1974). The Cherokee utilized an infusion as a gynecological aid for the treatment of profuse menstruation and menopause, a preparation as a gastrointestinal aid in the treatment of bowel complaints, and a poultice for topical application to ulcers, tumors, and inflammation (Moerman 1998). Vogel (1970) documents the use of the genus *Trillium* by Native American groups for the treatment of leucorrhea and during preparations for labor. The root of *T.*

erectum was utilized by allopathic physicians in the treatment of hemorrhage (Porcher 1869).

***Trillium gracile* J. D. Freeman *f. gracile* (Freeman, 1975), (*Trillium sessile*), (Taxonomic Change), 210.3.**

Ethnobotanic Data:

No use documented.

Literature Review:

All species within the genus *Trillium* are considered astringent, tonic and alterative (Grieve 1974, Howard 1833, Vogel 1970) The ethnobotanic data associated with this species is consistent with the medicinal use of the genus *Trillium* and documents the medicinal use of *Trillium gracile* f. *gracile*.

LINACEAE

***Linum usitatissimum* L. (*Linum usitatissimum*), (No Change), 106.**

Ethnobotanic Data:

Medicine. Plant Part Used: Seeds. Medical Effect: Demulcent. Disorder Treated: Pulmonary complaints. Medicinal Application: Tea.

Literature Review:

Linum usitatissimum is considered one of the oldest species in cultivation (Blumenthal et al 2000) and evidence for the historical use of its fibers and oil have been documented for ancient Egyptian and Biblical civilizations (Grieve 1974). The seeds are utilized medicinally as a demulcent resulting from the mucilage contained in the seed coat and oil contained in the endosperm (Grieve 1974). The seeds were official in the US Pharmacopoeia from 1820 to 1942 (Gathercoal 1942) and both allopathic and botanic physicians utilized the expressed oil as a demulcent taken internally for the treatment of coughs, colds and irritation of the urinary organs and applied topically as a poultice or liniment for the treatment of burns and inflammation (Grieve 1974, Howard 1833, Porcher, 1869). The Cherokee utilized a preparation for the treatment of coughs, fever, kidney disorders, and lung diseases (Moerman 1998, Mooney 1932). The bruised or whole seeds and the oil expressed from the seeds are approved within the German Commission E monographs for their laxative properties, and are applied topically as a liniment or poultice for the treatment of burns, scalds, and inflammation (Grieve 1974, Blumenthal et al 2000).

LOGANIACEAE

Spigelia marilandica (L.) L. (Spigelia marilandica), (No Change), 112.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Anthelmintic, Laxative, Narcotic, Purgative. Disorder Treated: Worms. Medicinal Application: Syrup. Processing Technique: Decoction. Dosage: Freely taken. One ounce of dry root to a pint of water. One tablespoon to 1/2 gall (?). 3-4 times a day. Followed with purge of spirits of turpentine with 3 times its weight of castor oil.

Literature Review:

Knowledge of the anthelmintic properties of the root and its medicinal use as a vermifuge is cited to the Cherokee and Creek Indians (Grieve 1974, Howard 1833, Vogel 1974). The Cherokee utilized an infusion or a decoction of the root as a vermifuge (Mooney 1932, Moerman 1998, Taylor 1940). Usage by the Creek is also documented (Moerman 1998). Botanic physicians utilized the root as a vermifuge in decoction or syrup (Howard 1833). Allopathic physicians considered the root to be anthelmintic, cathartic, and narcotic and utilized preparations for the treatment of fever associated with vermifugal irritation, and compounded with *Cassia acutifolia* (*Cassia senna* as syn.) for the treatment of worms (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1926 (Gathercoal 1942). The root is psychoactive and in large doses can produce dizziness, headaches, heart palpitations and spasms (Howard 1833, Grieve 1974, Millspaugh [1892]1974). The extensive demand for the root of this species for its medicinal uses resulted in its introduction into trade networks supplied by the Native American Indians (Grieve 1974, Vogel 1970).

MAGNOLIACEAE

Liriodendron tulipifera L. (Liriodendron tulipifera), (No Change), 310.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Tonic, Vermifuge. Disorder Treated: Worm treatment. Medicinal Application: Syrup. Processing Technique: Powder. Dosage: One half teaspoonful three times a day a half hour before eating.

Literature Review:

The bark of both the root and stem of *Liriodendron tulipifera* is aromatic, astringent (Millspaugh [1892]1974), and febrifuge and was utilized by allopathic physicians as a substitute for quinine (*Chinchona* sp.) in the treatment of "intermittents" (malaria) (Porcher 1869). The bark was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). Botanic physicians considered the bark bitter and tonic and utilized it for the treatment of debility, dysentery, dyspepsia, hysterics, rheumatism, and as a vermifuge (Howard 1833). The Cherokee utilized the bark for the treatment of cholera infantum, dyspepsia, indigestion, and dysentery, in infusion or poultice as a vermifuge, as a syrup for the treatment of coughs, as a decoction or infusion to aid the healing of broken bones and wounds, and as a sedative for the treatment of "women with hysterics and weakness" (Moerman 1998, Olbrects 1932). The Cherokee utilized an infusion of the bark of the root as a diaphoretic for the treatment of fever (Moerman 1998) and an infusion of the root for the treatment of venereal itching

(Mooney 1932).

MALVACEAE

Alcea rosea L. (Alcea rosea), (Nomenclatural Change), 144.

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Flowers. Medical Effect: Demulcent. Medicinal Application: Poultice.

Literature Review:

The flowers were utilized by English physicians for their emollient, demulcent, and diuretic properties in the treatment of chest complaints (Grieve 1974).

Althaea officinalis L. (Althaea officinalis), (No Change), 216.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Demulcent, Emollient. Disorder Treated: Pulmonary complaints, Alimentary canal disorders, Diseases of the urinary organs. Medicinal Application: Poultice, Mouth wash.

Literature Review:

The roots were utilized for medicine within ancient Greek and Roman medical practice for their mucilaginous properties and in Arabic medicine a poultice was utilized for the treatment of inflammation (Grieve 1974). The English herbals of the sixteenth century document the medicinal use of the root in decoction (boiled in water or milk) for its demulcent and emollient properties in the treatment of irritation or inflammation of the gastrointestinal, respiratory or urinary systems (Grieve 1974). A decoction of the roots was taken internally for the treatment of bruises and muscle sprains and a poultice applied topically for the treatment of inflammation and muscular pain (Grieve 1974). The root and leaves were official in the US Pharmacopoeia of 1830 and the flowers in the USP of 1850 (Gathercoal 1942).

Callirhoe triangulata (Leavenw.) Gray (Malva hederacea), (Taxonomic Change), 187.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Demulcent. Disorder Treated: Diarrhea, Dysentery, Inflammation of the bowels. Cited Origin: Choctaw.

Literature Review:

This specimen was misidentified by Lincecum as *Malva hederacea* and the ethnobotanic data documenting the use of the root as a demulcent by the Choctaw has been incorrectly attributed to *Sida hederacea* (Campbell 1951) and *Malvella leprosa* (Moerman 1998). No other references were found documenting the medicinal use of either *Malva hederacea* or *Callirhoe triangulata*. Lincecum notes that he considers this species "equal to the Slippery elm (*Ulmus fulva*)" a species not contained in the GLH which was widely utilized for its demulcent properties applied externally as a poultice for the treatment of burns and sores, and taken internally for the treatment of coughs and dysentery (Howard 1833, Moerman 1988, Porcher 1869). The medicinal use of this species is consistent with the application of the mucilaginous properties documented for the genus *Malva* (see *Malva rotundifolia* and *M. sylvestris* in Porcher 1869). Based on the current identification of this specimen the ethnobotanic data associated with this specimen documents the medicinal use of the root of *C. triangulata* by both Lincecum and the Choctaw..

Gossypium hirsutum L. var. hirsutum (Gossypium herbaceum), (Nomenclatural Change), 146.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Demulcent, Expectorant. Disorder Treated: Following asthma event. Medicinal Application: Syrup. Processing Technique: Decoction.

Literature Review:

Allopathic physicians considered the stem, leaves, flowers, and seeds to be mucilaginous and demulcent and utilized a decoction of the roots in South Carolina for the treatment of asthma, and a tincture or infusion of the root as an emmenagogue for the treatment of amenorrhea, and to promote uterine contractions to facilitate labor (Porcher 1869). This preparation was used as a substitute for ergot (*Claviceps purpurea*) and was considered safer as a result of its milder activity (Porcher 1869). The seeds of *Gossypium hirsutum* were official in the US Pharmacopoeia from 1850 to 1942 (Gathercoal 1942).

Hibiscus moscheutos L. ssp. lasiocarpos (Cav.) O.J. Blanchard, (Hibiscus moscheutos), (No Change), 196.

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Flowers. Medical Effect: Demulcent. Medicinal Application: Poultice.

Literature Review:

Allopathic physicians utilized *Hibiscus moscheutos* as a demulcent in place of *Abutilon theophrastii* (*Sida abutilon* as syn.) the flowers of which were utilized in emollient preparations (Porcher 1869). Lincecum states that the *Hibiscus moscheutos* was utilized as a substitute for the medicinal use of Slippery elm (*Ulmus fulva*) which was extensively utilized as a demulcent applied topically and taken internally (Porcher 1869).

Modiola caroliniana (L.) G. Don (Malva caroliniana), (Nomenclatural Change), 147. Collection location: West of the Colorado, Texas. Collection date: 1835.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Demulcent. Disorder Treated: Inflamed wounds. Medicinal Application: Poultice. Cited Origin: Spaniard in Texas.

Literature Review:

Lincecum states that this species "was pointed out to me and its uses described by a Spaniard, during my sojourn in Texas in 1835. He called it “Mothe". The Houma Indians of Louisiana utilized a compound infusion as a gargle for the treatment of sore throat, diphtheria or tonsillitis (Speck 1941).

MARANTACEAE

Thalia dealbata Fraser ex. Roscoe (Calla palustris), (Taxonomic Change), 219.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Disorder Treated: Headaches, burns. Medicinal Application: Dressing.

Literature Review:

Based on the correct identification the ethnobotanic data associated with this specimen provides the sole reference documenting the topical application of the leaves of Thalia dealbata for the treatment of headaches and burns.

MELIACEAE

Melia azedarach L. (Melia), (No Change), 284.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Anthelmintic, Tonic. Disorder Treated: Worm treatment. Processing Technique: Decoction. Cited Origin: Common Usage.

Literature Review:

Allopathic physicians utilized the bark of the root prepared in decoction as an anthelmintic, the leaves in decoction as an astringent and stomachic for the treatment of hysteria, and the pulp of the berry stewed in lard as an ointment for the treatment of lice and skin diseases that produced lesions on the scalp (Porcher 1869). The seeds were considered by some to be poisonous (Porcher 1869). The bark of the root was official in the US Pharmacopoeia from 1820 to 1880 (Gathercoal 1942). The Cherokee utilized an infusion of the root and bark for the treatment of worms and applied topically for "scald head" (*Tinea favosa*), ringworm and "tetterworm" (eczema) (Moerman 1998). Lincecum considers this species poisonous and did not utilize it as a medicine.

MENISPERMACEAE

Menispermum canadensis L. (Menispermum canadensis), (No Change), 237.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Alterant, Bitter Tonic, Laxative, Restorative. Disorder Treated: Mercurial, Venereal diseases, Worms.

Literature Review:

The root of *Menispermum canadensis* is alterative, diuretic, diuretic, laxative, a digestive stimulant and tonic, and in large doses is both emetic and purgative (Grieve 1974). The Cherokee utilized a preparation as a dermatological aid in the treatment of skin and venereal diseases and as a laxative and stimulant for the treatment of "weak stomachs and bowels" and "weakly females" (Moerman 1998). Allopathic physicians utilized the alterative, diuretic and tonic properties of the root in the treatment of cutaneous diseases, for the treatment of symptoms associated with syphilis and mercurial treatments and as a substitute for sarsaparilla (*Aralia nudicaulis*) (Porcher, 1869). The root of *Menispermum canadense* was official in the US Pharmacopoeia from 1840 to 1890 (Gathercoal 1942). Botanic physicians utilized the bitter tonic and laxative properties of the root for the treatment of debility particularly debility of the nervous system (Howard 1833).

MORACEAE

Ficus carica L. (Ficus carica), (No Change), 249.

Ethnobotanic Data:

Medicine. Plant Part Used: Exudate, Leaves. Medical Effect: Escarotic.

Disorder Treated: Ringworm. Medicinal Application: Topical. Processing Technique: Fresh.

Food.

Literature Review:

Ficus carica is native to Persia, Asia Minor, and Syria and extensive cultivation in the Mediterranean is documented from the end of the 14th century (Grieve 1974). The fruits were utilized in the Old World for their nutritive value and medicinally for their demulcent and laxative properties (Grieve 1974). The fruit was utilized fresh or in a compound decoction for the treatment of catarrh and roasted was applied topically as an emollient poultice to increase suppuration for the treatment of dental abscesses (Grieve 1974, Millspaugh [1892]1974). The escharotic properties of the exudate from the broken stems and leaves was utilized for the production of blisters and the removal of warts (Grieve 1974). The fruit of *Ficus carica* was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942).

Morus alba L. (Morus multicaulis), (Nomenclatural Change), 228. Collection date: 1847.

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit. Medical Effect: Tonic, Laxative.

Literature Review:

Allopathic physicians utilized the root for the treatment of diarrhea based on its bitter and astringent properties and the bark as a purgative vermifuge (Porcher 1869). The Cherokee utilized an infusion of the bark as a laxative, purgative, and anthelmintic and for the treatment of dysentery (Moerman, 1998). This species was extensively utilized as a food source for the cultivation of the silk-worm (*Bombyx mori*). The juice of the fruit was be substituted for that of *Morus nigra* which is utilized to provide flavor and/or color to medicines (Grieve 1974).

MYRICACEAE

Morella caroliniensis (Mill.) Small (Myrica cerifera), (Nomenclatural Change), 241.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root, Fruit. Medical Effect: Astringent, Deobstruent, Emetic, Stimulant. Disorder Treated: Scrofulous ulcers. Medicinal Application: Tea, Plaster. Processing Technique: Powder, Decoction.

Literature Review:

Allopathic and botanic physicians utilized the bark of the root as an astringent in decoction for the treatment of diarrhea, dysentery, and uterine hemorrhage, as an errhine to stimulate mucous production and sneezing, and a powder as a snuff for the treatment of headaches by both allopathic and botanic physicians (Howard 1833, Porcher 1869, Thomson 1835). Allopathic physicians considered the bark of the root to be stimulant and utilized it, applied topically, for the treatment of ulcers and scrofulous sores, and the berries, in tincture, as a carminative for the treatment of colic (Porcher 1869). The Cherokee utilized a decoction of the root as a gargle in the treatment of inflamed tonsils (Moerman 1998) and both the Cherokee and the Choctaw utilized a decoction of the leaves and stems as a febrifuge (Bushnell 1985, Moerman 1998). The Houma Indians utilized a decoction of the leaves as a vermifuge (Speck 1941). The wax obtained from the fruit was utilized extensively in the production of both candles and soap (Porcher 1869).

NYMPHAEACEAE

Nymphaea odorata Aiton (Wiersema, 2002), (Nymphaea odorata), (No Change), 46.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antiseptic, Astringent, Styptic, Tonic. Disorder Treated: Diarrhea, Dysentery, Debility of the nutritive tissue. Medicinal Application: Tea, Compound. Dosage: Ad liberatum.

Literature Review:

The root is astringent and was utilized by both allopathic and botanic physicians for the treatment of diarrhea, dysentery, leucorrhea, gleets (Medorrhea), and debility (Howard 1833, Millspaugh [1892]1974, Porcher 1869).

The leaves and roots were applied topically as a demulcent poultice to boils, tumors, inflammations, and scrofulous ulcers (Grieve 1974, Porcher 1869, Thomson 1835) and as a gargle for mouth ulcers (Grieve 1974). The Botanic physicians utilized the root in a compound with other bitter articles as a tonic (Howard 1833, Thomson 1835).

OLEACEAE

Chionanthus virginicus L. (Chionanthus virginicus), (No Change), 155.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Antidyspeptic, Antivenerial, Tonic. Disorder Treated: Gonorrhea, Gleets (Medorrhea). Processing Technique: Tincture. Dosage: One half wineglass, three times a day a half hour before eating.

Literature Review:

Allopathic physicians utilized an infusion of the roots as a febrifuge utilized in the treatment of intermittent fevers, a poultice was applied topically for the treatment of wounds and ulcers, and as a diuretic for the treatment of "dropsy" (Porcher 1869). The Cherokee utilized a decoction of the bark applied topically as a poultice or wash for the treatment of cuts and bruises, and the bark and roots were considered disinfectant for the application of infected sores (Moerman, 1998). The Choctaw utilized a decoction of the bark as a wash and/or poultice for application to wounds, cuts and bruises (Bushnell 1985).

Jasminum officinale L. (Jasminum officinale), (No Change), 158.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Stomachic, Tonic.

Literature Review:

Lincecum notes that he does not utilize this species within his pharmacopoeia and is not familiar with its medicinal properties. The use of the root of this species in the United States during the eighteenth century is documented although the medicinal activity and application is not detailed (Millspaugh [1892]1974).

Ligustrum vulgare L. (Ligustrum vulgare), (No Change), 152.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Astringent, Tonic. Disorder Treated: Canker sores, Thrush. Medicinal Application: Mouthwash.

Literature Review:

Millspaugh ([1892]1974) documents that the leaves of *Ligustrum vulgare* were considered astringent which were applied as a compress for the treatment of headaches in the practice of medicine in the United States during the nineteenth century.

OPHIOGLOSSACEAE

Botrychium virginianum (L.) Sw. (Botrichium gracile), (Nomenclatural Change), 23.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Diaphoretic, Emetic, Expectorant Processing Technique: Decoction. Cited Origin: Chickasaw.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the medicinal use of the root of *Botrychium virginianum* by the Chickasaw in decoction as an emetic, diaphoretic, and expectorant. The Cherokee utilized a decoction of the root taken internally as an emetic (Taylor 1940) and applied topically as a syrup for the treatment of snakebite.

ORCHIDACEAE

Cypripedium parviflorum Salisb. var. pubescens (Willd.) Knight, (Sheviak, 1995), (Cypripedium pubescens), (Nomenclatural Change), 236.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Anodyne, Antispasmodic, Sedative. Disorder Treated: Epilepsy, Nervous headaches, Nervous fevers, Tremors. Processing Technique: Powder, Decoction, Tincture, Extract.

Literature Review:

Rafinesque first documented the antispasmodic, nervine, sedative properties of *C. parviflorum* var. *pubescens* (*C. pubescens* as syn.) and noted extensive utilization by Native American Indians (Millspaugh [1892]1974). The Cherokee utilized the root as an antispasmodic in the treatment of "spasms" and "fits," as a compound infusion for the treatment of stomach cramps, as an analgesic for the treatment of pain associated with neuralgia, and as a sedative in the treatment of 'hysterical affections" (Moerman 1998). The Cherokee also utilized an infusion for the treatment of "female trouble," diabetes, and other kidney disorders (Moerman 1998). The roots of *Cypripedium parviflorum* were utilized by the Cherokee in a compound decoction as an anthelmintic (Mooney 1932). Botanic physicians utilized the root as a nervine in the treatment of "nervous irritation, hysterical affections, spasms, fits and all derangements of the functions of the brain" (Howard 1833, Thomson 1835). The use of this species was widespread in domestic practice within North America and the knowledge of the medicinal properties of the species was passed on to the "medical profession" (allopathic physicians) via the botanic physicians (Vogel 1970). The roots of *C. pubescens* and *C. parviflorum* were official in the US Pharmacopoeia from 1860 to 1900 (Gathercoal 1942). The nervine properties of this plant were considered equal to the valerian (*Valeriana officinalis*) from which it earned its common name American Valerian (Millspaugh [1892]1974, Porcher 1869). Taxonomic treatment of this species is problematic as a result of extensive phenotypic plasticity within individuals which has resulted in instability in the taxonomy of this species (Sheviak 2002).

Cypripedium sp. (No original identification), (Fragment), 68.2.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 236.

OROBANCHACEAE s.s

Aureolaria pectinata (Nutt.) Pennell (Gerardia pedicularia), (Nomenclatural Change), 169.

Ethnobotanic Data:

Medicine. Medical Effect: Emetic. Cited Origin: Chickasaw.

Literature Review:

The Cherokee utilized a compound decoction of the root of *Aureolaria pectinata* for the treatment of dysentery and an infusion for the treatment of apoplexy during fasting (Moerman 1998, Mooney 1932). The ethnobotanic data associated with this specimen has been misapplied to *Gerardia pedicularia* var. *pedicularia* (*Dasistoma pedicularia* as syn.) (Campbell 1951, Moerman 1998).

***Aureolaria pectinata* (Nutt.) Pennell (*Gerardia pedicularia* var. *pectinata*), (Nomenclatural Change), 97.**

Ethnobotanic Data:

Medicine. Medical Effect: Antiscorbutic, Emetic. Cited Origin: Chickasaw.

Literature Review:

The Cherokee utilized a compound decoction of the root of *Aureolaria pectinata* for the treatment of dysentery and an infusion for the treatment of apoplexy during fasting (Moerman 1998, Mooney 1932). The ethnobotanic data associated with this specimen has been misapplied to *Gerardia pedicularia* var. *pedicularia* (*Dasistoma pedicularia* as syn.) (Campbell 1951, Moerman 1998).

OSMUNDACEAE

***Osmunda cinnamomea* L. (*Osmunda cinnamomea*), (No Change), 203.**

Ethnobotanic Data:

Medicine. Medical Effect: Demulcent. Medicinal Application: Poultice.

Literature Review:

Lincecum states that *Osmunda cinnamomea* "answers very well for poultices in place of the Slippery elm (*Ulmus fulva*). The Cherokee utilized a compound decoction of the "root" (rhizome) applied topically for the treatment of rheumatism and as a febrifuge in the treatment of chills (Moerman 1998). The Cherokee also utilized the fresh "root" chewed for the treatment of snakebite, a portion was swallowed and the remainder was applied topically to the wound (Moerman 1998).

Osmunda regalis L. var. spectabilis (Willd.) Gray, (Osmunda regalis), (No Change), 206.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Expectorant, Demulcent. Cited Origin: Matson (1839).

Literature Review:

The rhizome of *Osmunda regalis* was considered mucilaginous and was prepared as an ointment in application to wounds and bruises and as a decoction for the treatment of jaundice (Grieve 1974). The leaves were included for their healing properties in balms and plasters (Grieve 1974). The root was taken internally and a compress soaked in a decoction of the root was applied topically for the treatment of hernia, a powder was utilized as an astringent in the treatment of injuries, and a preparation was utilized for the treatment of rickets (Porcher 1869).

OXALIDACEAE

Oxalis corniculata L. (Oxalis stricta), (Taxonomic Change), 26.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Disorder Treated: Wart. Processing

Technique: Extract.

Literature Review:

The Cherokee utilized an infusion of *Oxalis corniculata* as an anthelmintic for the treatment of worms, an infusion of the leaves as an anti-emetic, the fresh leaves chewed for the treatment of sore mouth and throat, and a salve produced from an infusion of the leaves was applied topically for the treatment of sores (Moerman 1998). The Cherokee also considered the plant a "cancer treatment" for the early stages of cancer (Moerman 1998). Porcher (1869) documents that *Oxalis corniculata* was considered acidic but documents no medicinal utilization for that species. No ethnobotanic references for the medicinal use of *Oxalis stricta* were found. The ethnobotanic data associated with this specimen is consistent with the documented medicinal use of *Oxalis corniculata*.

Oxalis violacea L. (Oxalis acetosella), (Taxonomic Change), 285.

Ethnobotanic Data:

Medicine. Processing Technique: Extract.

Literature Review:

European physicians utilized the juice of the leaves, as an infusion, to heal wounds and to check bleeding (Grieve 1974). Allopathic physicians in the United States utilized the leaves *of Oxalis acetosella* as an antiscorbutic, diuretic and refrigerant for the treatment of fever, kidney disorders, and scurvy (Porcher 1869, Grieve 1974). Porcher (1869) documents that *Oxalis violacea* is acidic but documents no medicinal use for that species. Lincecum notes that he utilized this species as a substitute for *Oxalis stricta* which was applied topically for the removal of warts. The Cherokee utilized an infusion of *Oxalis violacea* as an anthelmintic for the treatment of worms, an infusion of the leaves as an antiemetic, the fresh leaves are chewed for the treatment of sore mouth and throat, and a salve produced from an infusion of the leaves was applied topically for the treatment of sores (Moerman 198). The Cherokee also considered the plant a "cancer treatment" utilized for the treatment of the early stages of cancer (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the documented medicinal use of *Oxalis violacea*.

PAEONIACEAE

Paeonia suffruticosa Haw. (Bailey, 2001), (Paeonia officinalis), (Taxonomic Change), 307.

Ethnobotanic Data:

Medicine. Medical Effect: Stomachic, Tonic.

Materials. Material Used For: Ornamental.

Literature Review:

The root of *Paeonia officinalis* was considered antispasmodic and tonic and an infusion of the powdered root was utilized in the treatment of liver obstructions

(Grieve 1974). No references to the medicinal use of *Paeonia suffruticosa* were found. Lincecum provides limited ethnobotanic detail regarding the medicinal use of this species stating that he doesn't consider it of significant medicinal value. The ethnobotanic data associated with this specimen is consistent with the medicinal use of *P. officinalis*.

PAPAVERACEAE

Argemone sp. (Argemone mexicana), (No Change), 43.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Diuretic.

Literature Review:

No ethnobotanic utilization found.

Papaver somniferum L. (Papaver somniferum), (No Change), 45.

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit. Medical Effect: Poisonous. Processing Technique: Extract.

Literature Review:

Opium was utilized by the early Greek, Roman and Arabian physicians (Brande 1839, Grieve 1974). The latex extracted from the fruit is anodyne, astringent, narcotic, and sedative, and was utilized in the treatment of pain, to induce sleep, and reduce secretions (Brande 1839, Grieve 1974). Small doses of Opium are initially stimulant, quickening the pulse and producing heat after which sedative effects are observed (Brande 1839). In the nineteenth century opium was extensively utilized in the treatment of malaria, typhoid and scarlet fever, spasmodic and convulsive diseases, and for the treatment of pain associated with rheumatism (Brande 1839, Grieve 1974). The latex obtained from the fruit was official in the US Pharmacopoeia from 1820 to 1942 (Gathercoal 1942). The Cherokee utilized small doses for their stimulant properties and larger doses as an anodyne, anticonvulsive and sedative (Moerman 1998). Lincecum considers the latex obtained from this species to be a poison that acts to "diminish the vital energy" and did not utilize it as a medicine in his practice.

Sanguinaria canadensis L. (Sanguinaria canadensis), (No Change), 313.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Acrid, Febrifuge, Narcotic, Purgative, Sedative. Disorder Treated: Jaundice. Processing Technique: Tincture.

Literature Review:

Allopathic physicians considered the root narcotic, emetic, purgative and deobstruent and utilized an infusion for the treatment of diseases effecting the mucous membranes (including catarrh, typhoid pneumonia, croup and whooping-cough), jaundice, and rheumatism, and as a powder as a snuff for the treatment of polyps (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). The Cherokee utilized the fresh root pulverized and inhaled for the treatment of catarrh, the dried root as a snuff for the treatment of nasal polyps, a decoction of the root for the treatment of cough, croup and lung inflammation, an infusion for the treatment of tetterworm (ringworm), and an unspecified preparation was applied topically as a wash for the treatment of ulcers and sores (Moerman 1998). Botanic physicians utilized an infusion as an expectorant in the treatment of coughs, croup and lung inflammation, an infusion prepared in vinegar or the powdered root applied topically for the treatment to ring-worm, and a snuff of the dried root was utilized to remove nasal polyps (Howard 1833). Howard (1833) considers the root taken internally, particularly as an emetic, to be unsafe as a medicine unless combined with other articles to modify its action, however it was extensively utilized by Howard combined with other substances for the production of "cathartic pills." European settlers utilized the root in compound for the treatment of gastrointestinal disorders (Millspaugh [1892]1974).

PASSIFLORACEAE

Passiflora incarnata L. (Passiflora incarnata), (No Change), 143.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antivenerial. Disorder

Treated: Gonorrhea. Processing Technique: Tincture.

Literature Review:

Allopathic physicians considered the root to be narcotic and utilized medicinal preparations in the treatment of "neuralgic affections," hemorrhoids, burns, diarrhea, dysentery, and dysmenorrhea (Porcher 1869). The Cherokee utilized a compound infusion of the root applied topically for the treatment of boils, a poultice for the treatment of inflammation, and an infusion as a liver aid (Moerman 1998). The Houma Indians utilized an infusion of the roots as a blood tonic (Speck 1941).

PEDALIACEAE

Sesamum orientale L. (Sesamum indicum), (Nomenclatural Change), 167.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Demulcent, Oleaginous. Disorder Treated: Bowel complaints, Fever. Medicinal Application: Tea. Processing Technique: Infusion.

Food. Plant Part Used: Seeds, Preparations: Hominy.

Literature Review:

Allopathic physicians utilized an infusion of the leaves of *Sesamum orientale* for their mucilaginous properties for the treatment of diarrhea and dysentery and the oil obtained from the fruit for its emmenagogue and laxative properties

(Porcher 1869). The leaves and oil obtained from the fruit were official in the US Pharmacopoeia from 1830 to 1870 and 1820 to 1890 respectively (Gathercoal 1942). The Cherokee utilized a decoction of the leaves and seeds in the treatment of dysentery, for the treatment of "flux," and the seed oil was utilized as a laxative (Moerman 1998).

PHYTOLACCACEAE

Phytolacca americana L. (Phytolacca decandra), (Nomenclatural Change), 283.

Ethnobotanic Data:

Medicine. Plant Part Used: Roots. Medical Effect: Deobstruent, Emetic, Poisonous. Disorder Treated: Cough. Medicinal Application: Tea. Processing Technique: Infusion. Dosage: Two ounces of the root sliced, steeped in one pint of boiling water taken as stomach can bear over 24 hours.

Literature Review:

Allopathic physicians utilized the root and fruit as a cathartic, emetic, narcotic, and purgative (Grieve 1974), an ointment produced from the powdered root or leaves in the treatment of ringworm of the scalp (*Tinea capitis*) and scabies, and a decoction of the entire plant as a wash for the treatment of "camp itch" (Porcher 1869). The roots and berries were official in the US Pharmacopoeia from 1820 to 1900 (Gathercoal 1942). Botanic physicians utilized a poultice of the roasted root applied topically for the treatment of inflammation, ulcers, and "rheumatic joints," the juice of the leaves applied topically for the treatment of ring-worm, the juice of the sun-dried berries applied in plasters for the treatment of cancers and a tincture of the berries taken internally for the treatment of rheumatism (Howard 1833). The root was utilized by both allopathic and botanic physicians as an emetic, however the slow onset of the emetic activity and the narcotic properties of the roots led many to consider it poisonous (Howard 1833, Grieve 1974). The Cherokee also considered the roots and berries both medicinal and poisonous (Moerman 1998). The Cherokee considered the plant laxative and diuretic, and utilized a poultice applied to ulcers and inflammations, an infusion of the root for the treatment of eczema, the powdered root applied as a salve to sores, the roots and berries for the treatment of rheumatism, and an infusion of the berries for the treatment of arthritis (Moerman 1998).

PINACEAE

Pinus echinata Mill. (Radford, Ahles and Bell, 1968), (Pinus rigida), (Taxonomic Change), 105.

Ethnobotanic Data:

No use documented.

Literature Review:

Lincecum provides no ethnobotanic data for the medicinal use of this species. Porcher (1869) documents that the oil extracted from the roots of several pine species, including *Pinus rigida*, *P. glabra* and *P. sylvestris*, was known as tar and was taken internally for the treatment of chronic cough and bronchial inflammation (Porcher 1869). The resin from this species was also prepared as pills for the treatment of colds (Porcher 1869). An infusion of the buds of *Pinus echinata* was utilized by the Choctaw as an anthelmintic (Moerman 1998).

Tsuga canadensis (L.) Carriere (Pinus canadensis), (Nomenclatural Change), 220.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Diaphoretic. Disorder Treated: Colds, rheumatism. Medicinal Application: Tea. Processing Technique: Infusion.

Literature Review:

The resin of *Tsuga canadensis* was official in the US Pharmacopoeia from 1830 to 1880 (Gathercoal 1942). The resin is astringent and rubefacient (Grieve 1974). Botanic physicians utilized a tea of the leaves and boughs as a diaphoretic, the oil as a stimulant for the treatment of colds, and a poultice to reduce testicular swelling associated with mumps (Howard 1833). The inner bark was utilized by botanic physicians as an astringent however Thomson discontinued the use of this species as a result of the strength of its astringent properties (Howard 1833, Thomson 1835). The fresh root was chewed by the Cherokee for the treatment of diarrhea, a poultice of the bark was utilized to treat itching, an infusion was utilized as a kidney aid, and a compound decoction was utilized to stimulate expulsion of the afterbirth following delivery (Moerman 1998).

PLATANACEAE

Platanus occidentalis L. (Plantanus occidentalis), (No Change), 233.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Wood, Buds. Medical Effect: Alterative, Expectorant, Tonic. Disorder Treated: Consumption (Tuberculosis). Medicinal Application: Tea.

Food. Plant Part Used: Bark, Preparations: Tea.

Literature Review:

The Cherokee utilized an infusion of the inner bark for the treatment of diarrhea and dysentery, a decoction of the roots was utilized as a cathartic and emetic taken by Cherokee women during menstruation, and following delivery as an aid to expel of the afterbirth (Moerman 1998, Mooney 1932, Taylor 1940), The juice extracted from the bark was utilized by the Cherokee for the treatment of sores and the bark in infusion utilized for the treatment of infant rash (Taylor 1940). The Creek utilized a decoction of the bark for the treatment of pulmonary tuberculosis (Swanton [1928]2000).

POLEMONIACEAE

***Polemonium reptans* L. (*Polemonium reptans*), (No Change), 57.**

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Diaphoretic. Cited Origin: Howard, Botanic Physicians.

Literature Review:

Grieve (1974) documents that *Polemonium reptans* possesses equivalent qualities to the European *Polemonium coeruliem* and was utilized for its diaphoretic, astringent and expectorant properties. Lincecum cites the medicinal use of this species to Howard, noting that he has not utilized it within his pharmacopoeia although he has received favorable accounts of it. This species is not contained in the 2nd or 4th editions (1833 and 1861) of Howard's "An Improved System of Botanic Medicine" that were available for reference as part of this review.

POLYGALACEAE

***Polygala boykinii* Nutt. (No original identification), 197.4.**

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

***Polygala boykinii* Nutt. (*Polygala boykinii*), (No Change), 190.2.**

Ethnobotanic Data:

No use documented.

Literature Review:

Grieve (1974) documents that *Polygala boykinii* contains the properties documented for *P. senega*.

***Polygala boykinii* Nutt. (*Polygala senega* var. *albida*), (Taxonomic Change), 193.1.**

Ethnobotanic Data:

Medicine. Medical Effect: Acrid, Expectorant, Sudorific. Medicinal Application: Syrup.

Literature Review:

Polygala senega was introduced into England in 1739 following experimentation into the medicinal properties of the plant by a Scottish physician Dr. John Tennent subsequent to demonstrations of the medicinal use of the plant for the treatment of snakebite by the Seneca Indians. Native American Indian use of this species included the use of the fresh root of *Polygala senega* chewed and applied topically to snakebite (Vogel 1970). The Cherokee utilized the root for the treatment of snakebite, chewing the root and swallowing a portion of the juice produced before the topical application of the macerate to the bite (Moerman

1998). The Cherokee also utilized the root of *Polygala senega* as a cathartic, diaphoretic, diuretic, emmenagogue, and expectorant and utilized a preparation in the treatment of "dropsy" and an infusion for the treatment of colds, croup, and pleurisy (Moerman 1998). The root was utilized by allopathic physicians as a diaphoretic, diuretic, sialagogue and stimulating expectorant in the treatment of bronchial catarrh and pneumonia (Porcher 1869) and was official in the US Pharmacopoeia from 1820 to 1926 (Gathercoal 1942). In large doses medicinal preparations are emetic and cathartic (Howard 1833, Grieve 1974). Botanic physicians utilized the root as an expectorant, emmenagogue, stimulant, and sudorific utilized as a powder, tea or syrup for the treatment of female obstructions, asthma, coughs, croup and pleurisies (Howard 1833). The ethnobotanic data associated with this specimen is consistent with the medicinal properties of *Polygala senega*.

Polygala curtissii Gray (Polygala sanguinea), (Taxonomic Change), 190.1.

Ethnobotanic Data:

Medicine. Medical Effect: Expectorant, Sudorific.

Literature Review:

Polygala sanguinea was utilized as a stimulant and diaphoretic by allopathic physicians and is considered to contain similar medicinal properties to those of *Polygala senega* (Porcher 1869). No references were found for the medicinal use of *P. curtissii.* The ethnobotanic data associated with this specimen is consistent with the medicinal use of *Polygala sanguinea*.

Polygala incarnata L. (Polygala incarnata), (No Change), 197.3.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Polygala mariana Mill. (Polygala purpurea), (Taxonomic Change), 197.2.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Polygala polygama Walter (Polygala polygama), (No Change), 190.3.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Polygala verticillata L. (Polygala verticillata), (No Change), 197.1.

Ethnobotanic Data:

Medicine. Medical Effect: Acrid, Expectorant, Sudorific.

Literature Review:

The Cherokee utilized an infusion of *Polygala verticillata* for the treatment of "summer complaints" (Moerman 1998).

POLYGONACEAE

Eriogonum longifolium Nutt. (Ambesus villosa), (Nomenclatural Change), 272. Collection location: Long Point, Texas. Collection date: 13 August, 1850.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Antidysenteric, Astringent, Stomachic, Tonic. Disorder Treated: Diarrhea. Medicinal Application: Chewed, Syrup. Processing Technique: Fresh.

Literature Review:

This specimen provides the sole reference documenting the medicinal use of *Eriogonum longifolium* as an astringent in the treatment of diarrhea and prolapsus uteri.

Eriogonum longifolium Nutt. (No original identification), (Fragment), 244.7.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Fagopyrum esculentum Moench (Polygonum fagopyrum), (Nomenclatural Change), 81.

Ethnobotanic Data:

Food.

Literature Review:

No ethnobotanic utilization found.

Polygonum aviculare L. (Polygonum aviculare), (No Change), 79.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Disorder Treated: Prevents abortion. Medicinal Application: Tea. Processing Technique: Freely taken. Cited Origin: Choctaw.

Literature Review:

The use of *Polygonum aviculare* was documented in the English herbals of the sixteenth century to be diuretic and was utilized for the treatment of kidney disorders such as gravel and strangury, and the fresh juice was applied topically for the treatment of ulcers and sores (Grieve 1974). The plant was considered astringent, diaphoretic, and diuretic and was utilized by allopathic physicians for the treatment of diarrhea, dysentery, hemorrhage, hemorrhoids, and fever, (Porcher 1869). Allopathic physicians considered the fruit to be emetic and purgative (Porcher 1869). The Cherokee utilized an infusion of the root for the treatment of diarrhea, an unspecified preparation for the treatment of "painful urination," "gravel," and bloody urine, and a preparation applied topically for the treatment of "scaldhead" (scaly lesion on scalp) (Moerman 1998).

Polygonum punctatum Elliott var. confertiflorum (Meisn.) Fassett, (Polygonum punctatum), (No Change), 80.

Ethnobotanic Data:

Medicine. Medical Effect: Acrimonious, Vesicant.

Literature Review:

The Houma Indians utilized a decoction of the root taken as a tea for the treatment of pain and swelling in the legs and joints (Speck 1941).

Rumex altissimus A. Wood. (Gleason and Cronquist, 1991), (Rumex aquaticus), (Taxonomic Change), 303.

Ethnobotanic Data:

Medicine. Medical Effect: Acrid, Laxative.

Literature Review:

The roots of many Rumex species are documented to be laxative and astringent (Grieve 1974, Millspaugh [1892]1974). Lincecum notes that this species is a good substitute for *R. crispus* which Lincecum utilized within his medicinal practice as a tonic, detergent and gentle cathartic (see accession number 298). The root of *R. altissimus* (*Rumex britannica* as syn.) was official in the US Pharmacopoeia from 1820 to 1850 (Gathercoal 1942). The roots of *R. aquaticus* were considered in European medicinal practice to be alterative, detergent, and tonic and were utilized as an infusion applied topically for the treatment of ulcers, sores, and scurvy and as a powder for its cleansing action upon the teeth (Grieve 1974). The ethnobotanic data associated with this specimen is consistent with the medicinal properties documented for the genus *Rumex* including the species *R. aquaticus* and *R. crispus*.

Rumex crispus L. (Rumex crispus), (No Change), 298.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Detergent, Narcotic, Purgative, Tonic. Food. Plant Part Used: Tops.

Literature Review:

The root was utilized within European medicinal practice as an alterative, laxative, and tonic for the treatment of rheumatism, bilious complaints, hemorrhoids, and "bleeding of the lungs," and the seeds were utilized as an astringent for the treatment of dysentery (Grieve 1974). Allopathic physicians considered the root to be astringent, alterative, laxative, and tonic and it was utilized for the treatment of the symptoms of syphilis and the juice obtained from the leaves or the powdered root was mixed with milk and applied topically for the treatment of ring-worm, scabies, and chronic skin disease (Porcher 1869). The root was official in the US Pharmacopoeia from 1860 to 1890 (Gathercoal 1942). The Cherokee utilized an infusion of the root in the treatment of constipation, dysentery, as a poultice or ointment for the treatment of skin disorders, and "to correct fluids" (Moerman 1998). Botanic physicians utilized a tea of the pulverized root as an alterative to correct " the fluids in all cutaneous affections," a decoction of the root or an ointment prepared from the bruised leaves added to cream was applied for the treatment of "itch," and the root and seeds were utilized for the treatment of dysentery.

Rumex patientia L. (Rumex britannica), (Taxonomic Change), 301.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Purgative.

Literature Review:

The roots of many *Rumex* species are documented to be laxative and astringent (Grieve 1974, Millspaugh [1892]1974). Lincecum notes that this species was used as a substitute for *Rhubarb* (*Rheum* sp.) which was utilized medicinally within European medicinal practice as a laxative (Grieve 1974, Millspaugh [1892]1974). The root of *R. altissimus* (*R. britannica* as syn.) was official in the US Pharmacopoeia from 1820 to 1842 (Gathercoal 1942). The Cherokee utilized an infusion of the root of *Rumex patientia* taken internally for the treatment of constipation, dysentery, "to correct fluids," as a blood medicine, and applied as a poultice or salve for the treatment of skin disorders (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with properties documented for the genus *Rumex* including the species *R. patientia* and *R. britanicus.*

POLYPODIACEAE

Polypodium virginianum L. (Polypodium vulgare), (Nomenclatural Change), 207.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Deobstruant, Expectorant, Febrifuge, Sudorific.

Literature Review:

Polypodium vulgare was utilized by the ancients as a laxative (Grieve 1974). The rhizome in infusion is expectorant and was utilized for the treatment of dry coughs and for the treatment of the symptoms associated with the early stage of consumption (tuberculosis) (Grieve 1974). A decoction of the leaves was utilized for its mucilaginous properties for the treatment of whooping-cough (Grieve 1974). The rhizome was also utilized as an alterative for the treatment of skin diseases and swollen joints associated with rheumatism (Grieve 1974). The rhizome was official in the 1880 edition of the US Pharmacopoeia (Gathercoal 1942). The Cherokee utilized *P. virginianum* as an infusion for the treatment of hives and a poultice for the treatment of inflamed swellings and wounds (Moerman 1998).

PTERIDACEAE

Adiantum pedatum L. (Adiantum pedatum), (No Change), 85.

Ethnobotanic Data:

Medicine. Medical Effect: Pectoral, Secernent, Stimulant, Tonic.

Literature Review:

The Cherokee used an infusion of the rhizome of *Adiantum pedatum* taken internally for the treatment of rheumatism and a decoction of the rhizome applied topically to rheumatic parts (Taylor 1940, Moerman 1998). A decoction and/or infusion of the whole plant was utilized as an emetic in the treatment of fever (Moerman 1998). The leaves are mucilaginous and a concentrated syrup was mixed with water and taken as a beverage for the treatment of fever by the French (Porcher 1869). Grieve (1974) documents the use of *A. pedatum* with similar application to that of *A. capillus-veneris* which was utilized as a stimulating expectorant in the treatment of coughs, pleurisy and asthma and as a diuretic for the treatment of jaundice, gravel and kidney disorders (Grieve 1974).

RANUNCULACEAE

Actaea pachypoda Elliott (Actaea alba), (Nomenclatural Change), 8.

Ethnobotanic Data:

Medicine. Plant Part Used: Root.

Literature Review:

The Cherokee utilized an infusion of *Actaea pachypoda* (*A. alba* as syn.) for the treatment of chills accompanied by thirst (Mooney 1932) and an infusion of the root for the treatment of itch (Moerman 1998). The activity of A. *pachypoda* is documented to be similar to but milder than those of the European native *A. spicata* which was considered antispasmodic and nervine (Grieve 1974, Millspaugh [1892]1974). Lincecum substituted this species "in place of Blue cohosh (*Cimicifuga racemosa*)" which was utilized by botanic physicians to ease labor on account of its antispasmodic properties (Howard 1833). The common name "Cohosh" has been historically applied to *Actaea pachypoda*, *Cimicifuga racemosa*, and *Caulophyllum thalictroides* therefore care must be taken in the application of ethnobotanic references for "Cohosh" within early historical documents (Vogel 1970).

Cimicifuga racemosa (L.) Nutt. (Gleason and Cronquist, 1991), (Macrotrys racemosa), (Nomenclatural Change), 311.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent, Anodyne, Diuretic, Emmenagogue, Sudorific, Tonic. Cited Origin: "The books."

Literature Review:

Early accounts by Lloyd in 1696 document the medicinal use of the root by Native American Indians as a diaphoretic, for the treatment of gynecological disorders, debility, and rheumatism (Millspaugh [1892]1974, Vogel 1970). Allopathic physicians considered the root alterative, astringent, diuretic, emmenagogue, and expectorant (Grieve 1974), and they utilized the root in decoction or infusion for the treatment of rheumatism, as a stimulating tonic to increase secretions of the skin, kidneys and lungs, and in the treatment of tuberculosis and fever (Porcher 1869, Grieve 1974). The root was official in the US Pharmacopoeia from 1820 to 1936 (Gathercoal 1942, Vogel 1970). The powdered root was utilized by allopathic physicians in the treatment of chorea (a disorder of the nervous system characterized by irregular muscular spasm) (Porcher 1869). The Cherokee considered the plant diuretic, emmenagogue, laxative, stimulant, and tonic and they utilized a tincture for the treatment of pain associated with rheumatism, an infusion for the treatment of coughs, colds, and consumption (tuberculosis) (Moerman 1998). The Cherokee utilized the root in compound infusion for the treatment of chills accompanied by thirst (Mooney 1932).

Clematis virginiana L. (Clematis ligusticifolia), (Nomenclatural Change), 44.

Ethnobotanic Data:

Use unknown to Lincecum.

Literature Review:

Lincecum notes that the medicinal properties of this plant are unknown to him and he considers that it may be poisonous. The Cherokee utilized an infusion as an analgesic for the treatment of pain and an infusion of the root for the treatment of stomach disorders, kidney disorders, and nerves (Moerman 1998). *Clematis virginiana* was utilized by allopathic physicians taken internally as a diuretic and diaphoretic in the treatment of chronic rheumatism and applied topically as a vesicant for the production of blisters (Porcher 1869).

Delphinium carolinianum Walter var. carolinianum (Delphinium staphisagria), (Taxonomic Change), 6.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Anthelmintic, Caustic, Emetic, Poisonous. Processing Technique: Dried, Concrete.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference found for the medicinal use of *Delphinium carolinianum* var. *carolinianum*. *D. consolida* was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942) and allopathic physicians utilized a tincture of the entire plant of this species applied topically as an anthelmintic for the treatment of lice in children (Porcher 1869). The ethnobotanic data associated with this specimen is consistent with the medicinal use of *D. consolida* as an anthelmintic for the treatment of lice and suggests the extension by Lincecum of these medicinal properties to *Delphinium carolinianum* var. *carolinianum*.

Hepatica nobilis Schreb. var. acuta (Pursh) Steyermark, (Hepatica triloba), (Nomenclatural Change), 47.1.

Ethnobotanic Data:

Medicine. Medical Effect: Deobstruent, Expectorant, Tonic. Cited Origin: Vendors of patent syrups.

Literature Review:

The leaves of *Hepatica nobilis* var. *acuta* (*H. triloba* as syn.) were utilized in early European medicine for the treatment of liver disorders and indigestion but were replaced in the pharmacopoeia as a result of their mild activity (Grieve 1974, Millspaugh [1892]1974, Vogel 1970). The leaves were official in the USP from 1830 to 1870 (Gathercoal 1942). *Hepatica nobilis* var. *acuta* leaves were utilized by allopathic physicians in infusion or syrup for their mild astringent, demulcent, pectoral, tonic and vulnerary properties (Porcher 1869). The Cherokee considered *H. nobilis* astringent, emetic and tonic and utilized it in a compound infusion for the treatment of liver disorders, stomach pains and poor digestion (Moerman

1988, Mooney 1932, Taylor, 1940).

Hepatica nobilis Schreb. var. obtusa (Pursh) Steyermark, (Hepatica triloba var. acuta), (Taxonomic Change), 47.2.

Ethnobotanic Data:

No use documented.

Literature Review:

See accession number 47.1

Hydrastis canadensis L. (Hydrastis canadensis), (No Change), 309.

Ethnobotanic Data:

Medicine. Medical Effect: Bitter tonic.

Literature Review:

Barton provided the first European documentation of the medicinal properties of the plant in 1798 (Vogel 1970). Early use of *Hydrastis canadensis* is documented for Native American Indians west of the Mississippi who utilized the rhizome in infusion for the treatment of sore eyes. The powdered root, which was considered caustic, was utilized as an escharotic applied topically for the treatment of cancer (Vogel 1970). The "root" (rhizome) was official in the US Pharmacopoeia in 1830, and 1860 to 1926 (Gathercoal 1942). The rhizome was utilized by allopathic physicians for its aperient, alterative, deobstruent, diuretic, laxative, and tonic properties and was utilized for the treatment of fever, disorders of the liver including jaundice, hemorrhoids, and diseases effecting the mucous membranes including leucorrhea, and gonorrhea (Porcher 1869). The Cherokee utilized *H. canadensis* for the treatment of "general debility," dyspepsy, to improve the appetite, applied topically as a wash for treatment of inflammation, and for the treatment of cancer (Moerman 1998). The root was utilized by botanic physicians as a tonic to stimulate digestion, "correct the bile" and in the treatment of general debility and appetite loss (Howard 1833, Thomson 1835). Howard (1833) documents the use of a decoction for the treatment of "sore eyes, as well as all other local inflammations" and in the treatment of catarrh and leucorrhea due to its ability to sooth inflammation of the mucous membranes (Porcher 1869, Grieve 1974).

Xanthorhiza simplicissima Marsh (Xanthorhiza apiifolia), (Nomenclatural Change), 10.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Bitter tonic. Disorder Treated: Sore eyes. Processing Technique: Infusion.

Literature Review:

Allopathic physicians utilized the bark as a bitter tonic in decoction for the treatment of dyspepsia (Porcher 1869) and the root was official in the US

Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The Cherokee chewed the fresh stem for the treatment of sore mouth and throat, utilized a poultice for the treatment of sore eyes, an infusion of the root as an astringent in the treatment of hemorrhoids, and a compound decoction as a blood tonic (Moerman 1998). The Catawba Indians utilized a decoction for the treatment of stomachache and jaundice (Taylor 1940). Botanic physicians utilized the wood and bark of the root as a bitter tonic in decoction both singularly and in tonic compounds (Howard 1833).

RHAMNACEAE

Ceanothus americanus L. (Ceanothus americanus), (No Change), 50.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent. Disorder Treated: Hemorrhage (particularly Uterine), Uterine weakness. Medicinal Application: Pills. Processing Technique: Extract. Dosage: Two to three pills, three to four times a day.

Literature Review:

Allopathic physicians utilized *Ceanothus americanus* for its astringent properties for the treatment of the symptoms of gonorrhea (gleets) (Porcher 1869). The Alabama Indians utilized the root in decoction for the treatment of injured legs and feet (Swanton [1928]2000, Moerman 1998). The Cherokee Indians utilized an infusion of the root as a gastrointestinal aid and held in the mouth for the treatment of toothache (Moerman 1998).

ROSACEAE

Agrimonia rostellata Wallr. (Agrimonia eupatoria), (Taxonomic Change), 95.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent, Tonic. Disorder Treated: Bowel complaints, Fevers.

Literature Review:

Agrimonia eupatoria was utilized by Greek, Anglo-Saxon, and European physicians as an astringent and tonic and was applied externally as a poultice or ointment for the treatment of bruises and as a vulnerary to facilitate the healing of wounds (Grieve 1974). The herb was considered diuretic and a decoction of the leaves was taken internally for the treatment of liver disorders and jaundice (Grieve 1974). The root and leaves were considered astringent and tonic and were utilized by both allopathic and botanic physicians in the treatment of bowel complaints, leucorrhoea, and gonorrhea (Howard 1833, Porcher 1869). Botanic physicians utilized a decoction of the root and leaves taken internally for the treatment of scrofulous sores and a preparation of the leaves in the treatment of jaundice, scurvy, and fever (Howard 1833). The Cherokee utilized an infusion of the root of *A. eupatoria* (*A. parviflora* as syn.) as a gastrointestinal aid (Moerman

1998, Mooney 1932), a preparation of the fruit for the treatment of fever, and as an anti-diarrheal, dermatological, and gynecological aid (Moerman 1998). Vogel (1970) documents the use of *Agrimonia eupatoria* as a "sweat herb" by the Pennsylvania Germans in medical practices called "powwowing" which he states were "of Old World origin, with Indian adaptations" that involved the utilization of many medicinal plants according to Native American practices within a framework of Old World superstitions. No ethnobotanic references for the medicinal use of *A. rostellata* were found. The ethnobotanic data provided by Lincecum is consistent with the medicinal properties documented for *A. eupatoria*.

***Fragaria virginiana* Duchesne (*Fragaria virginiana*), (No Change), 37.**

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit. Medical Effect: Febrifuge, Refrigerant. Disorder Treated: Fevers.

Literature Review:

Allopathic physicians utilize the fruit of *Fragaria virginiana* for the treatment of dyspepsia based on its high acid content (Porcher 1869). The Cherokee utilized an infusion for the treatment of dysentery, as a sedative, and preparations for the treatment of gastrointestinal obstruction, kidney disorders, scurvy, and jaundice (Moerman 1998).

Porteranthus stipulatus (Muhl. ex Willd.) Britton (Radford, Ahles and Bell, 1968), (Gillenia stipulacea), (Nomenclatural Change), 83.

Ethnobotanic Data:

Medicine. Plant Part Used: Root.

Literature Review:

Porteranthus stipulatus (*Gillenia stipulacea* as syn.) was utilized by allopathic physicians as an emetic and tonic and was considered to contain the same medicinal properties as *P. trifoliata* (Porcher 1869). The root was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The Cherokee utilized an infusion or decoction of the whole plant as an emetic, a mild infusion as a kidney and liver aid, the fresh root chewed or in infusion for the treatment of "bee and other stings", and unspecified preparations for the treatment of asthma, colds, and toothache (Moerman 1998).

Porteranthus trifoliatus (L.) Britton (Radford, Ahles and Bell, 1968), (Gillenia trifoliata), (Nomenclatural Change), 2.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Laxative Tonic, Purgative. Disorder Treated: Headache (resulting from constipation). Processing Technique: Tincture.

Literature Review:

The root was utilized by allopathic physicians as an emetic and was utilized for this purpose in decoction as a substitute for Ipecac (*Caephalis ipecacuanha*) (Porcher 1869). The powdered root in small doses is tonic and sudorific (Porcher 1869) and was utilized for the treatment of intermittent fever (Vogel 1970). The root was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). The Cherokee utilized an infusion or decoction of the whole plant as an emetic, a mild infusion as a kidney and liver aid, the fresh root chewed or in infusion for the treatment of "bee and other stings," and unspecified preparations for the treatment of asthma, colds and toothache (Moerman 1998). The Cherokee included the root in a compound infusion applied as a wash to scratches made in the legs prior to application of other medicines (Taylor 1940) including medicines applied for the treatment of rheumatism (Mooney 1932).

Potentilla simplex Michx. (Potentilla canadensis), (Taxonomic Change), 36.

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Tops. Medical Effect: Astringent, Febrifuge, Tonic. Disorder Treated: Bowel complaints, Profuse menstruation. Processing Technique: Decoction.

Literature Review:

Botanic physicians utilized a decoction of the root of *Potentilla canadensis* as an astringent for the treatment of fevers accompanied by debility, night sweats and excessive menstruation (Howard 1833). The Cherokee utilized an infusion of the root of *P. candensis* as a carminative, for the treatment of dysentery, and as a mouthwash for the treatment of "thrash" (Moerman 1998). No references were found for the medicinal use of *P. simplex*. The ethnobotanic data provided is consistent with the documented medicinal properties of *P. canadensis*.

Prunus caroliniana (Mill.) Aiton (Diggs, Lipscomb and O'Kennan,1999), (Cerasus caroliniana), (Nomenclatural Change), 312.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Tonic. Disorder Treated: Intermittents (Malaria). Processing Technique: Tincture.

Food.

Materials. Material Used For: Ornamental.

Literature Review:

Botanic physicians considered the bark of the root and stem to be anthelmintic, astringent, bitter, and tonic and utilized a wash, applied topically, for the treatment of ulcers (Howard 1833). Porcher (1869) documents that the bark, leaves and fruit possess the "taste characteristics" associated with the genus and considers the species worthy of investigation regarding its medicinal properties. The Cherokee applied a preparation of the root bark as a wash to sores and ulcers and in a steam bath for the treatment of indigestion, biliousness, and jaundice (Moerman 1998).

Prunus persica (L.) Batsch (Amygdalus persica), (Nomenclatural Change), 16.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Purgative, Styptic. Disorder Treated: Bloody urine. Processing Technique: Decoction. Dosage: One half teacup doses until the bowels are a little loose, continued for 1-2 days.

Literature Review:

The medicinal use of the leaves and bark of *Prunus persica* was documented in the English herbals of the sixteenth century and were considered demulcent, sedative, styptic, diuretic, and expectorant, and the leaves were powdered and applied to wounds to check bleeding (Grieve 1974). Allopathic physicians utilized the demulcent properties of the leaves to reduce irritation of the gastric surfaces and a tea of the leaves was utilized for the treatment of whooping cough (Porcher 1869). The oil obtained from the seed was official in the US Pharmacopoeia in 1942 (Gathercoal 1942). Botanic physicians utilized a tea of the bark or leaves for the treatment of "bloody urine" and kidney disorders, and a tea or syrup of the bark, leaves and flowers as a purgative for the treatment of colic, bowel complaints, worms, and fevers (Howard 1833, Thomson 1835). Thomson (1835) utilized the seeds (“peach-meats") as a tonic to "strengthen the stomach and restore the digestion" which he notes is particularly useful during recovery from a long sickness. The Cherokee considered all plant parts to be purgative and utilized an infusion in the treatment of fever, an infusion of the leaves as a gastrointestinal aid for the treatment of stomach discomfort, the leaves steeped in cold water for topical application to inflammation, and the seed kernels for their anthelmintic properties (Moerman 1998).

Rosa carolina L. (Rosa centifolia), (Taxonomic Change), 202.

Ethnobotanic Data:

Medicine. Plant Part Used: Corollas. Medical Effect: Astringent. Disorder Treated: Bowel complaints in infants. Processing Technique: Infusion. Dosage: Freely taken.

Literature Review:

The petals of *Rosa centifolia* were utilized for perfume in Persia and Europe from the late sixteenth century and the production of rose-water in France in the early nineteenth century was derived almost exclusively from this species (Grieve 1974). Within European medicinal practice the petals were considered astringent and aperient and in the English herbals of the sixteenth century, Culpepper documents the use of a rose petal conserve as a cordial, to strengthen a weak stomach, promote digestion and for the treatment of "trembling of the heart"

(Grieve 1974). A syrup prepared from the petals of *Rosa centifolia* was combined with almond oil and utilized as a laxative for infants (Brande 1829). The vapor of rose-water is utilized as a cooling application for the treatment of inflammation of the eyes and a concrete of the petals, or the oil extracted from them prepared as an ointment, is utilized to cool inflammation and swelling (Grieve 1974). The dried leaves are both cooling and binding and are taken internally for the treatment of diarrhea (Grieve 1974). *Rosa centifolia* was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1831). No ethnobotanic references to the medicinal use of *Rosa carolina* was found. The ethnobotanic data associated with this specimen is consistent with the medicinal properties documented for *Rosa centifolia.*

Rubus argutus Link (Rubus villosus), (Taxonomic Change), 180.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Astringent, Tonic. Disorder Treated: Diarrhea, Dysentery, "Summer complaints in children" (Cholera infantum), Sore mouth from salivation, Sore Nipples, Thrush, Ulcers. Medicinal Application: Syrup, Tea. Processing Technique: Decoction. Dosage: One tablespoonful, three to four times a day (Syrup), Freely (Tea).

Literature Review:

Grieve (1974) documents that *Rubus subuniflorus* (*R. villosus* as syn.) was cultivated in the United States following introduction from Europe. The root was official in the US Pharmacopoeia from 1820-1900 (Gathercoal 1942). Allopathic physicians utilized a decoction of the root for the treatment of diarrhea associated with mercurial treatments and teething in infants (Porcher 1869). Porcher (1869) considers this taxon to be one of the most useful astringents in his practice. Botanic physicians utilized the root and fruit of *R. subuniflorus* for the treatment of dysentery, diarrhea and gravel (Howard, 1833). The Catawba Indians utilized the root of *R. subuniflorus* for the treatment of diarrhea (Speck 1944 in Vogel 1974) and the Alabama Indians utilized a poultice of *R. subuniflorus* in the treatment of pneumonia and as a toothache remedy (Vogel 1970). The Cherokee utilized the root of *Rubus argutus* chewed fresh for the treatment of a sore throat, an infusion as a wash for the treatment of hemorrhoids, an infusion taken internally for the treatment of diarrhea and rheumatism, and a compound decoction for the regulation of urination (Moerman 1998, Olbrechts 1932). The ethnobotanic data associated with this specimen is consistent with the documented medicinal properties of both *Rubus subuniflorus* and *Rubus argutus*.

Rubus occidentalis L. (Rubus strigosus), (Taxonomic Change), 94.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Astringent, Tonic. Disorder Treated: Bowel complaints, Cholera infantum, Sore nipples, Ulcers.

Literature Review:

Botanic physicians utilized a tea of the leaves of *Rubus strigosus* for bowel complaints in children, to prevent "sore mouth" in newborn babies, to ease labor pains and applied it as a wash to nipples made sensitive from breastfeeding (Howard 1833, Thomson 1835). Thomson (1835) claims to be the first to document the medicinal properties of the leaves of "Red-raspberry" which he states were discovered through tasting experiments to find a medicine to treat "canker." A compound poultice of the infusion of the leaves of *R. strigosus* in combination with the bark of Slippery elm (*Ulmus fulva*) was applied to burns to prevent stinging and speed healing (Thomson 1835). The fruit of *Rubus strigosus* was official in the USP from 1882 to 1905 as a flavoring agent for pharmaceutical products (Vogel 1970).The Cherokee considered the leaves of *Rubus occidentalis* to be astringent and tonic and utilized an infusion to relieve pains associated with menstruation and labor, taken internally for the treatment of diarrhea, and applied topically for the treatment of sores and boils (Moerman 1998). The fresh root was chewed by the Cherokee for the treatment of toothache and the roots of both species were utilized for their emetic and cathartic properties during menstruation (Mooney 1932, Moerman 1998, Taylor 1940). Allopathic physicians utilized the fruit prepared as a syrup as a laxative on account of the seeds present and the high sugar content and was utilized to prevent constipation in children (Porcher 1869). The ethnobotanic data associated with this specimen is consistent with the astringent, tonic and laxative properties documented for the genus *Rubus* including the species *Rubus strigosus* and *Rubus occidentalis*.

RUBIACEAE

Cephalanthus occidentalis L. (Cephalanthus var. pubescens), (Nomenclatural Change),66.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark (Root and Stem). Medical Effect: Febrifuge, Tonic. Disorder Treated: Chest pain, Cough, Dyspepsy. Medicinal Application: Syrup.

Literature Review:

Allopathic physicians utilized the root of *Cephalanthus occidentalis* in a compound syrup for the treatment of lung diseases, the inner bark of the root for the treatment of obstinate coughs and as an anti-venereal (Porcher 1969). It was utilized within domestic medicine in the United States during the nineteenth century as a tonic, laxative, and diuretic (Millspaugh [1892]1974). The Chickasaw applied a poultice of the roots to treat eye problems and the Choctaw utilized a decoction of the bark as a wash for sore eyes (Taylor 1940). The Choctaw chewed the fresh bark for the treatment of toothache (Taylor 1940).

Galium aparine L. (Galium aparine), (No Change), 134.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Diuretic.

Literature Review:

In the fourteenth century an ointment prepared from *Galium aparine* was applied topically for the treatment of scalds and burns (Grieve 1974). The herb was utilized within European medicinal practice as an alterative for the treatment of scurvy, scrofula and skin diseases, an infusion was considered sedative and was utilized for the treatment of insomnia, and the herb was considered astringent and was utilized for the treatment of hemorrhage and diarrhea (Grieve 1974). Botanic physicians considered the entire plant to be diuretic and an infusion was taken as a tea for the treatment of urinary disorders including suppression of the urine and gravel (Howard 1833, Thomson 1835). The Cherokee utilized an infusion as a laxative (Moerman 1998).

Galium circaezans Michx. (Galium circaezans), (No Change), 100.

Ethnobotanic Data:

No use documented.

Literature Review:

Lincecum notes that this species is "Perhaps the most useful of this valuable family" however he provides no further details about the medicinal effect or use of this species. The Cherokee utilized a preparation as an expectorant, in the treatment of coughs and asthma (Moerman 1998).

***Galium obtusum* Bigelow ssp. *obtusum* (*Galium tinctorium*), (Nomenclatural Change), 136.2.**

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

***Galium pilosum* Aiton (Correll and Johnston, 1970), (*Galium boreale*), (Taxonomic Change), 135.**

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Deobstruant, Diaphoretic, Diuretic. Disorder Treated: Measles, Scarlet fever. Medicinal Application: Tea.

Literature Review:

This specimen was misidentified by Lincecum as *Galium boreale* and the ethnobotanic data documenting the use by the Choctaw in preventing pregnancy and for the treatment of measles and scarlet fever has been incorrectly applied to *Galium boreale* (Campbell 1951, Moerman 1998). Lincecum notes that this species "like all the other species of this valuable family of plants is a good diuretic, diaphoretic and deobstruant." Based on the current identification the ethnobotanic data associated with this specimen provides the sole reference for the medicinal use of *G. pilosum* by Lincecum and the Choctaw.

***Galium triflorum* Michx. (*Galium asprellum*), (Taxonomic Change), 136.1.**

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Diaphoretic, Diuretic. Disorder Treated: Diseased kidneys.

Literature Review:

This specimen was misidentified by Lincecum and the ethnobotanic data documenting the use as a diaphoretic and diuretic and by the Choctaw for the treatment of measles has been incorrectly applied to *Galium asprellum* (Campbell 1951, Moerman 1998). In the ethnobotanic data associated with *G. pilosum* Lincecum notes that all species within the genus are considered diuretic, diaphoretic, and deobstruent. The Cherokee utilized an infusion of *G. triflorum* for the treatment of gallstones (Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the medicinal use of *G. triflorum* as a diuretic.

***Galium uniflorum* Michx. (*Galium uniflorum*), (No Change), 142.**

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Astringent, Diaphoretic, Diuretic. Cited Origin: Choctaw.

Materials. Material Used For: Dye. Plant Part Used: Entire Plant.

Literature Review:

The ethnobotanic data associated with this specimen provides the only citation for the use of *Galium uniflorum* as an astringent, diaphoretic and diuretic by the Choctaw.

Mitchella repens L (Mitchella repens), (No Change), 65.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Diaphoretic, Diuretic.

Literature Review:

Native American Indians utilized this species as a parturient preceding and during labor (Vogel 1970). The Cherokee considered the plant diuretic and diaphoretic and utilized a decoction made with milk for the treatment of dysentery, bowel complaints, and hemorrhoids (Moerman 1998). The herb was utilized by the Cherokee for the treatment of menstrual pain and to facilitate childbirth (Moerman 1998). A decoction of the stem and leaves boiled in sweet milk were utilized by botanic physicians for the treatment for diarrhea and piles and the berries are utilized for their diuretic properties (Howard 1833).

RUTACEAE

Citrus aurantium L. (Citrus aurantium), (No Change), 308.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Antibilious, Diaphoretic, Tonic. Disorder Treated: Fever. Medicinal Application: Tea. Processing Technique: Decoction.

Literature Review:

The leaves of *Citrus aurantium* were considered bitter and aromatic and were utilized by allopathic physicians for the treatment of nervous disorders including epilepsy. The fruit produces a cooling drink utilized with benefit in conditions accompanied by fever and inflammation (Porcher 1869). The flowers, the oil obtained from the flowers and the rind obtained from the fruit were official in the USP from 1860 to 1880, 1880 to 1890 and 1820 to 1942 respectively (Gathercoal 1942). An oil obtained by distillation from the flowers is utilized for the production of "Orange water" in Europe which was utilized for its aromatic and anti-spasmodic properties (Porcher 1869). An oil obtained from the rind of the fruit is utilized as a flavoring agent and as a substitute for the oil obtained from the exocarp of the fruit of *C. limonum* which was considered carminative and diaphoretic although it was not utilized extensively for its medicinal properties (Porcher 1869).

Ptelea trifoliata L. ssp. trifoliata var. trifoliata (Ptelea trifoliata), (No Change),

141.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Aromatic, Stimulant, Stomachic, Tonic. Disorder Treated: "Ague", Consumption (Tuberculosis), Cough, Debility. Processing Technique: Tincture. Dosage: One tablespoonful taken hourly.

Literature Review:

The leaves of *Ptelea trifoliata* were utilized in the nineteenth century in the United States as a vermifuge and vulnerary, the root was considered stimulant and expectorant tonic and was utilized for the treatment of "ague" (intermittent fevers), dyspepsia, and debility (Millspaugh [1892]1974). The fruit was utilized as a substitute for hops (*Humulus lupulus*) (Porcher 1869, Millspaugh [1892]1974).

Ruta graveolens L. (Ruta graveolens), (No Change), 291.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves, Tops. Medical Effect: Stimulant, Tonic, vermifuge. Disorder Treated: Worm treatment. Medicinal Application: Juice. Dosage: Teaspoonful doses three to four mornings in succession on a fasting stomach.

Literature Review:

Hippocrates documented the use of *Ruta graveolens* in ancient Greek medicine as an antidote to poison and for its ability to treat indigestion which they considered a result of witchcraft (Grieve 1974). The medicinal use *of Ruta graveolen*s was documented in herbals from 1562 including the use of the fresh herb and "Rue-water" as a vermifuge to prevent insect infestations (Grieve 1974). The herb was official in the US Pharmacopoeia from 1820 to 1850 (Gathercoal 1942). It was considered to be antispasmodic, carminative, and stomachic, and was utilized in decoction or infusion for the treatment of coughs, croup, colic, flatulence, and as an emmenagogue (Grieve 1974). The juice of the herb applied topically is rubefacient and was utilized to treat sciatica, joint pain, and the "shaking fits of agues" (Grieve 1974). The Cherokee utilized a syrup produced from a decoction of the leaves and tops as an anthelmintic and a tincture for the treatment of paralysis and hysterics (Moerman 1998).

Zanthoxylum clava-herculis L. (Zanthoxylum fraxineum), (Taxonomic Change), 240.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark, Fruit. Medical Effect: Aromatic, Stimulant, Tonic. Disorder Treated: "Ague," "Female weakness," Rheumatism. Processing Technique: Tincture.

Literature Review:

Vogel (1970) documents the extensive use of *Zanthoxylum* by the early settlers according to practices learned from Native American Indians. The bark and berries of *Z. americanum* (*Z. fraxineum* as syn.) and *Z. clava-herculis* were considered aromatic, diaphoretic, sialagogue, and sudorific. Allopathic physicians utilized the bark, applied topically, for the treatment of rheumatism, as a poultice applied to ulcers and wounds, and for the treatment of fever and venereal diseases (Grieve 1974, Porcher 1869). The bark of *Zanthoxylum americanum* was official in the US Pharmacopoeia from 1820 to 1916 (Gathercoal 1942). The berries of *Z. americanum* and *Z. clava-herculis* were considered carminative and antispasmodic and were utilized in the treatment of dyspepsia (Grieve 1974). Botanic physicians considered the bark of the root of *Zanthoxylum americanum* to be stimulant to the digestive and circulatory systems and utilized a preparation for the treatment of lethargy, colic and "impurities of the blood" (Howard 1833). A powder of the bark of *Z. clava-herculis* was utilized by botanic physicians as a diaphoretic for the treatment of "dropsy", typhoid, and "ague" (malaria) and as a sialagogue for the treatment of dry mouth associated with fever (Howard 1833). The Cherokee utilized an infusion of *Z. americanum* as a wash for the treatment of swollen joints (Moerman 1998). The Alabama Indians utilized the scraped bark of *Z. americanum* for the treatment of toothache and inner bark to treat "itch" (Swanton [1928]2000). The medicinal properties of *Z. clava-herculis* are considered more potent than those of *Z. americanum* (Thomson 1835, Grieve 1974). The Houma Indians utilized a pulp of the grated roots and bark of *Z. clava-herculis* applied topically for the treatment of toothache and a tincture was applied topically to reduce swelling in the limbs (Speck 1941). The ethnobotanic data associated with this specimen is consistent with the documented medicinal properties of *both Z. clava-herculis* and *Z. americanum*.

SALICACEAE

(Salix nigra), (No specimen), 244.1.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Tonic febrifuge. Disorder Treated: Fever. Processing Technique: Decoction. Dosage: "Taken freely after clearing the system by two or three courses."

Literature Review:

Seven specimen fragments (none of which is identified as *Salix nigra*) are associated with this herbarium sheet. See accession number 248 for a discussion of the medicinal use of *Salix nigra*.

Populus x jackii Sarg. (Populus balsamifera), (Taxonomic Change), 243.

Ethnobotanic Data:

Medicine. Plant Part Used: Buds. Medical Effect: Balsamic, Tonic. Medicinal Application: Bath, Ointment. Processing Technique: Tincture.

Literature Review:

Lincecum notes that he uses the buds of *Populus balsamifera* ssp. *balsamifera* "combined with cayenne, it makes a very good number six" in reference to Thomson's compound number six in which articles are compounded, often with cayenne and "gum myrrh" (*Commiphora myrrh*), applied externally "to remove pain, prevent mortification, and promote a natural heat" (Thomson 1835). The ethnobotanic data associated with this specimen is consistent with the documented medicinal properties of *P. balsamifera*. The resin obtained from the buds of *P. balsamifera* (*P. candicans* as syn.) is utilized according to the medicinal properties documented for *Populus tremuloides* which was considered diuretic, febrifuge, and tonic and was utilized for the treatment of intermittent fevers (Grieve 1970).

Salix nigra Marsh var. nigra (Salix nigra), (No Change), 248.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Astringent, Febrifuge, Stomachic, Tonic. Disorder Treated: Profuse menstruation. Processing Technique: Decoction. Dosage: One half teacup taken five or six times a day.

Literature Review:

Allopathic physicians considered the bark of *Salix nigra* to be aphrodisiac, astringent, sedative, vermifuge, and tonic and was utilized in decoction for the treatment of gonorrhea, ovarian pain, and fever (Porcher 1869). It was official in the US Pharmacopoeia from 1820 to 1880 (Gathercoal 1942). The Cherokee utilized the bark as a tonic, applied externally as a poultice, in infusion for the treatment of diarrhea, fever, and as a tonic (Moerman 1998). The Houma Indians utilized a decoction of the root and bark for the treatment of debility and fever (Speck 1941).

SAURURACEAE

Saururus cernuus L. (Gleason and Cronquist, 1991), (Saururus cernuus), (No Change), 200.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Purgative, Emollient, Tonic. Disorder Treated: Breast inflammation, inflamed swelling. Medicinal Application: Poultice. Processing Technique: Boiled/Roasted, Mashed.

Literature Review:

Allopathic physicians utilized the root applied as a poultice to tumors or "abscesses of the breasts occurring after labor" and as an emollient and discutient to inflamed surfaces (Porcher 1869). The Cherokee utilized the roots, roasted and mashed, as a poultice (Moerman 1998) and the Choctaw apply roots, boiled and mashed, as a poultice to wounds (Bushnell 1909).

SAXIFRAGACEAE

Heuchera americana L. (Heuchera americana), (No Change), 22. Collection location: Columbus, Mississippi.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Astringent, Tonic. Disorder Treated: Bowel complaints, Prolapse. Cited Origin: All Southern Indians, "The books".

Literature Review:

Vogel (1970) considers that the medicinal use of the root was adopted from the Materia Medica of the Native American Indians who utilized a powder of the root applied topically to wounds, ulcers, and cancers. Lincecum states that this species "has been noticed and used by all the aboriginal tribes with whom I have become acquainted with in the South" adding that the medicinal use was "also highly recommended by the books." The Cherokee utilized the powdered root and an infusion applied topically to ulcers and sores and an infusion was taken internally for the treatment of dysentery, bowel complaints, hemorrhoids, sore mouth and for "immoderate flow of the menses" (Moerman 1998). The root was official in the US Pharmacopoeia from 1820 to 1870 (Gathercoal 1942). Porcher (1869) documents the use of the root by allopathic physicians in decoction, tincture or syrup "whenever an astringent is needed."

Hydrangea quercifolia Bartram (Hydrangea quercifolia), (No Change), 9.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark of the Root. Medical Effect: Astringent. Disorder Treated: Inflamed tumors. Medicinal Application: Wash. Processing Technique: Decoction.

Literature Review:

The Gideon Lincecum Herbarium provides the sole reference for the medicinal use of *Hygrangea quercifolia.* All other ethnobotanic references found document the medicinal use of *H. arborescens*. *H arborescens* was originally utilized by the Cherokee for its diuretic properties and the medicinal use was adopted by early settlers for the treatment of kidney stones (Porcher 1869, Vogel 1970). The Cherokee utilized a poultice of the bark of *H. arborescens* applied topically to burns, ulcers, "risings" and to sore or swollen muscles, and for the treatment of tumors (Moerman 1998). The fresh bark was chewed by the Cherokee to relieve stomach discomfort and for the treatment of high blood pressure, an infusion of the bark was utilized as an antiemetic, emmenagogue and as a liver aid to induce vomiting in order to "throw off disordered bile" (Moerman 1998). The root of *H. arborescens* was utilized by allopathic physicians as a diuretic, cathartic and tonic, in decoction or syrup for the treatment of kidney stones, and as a fluid extract for the treatment of gleets, mucous irritation of the bladder, and alkaline urine (Porcher 1869). The ethnobotanic data associated with this specimen is consistent with the medicinal properties documented for *H.*

arborescens as a poultice for application to swellings and ulcers and suggests the extension by Lincecum of these medicinal properties to *H. quercifolia*.

SCROPHULARIACEAE s.s.

Verbascum thapsus L. (Verbascum thapsus), (No Change), 52.

Ethnobotanic Data:

Medicine. Plant Part Used: Root, Flowers. Medical Effect: Anodyne, Antispasmodic, Expectorant. Disorder Treated: Coughs. Processing Technique: Decoction.

Literature Review:

Hippocrates documented the use of the leaves and flowers of *Verbascum thapsus* and during the Middle Ages these structures were utilized for the treatment of skin and lung diseases (Blumenthal et al. 2000). The leaves are demulcent and emollient and were utilized in decoction for the treatment of catarrh, coughs associated with tuberculosis, and hemorrhoids (Grieve 1974, Porcher 1869). The leaves are astringent, antispasmodic, and anodyne, and were utilized as a tea for the treatment of diarrhea and dysentery, and as a poultice for application to sores and for the treatment of headache (Grieve 1974, Porcher 1869). The leaves were smoked to relieve asthmatic spasms and irritation of the mucous membranes associated with tuberculosis (Grieve 1974, Porcher 1869, Vogel 1970). The root is febrifuge and was utilized in infusion applied topically for the treatment of intermittent fever (Porcher 1869). Botanic physicians utilized the bruised leaves topically applied to relieve swelling (Thomson 1835). The Cherokee utilized the fresh leaves and flowers bruised or scalded for topical application to sores, swollen glands and mumps and an infusion of the root as a gynecological and kidney aid (Moerman 1998, Mooney 1932). The Choctaw applied the fresh leaves to the head for the treatment of headache (Vogel 1970) and the Creek utilized the roots in a compound decoction as a cough medicine ([1928]2000, Vogel 1974).

SMILACACEAE

Smilax glauca Walter (Radford, Ahles and Bell, 1968), (Smilax laurifolia), (Taxonomic Change), 25.

Ethnobotanic Data:

Medicine. Plant Part Used: "Root" (tubers). Medical Effect: Alterative. Disorder Treated: Convalescence. Medicinal Application: Syrup, Compound. Processing Technique: Fermented decoction (One quart of the decoction, one quart of molasses, 7 quarts of hot water, one tablespoonful of Crem Tartar and allow to ferment for 24 hours). Dosage: Taken freely. Plant Part Used: “Roots” (tubers).

Literature Review:

Allopathic physicians considered the tuber of *Smilax glauca* to be alterative and diaphoretic and utilized it in the treatment of rheumatism and syphilis (Porcher 1869). Porcher (1869) states that *S. laurifolia* was utilized as a substitute for the *S. pseudochina* which was also considered alterative (Porcher 1869). The Cherokee utilized the dried, powdered leaves of *S. glauca* applied topically as a dermatological aid and burn dressing, an infusion as a gastrointestinal aid, and a compound decoction of the root to aid discharge of the afterbirth following childbirth (Taylor 1940, Moerman 1998). The ethnobotanic data associated with this specimen is consistent with the medicinal properties documented for the genus *Smilax* including both *S. glauca* and *S. laurifolia*.

Smilax herbacea L. (Dioscorea quaternata), (Taxonomic Change), 108.

Ethnobotanic Data:

Use unknown to Lincecum.

Literature Review:

The Cherokee utilized the dried, powdered leaves of *Smilax herbacea* applied topically as a dermatological aid and burn dressing, an infusion as a gastrointestinal aid, and a compound decoction to aid discharge of the afterbirth following childbirth (Taylor 1940, Moerman, 1998). Lincecum notes that "this [species] is no doubt a good medicine" adding that "I have not, however, found anyone in the Seven Nations with whom I have been familiar, who made any use of it."

Smilax laurifolia L. (Smilax caduca), (Taxonomic Change), 247.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Blood cleansing.

Literature Review:

The Cherokee utilized the dried, powdered leaves of *Smilax rotundifolia* (*S. caduca* as syn.) applied topically as a dermatological aid and burn dressing, an infusion as a gastrointestinal aid and a compound decoction to aid discharge of the afterbirth following childbirth (Taylor 1940, Moerman 1998). The Cherokee considered the bark of the root of *S. laurifolia* to be astringent and tonic and utilized a compound decoction as a wash for burns, sores, and "pox" (Moerman 1998). The Houma Indians utilized a decoction of the root of *S. laurifolia* taken as a tea for the treatment of kidney disorders (Speck 1941). Allopathic physicians utilized *S. laurifolia* as a substitute for *S. pseudochina* which was considered alterative and emetic in large doses (Porcher 1869). The ethnobotanic data provided is consistent with the medicinal use of both *S. rotundifolia and S. laurifolia.*

SOLANACEAE

Datura stramonium L. (Datura stramonium), (No Change), 116.

Ethnobotanic Data:

Medicine*. Plant Part Used: Leaves. Medical Effect: Narcotic. Disorder Treated: Tumors, Piles (Hemorrhoids), Swollen testicles. Medicinal Application: Ointment. Processing Technique: Concrete.

Literature Review:

The leaves and seeds of *Datura stramonium* were official in the London Pharmacopoeia in 1839 (Brande, 1839). Vogel (1970) documents the use of *Datura* species (*D. stramonium* or *D. meteloides*) by the Aztecs for their narcotic properties in the treatment of pain. Allopathic physicians considered this species to be anodyne, antispasmodic, and narcotic, and the dried leaves and seeds were smoked (often in combination with Tobacco (*Nicotiana tabacum*) for their antispasmodic effect in the treatment of asthma, and a tincture or fluid extract of the seeds was utilized for the treatment of epilepsy, "palsy", sciatica, whooping cough, and irritation of the urinary tract (Porcher 1869). An ointment made from the leaves or seeds was considered anodyne and was applied topically for the treatment of neuralgia, hemorrhoids, rheumatic pain, and inflammation (Porcher 1869) The proportion of alkaloids is considered to be higher in the seeds than in the leaves (Brande 1839). The leaves and seeds were official in the USP from 1820 to 1942 and 1820 to 1890 respectively (Vogel 1970). The Cherokee applied a poultice of the leaves topically to boils and unspecified parts were smoked for the treatment of asthma (Moerman 1998).

Hyoscyamus niger L. (Hyoscyamus niger), (No Change), 55.

Ethnobotanic Data:

Medicine*. Plant Part Used: Above ground parts, Fruit. Medical Effect: Poisonous, Narcotic. Cited Origin: Allopathic physicians. Poison. Plant Part Used: Fruit. System Effected: Nervous system.

Literature Review:

The medicinal properties of *Hyoscyamus niger* were documented by Dioscorides who considered it to be poisonous as a result of its potency as a psychoactive properties (Millspaugh [1892]1974). The medicinal use of *H. niger* is documented in herbals until the 15th century when it's use was discontinued before being reintroduced into medicinal practice in 1762 as a sedative and antispasmodic (Millspaugh [1892]1974). The leaves and seeds are psychoactive with the seeds containing a higher concentration of tropane alkaloids (Brande 1833). *Hyoscyamus niger* was considered diuretic, diaphoretic, laxative, and sialagogue and was utilized within European medicinal practice as a substitute for opium particularly when opium produced adverse side effects such as headaches, nausea, or constipation (Brande 1839). *H. niger* was considered sialagogue and was utilized for the relief of irritation in the respiratory, cardiac, and urinary systems including conditions such as coughs, asthma, and croup (Brande 1839). Poultices containing the extract or decoction of the leaves were utilized for the treatment of ulcers, inflammation, tumors, and scrofulous and cutaneous sores (Brande 1839). The leaves were official in the US Pharmacopoeia from 1820 to 1942 (Gathercoal 1942).

***Lycopersicum esculentum* Mill. (Bailey, 2001), (Solanum lycopersicum), (Nomenclatural Change), 15.**

Ethnobotanic Data:

Medicine. Plant Part Used: Fruit. Processing Technique: Extract. Cited Origin: Allopathic physicians.

Food. Plant Part Used: Fruit.

Poison. Plant Part Used: Fruit. System Effected: Nervous system.

Literature Review:

Porcher (1869) documents that the seeds are irritant to the mucous membrane of the digestive tract and are considered laxative, however, the fruit is antidiarrheal in its action. Lincecum states that *Lycopersicum esculentum* was "proposed as a substitute for calomel" (mercurous chloride) which was utilized as a purgative by allopathic physicians for the treatment of generalized illness resulting from "venous congestion" (Haller 1981).

Nicotiana tabacum L. (Nicotiana tabacum), (No Change), 14.

Ethnobotanic Data:

Medicine*. Plant Part Used: Above ground parts . Medical Effect: Narcotic, Nauseant, Poisonous. Disorder Treated: Croup. Medicinal Application: "Snuff plaster," "tobacco smoke injection". Processing Technique: Dried. Cited Origin: Lindley, Allopathic physicians.

Poison. Plant Part Used: Above ground parts. System Effected: Nervous system.

Literature Review:

Pre-Columbian use of Tobacco amongst Native American Indians was largely limited to ritual rather than medicinal use and Vogel (1974) suggests that the sparse documentation of therapeutic application of tobacco by Native American Indians is evidence that European applications were not derived from Native American sources. Nicotine acts initially as a stimulant increasing the heart rate which is followed by a significant sedative effect, a slowing of the pulse and in large doses produces nausea, drowsiness, vomiting, profuse perspiration, and muscular weakness (Brande 1833, Grieve 1974). The leaves of tobacco were utilized by allopathic physicians as an infusion or tincture given by urethral injection for the treatment of spasmodic urethral stricture, and as a renal suppository for the relief of bowel obstructions on account of irritant action on the mucous membranes (Brande 1833, Grieve 1974). The leaves were applied topically in plasters for the treatment of croup (Grieve 1974), utilized fresh for the treatment of hemorrhoids, a decoction was utilized as a wash for the treatment of burns and scalds (Vogel 1970), and as an ointment for application to tumors and cutaneous diseases (Grieve 1974). *Nicotiana tabacum* was official in the US Pharmacopoeia from 1820 to 1890 (Gathercoal 1942). The Cherokee considered the plant to be anthelmintic, antispasmodic, cathartic, diuretic, expectorant, and emetic and they utilized the juice applied topically to snake-bite, a poultice applied to boils and insect bites, a preparation as an analgesic for the treatment of cramps, a decoction for the treatment of ague and "locked-jaw," and the smoke as an anodyne for toothache (Moerman 1998). The Cherokee utilized *Nicotiana tabacum* in ritual ceremonies (Moerman 1998). The value of tobacco for its medicinal properties is variously praised as by Porcher (1869) who dedicates 32 pages of his book "Resources of the Southern Fields and Forests" to a description of the successful cultivation requirements of the plant stating that "tobacco should be more extensively cultivated for home use, particularly for the comfort of our working class in Carolina, Georgia and Alabama" and is elsewhere derided as a poison as Brande (1831) in his "Dictionary of Materia Medica and Pharmacy" who states "it is a virulent poison" and considers that "on the whole it is doubtful whether it should ever be prescribed, excepting in very urgent cases, and then with the utmost caution."

Solanum pseudocapsicum L. (Solanum pseudocapsicum), (No Change), 34.

Ethnobotanic Data:

Materials. Material Used For: Ornamental.

Literature Review:

No ethnobotanic utilization found.

Solanum ptychantum Dunal (Solanum nigrum), (Nomenclatural Change), 18.

Ethnobotanic Data:

Medicine*. Plant Part Used: Entire Plant. Medical Effect: Discutient, Narcotic, Poisonous. Medicinal Application: Ointment. Cited Origin: Botanic physicians. Poison. Plant Part Used: Entire plant. System Effected: Nervous system.

Literature Review:

Allopathic physicians utilized the leaves applied topically for the treatment of pain and to relieve inflammation associated with headaches, hemorrhoids, syphilitic sores, and irritation of the urinary tract (Porcher 1869) The berries were considered to possess psychoactive properties by allopathic physicians and were utilized for their diaphoretic properties in the treatment of “dropsy” (Porcher 1869). In large doses vomiting, profuse perspiration, diarrhea, excessive urination can occur (Porcher 1869). The Cherokee utilized an infusion of the leaves as an emetic for the treatment of loneliness resulting from the death of a relative (Moerman 1998). The Houma Indians utilized an infusion of the roots as a pediatric anthelmintic and a poultice of the macerated leaves mixed with grease for the treatment of sores (Speck,1941).

Solanum tuberosum L. (Solanum tuberosum), (No Change), 62.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Emollient. Disorder Treated: Syphilitic sores including inflamed eye. Medicinal Application: Poultice. Food. Plant Part Used: Root.

Literature Review:

Allopathic physicians considered the leaves, stalks, and unripe berries to be possess psychoactive properties and utilized as a cold compress applied topically for the treatment of rheumatism, the juice of the raw potato for the treatment of pain associated with rheumatism, gout, bruises, and muscular strains, and an extract of the leaves, stems, and unripe berries as an antispasmodic for the treatment of respiratory and digestive disorders (Porcher 1869, Grieve 1974). The Cherokee utilized the leaves as an emetic for the treatment of loneliness (Moerman 1998).

STAPHYLEACEAE

Staphylea trifolia L. (Staphylea trifolia), (No Change), 32.

Ethnobotanic Data:

Use unknown to Lincecum.

Literature Review:

No references to the medicinal use of *Staphylea trifolia* in the southeastern United States were found.

SYMPLOCACEAE

Symplocos tinctoria (L.) L'Her. (Laurus carolinensis), (Taxonomic Change), 5.

Ethnobotanic Data:

Medicine. Plant Part Used: Root. Medical Effect: Alterant, Diaphoretic, Hydragogue. Disorder Treated: "Dropsy", Fever. Processing Technique: Decoction. Dosage: One half teacupful (sweetened or not) every half hour until full perspiration is induced, repeated as often as stomach will bear. Cited Origin: Creek (Muskogee), Indians of Southeast.

Literature Review:

This species was misidentified by Lincecum as *Laurus carolinensis* and the ethnobotanic data documenting the use of the root by the Creek Indians has been incorrectly applied to *Persea pubescens* (Campbell 1951) and *P. palustrus* (Moerman 1998). The Choctaw utilized the root of *Symplocos tinctoria* for the treatment of fever (Taylor 1940). Porcher (1869) documents that the root was considered stomachic and a decoction of the root was utilized for the relief of pain and irritation associated with kidney disorders. The ethnobotanic data associated with this specimen is consistent with the medicinal use of *Symplocos tinctoria* as a diaphoretic and hydragogue.

TILIACEAE

Tilia americana L. var. heterophylla (Vent.) Loudon, (Tilia heterophylla), (No Change), 214.

Ethnobotanic Data:

Medicine. Plant Part Used: Bark. Medical Effect: Emollient, Mucilaginous.

Materials. Material Used For: Cord, Vessels. Plant Part Used: Bark, Wood.

Literature Review:

Lincecum documents the substitution of *Tilia americana* var. *heterophylla* in place of *Ulmus fulva* which was official in the US Pharmacopoeia from 1820 to 1960 (Robbers and Tyler 1999) and was extensively utilized for its demulcent and emollient properties in the treatment of coughs, diseases of the throat and lungs, dysentery, diarrhea, and irritation of the urinary tract (Porcher 1869, Grieve 1974). The Cherokee utilized a compound of the inner bark of *Tilia americana* var. *heterophylla* for the treatment of dysentery and a preparation of the inner bark and twigs was utilized as a gastrointestinal aid during pregnancy (Moerman 1998, Mooney 1932). A decoction of the bark was utilized by the Cherokee as a poultice for the treatment of boils and the bark is chewed and applied topically for the treatment of snakebite (Moerman 1998). The flowers were considered as effective as those of the European *Tilia* species for their antispasmodic properties and were utilized to "quiet nervous excitement" and hysteria (Porcher 1869, Grieve 1974).

TRAPAEOLACEAE

Trapaeolum majus L. (Tropaeolum majus), (No Change), 78.

Ethnobotanic Data:

Medicine. Plant Part Used: Entire Plant. Medical Effect: Antiscorbutic, Diuretic.

Food. Plant Part Used: Fruit.

Literature Review:

No ethnobotanic utilization found.

URTICACEAE

Boehmeria cylindrica (L.) Sw. (No original identification), (Fragment), 244.5.

Ethnobotanic Data:

No use documented.

Literature Review:

No ethnobotanic utilization found.

Laportea canadensis (L.) Wedd. (Urtica canadensis), (Nomenclatural Change), 99.

Ethnobotanic Data:

Medicine. Medical Effect: Diuretic, Emollient. Disorder Treated: Inflammation, Swelling. Medicinal Application: Poultice.

Literature Review:

The Houma Indians utilized a decoction of the plant taken as a tea for the treatment of fever (Speck 1941).

VERBENACEAE

Callicarpa americana L. (Callicarpa americana), (No Change), 140.

Ethnobotanic Data:

Medicine - Vetinary. Plant Part Used: Leaves. Medical Effect: Aromatic, Diuretic, Tonic. Disorder Treated: Prevents ear flies. Processing Technique: Fresh.

Literature Review:

The Alabama Indians utilized a decoction of the roots and branches in a sweat bath as a diaphoretic in the treatment of rheumatism and malarial fever (Moerman

1998). The Choctaw utilized a decoction of the roots and berries taken internally for the treatment of colic (Bushnell 1985).

VERONICACEAE

Chelone glabra L. (Chelone glabra), (No Change), 163.

Ethnobotanic Data:

Medicine. Medical Effect: Stomachic bitter, Tonic.

Literature Review:

The use of *Chelone glabra* for medicine is derived from the Native American Indian use as a tonic, laxative, and purgative (Millspaugh [1892]1974). The Cherokee utilized an infusion of the flowers as a febrifuge, vermifuge, and laxative and in an unspecified preparation to stimulate appetite (Moerman 1998). Howard (1833) documents that the leaves are the best bitter known and are utilized by botanic physicians in tincture to promote the appetite and restore tone within the digestive system, as a powder or decoction for the treatment of fever and jaundice, and in infusion as a vermifuge (Howard 1833). Thomson (1835) utilized a tea of the herb of *Chelone glabra* in his compound “ No. 4” which was entitled "Bitters, to correct the Bile, and restore Digestion".

Digitalis purpurea L. (Digitalis purpurea), (No Change), 24.

Ethnobotanic Data:

Medicine*. Plant Part Used: Entire plant. Medical Effect: Poisonous.

Disorder Treated: Consumption (Tuberculosis), "Dropsy". Cited Origin: Allopathic physicians. Poison. Plant Part Used: Entire plant. System Effected: Circulatory system.

Literature Review:

The leaves and seeds were first official in the London Pharmacopoeia in 1650 (Grieve 1974). Early English herbals from the sixteenth century document the use of the fresh, bruised leaves for the treatment of wounds and a tincture as an expectorant (Grieve 1974). The medicinal use of the leaves for the treatment of "dropsy" was documented by Withering in 1785 (Grieve 1974). Vogel (1970) documents that the Native American Indians used the "North American variety of foxglove for its cardiac stimulant properties hundreds of years before Withering discovered digitalis" (Vogel 1970). The leaves and seeds were official in the US Pharmacopoeia from 1820 to 1942 and 1830 respectively (Gathercoal 1942). *Digitalis purpurea* contains four glycosides of which digitalis, digitalin and digitalein are cardiac stimulants and digitonin is a cardiac depressant. Brande (1833) documents that this species was utilized medicinally as a sedative and also produces a quickening of the pulse following exertion. Significant care is required for the use of *Digitalis purpurea* as a medicine as a result of a delay in the onset of the effect of the drugs up to twelve hours following treatment, the variability with which it acts on individuals, the augmentation and accumulation of the drug within the body and the resulting ease of overdose with the drug (Brande 1833, Grieve 1974) .

Veronicastrum virginicum (L.) Farw. (Leptandria virginica), (Nomenclatural Change), 154.

Ethnobotanic Data:

Medicine. Medical Effect: Purgative, Tonic.

Literature Review:

The medicinal use of the root was adopted by botanic physicians from the Native American Indians and was utilized in pioneer settlements for the treatment of "bilious fevers" and pleurisy (Millspaugh [1892]1974, Vogel 1970). Porcher (1869) documents that the medicinal use of *Veronicastrum virginica* (*Veronica virginica* as syn.) as a purgative for the treatment of fever was first recorded under the erroneous botanic name *Leptandra alba* in the book "Cherokee Physician." The Cherokee consider the root cathartic, purgative, antiseptic, febrifuge, and tonic and utilized the root fresh for the treatment of colic, "inactive liver" and "typhus and bilious fevers" (Moerman 1998). Botanic physicians considered the root of *Leptandra alba* (misapplied) diaphoretic, antiseptic, and tonic utilized in decoction as a purgative for the treatment of typhus and "bilious fevers" operating without "weakening the tone of the bowels" (Howard 1833). The fresh root was utilized by "Eclectic" physicians as a cathartic, emetic and diaphoretic for the treatment of intermittents and pleurisy (Millspaugh [1892]1974). Allopathic physicians considered the root emetic and cathartic (Porcher 1869) and a preparation of the root, either dried and powdered or fresh, prepared as a decoction in boiled milk, was utilized as a stomachic tonic, as a laxative to stimulate the liver and alimentary canal function, and for the treatment of dyspepsia (Grieve 1974). Medicinal preparations utilizing the fresh material produces stronger action than that produced from the dry root (Grieve 1974, Millspaugh [1892]1974). The root was official in the US Pharmacopoeia from 1860 to 1900 (Gathercoal 1842).

VISCACEAE

Phoradendron tomentosum (DC.) Engelm. ex Gray (Viscum verticillatum), (Taxonomic Change), 139.

Ethnobotanic Data:

Medicine. Plant Part Used: Leaves. Medical Effect: Astringent, Tonic. Disorder Treated: Catalepsy, "Hysteric Epilepsy". Processing Technique: Fresh, Tincture.

Literature Review:

The fruit of *Phoradendron leucarpum* (*Viscum verticillatum* as syn.) was utilized by allopathic physicians for the treatment of epilepsy and pleurisy, and was considered to possess medicinal properties identical to the European *Viscum album*. *V. album* is nervine, antispasmodic, tonic, and narcotic and the leaves and twigs were utilized in European medicinal practice in infusion, tincture, decoction, or powdered for the treatment of epilepsy, nervous disorders, and to relieve internal hemorrhage (Grieve 1974). The Cherokee utilized the dried and pulverized leaves of *Phoradendron leucarpum* as an anticonvulsive for the treatment of epilepsy, an infusion was utilized as a gynecological aid and to reduce blood pressure, and the "tea ooze" was considered analgesic and utilized for the treatment of headaches (Moerman 1998). The Creek Indians utilized compounds prepared from the leaves and branches for the treatment of lung disorders including tuberculosis (Swanton [1928]2000, Taylor 1940). Houma Indians utilized a decoction of the entire plant of *P. tomentosum* (*P. flavescens* as syn) as a tea for the treatment of debility and paralysis and as a panacea for the treatment of overall sickness (Speck 1941). The ethnobotanic data associated with this specimen is consistent with medicinal properties documented extensively for both *Phoradendron leucarpum* and *P. tomentosum*.

VITACEAE

Vitis aestivalis Michx. var. lincecumii (Buckley) Munson, (Vitis aestivalis), (No Change), 217.

Ethnobotanic Data:

Medicine. Plant Part Used: Exudate. Medical Effect: Refrigerant, Tonic. Disorder Treated: Stimulation of lactation. Medicinal Application: Juice.

Processing Technique: Fresh. Cited Origin: Choctaw.

Literature Review:

The Cherokee utilized the wilted leaves of *Vitis aestivalis* applied topically for the treatment of soreness of the breasts following childbirth, as a wash to treat oral thrush in children (Moerman 1998). An infusion of the leaf was utilized by the Cherokee as a "fall tonic," a liver aid and "blood medicine," a compound decoction of the bark was utilized for the treatment of urinary disorders, and a compound decoction of the root was utilized for the treatment of diarrhea (Moerman 1998, Mooney 1932). The "Summer grape" was utilized by the Creek for the treatment of snakebite and the tendrils were steeped with ginseng for the treatment of sore throat (Swanton [1928]2000).

CHAPTER 3

Floristic and Taxonomic Assessment of the Gideon Lincecum Herbarium

HISTORICAL DESCRIPTION

Historical manuscripts provide valuable accounts of the flora of the southeastern United States from the earliest accounts by Spanish explorer de Soto from 1529-1540 through to the period of exploration and settlement by the English and French in the late seventeenth and early eighteenth century. Gremillion (2002) provides an excellent summary of the historical manuscripts describing the southeastern biota and the impact of anthropogenic activity on this biota during the Protohistoric period. Several early manuscripts provide accounts of this flora during the eighteenth century including those of Lawson (1967 [1709]) in North and South Carolina, Byrd (1867 [1829] in Virginia and North Carolina, Catesby (1771) in South Carolina and Florida, and Bartram (1791) in Georgia and South Carolina (Gremillion 2002, Skeen et al. 1993).

While it is important to recognize the potential for "settler's rhetoric" (Gremillion 2002) within historical manuscripts, this in no way detracts from their potential contribution to the description of the southeastern flora (Gremillion 2002). Lincecum's diary recorded during his seven month expedition from Mississippi to Texas in 1835 to explore potential settlement possibilities documents extensive detail on the geology, soils, flora and fauna, agriculture, and range weather conditions pertinent for consideration of settlement observed by a conscientious naturalist (Bradford and Campbell 1949). The editors of Lincecum's autobiographic work note that while the source manuscripts overlap considerably in the material they document, the accounts "rarely disagree or contradict one another." This is true despite the fact that Lincecum recounts events that occurred throughout his lifetime *recalled in memoirs that he wrote in the later stages of his life between 1871 and 1874*. The editors of those autobiographical works provide bibliographic notes regarding textual discrepancies and inconsistencies in historic detail contained within the manuscripts (Lincecum 1994).

Historic collections such as the Gideon Lincecum Herbarium require ongoing revision to maintain current taxonomic status (Gremillion 2002). Ethnobotanic collections that incorporate both plant specimens and plant use data contribute significantly to our knowledge of the use of plants within historical and traditional communities (Kindscher and Hurlburt 1998). The presence of a botanic voucher specimen associated with ethnobotanic data in these collections greatly facilitates confirmation of the original identifications and increases the reliability of the collection as a primary source of ethnobotanic data (Whistler 1991).

FLORISTIC REPRESENTATION

In the ethnobotanic data associated with the herbarium specimens Lincecum documents the medicinal use of 286 species out of the ca. 3,200 species present in east Texas (Diggs et al. in press) and the 2,954 species present in Mississippi (Kartesz 1999), representing 6.7% and 8.6% of the respective floras. The GLH contains 229 native plant species and 80 exotic plant species (data from Kartesz 1999). Floristic representation of native and naturalized species within the southeastern flora, according to current distribution data provided by Kartesz (1999), is presented in Figure 3.1.

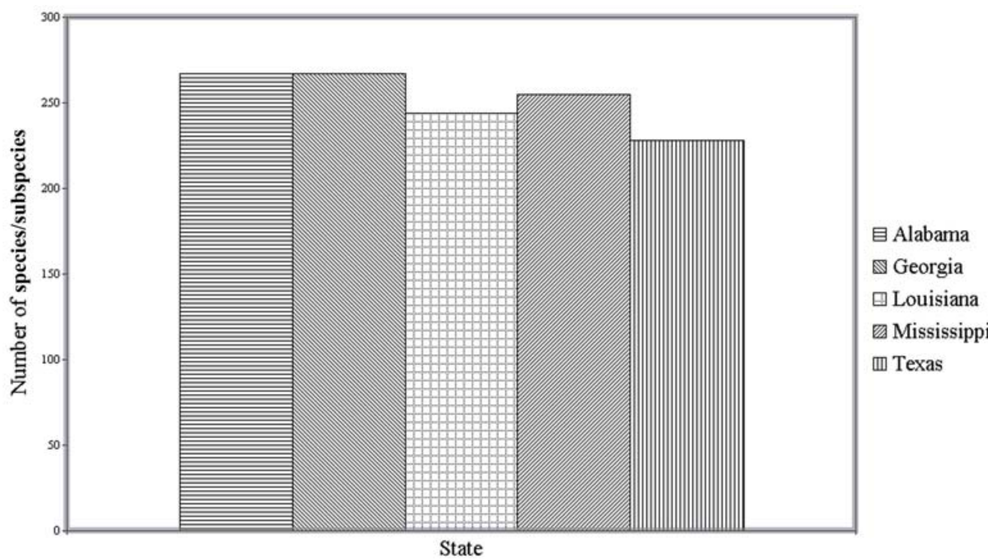


FIG. 3.1. FLORISTIC REPRESENTATION OF SPECIES/SUBSPECIES IN THE GIDEON LINCECUM HERBARIUM IN THE SOUTHEAST UNITED STATES.

Southeastern Flora

The southeastern floral element within Lincecum's pharmacopoeia includes species characteristic of floodplain, upland, and grassland vegetation types. Lincecum provides accounts of vegetation characteristic of the southern floodplains, describing the region west of the Tombigbee River, in Mississippi, as a "district of heavy forests, extensive canebrakes [and] cypress swamps" (Lincecum 1994). Floodplain vegetation associated with the major river systems throughout the southeastern states is classified by Larson et al. (1981) into zones across a hydrologic gradient and includes River Swamp Forest, Lower Hardwood Swamp Forest, Backwater Swamp Forest and Upland Floodplain Vegetation (Sharitz and Mitsch 1983). Bottomland hardwood forests at the time of European settlement were similar in floristic composition to present-day mature floodplain forests however extensive logging of these forests has removed the largest individuals representing the oldest trees (Sharitz and Mitsch 1983). The Tombigbee River on the eastern border of Mississippi, where Lincecum lived and practiced medicine from 1830 until 1848, represents a major river drainage within the southeast that supports floodplain forest (Sharitz and Mitsch 1983). Bottomland forest vegetation is represented in the pharmacopoeia by species including *Taxodium distichum* (Cupressaceae), *Salix nigra* (Salicaceae), *Platanus occidentalis* (Platanaceae), *Cephalanthus occidentalis* (Rubiaceae), and *Callicarpa americana* (Verbenaceae). The understory species within this vegetation include *Iris virginica* (Iridaceae), *Saururus cernuus* (Saururaceae), *Impatiens capensis* (Balsaminaceae), the vine *Smilax laurifolia* (Smilacaceae), and the epiphytic *Tillandsia usneoides* (Bromeliaceae). The highest regions within the active floodplain represent a transition zone into upland vegetation and are represented in the pharmacopoeia by species such as *Quercus alba* (Fagaceae), *Cornus florida* (Cornaceae), *Morella cerifera* (Myricaceae), and *Ilex opaca* (Aquifoliaceae).

Oak-hickory-pine forests represent the most extensive forest vegetation by area within the southeastern United States (Skeen et al. 1993). The paucity of the three dominant genera within Lincecum's pharmacopoeia each represented by a single species (*Quercus alba* (Fagaceae), *Carya tomentosa* (Juglandaceae), and *Pinus echinata* (Pinaceae)) most likely reflect selection criteria based on medicinal activity rather than an absence of diversity within the local flora. Other hardwood species present in this vegetation are represented in the collection by *Castanea dentata* (Betulaceae), *Liriodendron tulipifera* (Magnoliaceae), and *Prunus serotina* (Rosaceae). Extensive burning by Native American Indians prior to European settlement prevented the establishment of a woody understory and increased the herbaceous understory which maintained the open aspect of this vegetation (Skeen et al. 1993). Lincecum documents the open understory, characteristic in both oak-hickory-pine and pine forest vegetation, through which he traveled, stating "There was no sign of a road, and three or four axemen went in advance. But by picking their way they did not find much chopping to do ... The woods were burned every year by the Indian hunters. So there were but few logs in our way" (Lincecum 1994). European settlers maintained the practice of burning which in association with the practice of shifting agriculture is thought to have increased the importance of pine species within this vegetation type (Skeen et al. 1993). Where natural and anthropogenic disturbances were infrequent or absent within this vegetation, complexity within the understory strata increased including the presence of subdominant trees species represented in the collection by *Diospyros virginiana* (Ebenaceae) and *Cercis canadensis* var. *canadensis* (Fabaceae), and shrubs such as *Viburnum* spp. (Caprifoliaceae), *Oxydendrum arboreum* (Ericaceae) and *Hypericum* spp. (Clusiaceae).

Grassland communities within the Southeast are found in scattered openings within forest vegetation, the grass-forb understory within dense pine forests, savannas, coastal prairies, canebrakes, and the prairie grasslands (Deselm and Murdock 1983). Jordan (Jordan 1973) states that settlers moving west in the early eighteenth century found a heterogeneous landscape in which grasslands were scattered throughout large areas of the eastern woodlands in the United States extending west into eastern Texas. In a description consistent with the post-oak savanna vegetation of east Texas, Lincecum notes "you reach the high level prarie *[sic]* spread out before the wondering eye, as large as infinity" … "all through it is scattered, here and there, at various distances, islands of timber" (Bradford and Campbell 1949). Settlers into the southeast utilized Indian "old fields," where abandoned Indian agricultural fields had developed grassland vegetation (Jordan 1973). Settlers in Texas showed a preference for grassland holdings that contained forest patches, providing both open fields for agriculture and timber for construction (Jordan 1973). The numerous "canebrakes" found alongside river courses were also highly regarded and were cleared for agriculture as a result of the rich soils on which they were found (Jordan 1973). Following settlement on the eastern banks of the Tombigbee River in Mississippi "three miles by land above present day Columbus," Lincecum recalls clearing "six acres of pretty canebrake at the mouth of the little creek" that he subsequently burned and sowed in corn according to instructions provided to him by one of his Indian acquaintances (Lincecum 1994).

The absence of members of the Poaceae in the herbarium collection reflects the infrequent medicinal use of grass species, which are more frequently utilized as a food resource (Moerman 1996). Forb species associated with grassland communities are represented in the collection by species including *Asclepias verticillata* (Asclepiadaceae), *Echinacea purpurea* (Asteraceae: Heliantheae), *Lobelia appendiculata* (Campanulaceae), *Drosera brevifolia* (Droseraceae), *Euphorbia corollata* (Euphorbiaceae), *Polygala boykinii* (Polygalaceae), and *Galium uniflorum* (Rubiaceae).

Texas flora

The flora of east Texas, particularly that of Washington County where Lincecum was resident during 1848-1874, incorporates Post-Oak savannah and Blackland prairie vegetation (Diggs et al. 1999). Lincecum documents collecting trips to San Jacinto County, which is in the Pineywoods vegetation characteristic of the most eastern region of the state. Lincecum's herbarium collection contains few species exclusive to the flora of eastern Texas that are not shared with the eastern deciduous forests and grassland communities of the southeastern flora.

Of the few species characteristic of the Texas flora only *Eriogonum longifolium* (Polygonaceae) represents vegetation characteristic to the escarpment and outcrop vegetation of the Blackland Prairie (Diggs et al. 1999). Several species in the collection reach their westernmost extreme within the Blackland prairie vegetation of central Texas including *Impatiens capensis* (Balsaminaceae), *Podophyllum peltatum* (Berberidaceae), *Hedeoma reverchonii* var. *reverchonii* (Lamiaceae), *Sassafras albidum* (Lauraceae), *Agrimonia rostellata* (Rosaceae), *Saururus cernuus* (Saururaceae), and *Vitis aestivalis* var. *lincecumii* (Vitaceae). *Onosmodium bejariense* var. *bejariense* (Boraginaceae), and *Monarda punctata var. intermedia* (Lamiaceae) are common throughout the vegetation of central Texas and reach the eastern edge of their range in the Blackland prairies. Other species characteristic of the central Texas vegetation are noticeably absent from the collection including *Diospyros texana* (Ebenaceae), *Ulmus crassifolia* (Ulmaceae), *Ilex vomitoria,* and *I. decidua* (Aquifoliaceae).

Lincecum's herbarium collection and botanic notebooks provide additional detail documenting the presence of species utilized for medicine within the flora of east Texas. In 1864 Lincecum maintained a "Catalogue of Medicinal Plants; found in Middle Texas (Indigenous)" which documents the botanic and common names of 87 species with notes on their medicinal activity to which an additional 13 entries were added in 1865 (2E365 GLC). In his "Tour Book" Lincecum also recorded a "A list of articles to be collected from the Forests of Texas" documenting 34 species, many of which were also listed in the previous "catalogue" that were available to Lincecum in Texas (2E363 GLC). Several species not found in the main herbarium collection are documented in the “catalogue” and “tour book” including *Ilex vomitoria* (Aquifoliaceae), *Sabal minor* (as *S. adansonii*) (Arecaceae), *Liatris spicata* (Asteraceae: Eupatoriaceae), *Polymnia uvedalia* (Asteraceae: Heliantheae), *Citrullus lanatus var. lanatus* (as syn. *Cucurbita citrullus*) (Cucurbitaceae), *Glottidium vesicarium* (as syn. *G. floridanum*) (Fabaceae), and *Cocculus caroliniana* (Menispermaceae).

LOCATION/COLLECTION DATES

Lincecum recorded collection locations for only ten specimens and collection dates for nine specimens in the GLH (Table 3.1). The date associated with the specimen of *Vernonia noveborensis* provides the date of the addition of ethnobotanic data in 1852, written in different ink from the original data, rather than a collection date for the specimen.

All of these specimens were collected by Lincecum himself with the exception of *Onosmodium bejariense var. hispidissimum* which was collected and forwarded to him by Horton Howard from Ohio where it is now considered rare (Kartesz 1999). The specimen of *Modiola caroliniana* (Malvaceae) is the only specimen in the collection noted as being made during Lincecum’s seven month expedition to Texas in 1835. Lincecum notes that this collection was made “west of the Colorado River” having crossed the Colorado River south of the current town of La Grange on February 21, 1835 (Bradford and Campbell 1949). The collections of *Eryngium yuccifolium* (Apiaceae), *Verbesina virginica* (Asteraceae: Heliantheae), and *Morus alba* (Moraceae) were made during the

TABLE 3.1. SPECIMENS IN THE GIDEON LINCECUM HERBARIUM CONTAINING A COLLECTION LOCATION AND/OR DATE.

Accession	Family	Taxon	Location	Date
199	APIACEAE	*Eryngium yuccifolium*		1846
91	APIACEAE	*Petroselinum crispum*	Mississippi	
132	ASTERACEAE	*Pyrrhopappus pauciflorus*	Mexico	
133	ASTERACEAE	*Verbesina virginica*		1846
35	ASTERACEAE	*Vernonia noveboracensis*		1852
215	BORAGINACEAE	*Onosmodium bejariense var. hispidissimum*	Ohio	
293	BROMELIACEAE	*Tillandsia usneoides*	Texas	1850
11	CAMPANULACEAE	*Lobelia appendiculata*	Noxuba Co, Mississippi	
48	CAMPANULACEAE	*Lobelia inflata*		1846
107	CELASTRACEAE	*Euonymus atropurpurea var. cheatumii*	Brazos, Texas	
149	LAMIACEAE	*Hedeoma reverchonii var. reverchonii*	(prairies of) Texas	Summer, 1848
147	MALVACEAE	*Modiola caroliniana*	West of the Colorado, Texas	1835
228	MORACEAE	*Morus alba*		1847
272	POLYGONACEAE	*Eriogonum longifolium*	Long Point, Texas	13 August, 1850
22	SAXIFRAGACEAE	*Heuchera americana*	Columbus, Mississippi	

period of time in which Lincecum was practicing as a botanic physician in Columbus, Mississippi. The collections of *Tillandsia usneoides* (Bromeliaceae), *Hedeoma reverchonii* var. *reverchonii* (Lamiaceae), and *Eriogonum longifolium* (Apiaceae) were made subsequent to Lincecum's settlement in Long Point, Washington County, Texas on April 22, 1848.

The limited location data provided in the collection make further analysis of the pharmacopoeia necessary to assess the geographic sources of Lincecum's collections. The limited distribution of several taxa in the pharmacopoeia provides evidence that Lincecum made collections for his herbarium during his residence in both Mississippi and Texas. Lincecum includes in his pharmacopoeia nine native taxa found in the southeast only in Mississippi, Alabama, and/or Georgia that are not found in either Texas or Louisiana: *Lobelia syphilitica var. syphilitica* (Campanulaceae), *Hedeoma pulegioides* (Lamiaceae), *Hepatica nobilis var. acuta* and *H. nobilis var. obtusa* (Ranunculaceae), and *Rubus occidentalis* (Rosaceae) which have a widespread distribution in the eastern United States and *Calycanthus floridus* (Calycanthaceae), *Trillium cuneatum f. cuneatum* (Liliaceae), *Callirhoe triangulata* (Malvaceae), and *Polygala curtisii* (Polygalaceae) which have a more restricted southeastern distribution. While these specimens do not contain collection dates or localities, it is likely based on their current distribution that they were collected before 1848, when Lincecum was a resident of Munroe Co., Mississippi. The inclusion of *Echinacea purpurea* (Asteraceae: Heliantheae) in the collection and the absence of *Echinacea angustifolia* which is more common throughout the central US (extending as far south as Texas) also suggests a collection to the east of Texas.

The presence of species found only in Texas or Louisiana is evidence that in addition to utilizing medicinal plant species known to him from the flora of Mississippi, Lincecum was incorporating new medicinal species into his pharmacopoeia following migration into the floristically distinct vegetation of Texas. Two taxa included in the collection are currently found in the southeast only in Texas: *Hedeoma reverchonii var. reverchonii* (Lamiaceae) and *Monarda* *punctata ssp. punctata var. intermedia* (Lamiaceae). Lincecum notes in the ethnobotanic data for *Hedeoma reverchonii var. reverchonii* that he made this collection in the summer of 1848 and that this species is “found abundant on the high, dry, rocky points in the prairies of Texas, as far as I am familiar between the Brazos and Colorado.” Seven taxa within the pharmacopoeia have a current distribution in the southeast only in Texas and Louisiana: *Onosmodium bejariense var. bejariense* (Boraginaceae), *Sisyrinchium langloisii* (Iridaceae), *Monarda clinopodioides* (Lamiaceae), *Scutellaria ovata var. mexicana* (Lamiaceae), *Trillium gracile f. gracile* (Liliaceae), *Phoradendron tomentosum* (Viscaceae), and *Vitis aestivalis var. lincecumii* (Vitaceae).

RARE SPECIES

Based on direct and indirect evidence that Lincecum’s collections were primarily made in Mississippi and Texas an analysis of species that are currently considered rare in the southeast and specifically in either Mississippi and/or Texas was carried out according to current distribution data provided by Kartesz (1999). Forty-four taxa (14.2%) in the collection are currently considered rare in one of the southeastern states, and 36 (11.7%) of these were utilized for medicine by Lincecum. Lincecum collected 26 taxa that are currently considered rare in Mississippi and no taxa that are currently considered rare in Texas. The absence of location data in the Gideon Lincecum Herbarium limits the possibility of reconstructing the historical distribution of the taxa in the collection; however, some interesting points regarding the distribution of these plants can be made.

The impact of wild-harvesting of useful species on population parameters and species distribution varies according to the management and harvesting techniques utilized (Alcorn 1981). Several high profile medicinal species were collected by Lincecum [*Panax quinquefolium* (Araliaceae), *Echinacea purpurea* (Asteraceae: Heliantheae), *Cypripedium parviflorum* (Orchidaceae), and *Hydrastis canadensis* (Ranunculaceae)] that are currently rare in one or more states in the southeastern United States. The recent over-harvesting of both *Echinacea purpurea* and *E. angustifolia* (Asteraceae: Heliantheae) for medicinal use has been shown to impact the distribution and abundance of these species in the wild (Kindscher 1989). Harvesting pressure on both *Hydrastis candensis* and *Panax quinquefolium* has contributed to a reduction in the abundance of both species throughout their range (van der Voort et al. 2003). Three taxa in the collection were historically present in southeastern states in which they are no longer found: *Veronicastrum virginicum* (Scrophulariaceae) and *Staphylea trifolia* (Staphyleaceae) in Louisiana, and *Callirhoe triangulata* (Malvaceae) in Alabama. *Callirhoe triangulata* and *Veronicastrum virginicum* were both utilized for medicine by Lincecum. *Veronicastrum virginicum* was included in the United States Pharmacopoeia from 1820-1840 and latter from 1864-1916 (Vogel 1970).

INTRODUCED SPECIES

Of the 309 species within the Gideon Lincecum Collection, 229 (74.1%) are native to the United States and 80 (25.9%) are exotic. The importance of introduced species in indigenous pharmacopoeias has been widely documented

(Bennett and Prance 2000, Leonti et al. 2003, Vogel 1970). Several families in the Gideon Lincecum Herbarium are represented by a large number of introduced species including Apiaceae (6 exotic/12 total species), Brassicaceae (6/6), Chenopodiaceae (2/2), Lamiaceae (17/33), Malvaceae (3/7), Moraceae (2/2), Oleaceae (2/3), Polygonaceae (4/7), Rutaceae (2/4), and Solanaceae (6/7).

Rothstein (1988) documents the extensive use of European botanical products within the colonial pharmacopoeia including products from both imported and cultivated sources. The exotic species utilized for medicine by Lincecum are in origin largely European, where they were also utilized for medicine (Brande 1839, Grieve 1974). The presence in Lincecum's pharmacopoeia of exotic species that are absent from the native or naturalized flora of the southeastern United States but were widely utilized for medicine, such as *Hyoscyamus niger* (Solanaceae), *Digitalis purpurea* (Scrophulariaceae), and *Senna italica* (Fabaceae), provides evidence that Lincecum was incorporating plant material from cultivated or external sources into his practice. Lincecum does not document the cultivation of any species in the collection; however, he had a garden adjacent to his residence in Long Point, Texas that may have provided material for medicinal preparations (J. Lincecum pers. comm. 1999). Other exotic species collected by Lincecum that are not naturalized in either Mississippi or Texas are considered to have been obtained from cultivated sources (Table 3.2).

TABLE 3.2 EXOTIC TAXA IN THE GIDEON LINCECUM HERBARIUM THAT ARE NOT NATURALIZED IN EITHER TEXAS OR MISSISSIPPI THAT ARE CONSIDERED TO HAVE BEEN CULTIVATED.

Accession #	Family	Taxa
53	ANACARDIACEAE	*Cotinus coggygria*
89	APIACEAE	*Pimpinella saxifraga var. saxifraga*
257	ASTERACEAE	*Artemisia abrotanum*
260	ASTERACEAE	*Artemisia absinthium*
266	ASTERACEAE	*Inula helenium*
115	BORAGINACEAE	*Symphytum officinale*
182	BRASSICACEAE	*Armoracia rusticana*
96	BRASSICACEAE	*Lepidium sativum*
212	CAPRIFOLIACEAE	*Viburnum opulus var. opulus*
191	FABACEAE	*Cytisus scoparius*
195	FABACEAE	*Phaseolus vulgaris*
287	FABACEAE	*Senna italica*
306	LAMIACEAE	*Dracocephalum moldavica*
164.1	LAMIACEAE	*Lavandula angustifolia*
179	LAMIACEAE	*Melissa officinalis*
166	LAMIACEAE	*Ocimum basilicum*
72	LAMIACEAE	*Salvia officinalis*
156	LAMIACEAE	*Salvia sclerea*
172	LAMIACEAE	*Thymus vulgaris*
300	LILIACEAE	*Lilium candidum*
216	MALVACEAE	*Althaea officinalis*
158	OLEACEAE	*Jasminum officinale*
81	POLYGONACEAE	*Fagopyrum esculentum*
301	POLYGONACEAE	*Rumex patientia*
55	SOLANACEAE	*Hyoscyamus niger*
78	TRAPAEOLACEAE	*Trapaeolum majus*
24	VERONICACEAE	*Digitalis purpurea*

Bennett and Prance (2000) document the extensive incorporation of plant species initially introduced for food and ornamental use into the pharmacopoeias of indigenous populations in South America. Of the introduced species within the

Gideon Lincecum Herbarium, 30.4% (24 species) are also documented by Lincecum to be utilized for food (including herbs). Species representation in the Apiaceae, Brassicaceae, and Lamiaceae reflects the large number of species in these families with both medicinal and food value, including *Pastinaca sativum* (Wild parsnip), *Brassica rapa* (Turnip) and *B. oleracea* (Collards and related vegetables), *Spinacia oleracea* (Spinach), *Rosmarinus officinalis* (Rosemary), *Salvia officinalis* (Sage), *Thymus vulgaris* (Thyme), and *Mentha x piperita* (Mint).

TAXONOMIC REPRESENTATION

Moerman's (1991) method of applying regression analysis to rank family representation within a pharmacopoeia was applied to the Gideon Lincecum Herbarium. This method utilizes the number of species per family to predict the number of medicinal species for each family in a pharmacopoeia. The divergence (as a residual) from the predicted number of species is then utilized to rank family representation within a pharmacopoeia.

The total number of species within each of the families represented in the GLH was calculated for Mississippi and Louisiana from Kartesz and Meacham (1999). The flora of Mississippi and Louisiana, as a subset of the total southeastern flora, is representative of, the flora to which Lincecum had access during his practice as a botanic physician in Mississippi and eastern Texas. The inclusion of the Texas flora for the purposes of this analysis would be misleading due to the presence of a large number of species found in western and southern

Texas that are not found in east Texas. All 96 families contained within the GLH were included in the regression analysis with the exception of Aceraceae, Droseraceae, and Staphyleaceae which were excluded based on the absence of medicinal species in these families in the GLH. The Veronicaceae was placed within the Scrophulariaceae based on the treatment of these families in Kartesz (1999). Species that may have been cultivated by Lincecum are included in the regression analysis based on their presence within Lincecum's pharmacopoeia.

The relationship between the number of medicinal species within each family represented in the Gideon Lincecum Herbarium and the total number of species in that family in the flora of Mississippi and Louisiana is represented by the linear equation $y = 0.0664x + 0.8472$ with a correlation coefficient of $r^2 = 0.8381$ (Appendix 1). The number of medicinal plant species in the GLH is strongly associated with the size of the family in the Mississippi and Louisiana floras.

The vascular plant families with the largest number of medicinal species in the Gideon Lincecum Herbarium are the Asteraceae (33 species), Lamiaceae, (28), Fabaceae (12), Apiaceae (11), Liliaceae (11) and Rosaceae (10). Eighteen families contribute over half the medicinal species in the pharmacopoeia. Families in the GLH represented by more medicinal plant species than predicted based on family size (ranked according to residuals) include: Lamiaceae (21.24), Apiaceae (5.57), Asteraceae (4.26), Liliaceae (3.71), and Malvaceae (2.90) (Table 3.3).

Plant families with similar ranking in numerous pharmacopoeias suggest that these families contain recognizable features that meet selection criteria for the presence or absence of medicinal properties. The presence of Lamiaceae, Asteraceae, and Apiaceae in the families most utilized for medicine by Lincecum is also reflected in the pharmacopoeia of the Native American Indians (Moerman 1991), the Popoluca of Mexico (Leonti et al. 2003), and communities in Kashmir (India), Korea, and Chiapas (Mexico) (Moerman et al. 1999). Moerman (1999) considers that Asteraceae and Lamiaceae represent a Holarctic component of ethnopharmacopoeia based on their importance in four out of five medicinal floras within that comparative analysis. Other families with high rankings in both Lincecum's pharmacopoeia and that of the Native American Indians (Moerman 1991) include; Polygonaceae (9^{th} out of 92 families and 21^{st} out of 232 families), Cupressaceae (13^{th} and 14^{th} respectively), Rosaceae (14^{th} and 2^{nd} respectively), Ranunculaceae (15^{th} and 4^{th} respectively), and Caprifoliaceae (18^{th} and 6^{th} respectively) (Moerman 1991).

The incorporation of species primarily introduced for food into indigenous pharmacopoeia has been recognized in South America pharmacopoeia (Bennett and Prance 2000). The extensive culinary use of species in both the Lamiaceae and the Apiaceae, many of which are introduced, may facilitate adoption of these species into the pharmacopoeia secondarily to their utilization for food. The widespread presence of volatile oils in Lamiaceae species may also provide

TABLE 3.3. FAMILY REPRESENTATION AND RANK (OF RESIDUAL) FOR THE TEN MOST AND TEN LEAST UTILIZED FAMILIES IN THE GIDEON LINCECUM HERBARIUM AND CORRESPONDING REPRESENTATION AND RANK OF FAMILIES WITHIN THE NATIVE AMERICAN INDIAN PHARMACOPOEIA. (SPECIES NUMBER IN MISSISSIPPI AND LOUISIANA FROM KARTESZ AND MEACHAM, 2003) (FAMILY RANK IN NATIVE AMERICAN PHARMACOPOEIA FROM MOERMAN ET AL., 1991) (ENTRIES MARKED '-' REPRESENT TAXA FOR WHICH NO DATA WAS AVAILABLE).

Family	# Medicinal species in the GLH	# Species in Mississippi and Louisiana	Residual	Residual rank in the GLH (91 families)	Residual rank in North America (232 families)
Lamiaceae	28	89	21.24	1	3
Apiaceae	11	69	5.57	2	9
Asteraceae	33	420	4.26	3	1
Liliaceae	11	97	3.71	4	8
Malvaceae	6	34	2.90	5	219
Rutaceae	4	5	2.82	6	52
Aristolochiaceae	4	6	2.75	7	41
Rubiaceae	6	42	2.36	8	195
Polygonaceae	6	47	2.03	9	21
Asclepiadaceae	5	34	1.90	10	22
Dryopteridaceae	1	20	-1.18	83	-
Convolvulaceae	2	36	-1.24	84	213
Clusiaceae	1	27	-1.64	85	44
Verbenaceae	1	36	-2.24	86	64
Solanaceae	2	53	-2.37	87	13
Caryophyllaceae	1	48	-3.03	88	229
Orchidaceae	1	50	-3.17	89	65
Scrophulariaceae	4	98	-3.36	90	224
Fabaceae	12	219	-3.39	91	230
Euphorbiaceae	2	70	-3.50	92	222

olfactory characteristics serving as criteria for medicinal plant selection and may contribute to their frequent utilization in the pharmacopoeias studied (Moerman 1996).

The families within the GLH whose species representation is lower than predicted based on family size (ranked according to residuals) include:

Euphorbiaceae (-3.50), Fabaceae (-3.39), Scrophulariaceae (-3.35), Orchidaceae (-3.17), and Caryophyllaceae (-3.03) (Table 3.3). The presence of Scrophulariaceae and Orchidaceae in the families least utilized for medicine by Lincecum is also documented for the pharmacopoeia of the Native American Indians (Moerman 1991), the Popoluca of Mexico (Leonti et al. 2003), and the Mestizo population of Sierra de Manantlán in Jalisco-Colima, Mexico (Benz et al. 1994). Forty-five of the ninety-two families in Lincecum's pharmacopoeia are represented by a single medicinal species. A large number of families are not represented at all within the Gideon Lincecum Herbarium. The absence of the Poaceae within the Gideon Lincecum Herbarium is consistent with other pharmacopoeia in which this family is poorly represented despite its extensive utilization for food (Leonti et al. 2003, Moerman et al. 1999). Families with low rankings in both Lincecum's pharmacopoeia and that of the Native American Indians (Moerman 1991) include the Convolvulaceae (32nd out of 92 families, 213th out of 232 families respectively), Polemoniaceae (78th and 90th respectively), and Linaceae (70th and 100th respectively), (Moerman 1991).

The results of the regression analysis performed on Lincecum's pharmacopoeia were compared with Moerman's regression analysis of the pharmacopoeia of Native American Indian (Table 3.3) (Moerman 1991). The Pearson correlation co-efficient was calculated for the residuals of the families containing medicinal species to test for a linear relationship between family representation in Lincecum's pharmacopoeia with that of the Native American

Indians of North America. The r-value obtained ($r^2 = 0.34$) supports a correlation between Lincecum's pharmacopoeia with that of the Native American Indians that is significant at $p=0.01$ (99% significance), suggesting that the importance of families ranked by medicinal species number within each of these pharmacopoeia show significant correlation. Moerman et al. (1999) suggest that four pharmacopoeia drawn from Northern Hemisphere cultures show evidence of a "Holarctic" component in family representation for medicinal plant use which, based on the significance of the correlation between Lincecum's pharmacopoeia and that of the Native American Indians, is also shared with Lincecum's pharmacopoeia.

While a correlation between the two pharmacopoeias is significant, it is surprisingly low considering that the pharmacopoeia are derived from a shared North American flora. The r-value obtained in this analysis is less than that calculated between the pharmacopoeia of Native American Indians with medicinal species utilized in Chiapas, Mexico conducted by Moerman et al. (1999), and between the pharmacopoeia of Native American Indians and that of the Popoluca Indians in Veracruz, Mexico (Leonti et al. 2003). The flora of North America from which the Native American Indian pharmacopoeia is drawn includes 263 families containing 18,697 species reflecting an expansive diversity in vegetation types across elevational, latitudinal and longitudinal ranges. The more restricted southeastern flora (Mississippi and Louisiana) is represented by 202 families containing 3,643 species (Kartesz and Meacham 1999) and represents a much more restricted diversity including floodplain, upland and grassland vegetation.

In this comparison it is important to note that Moerman's (1996) analysis of the pharmacopoeia of the Native American Indians documents 2147 medicinal plant species utilized by 123 Native North American societies and is therefore considered to be a census rather than a sample of medicinal plant use by Native American Indians. Lincecum's pharmacopoeia containing 286 medicinal plant species represents the pharmacopoeia of a single physician and must therefore be considered a sample of the total plant species utilized for medicine in the southeastern United States during the early nineteenth century. Family representation in the GLH may strongly reflect Lincecum's individualized species selection based on his floristic and medicinal knowledge utilized in his practice as a botanic physician. Lincecum's references to multiple medicinal traditions, including the pharmacopoeia of allopathic and botanic physicians, which is strongly influenced by European tradition, in addition to that of Native American Indians from the southeastern United States, is likely to influence his species selection and therefore family representation and ranking, introducing a unique ethnographic component into his pharmacopoeia that may partially explain the low correlation shared with the Native American pharmacopoeia.

The ranking of several families in Lincecum's pharmacopoeia was strikingly different to that calculated for the Native American Indians, which may indicate the influence of different medicinal traditions on resource utilization or search criteria for medicinal taxa. The ranking of the Malvaceae at fifth in the GLH does not correspond to the ranking for utilization of this family in the North American Indian pharmacopoeia where it ranks 219th (Moerman 1991). Within the Malvaceae Lincecum documents the medicinal use of six genera (*Alcea, Althaea, Callirhoe, Gossypium, Hibiscus, and Modiola*) and six species (4 native, 2 exotic) all of which are utilized for the mucilaginous properties widely documented for this family (Grieve 1974). Lincecum provides the original reference for the medicinal use of *Callirhoe triangulata* (as *Malva hederacea*) by the Choctaw within the southeastern US (Moerman 1998). Lincecum cites a "Spaniard in Texas" for the use of *Modiola caroliniana* (as *Malva caroliniana*). The utilization of the remaining four species is consistent with the medicinal use of those species within European tradition (Grieve 1974). The significance of the Malvaceae within Lincecum's pharmacopoeia as measured by its more frequent representation than would be predicted based on family size may reflect Lincecum's incorporation of introduced plant species according to European traditional use. Lincecum's references within his ethnobotanic data to allopathic medical texts which extensively utilized plant species of European origin (Osborne 1977) provides a more direct source of knowledge regarding the use of European plant species than would have been available to Native American Indians during this time.

The placement of Solanaceae at 86th in Lincecum's pharmacopoeia is inconsistent with its rank at 13th in the pharmacopoeia of the Native American

Indians. Lincecum includes six species in the Solanaceae in his pharmacopoeia however only two were utilized by Lincecum as medicinal plants. The remaining four were considered by botanic physicians, including Lincecum, to be poisonous based on their psychoactive properties (*Datura stramonium*, *Hyoscyamus niger*, *Nicotiana tabacum*, and *Solanum americanum*) and were not utilized for medicine and therefore not included as medicinal plants for the purpose of the regression analysis. The low ranking of this family in the GLH therefore partially reflects Lincecum's individual species selection influenced by his training within the botanic medical tradition.

The use of multiple species within a genus with documented medicinal properties is recorded for several genera within the Gideon Lincecum Herbarium and may contribute to the disparity in the rank of both Rubiaceae (ranked 8th in the GLH and 195th in the pharmacopoeia of the Native American Indians) and Campanulaceae (ranked 11th and 226th respectively). While an individual may utilize multiple species within a genus, the use of each of those species may be recorded as a single article resulting in the under-representation of that family in larger pharmacopoeia. In the Rubiaceae Lincecum documents the medicinal use of four species within the genus *Galium* that "are considered diuretic, diaphoretic, and deobstruent" also providing medicinal information on two other genera within the Rubiaceae. Lincecum provides the original citation for the use of *Galium pilosum* (as *Galium boreale*) and *Galium triflorum* (as *Galium asprellum*) by the Choctaw and the only citation found for the medicinal use of *Galium uniflorum*.

In the Campanulaceae Lincecum documents the medicinal use of four species within the genus *Lobelia*, stating in reference to the medicinal use of *Lobelia appendiculata,* that this species is "no doubt like all the other species of this valuable family of plants." Lincecum's use the genus *Lobelia* is consistent with the extensive use of *Lobelia inflata* by botanic physicians during the nineteenth century as an emetic.

TAXONOMIC CHANGES

As a result of this research 236 specimens (68.8%) retained the identification assigned by Lincecum. The status of these specimens is recorded in the annotated checklist to have undergone "no change." The nomenclature of 70 specimens (20.4%) was updated to currently accepted names and this change is designated as a "nomenclatural change" in the annotated checklist; that is, in these cases Lincecum's identification was correct but the correct name for this species has subsequently changed. The taxonomic identification of 67 (19.5%) specimens has changed from the original identification assigned by Lincecum; that is, Lincecum's identification was incorrect. Of these, three taxa were misidentified at the family level, three taxa at the genus level and 61 at the species level. The status of each of these specimens is designated as a "taxonomic change" in the annotated checklist. Fifty-six (16.4%) taxa whose identification has changed as a result of this research are associated with ethnobotanic data provided by Lincecum documenting their medicinal use.

Three specimens within the Gideon Lincecum Herbarium were misidentified at the family level: *Hemerocallis fulva* (Liliaceae), *Smilax herbacea* (Smilacaceae), and *Symplocos tinctoria* (Symplocaceae). The botanic specimens of *Hemerocallis fulva* and *Symplocos tinctoria* are attached to the specimen sheet, which eliminates the possibility of these specimens and their ethnobotanic data being incorrectly collated during archival curation of the collection. The botanic specimen of *Smilax herbacea* is inserted into the folded specimen sheet containing the ethnobotanic data; however, markings on the specimen sheet indicate that this is the original sheet on which the specimen was mounted. The specimens of *Hemerocallis fulva* and *Smilax herbacea* contain both vegetative and reproductive material for identification, while *Symplocos tinctoria* contains vegetative material only.

The misidentification of *Hemerocallis fulva* as *Iris tridentata* (as syn. *I. tripetala*) (Iridaceae) by Lincecum is surprising due to the distinctive morphology of the leaves and flowers of the genus *Iris*. Within the southeastern United States *Iris tridentata* is currently found as far south as Tennessee and Georgia and unless it was historically more widespread would not have been available to Lincecum when making collections in either Mississippi or Texas, whereas *Hemerocallis fulva* is found throughout the southeast (Kartesz 1999). The ethnobotanic data provided for this specimen indicates that the root of this taxon was utilized as an alterative which is "perhaps as good as *Iris versicolor*." *Iris versicolor* is included in "Botany of the Southern States" (Darby 1859) and "Manual of Botany for

North America" (Eaton 1829) and refers to what is now recognized as *Iris virginica*. The root of *Iris virginica* was considered to possess medicinal properties similar to that of *Iris versicolor* (Porcher 1869), which was utilized by Lincecum as an alterative and is documented in the ethnobotanic literature to have been utilized as a cathartic (Moerman 1998, Porcher 1869) and diuretic (Porcher 1869). No references were found in the ethnobotanic literature for the medicinal use of *Hemerocallis fulva*. Ethnobotanic data suggests that Lincecum was documenting the medicinal use of *Iris tridentata* within his pharmacopoeia and the collection of *Hemerocallis fulva* was erroneous.

Symplocos tinctoria was misidentified by Lincecum as *Laurus carolinensis,* which is reduced by synonymy to *Persea palustrus*. Both species are currently found throughout the southeastern United States extending as far north as Virginia. The ethnobotanic data for this specimen is assigned to, and consistent with, the use of the root of *Symplocos tinctoria* as a stomachic (Porcher 1869) and diaphoretic (Taylor 1940). Lincecum provides no ethnobotanic data for *Smilax herbacea* (misidentified as *Dioscorea quaternata* (Dioscoraceae)), noting only that "This is no doubt a good medicine. I have not found any one in the Seven Nations who made any use of it." Both *Smilax herbacea* and *Dioscorea quaternata* have a geographic distribution throughout the eastern United States. The Cherokee applied the powdered leaves of *Smilax herbacea* topically for the treatment of burns and an infusion is utilized as a gastrointestinal aid (Moerman

1998, Taylor 1940). The lack of ethnobotanic data for this specimen eliminates the necessity to assign medicinal activity to either taxon.

In the provision of voucher specimens associated with his ethnobotanic data Lincecum facilitated the confirmation of his original identifications and in doing so introduces a dilemma into the ethnobotanic analysis of this collection. When the current identification of the herbarium specimen differs from the botanic name Lincecum provided for that specimen (e.g., the original specimen was misidentified) which taxon does the ethnobotanic data refer to? Two potential scenarios can be established in determining the origin of Lincecum's ethnobotanic data. The first assumes that the plant material in the herbarium specimen is the taxon that Lincecum utilized for medicine, but that he subsequently misidentified this material when labeling his collection, therefore assigning the incorrect botanic name to the specimen. In this case the ethnobotanic data should correctly be applied to the taxon represented by the plant material provided in the herbarium specimen. In the second scenario Lincecum utilized for medicine the taxon referenced by the botanic name he provided for the herbarium specimen, however, he mistakenly collected material from a different taxon when preparing the herbarium specimen. In this case the ethnobotanic data should correctly be applied to the taxon whose botanic name Lincecum identified on the label of the herbarium specimen.

Current botanic convention dictates that the data provided on a herbarium label, including ethnobotanic data, is applied to the taxa represented by the plant material on the voucher specimen. Lincecum's ethnobotanic data is therefore assigned to the taxon as identified from the voucher specimen by the current author. A single exception to this convention is made in this current work. If Lincecum's original identification refers to a taxon that was historically utilized for medicine and the ethnobotanic data provided by Lincecum is consistent with the medicinal properties documented in the ethnobotanic literature, the ethnobotanic data can be consistently applied to the original taxon identified by Lincecum. This situation assumes that for these specimens Lincecum was utilizing the taxa whose botanic names he provided on the herbarium specimens (rather that the taxa represented by the voucher specimen). The correct identification, the original identification, and the taxa to which the ethnobotanic data are assigned are provided in Table 3.4. Where the ethnobotanic data provided by Lincecum are consistent with medicinal properties documented for both the taxon as determined by Lincecum and the taxon as determined by the current author the ethnobotanic data is applied to both taxa. The geographic distribution of each of the taxa is assessed to determine if the taxa identified would have been available for collection and utilization by Lincecum in Mississippi and Texas based on the current distribution of the taxon as determined by Lincecum based on current distribution according to Kartesz (1999).

TABLE 3.4. DETERMINATIONS OF THE VOUCHER SPECIMENS IN THE GIDEON LINCECUM HERBARIUM THAT WERE PREVIOUSLY MISIDENTIFIED BY LINCECUM. THE TAXON/TAXA FOR WHICH THE ETHNOBOTANIC DATA PROVIDED BY LINCECUM IS CONSISTENT WITH DOCUMENTED MEDICINAL USE IN THE ETHNOBOTANIC LITERATURE IS INDICATED BY BOLD TYPE AND REPRESENTS THE TAXA TO WHICH THE MEDICINAL PROPERTIES ARE ASSIGNED BY THE CURRENT AUTHOR

Accession	Family	Original Identification	Identification of Specimen
132	ASTERACEAE	***Apargia autumnalis***	*Pyrrhopappus pauciflorus*
242	DIASCOREACEAE	***Dioscorea villosa***	*Dioscorea quaternata*
208	DRYOPTERIDACEAE	***Asplenium angustifolium***	*Athyrium filix-femina var. asplenioides*
157	LAMIACEAE	***Lycopus europoeus***	*Lycopus americanus*
74.1	LAMIACEAE	***Lycopus virginicus***	*Lycopus rubellus*
71	LILIACEAE	***Iris tripetala***	*Hemerocallis fulva*
210.1	LILIACEAE	***Trillium sessile***	*Trillium cuneatum f. cuneatum*
307	PAEONIACEAE	***Paeonia officinalis***	*Paeonia suffruticosa*
193.1	POLYGALACEAE	***Polygala senega var. albida***	*Polygala boykinii*
190.1	POLYGALACEAE	***Polygala sanguinea***	*Polygala curtissii*
95	ROSACEAE	***Agrimonia eupatoria***	*Agrimonia rostellata*
36	ROSACEAE	***Potentilla canadensis***	*Potentilla simplex*
202	ROSACEAE	***Rosa centifolia***	*Rosa carolina*
243	SALICACEAE	***Populus balsamifera***	*Populus x jackii*
86	APIACEAE	*Chaerophyllum procumbens*	***Osmorhiza longistylis***
278	APOCYNACEAE	*Apocynum androsaemifolium*	***Apocynum cannabinum***
275	ASCLEPIADACEAE	*Asclepias phytolaccoides*	***Asclepias viridis***
40	ASTERACEAE	*Eupatorium ageratoides*	***Ageratina aromatica var. aromatica***
125	ASTERACEAE	*Gnaphalium alpinum*	***Antennaria plantaginifolia var. plantaginifolia***
130	ASTERACEAE	*Bidens pilosa*	***Bidens aristosa***
120	ASTERACEAE	*Elephantopus carolinianus*	***Elephantopus tomentosus***
127	ASTERACEAE	*Eupatorium pubescens*	***Eupatorium rotundifolium var. rotundifolium***
268	ASTERACEAE	*Helianthus hispidulus*	***Helianthus pauciflorus var. pauciflorus***
259	ASTERACEAE	*Hieracium marianum*	***Hieracium gronovii***
60	BORAGINACEAE	*Onosmodium molle*	***Onosmodium bejariense var. bejariense***
215	BORAGINACEAE	*Onosmodium hispidum*	***Onosmodium bejariense var. hispidissimum***
110	CAMPANULACEAE	*Lobelia glandulosa*	***Lobelia appendiculata***

Accession	Family	Original Identification	Identification of Specimen
28	CUCURBITACEAE	*Momordica balsamina*	***Momordica charantia***
292	ERICACEAE	*Vaccinium var. lanceolatum*	***Vaccinium corymbosum***
27	EUPHORBIACEAE	*Euphorbia pilosa*	***Euphorbia corollata var. paniculata***
188	FABACEAE	*Tephrosia elegans*	***Tephrosia onobrychoides***
232	FAGACEAE	*Castanea vesca var. americana*	***Castanea dentata***
145.1	IRIDACEAE	*Iris versicolor*	***Iris virginica***
186	IRIDACEAE	*Sisyrinchium anceps*	***Sisyrinchium langloisii***
221	JUGLANDACEAE	*Carya myristicaeformis*	***Carya alba***
175	LAMIACEAE	*Scutellaria venosa*	***Scutellaria elliptica var. elliptica***
171	LAMIACEAE	*Scutellaria laevigata*	***Scutellaria ovata ssp. mexicana***
187	MALVACEAE	*Malva hederacea*	***Callirhoe triangulata***
219	MARANTACEAE	*Calla palustris*	***Thalia dealbata***
26	OXALIDACEAE	*Oxalis stricta*	***Oxalis corniculata***
285	OXALIDACEAE	*Oxalis acetosella*	***Oxalis violacea***
6	RANUNCULACEAE	*Delphinium staphisagria*	***Delphinium carolinianum var. carolinianum***
135	RUBIACEAE	*Galium boreale*	***Galium pilosum***
136.1	RUBIACEAE	*Galium asprellum*	***Galium triflorum***
5	SYMPLOCACEAE	*Laurus carolinensis*	***Symplocos tinctoria***
90	APIACEAE	***Carum carvi***	***Daucus carota***
235.1	ASCLEPIADACEAE	***Asclepias syriaca***	***Asclepias variegata***
183	BRASSICACEAE	***Raphanus sativus***	***Raphanus raphanistrum***
113.2	CAMPANULACEAE	***Lobelia siphilitica var. obtundifolia***	***Lobelia siphilitica var. siphilitica***
20	CLUSIACEAE	***Hypericum crux-andreae***	***Hypericum hypericoides***
246	CUPRESSACEAE	***Juniperus sabina***	***Juniperus virginiana***
29	CUPRESSACEAE	***Thuja occidentalis***	***Platycladus orientalis***
150	LAMIACEAE	***Monarda bradburiana***	***Monarda clinopodioides***
73.1	LAMIACEAE	***Monarda didyma***	***Monarda fistulosa ssp. fistulosa***
303	POLYGONACEAE	***Rumex aquaticus***	***Rumex altissimus***
301	POLYGONACEAE	***Rumex britannica***	***Rumex patientia***
180	ROSACEAE	***Rubus villosus***	***Rubus argutus***
94	ROSACEAE	***Rubus strigosus***	***Rubus occidentalis***
240	RUTACEAE	***Zanthoxylum fraxineum***	***Zanthoxylum clava-herculis***
25	SMILACACEAE	***Smilax laurifolia***	***Smilax glauca***
247	SMILACACEAE	***Smilax caduca***	***Smilax laurifolia***
139	VISCACEAE	***Viscum verticillatum***	***Phoradendron tomentosum***

Lincecum provides ethnobotanic data for eight specimens in the collection whose medicinal utilization is consistent with the documented medicinal properties for both the correctly identified taxa and the one listed by Lincecum. The ethnobotanic data provided by Lincecum for *Smilax rotundifolia* (as syn. *S. caduca*) and *S. laurifolia* (Smilacaceae), *Monarda didyma* and *M. fistulosa ssp. fistulosa* (Lamiaceae), *Rumex aquaticus* and *R. altissimus* (Polygonaceae), *Rumex altissimus* (as syn. *R. britanicus)* and *R. patientia* (Polygonaceae), *Rubus canadensis* (as syn. *R. villosus*) and *R. argutus* (Rosaceae), *Rubus ideaus spp. strigosus* (as syn. *R. strigosus*) and *R. occidentalis* (Rosaceae), and *Zanthoxylum americanum* (as syn. *Z. fraxineum* and *Z. clava-herculis* (Rutaceae) can be consistently applied to either taxon according to the medicinal activity documented in the ethnobotanic literature. The restricted distributions of *Monarda didyma*, *Rumex patentia*, *Rubus canadensis*, *Rubus ideaus spp. strigosus* and *Zanthoxylum americanum* in the southeastern United States limit the availability of these species to Lincecum for collection and medicinal use, suggesting the potential of the utilization of the more widespread congeneric taxon in each case.

The ethnobotanic data associated with 12 specimens that were previously misidentified by Lincecum are consistent with the documented historical utilization of these species in the ethnobotanic literature: *Carum carvi* (Apiaceae), *Asclepias syriaca* (Asclepiadaceae), *Leontodon autumnalis* (Asteraceae: Lactuceae), *Raphanus sativus* (Brassicaceae), *Momordica balsamina* (Cucurbitaceae), *Juniperus sabina* (Cupressaceae), *Iris tripetala* (Iridaceae), *Lycopus virginicus* (Lamiaceae), *Trillium sessile* (Liliaceae), *Paeonia officinalis* (Paeoniaceae), *Polygala sanguinea* (Polygalaceae), *Agrimonia eupatoria*, *Rosa centifolia* (Rosaceae) and *Viscum verticilatum* (Viscaceae). The medicinal utilization of these species is documented in the literature of either the botanic (Howard 1833, Thomson 1835) or allopathic physicians (National Medical Convention 1831, Porcher 1869). The ethnobotanic data associated with these specimens is considered by the author to document the medical use of the original taxa listed by Lincecum according to the medicinal properties documented within the literature for those taxa. Of these taxa *Carum carvi, Leontodon autumnalis, Juniperus sabina, Paeonia officinalis, Agrimonia eupatoria, Rosa centifolia* and *Viscum verticilatum* are not naturalized in either Mississippi or Texas and would only have been available to Lincecum from cultivated or external sources. This introduces the possibility that Lincecum was utilizing a congeneric taxon present in Mississippi and Texas as a substitute for the original taxa listed.

Eleven species whose taxonomic identification has changed contain no ethnobotanic data indicating their medicinal utilization either from Lincecum or within the ethnobotanic literature. Several of these species have a limited distribution which may indicate the geographic location in which they available to Lincecum for collection and medicinal use. *Amsonia ciliata var. texana* (Apocynaceae) is currently found only in Texas and Oklahoma and *Lithospermum latifolium* (Boraginaceae) is currently found in the southeast only in Mississippi and Georgia (Kartesz 1999). *Pinus echinata*, which was misidentified by

Lincecum as *Pinus rigida*, has a more widespread distribution in the southeast than the misidentified taxon which is found in the southeast only as far west as Georgia.

NATIVE AMERICAN UTILIZATION

Eight species (2.0%) whose utilization by Native Americans (Campbell 1951, Moerman 1998) is based solely on a specimen in this collection can no longer be considered as medicinal plants because their original determinations were incorrect. The current identification of five specimens vouchers the medicinal use of taxa not previously reported in the ethnobotanic literature. The identification of the taxa to which the medicinal data is correctly applied with literature references documenting the use of the medicinal plant taxa are presented in Table 3.5.

The ethnobotanic data associated with those taxa provided within the Gideon Lincecum Herbarium have been incorrectly applied in the ethnobotanic literature. Details of the medicinal utilization of *Osmorhiza longistylis* have been incorrectly applied to *Chaerophyllum procumbens* (Campbell 1951, Moerman 1998); *Ageratina aromatica var. aromatica* has been incorrectly applied to *Ageratina altissima var. roanensis* (Moerman 1998); *Prenanthes autumnalis* has been incorrectly applied to *Nabalus asper* (Campbell 1951) and *Prenanthes aspera* (Moerman 1998); *Tephrosia onobrychnoides* has been incorrectly applied to *T. hispidula* (as syn. *T. elegans*) (Campbell 1951, Moerman 1998); *Callirhoe*

TABLE 3.5. TAXA IN GIDEON LINCECUM HERBARIUM UTILIZED BY NATIVE AMERICAN INDIANS THAT WERE PREVIOUSLY MISIDENTIFIED BY LINCECUM AND INCORRECTLY REPORTED AS MEDICINAL PLANTS.

Accession	Family	Original identification by Lincecum	Correct identification of specimen	Ethnobotanic source cited by Lincecum	Taxon with ethnobotanic activity
86	APIACEAE	*Chaerophyllum procumbens*	*Osmorhiza longistylis*	Chickasaw	*Osmorhiza longistylis* (Moerman, 1998)
40	ASTERACEAE	*Eupatorium ageratoides*	*Ageratina aromatica*	Choctaw, Chickasaw	*Ageratina aromatica* (new species utilized, GLH)
254	ASTERACEAE	*Prenanthes virgata*	*Prenanthes autumnalis*	Choctaw (Alikchi chito)	*Prenanthes autumnalis* (new species utilized, GLH)
188	FABACEAE	*Tephrosia elegans*	*Tephrosia onobrychoides*	Native American Indians (group not specified)	*Tephrosia onobrychoides* (new species utilized, GLH)
187	MALVACEAE	*Malva hederacea*	*Callirhoe triangulata*	Choctaw	*Callirhoe triangulata* (new species utilized, GLH)
135	RUBIACEAE	*Galium boreale*	*Galium pilosum*	Choctaw	*Galium pilosum* (new species utilized, GLH)
136.1	RUBIACEAE	*Galium asprellum*	*Galium triflorum*	Choctaw	*Galium triflorum* (Moerman, 1998)
5	SYMPLOCACEAE	*Laurus carolinensis*	*Symplocos tinctoria*	Creek (Muskogee), Indians of Southeast	*Symplocos tinctoria* (Porcher, 1869; Taylor, 1940)

triangulata has been incorrectly applied to *Sida hederacea* (Campbell 1951) and *Malvella leprosa* (Moerman 1998); *Galium boreale* has been incorrectly applied to *G. pilosum* (Campbell 1951, Moerman 1998); *Galium asprellum* has been incorrectly applied to *Galium tinctorium* (Campbell 1951, Moerman 1998); and *Symplocos tinctoria* has been incorrectly applied to *Persea pubescens* (Campbell

1951), and *Persea palustrus* (Moerman 1998). The ethnobotanic data associated with *Eryngium yuccifolium* has been incorrectly applied to the nomenclatural synonym *E. aquaticum* (Campbell 1951, Moerman 1998). *Prenanthes autumnalis* has been incorrectly applied to the nomenclatural synonym *Nabalus asper* (Campbell 1951, Moerman 1998).

NOMENCLATURE

The nomenclature of 76 (22.1%) of the specimens in the collection was updated to reflect modern taxonomic changes and synonymy. Lincecum cites Eaton's "Manual of Botany for North America," 7th edition (1836) and Darby's "Botany of the Southern States" (ed. not specified) as the references for his taxonomic identifications and nomenclature. The scientific names provided in the collection were largely consistent with these sources. The Native American Indian names of six species were documented by Lincecum including four Choctaw names and two Chickasaw names. Translations of the names were provided by Campbell (1951) and assessment of the accuracy of the names transcribed by Lincecum is ongoing (Austin in press).

Lincecum provides new Latin names for two taxa in the collection (neither of which he published) that he considered had not previously been described due to their absence from the floras of Eaton (Eaton 1829) or Darby (Darby 1859). Lincecum collected *Eriogonum longifolium* (Polygonaceae) on August 13, 1850, in Long Point, Texas, and described the morphological characters of this species which he named *Ambesus villosus*. Lincecum states "This plant has not as yet been incorporated in any of the botanic books. It is the only indigenous (indigenous) plant, belonging to the 3rd order of the 9th class, known in the United States." This description was never effectively published by Lincecum. Thomas Nuttall legitimately published a description of *Eriogonum longifolium* in the Transactions of the American Philosophical Society in 1837. Lincecum considers a second specimen in the collection to represent a new species and proceeded to name the species *Lobelia glabra*. In the ethnobotanic data associated with this specimen Lincecum states "This is a new species, and possesses (represents) no doubt a valuable medicine. Not being able to find this species noticed in any work on the subject I have ventured to give it a name." This specimen is correctly identified as *Lobelia appendiculata* (name published in DC. Prod. vii. 376 by de Candolle) rather than *Scaevola glabra* (syn. *Lobelia glabra*), that is a Hawaiian endemic. Finally Lincecum notes what he considers the incorrect placement by Eaton of *Gentiana saponaria* (Gentianaceae) within the artificial class and order system of Linnaeus. Eaton places this species in Pentandria/Digynia based on the presence of 5 free stamens and 2 stigmas, whereas Lincecum believed incorrectly that it should be placed in Syngenesia/Polygamia which would require the presence of connate anthers and imperfect flowers (Rendle 1956).

Lincecum does not provide the authority citation for the taxa in the collection, which at times renders analysis of synonymy difficult. Synonymy of taxa had to be established without the ability to limit that synonymy to those taxa with a particular authority citation. The assessment of nomenclatural synonymy therefore included all authority citations for a taxon. The nomenclature of the following taxa provides an example of the treatment of synonyms within this collection.

Lincecum included *Polygonatum biflorum* (Walter) Elliott (Liliaceae) in the herbarium which he determined as *Polygonatum multiflorum* (as syn. *Convallaria multiflorum*). *P. multiflorum* (L.) Allioni is an exotic species which is present in North America only in eastern Canada (Kartesz 1999). The reference to *P. multiflorum* L. in the southern flora by Darby (1859) and Eaton (1829) is not consistent with the current circumscription of these species (see Utech 2002) and correctly refers to *P. biflorum*. For the purpose of this research this situation is considered a "nomenclatural change" since Lincecum utilized botanic nomenclature that was consistent with the historical treatment of the species as referenced within the "Botany of the Southern States" (Darby 1859) and Manual of Botany for North America (Eaton 1829); however, from the ethnobotanical viewpoint, this is a taxonomic change since medicinal activity is being ascribed to a different species. Lincecum also misidentified *Rubus argutus* Link (Rosaceae) as *Rubus villosus* in the collection. *Rubus villosus* Aiton is an illegitimate name described by Aiton in Hortus Kewensis in 1784 (Missouri Botanical Garden 2004). For the purpose of this research this is considered a "nomenclatural change" as Lincecum's use of *Rubus villosus* may reflect the erroneous use of this taxon in early botanical and ethnobotanical references (Darby 1859, Eaton 1829, Howard 1833, National Medical Convention 1831, Porcher 1869).

Lincecum identified four specimens to genus only including specimens that are in the present work correctly identified as *Eupatorium serotinum* (Asteraceae: Eupatorieae), *Helenium autumnale* (Asteraceae: Heleniae), *Vaccinium corymbosum* (Ericaceae), and *Melia azedarach* (Meliaceae). Lincecum misidentified the specimen of *Vaccinium corymbosum* as *Vaccinium* var. *lanceolatum* for which he provides no specific epithet; however his identification is most likely referring to *Vaccinium myrsinitis* var. *lanceolatum,* known by the common name whortleberry that Lincecum provides with his identification. Seven specimens identified by Lincecum only by their common name were identified for the first time including; Red Osier (*Acer spicatum,* Aceraceae), Green Osier (*Cornus alternifolia,* Cornaceae), Sweat Root (*Orbexilum pedunculatum,* Fabaceae), Lemon Balm *(Dracocephalum moldovica,* Lamiaceae), Wild Lemon Balm (*Hedeoma reverchonii var. reverchonii,* Lamiaceae), Bitney or Bitany (*Salvia lyrata,* Lamiaceae), and Birthwort (*Trillium cuneatum,* Liliaceae). Three specimens including a piece of fabric woven from "Cocoa Palm" remain unidentified at this time.

ORIGIN OF THE GIDEON LINCECUM HERBARIUM

Previous authors conducting research on the Gideon Lincecum Collection have provided limited insight into the origin of the specimens within the Gideon Lincecum Herbarium. Lincecum states that during the time he spent learning medicinal plant use from the Choctaw man, Alikchi chito, in Mississippi he preserved botanic specimens of the plant species utilized and took a written description of the medicinal use of the plants in the Choctaw language (Lincecum 1904). Campbell (1951) states that this collection is not among the Lincecum manuscripts and the existence of this collection is unknown to the living descendants of Lincecum. Lincecum's biographer Burkhalter (1965) states that during the Civil War Lincecum compiled a list of eighty-five botanic remedies entitled "The Moccasin Tracks, or Home Medicines for Home Diseases," samples of which were published as letters to the editor of the Houston Tri-Weekly Telegraph. The editor of this newspaper, Edward Cushing, encouraged Lincecum to publish the manuscripts as a book, a project which Lincecum considered too labor intensive for someone of his age and that the conclusion of the Civil War rendered unlikely. Burkhalter published what she considered to be excerpts from the manuscript of "Moccasin Tracks" that were derived from the ethnobotanic data associated with the herbarium specimens in the Gideon Lincecum Herbarium.

An investigation of the entire Gideon Lincecum Collection identified the following materials that contribute additional information on the origin of the Gideon Lincecum Herbarium:

1. The herbarium specimens of *Verbesina virginica* (Asteraceae: Astereae), and *Gentiana saponaria* (Gentianaceae) in the Gideon Lincecum Herbarium that provide the ethnobotanic data documenting the medicinal use of these species (hereafter referred to as *herbarium specimens*).

2. Handwritten notes collated with the herbarium specimens of *Verbesina virginica* and *Gentiana saponaria* in the Gideon Lincecum Herbarium that provide a botanic description of the corresponding species (hereafter referred to as *botanic notes*),

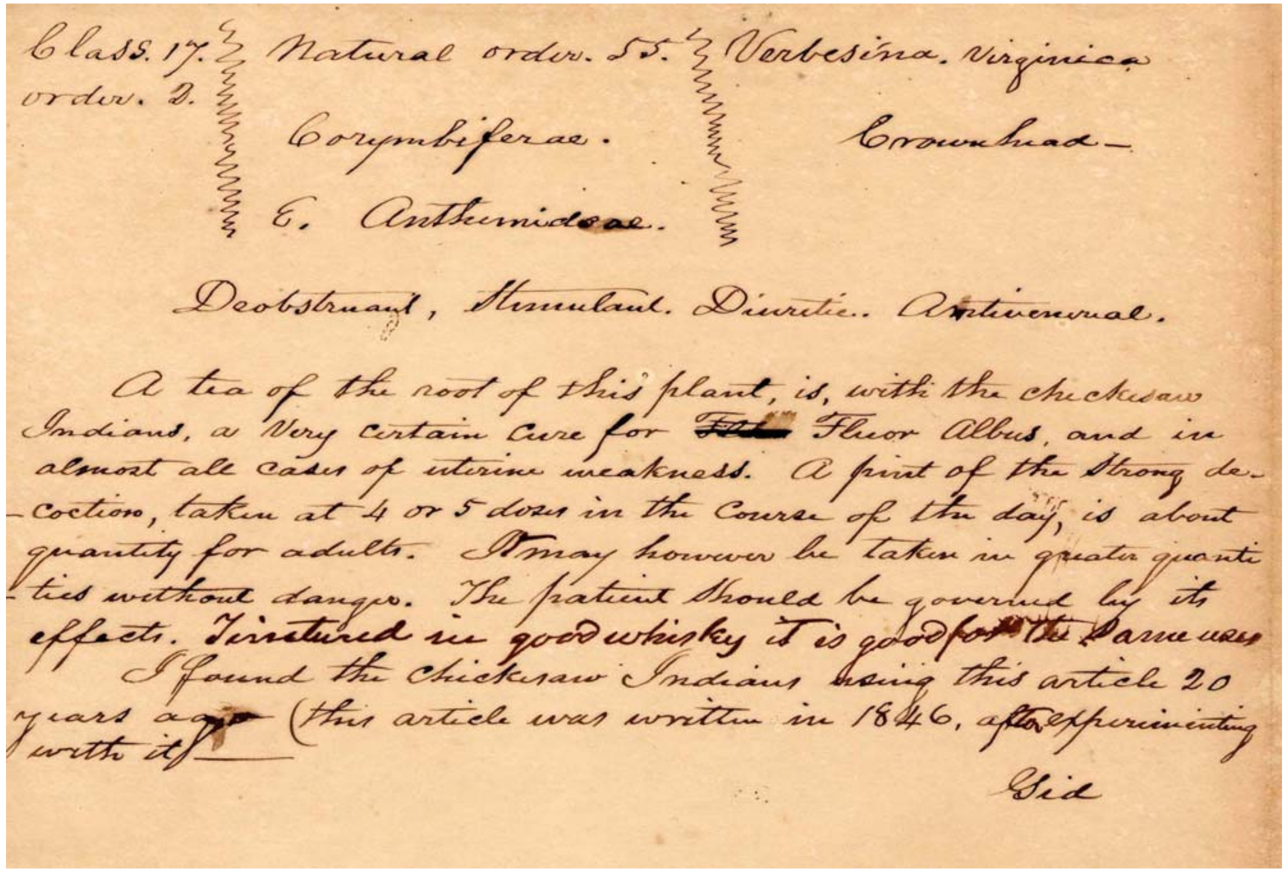
3. Handwritten manuscripts in the Gideon Lincecum Collection (2E366 GLC) that are not associated with herbarium specimens that provide botanic and ethnobotanic descriptions of *Martynia louisianica* (as syn. *Martynia proboscidea)* (Pedaliaceae)*, Verbesina virginica*, *and Argemone mexicana* var. *albiflora* (Papaveraceae) (hereafter referred to as *manuscripts*).

4. A letter to the editor of the Houston Tri-Weekly Telegraph published on December 21, 1864 that provides a botanic and ethnobotanic description of *Ptelea trifoliata* (Rutaceae) (hereafter referred to as the *newspaper article*).

I here provide the herbarium specimen (Figure 3.2), Lincecum's botanic note (Figure 3.3), and the manuscript (Figure 3.4) for *Verbesina virginica* for comparison of these documents.

Where a botanic description is contained in the above documents Lincecum classified the species according to the artificial class and order system of Linnaeus and each of the formats share a layout style for the taxonomic identifications and common names provided. The botanic note that is collated with the herbarium specimen of *Verbesina virginica* classifies a taxon in the class "Syngenesia" and order "Polygamia superflua" that is otherwise identified only by the common name Purple stem (Figure 3.3). The botanic description provided is consistent with the morphology of *Verbesina,* although the leaves of *V. virginica* are usually ovate rather than lanceolate. *Verbesina* was classified within the artificial system of Linnaeus into the seventeenth class (Syngenesia) and second order (Polygamia superflua) (Eaton 1829). Reference to the common name Purple stem was not found for *Verbesina*. The botanic description of *Verbesina virginica* contained in the botanic note is consistent with, although not identical to, the botanic description found in the corresponding manuscript. The ethnobotanic detail associated with the herbarium specimen of *Verbesina virginica* is likewise consistent with, but not the same as, the ethnobotanic provided in the manuscript for that species.

The botanic note for *Gentiana saponaria* appears to be written in the same ink and on the same type of paper as the botanic note for *Verbesina virginica* which is distinct from the ink and specimen sheets that Lincecum utilized for the herbarium specimens within the Gideon Lincecum Herbarium. Neither the botanic notes nor the herbarium specimens are dated, but the different stationary utilized suggests that these documents were produced by Lincecum at different times. The only other botanic description in the Gideon Lincecum Herbarium similar to that found in the botanic notes accompanies the herbarium specimen of *Eriogonum longifolium* (Polygonaceae). This specimen, that Lincecum collected and described as *Ambesus villosus* on August 18, 1850, in Long Point, contains a botanic description of the plant in addition to the ethnobotanic description that was written on the underside of the specimen sheet and resulted from Lincecum's



Class. 17. Order. 2. Natural order. 55. Corymbiferae. E. Anthemideae. Verbesina. virginica Crownhead—

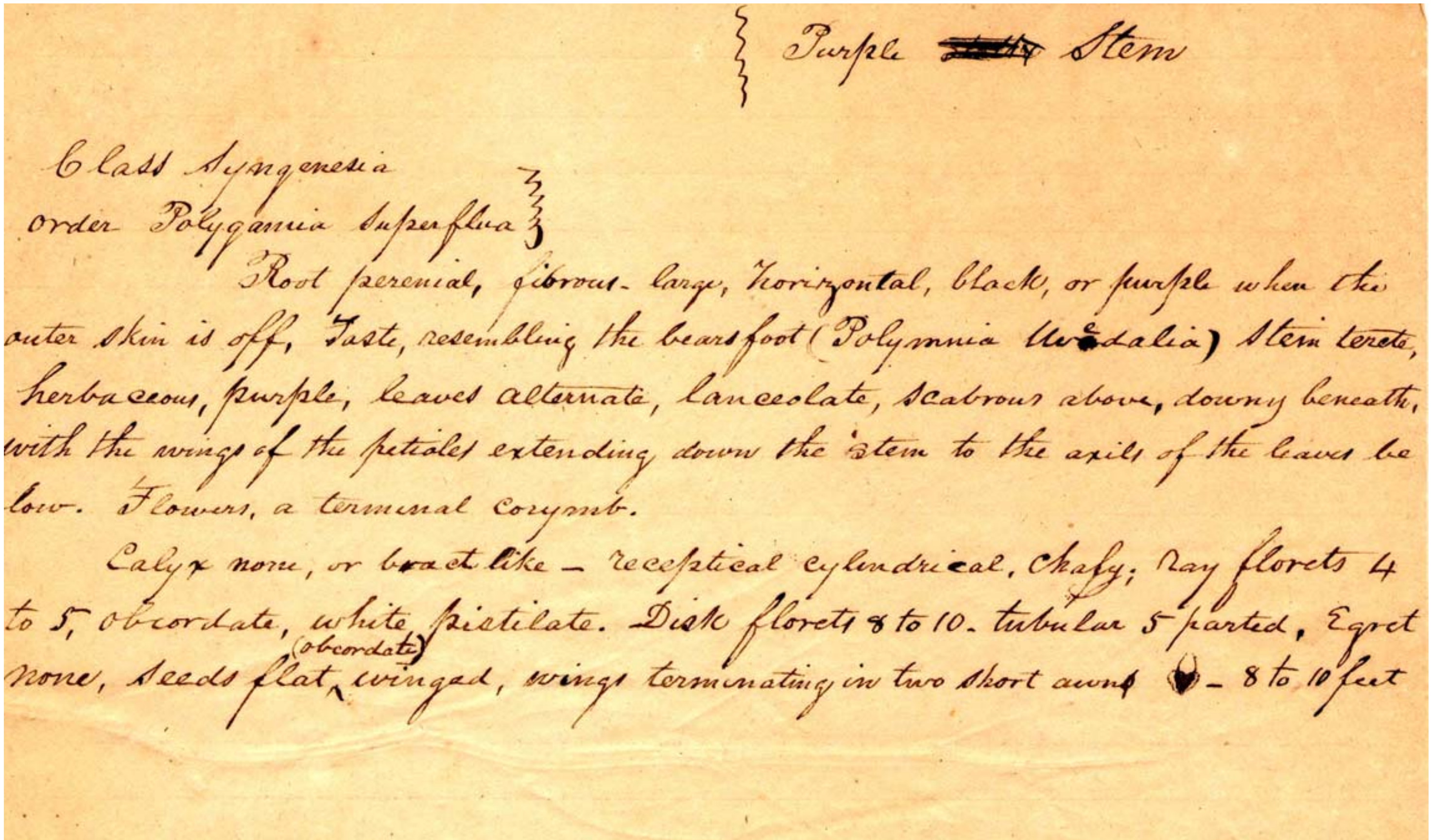
Deobstruant, Stimulant. Diuretic. Antivenerial.

A tea of the root of this plant, is, with the Chickasaw Indians, a Very certain Cure for Fluor Albus, and in almost all cases of uterine weakness. A pint of the strong decoction, taken at 4 or 5 doses in the Course of the day, is about quantity for adults. It may however be taken in greater quantities without danger. The patient should be governed by its effects. Tinctured in good whisky it is good for the same uses

I found the Chickasaw Indians using this article 20 years ago (this article was written in 1846, after experimenting with it)

Gid

FIG. 3.2. HERBARIUM SPECIMEN CONTAINING ETHNOBOTANIC DATA FOR VERBESINA VIRGINICA IN THE GIDEON LINCECUM HERBARIUM (GIDEON LINCECUM COLLECTION (1821-1933), THE CENTER FOR AMERICAN HISTORY, THE UNIVERSITY OF TEXAS AT AUSTIN).

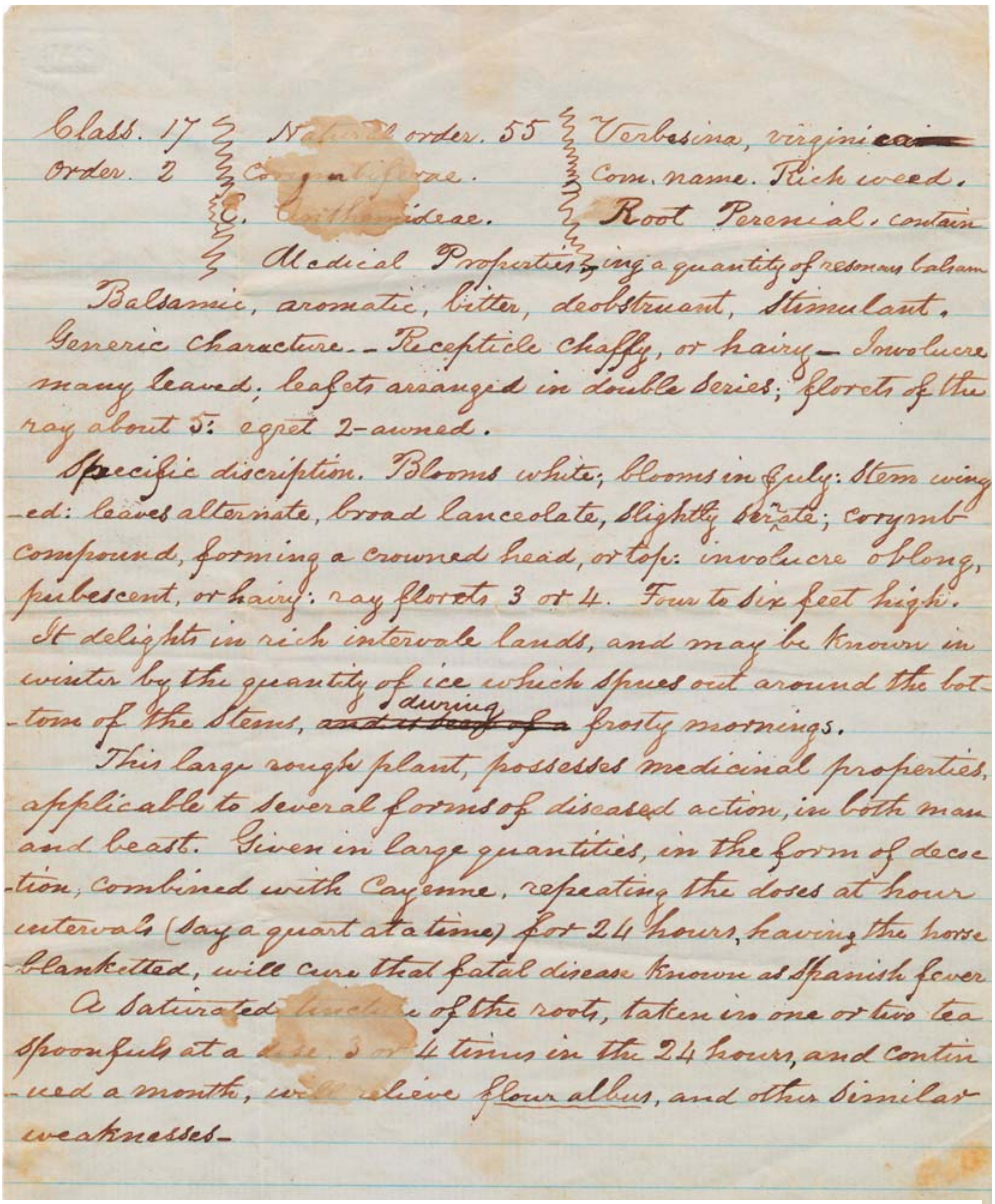

Purple ~~stalk~~ Stem

Class Syngenesia
order Polygamia Superflua

Root perenial, fibrous- large, horizontal, black, or purple when the
outer skin is off, Taste, resembling the bearsfoot (Polymnia Uvedalia) Stem terete,
herbaceous, purple, leaves alternate, lanceolate, scabrous above, downy beneath,
with the wings of the petioles extending down the stem to the axils of the leaves be
low. Flowers, a terminal corymb.

Calyx none, or bract like – receptical cylindrical, chafy; Ray florets 4
to 5, obcordate, white, pistilate. Disk florets 8 to 10. tubular 5 parted, Egret
none, Seeds flat, (obcordate) winged, wings terminating in two short awns – 8 to 10 feet

FIG. 3.3. HANDWRITTEN NOTE CONTAINING BOTANIC DESCRIPTION OF "PURPLE STEM" IN THE GIDEON LINCECUM HERBARIUM (GIDEON LINCECUM COLLECTION (1821-1933), THE CENTER FOR AMERICAN HISTORY, THE UNIVERSITY OF TEXAS AT AUSTIN).



Class. 17 Natural order. 55 Verbesina, virginica
Order. 2 Corymbiferae. Com. name. Rich weed.
E. Anthemideae. Root Perenial, contain-
Medical Properties ing a quantity of resinous balsam
Balsamic, aromatic, bitter, deobstruant, Stimulant.
Generic Characture.- Recepticle chaffy, or hairy - Involucre many leaved, leafets arranged in double series; florets of the ray about 5: egret 2-awned.
Specific discription. Blooms white; blooms in July: Stem winged: leaves alternate, broad lanceolate, slightly serrate; corymb compound, forming a crowned head, or top: involucre oblong, pubescent, or hairy: ray florets 3 or 4. Four to six feet high. It delights in rich intervale lands, and may be known in winter by the quantity of ice which spues out around the bottom of the Stems, ~~and it being of a~~ during frosty mornings.
This large rough plant, possesses medicinal properties, applicable to several forms of diseased action, in both man and beast. Given in large quantities, in the form of decoction, combined with Cayenne, repeating the doses at hour intervals (say a quart at a time) for 24 hours, having the horse blanketted, will cure that fatal disease known as Spanish fever. A Saturated tincture of the roots, taken in one or two tea spoonfuls at a dose 3 or 4 times in the 24 hours, and continued a month, will relieve flour albus, and other similar weaknesses-

FIG. 3.4. MANUSCRIPT CONTAINING BOTANIC DESCRIPTION AND ETHNOBOTANIC DATA FOR VERBESINA VIRGINICA IN THE GIDEON LINCECUM COLLECTION (GIDEON LINCECUM COLLECTION (1821-1933), THE CENTER FOR AMERICAN HISTORY, THE UNIVERSITY OF TEXAS AT AUSTIN).

erroneous belief that this species had not previously been described in the botanic literature.

I consider it likely that the herbarium specimens and the ethnobotanic data associated with them were the result of early work by Lincecum carried out largely during 1835-1850, the period indicated by the dates associated with some specimens. The provision of solely ethnobotanic data for these specimens may reflect Lincecum's focus on the medicinal use of the plant species in his early practice of as a botanic physician during the development of his interest in systematic botany.

I further suggest that the handwritten manuscripts that are archived in the Gideon Lincecum Collection, containing both botanic and ethnobotanic descriptions for the three species listed, may have been compiled as part of the work in progress that Lincecum refers to as "The Moccasin Tracks, or Home Medicines for Home Diseases" of which the newspaper article in the Houston Tri-Weekly Telegraph describing *Ptelea trifoliata* is an example. It was only in Texas that Lincecum had the time to devote extensive energy to botanic (and other natural history) and collections where he had the time and the knowledge to provide the botanic descriptions found in the manuscripts noted. The additional *botanic notes* represent separate works by Lincecum which may have been inserted with the herbarium specimens during curation of the collection. These notes may also represent notes completed by Lincecum in the preparation of "The

Moccasin Tracks, or Home Medicines for Home Diseases." The additional notes provided by Lincecum in his Botanic Notebooks (2E365 GLC) may indicate other species for which botanic descriptions were prepared.

CONCLUSIONS

As an early ethnobotanic collection, the Gideon Lincecum Herbarium represents a valuable collection documenting the medicinal use of plants in the southeastern United States during the nineteenth century. Lincecum's identifications of the herbarium specimens are largely accurate and consistent in taxonomy and nomenclature with the early floras that he utilized as references. That Lincecum had extensive knowledge of the flora from which he obtained medicines is evident in the size of the collection, the broad taxonomic representation of the specimens, and the accuracy of his identifications. The collections largely contain both vegetative and reproductive material, facilitating botanic identification, and therefore few specimens remain unidentified at this time.

The contribution of the Gideon Lincecum Herbarium to the early description of the southern flora is limited due to the absence of collection location and dates on the specimens within the collection. The few location data provided and the floristic composition of the collection show that Lincecum collected plant specimens for incorporation into the collection in both Mississippi and Texas during the period when he was practicing as a physician from 1830-1868. One can only regret Lincecum's oversight in not documenting the locations and dates of his collections for their potential contribution to the reconstruction of the flora of the southeast during increasing Euro-American settlement in the nineteenth century. This may reflect the Lincecum's recent acquisition of botanic knowledge and his interest in their medicinal application rather than strictly a floristic focus of his work.

During his residence in Mississippi, Lincecum worked full time as a physician in a busy and successful practice. However, following his move to Texas he had handed over responsibility for the medical practice to his sons and was himself working and studying as a naturalist. The majority of Lincecum's manuscripts within the Gideon Lincecum Collection were written during the period of his residence in Long Point, Texas (Burkhalter 1965), which may reflect an increase in the time available to Lincecum that would be required for the production of these manuscripts. Evidence of a shift in focus can be observed in the herbarium collection in the notes containing ethnobotanic data that accompany the specimens. I suggest that the specimens in the collection accompanied solely by ethnobotanic data were made during Lincecum's practice as a physician in his residence in Mississippi and during the early period of his residence in Texas. Additional sheets in the collection in which Lincecum provides a botanic description of the species were more likely made following his "retirement" from active medical practice in Long Point, Texas. It was during this time that he would have had the time and botanic skills necessary for the production of the detailed species descriptions. These additional sheets in the collection may represent manuscripts from the “Moccasin Tracks for 1864 or Home Medicines for Home Diseases” which Lincecum was working on prior to and during the Civil War.

CHAPTER 4

Ethnobotanic Analysis of the Gideon Lincecum Herbarium

Despite the broad geographic and cultural range of case studies documenting the use of plants by cultures including indigenous, subsistence, and non-traditional societies, comparative analyses of plant usage remain scarce within the ethnobotanic literature (Phillips and Meilleur 1998) (see Moerman 1990, 1999, Ankli et al. 1999, Leonti et al. 2003, Leporatti and Ivancheva 2003 , Phillips and Meilleur 1998 as notable exceptions). The qualitative rather than quantitative nature of early ethnobotanic research and the diversity within the cultures studied produces heterogeneity in the ethnobotanic data collected and impedes comparative analyses of ethnobotanic data across cultures. The introduction of standards for ethnobotanic databases (Cook 1995) and the increasing use of databases that are able to handle large quantities of data provide tools for the collection of standardized ethnobotanic data that can be incorporated into comparative analyses. Such analyses allow ethnobotanic case studies to be considered within their wider geographic and cultural contexts and may provide important information regarding the development of pharmacopoeia over time and the transmission of ethnobotanic knowledge within and between cultures (Moerman et al. 1999).

The incorporation of ethnobotanic data from historical manuscripts into comparative analysis requires careful consideration regarding the accuracy of the data contained within such documents (Duffy 1958). Early historical manuscripts documenting medicinal plant use frequently provide only the common name of the plant species utilized, precluding conclusive identification of the plant taxa for inclusion in comparative analyses (see, for instance, Vogel 1970 for a discussion of the application of the common name Cohosh). Detail of the preparation and administration of medicinal articles can vary widely, limiting the comprehensive analysis of medicinal plant use to those taxa for which adequate data is provided. Rather than documenting the origin of the medicinal use of a plant taxon, historical documents are an early written description of the medicinal use of a taxon by a particular cultural group or tradition. Lloyd (1911) notes in reference to the medicinal use of *Cypripedium pubescens* (Orchidaceae) that "to give the references necessary to its American record would cite all the domestic writers on American medicine in the nineteenth century." Official recognition of the medicinal use of the taxon, i.e., for inclusion in the United States Pharmacopoeia, may occur long after the medicinal use of the species is widespread within allopathic or botanic medical practice.

While determination of the origin of ethnobotanic plant use remains problematic, the presence of medicinal plant species in multiple pharmacopoeias can provide interesting insight into medicinal plant use (Bennett and Prance 2000, Leporatti and Ivancheva 2003, Taylor 1940). Plant taxa shared between multiple pharmacopoeias may be the result of a shared origin of ethnobotanic knowledge, transmission of ethnobotanic knowledge between cultural groups, independent investigation and discovery of plant taxa drawn from a shared flora, or independent investigation and discovery of plant taxa drawn from distinct floras. Exchange of medicinal plant taxa between the pharmacopoeia of different medicinal traditions in the United States during the nineteenth century has been documented, including the incorporation of taxa from European pharmacopoeia into both the official United States Pharmacopoeia (Rothstein 1972) and the Native American pharmacopoeia (Duffy 1958, Vogel 1970), and the incorporation of taxa from the Native American pharmacopoeia into that of allopathic and botanic physicians (Cowen 1983, Duffy 1958, Vogel 1970).

The ethnobotanic analysis that was carried out as part of this research serves as the basis for an assessment of Lincecum's pharmacopoeia within the cultural and floristic framework of his work as a botanic physician in the southeastern United States during the nineteenth century. This analysis quantifies the number of medicinal plant taxa in Lincecum's pharmacopoeia that are shared with other pharmacopoeia within the southeastern United States to assess the integration of ethnobotanic sources within Lincecum's practice. Manuscripts in the Gideon Lincecum Collection and references in the Gideon Lincecum Herbarium establish potential sources for Lincecum's ethnobotanic knowledge including allopathic and botanic texts and first hand contact with the Choctaw, Chickasaw, and Creek Indians (Burkhalter 1965, Lincecum 1994, Wolfe 1993).

The efficacy of species utilized for medicine by Lincecum was not assessed within this study. Further research would identify the species within the collection that have been the subject of detailed pharmacological research.

DEVELOPMENT OF A NORTH AMERICAN PHARMACOPOEIA

Documentation of the use of native species for medicine in North America reflects English, French, and Spanish settlement and the chronology of early contact between Euro-American settlers and Native Americans. Throughout the eighteenth century physicians in the early British and French colonies, many of whom had received a formal medical training in Europe, maintained their reliance on traditions and medicinal articles imported from Europe (Cowen 1983, Duffy 1958, Osborne 1977, Rothstein 1972, Vogel 1970). The extent of physicians' reliance on European remedies during this period was such that the German physician-botanist Schopf (1911), in his book "Travels in the Confederation, 1783-1784" stated, "It is to be wished that the physicians of America […] may also have a patriotic eye to the completer knowledge of their native *materia medica*. It betrays an unpardonable indifference to their fatherland to see them making use almost wholly of foreign medicines, with which in large measure they might readily dispense, if they were willing to give their attention to home-products." Early medical references available to physicians during this time documenting medicinal plant use were largely based on English publications (Cowen 1983) including translations of the London Pharmacopoeia, the Edinburgh New Dispensatory and American publication of Nicholas Culpepper's

"The English Physician" (published in London in 1652 and in Boston in 1708) (Cowen 1983).

Lincecum utilized several taxa consistent with their medicinal properties and applications within European medicinal practice. The presence of a species in the European pharmacopoeias does not in itself mean that that species is of European origin, since numerous taxa in these pharmacopoeias are native to the New World, including *Sassafras albidum* (Sassafras) (documented in the London Pharmacopoeia as early as 1618), and *Nicotiana tabacum* (Tobacco) (introduced into England in 1586 although not official in the British Pharmacopoeia until 1885 (Grieve 1974)), and *Aristolochia serpentaria* (Virginia snakeroot) (introduced into the London Pharmacopoeia in 1650 (Millspaugh, [1892]1974), that were introduced into medical practice from as early as the seventeenth century. On the other hand, the large number of species in Lincecum's pharmacopoeia the medicinal use of which has been documented within Old World medicinal practices (including Roman, Greek, Anglo-Saxon, Chinese, and Persian) such as *Leontodon taraxacum* (Asteraceae: Lactuceae), *Sinapis alba* (Brassicaceae), *Senna* (Fabaceae), *Leonurus cardiaca* (Lamiaceae), *Melissa officianalis* (Lamiaceae), *Rosmarinus officinalis* (Lamiaceae), *Linum usitatissimum* (Linaceae), *Rosa centifolia* (Rosaceae), *Ruta graveolens* (Rutaceae), and *Verbascum thapsus* (Scrophulariaceae), clearly shows that many species of European origin were incorporated.

At the end of the eighteenth century an increasing independence from Europe was reflected in the North American practice of medicine resulting in an increasing investigation of medicinal articles available within the North American flora (Vogel 1970, Wilson 1959). The formal education of physicians and botanists, particularly those trained within European institutions, provided the skills and knowledge necessary for independent investigation into the medicinal properties of the North American flora resulting in the extensive incorporation of medicinal plant taxa into the American materia medica (Cowan et al. 1981). In the second half of the eighteenth century Philadelphia developed as the center for research and teaching in medical botany (Vogel 1970) supported by the establishment of a medical school faculty at the University of Pennsylvania in 1769 (Rothstein 1972). An increasing number of publications during this time documented the medicinal use of taxa in the North American flora (both exotic and indigenous taxa), including the work of Benjamin Barton (1766-1815) entitled "Collections for an Essay towards a Materia Medica" and that of Jacob Bigelow M. D. (1787-1872), who was the author of the three-volume classic "American Medical Botany, Being a Collection of the Native Medicinal Plants, Concerning their Botanical History and Chemical Analysis, and Properties and Uses in Medicine, Diet, and the Arts, with Coloured Engravings" published in 1817, 1818 and 1820 (Gifford 1978). Such medico-botanical literature incorporated plant taxa according to Native American Indian medical practice, inconsistently providing citations to the Native American Indian tribes for this knowledge (Cowen 1983). The first official "Pharmacopoeia of the United States of America" was published in 1820, containing a materia medica documenting official preparations that were considered standard remedies along with a secondary list of medicinal substances whose use was widespread but not consistently applied (National Medical Convention 1831).

Publications from the late eighteenth century and early nineteenth century documenting medicinal plant use by Native America Indians strongly reflect the cultural beliefs of the author in their assessment of the efficacy of the medicines documented (Cowen 1983, Duffy 1958, Vogel 1970). Cultural differences between the early explorers and the indigenous populations in disease and drug classification and the role of ritual in indigenous medical practice may have limited the acceptance of indigenous medicinal knowledge by early Euro-American physicians (Duffy 1958). The prominent physician Benjamin Rush (1774) provides an example of the culture that was widespread within the medical profession during this time when he stated that "We have no discoveries in the materia medica to hope for from the Indians of North-America. It would be a reproach to our schools of physic if modern physicians were not more successful than the Indians, even in the treatment of their own diseases." The impact of the Native American Pharmacopoeia on the official Pharmacopoeia of the United States was therefore limited by early investigator's disregard for the medical knowledge and techniques of Native American Indians (Cowen 1983).

Historical accounts of medicinal use drawn from observations within one or a few Native American Indian tribes were frequently generalized across all tribes, minimizing the vast differences between the cultural practices of different tribes (and populations within a tribe) (Duffy 1958) and the regional flora from which medicinal plants are obtained. Numerous examples exist where information regarding the use of medicinal plant taxa provided to non-Indian researchers was withheld or intentionally distorted, while other instances have been reported where Native American Indians have shared information readily in order that their cultural practices and beliefs be recorded (Perdue & Green, 2001). The documentation of the Native American pharmacopoeia within historical documents from the early nineteenth century cannot therefore be considered a comprehensive account of medicinal plant use, constituting rather the limited written accounts that were made during that period.

The timing and nature of initial contact between Native American Indians and European settlers differs throughout the southeastern United States (Gremillion 2002). In frontier settlements, where a rapport was established between the European settlers and Native American Indian populations, the potential for exchange of information and knowledge existed. Early accounts of medicinal plant use by Native American Indian populations, were made possible by the established relationships of both traders and missionaries with Native American populations (Cowen 1983, Vogel 1970). The botanist Rafinesque (1828), in an analysis of the therapeutic value of the Native American

Pharmacopoeia states, “The native tribes were in possession of many valuable vegetable remedies discovered by long experience, the knowledge of which they gradually imparted to their neighbours. This knowledge partly adopted even as far as Europe, and partly rejected by medical skepticks *[sic]*, became scattered through our country in the hands of country practitioners, Herbalists, Empirics, and Botanists.”

In rural and frontier settlements where formally trained physicians were scarce medical practitioners more readily incorporated Native American Indian remedies into their pharmacopoeia (Vogel 1970). In such an environment, necessity may have ensured the incorporation of medicinal plant taxa from the local vegetation that were recognized and readily available within such settlements. As distance from established urban settlements and medical supplies increased, the ongoing need for medical care and provision of remedies often meant that the provision of health care was carried out by a member of the household and such domestic practice relied on the most available source of medicinal information (Rothstein 1972). Publications targeted towards the layperson provided advice for the provision of health care within the home and contained extensive instructions for the cultivation of both native and exotic herbs for medicinal use (Gifford 1978). In many cases, incorporation of Native American remedies into the official pharmacopoeia therefore occurred secondarily to the widespread use of such articles within domestic practice (Browne 1935).

By the second quarter of the nineteenth century the separation of medical practice into allopathic and botanic traditions was underway, resulting in the establishment of the botanic medical practice and materia medica. Many botanic practitioners were trained within the allopathic system and botanic medicine remained largely based on the theory of disease developed within allopathic practice. In considering the treatment of disease Howard (1833), as a botanic physician, states that “we believe with Dr. Rush, that disease is a unit; or, in other words, that all diseases arise from general cause, and, hence, may be cured, if curable, by one general remedy or remedies.” Dr. Benjamin Rush (1746-1813) played a primary role in the development of allopathic medicine in America during the late eighteenth century as a practitioner, teacher and theorist (Goodman 1934) and was at the forefront of the transition in medical practice from the treatment of disease classified by the symptoms associated with the disease to that in which disease was considered to result from a single cause effecting the underlying state of the body that must be treated in order to return the body to a state of health (Goodman 1934, Haller 1981). With the exception of the absence of mineral and narcotic botanic articles within the materia medica of botanic physicians, an extensive overlap was observed in the pharmacopoeia of these distinct traditions until the middle of the nineteenth century when prescription records of allopathic physicians indicate their increasing reliance on the use of inorganic chemicals and a corresponding decrease in that of botanic medicines (Cowen 1983).

The integration of numerous ethnobotanic sources within medical practice was reflected in the pharmacopoeia of various medical traditions during the first half of the nineteenth century. Porcher (1869), in his publication “Resources of the Southern Fields and Forests,” reflects the composite nature of pharmacopoeia during this time stating, “we have consulted both the older and more recent works, illustrating the departments of the materia medica and indigenous Medical Botany […]. The European authorities have been examined, and from them has been obtained much concerning our medical Flora which is either not generally known, or not alluded to in the dispensatories, and which might be of essential service to those desirous, not merely of ascertaining what is already understood, but also more thoroughly of investigating the hidden qualities of others.” Similarly, Howard (1833), in the introduction to his botanic materia medica, states that “the works principally consulted are Thomson, Rafinesque, Rogers, Thatcher, Bigelow, Barton, Cullen, and Smith.” All of these authors, with the exception of Thomson, are allopathic physicians involved in the documentation of the medicinal properties of taxa in the North American flora (Barton and Bigelow) and in the development of medical theory (Cullen).

PHARMACOPOEIA FROM THE SOUTHEASTERN UNITED STATES

The ethnobotanic data contained in the Gideon Lincecum Herbarium, as a description of an early pharmacopoeia of a botanic physician collected during the period 1830 to 1852, contributes significantly to the documentation of medicinal plant use in the southeastern United States during a period from which medicinal plant use has not been extensively documented elsewhere in the ethnobotanic literature. In 1849, Francis Porcher M.D. authored one of the first comprehensive publications detailing the medicinal properties and use of plant taxa from the southeastern flora. His report "On the indigenous medicinal plants of South Carolina," published in the Transactions of the American Medical Association in 1849, documents 410 species within the flora of South Carolina possessing "medicinal or economic value" (Porcher 1849). In 1869, Porcher (1869) published "Resources of the Southern Fields and Forests," which documented 500 articles considered for the provision of resources including "new products adapted to our wants and capable of being produced here (in the South)." Prior to this time the ethnobotanic references available to Lincecum, including the materia medica of botanic physicians, documented the medicinal plant taxa drawn from the flora of the northern United States. In addition to documenting the use of many taxa that were present in the southeastern flora, these references would have included some taxa not available to Lincecum for collection and would not have included other taxa found exclusively in the southeastern flora that were available to Lincecum for his medicinal use.

In the early 1830's Lincecum states, "I had long felt the need of good medical works written by Southern practitioners. All our medical books had been composed by Northern practitioners, and their prescriptions really did not suit Southern complaints" (Lincecum 1994). Lincecum's belief that the remedies for the treatment of illness would be found within the flora of that region was common during the nineteenth century and extends from the Paracelsian doctrine of signatures which was extensively applied within herbals of the seventeenth and eighteenth centuries (Gifford 1978). As Turner, author of "The British Physician" (1664 in Gifford 1978) states, "For what climate so ever is subject to any particular Disease, in the same Place there grows a Cure." In Euro-American culture during the early nineteenth century a romantic image of Native American Indians as individuals living close to nature with intimate knowledge of the medicinal virtues of the vegetation (Duffy 1958) may also have contributed to Lincecum's belief that he would find, contained within the pharmacopoeia of the Native American Indians of Mississippi, the remedies and articles for the treatment of the illnesses of the population that he treated in northeastern Mississippi.

In the late nineteenth century, the perceived rapidity of change in traditional practices within Native American Indian populations following years of forced relocation resulted in an increase in attempts to record and document cultural practices and beliefs before traditional knowledge was lost (Purdue and Green 2001, Swanton [1931]2001). A "theoretical perspective of acculturation" dominated research during this period in which Euro-American and Native American Indian contact was considered to have resulted in a decline and/or loss of indigenous practices associated with the incorporation of European-introduced customs (Wesson and Rees 2002). The works of Swanton with the Creek, Natchez and Alabama (Swanton [1928]2000), Chickasaw (Swanton 1926-25) and the Choctaw (Swanton [1931]2001), of those of Bushnell (Bushnell 1909) on the Choctaw, and Mooney (Mooney 1932) on the Cherokee, however, provide extensive accounts of the use of medicines within the cultural framework of these tribes during the late nineteenth century.

Lincecum's interaction with the Choctaw, Chickasaw and Creek Indians predates this period of increased ethnographic research by several decades. Biographic manuscripts date Lincecum's contact with the Choctaw from 1822 to 1825 (and for a short period in 1833) and with the Chickasaw Indians for a period from 1825 to 1826. Lincecum's extensive contact with the Choctaw Indians took place prior to the removal of the Choctaw from 1831 to 1833 as a result of the Treaty of Dancing Rabbit Creek, signed on September 27, 1830 (Purdue and Green 2001). In the ethnobotanic data associated with *Verbesina virginica* (Asteraceae) Lincecum states "I found the Chickasaw Indians using this article 20 years ago (this article was written in 1846 after experimenting with it)" dating that contact to 1826, the period of time that Lincecum managed a trading post providing supplies largely for the Chickasaw Indians in Cotton Gin Port (Lincecum 1994) and prior to the final removal of the Chickasaw Indians as a result of the Treaty of Doaksville, signed on January 17, 1837 (following the voiding of the Treaty of Pontotoc) (Purdue and Green 2001).

CITED ORIGINS OF THE ETHNOBOTANIC DATA

Lincecum provides an ethnobotanic source for 58 species (20.3%) documented to be utilized for medicine within the Gideon Lincecum Herbarium (Table 4.1). Lincecum documents the use of seven species by allopathic physicians including references to Dr. D. Lipscomb, Dr. Rush, and Dr. Sydenham. Thirteen species were cited by Lincecum for their use by botanic physicians including references to Dr. Beach, Dr. Howard, Dr. Matson, and Dr. Thomson, and the widespread use of taxa by physicians known as "Root Doctors." The affiliations in medical practice of seven individuals cited by Lincecum were not able to be determined (Dr. Yongue, Dr. Bergins, Dr. Pemberton, Dr. Rabb, Dr. Zimmerman, Dr. Hardiman, and Judge Money). Of the twenty-two species cited by Lincecum for their medicinal use by Native American Indians, fourteen species were utilized by the Choctaw, six species by the Chickasaw, two by the Creek Indians, and two species for which Lincecum noted the widespread use by "Native American Indians" and "Indians of the southeast."

The citations provided by Lincecum document the diverse array of sources from which Lincecum obtained ethnobotanic information. Lincecum cites "the books" for the medicinal use of *Cimicifuga racemosa* (Ranunculaceae) and *Heuchera americana* (Saxifragaceae). These species were utilized for medicine by both Native American Indians and allopathic physicians; however, "the books" that Lincecum cites no doubt refer to their use by allopathic physicians. Both species were official within the first edition of the United States Pharmacopoeia

TABLE 4.1. ORIGIN OF ETHNOBOTANIC DATA CITED IN THE GIDEON LINCECUM HERBARIUM

Accession	Family	Taxon	Origin of Ethnobotanic Use
19	AGAVACEAE	*Manfreda virginica ssp. virginica*	Muskogee
118	ANACARDIACEAE	*Rhus glabra*	Botanic physicians
4	ANACARDIACEAE	*Toxicodendron radicans ssp. negundo*	Allopathic physicians
199	APIACEAE	*Eryngium yuccifolium*	Choctaw, Mr Hardiman
86	APIACEAE	*Osmorhiza longistylis*	Chickasaw
101	ARALIACEAE	*Aralia racemosa*	Choctaw, Choctaw
41	ARALIACEAE	*Panax quinquefolium*	Chinese
277	ARISTOLOCHIACEAE	*Aristolochia serpentaria*	Dr Yongue of Mississippi
12	ASCLEPIADACEAE	*Asclepias verticillata*	Choctaw
209.2	ASPLENIACEAE	*Asplenium pinnatifidum*	"The ancients"
209.1	ASPLENIACEAE	*Asplenium rhizophyllum*	"The ancients"
252	ASTERACEAE	*Taraxacum officinale*	Dr Rush, Zimmerman, Bergins Pemberton, Thompson, Howard
40	ASTERACEAE	*Ageratina aromatica var. aromatica*	Choctaw, Chickasaw
122	ASTERACEAE	*Echinacea purpurea*	Choctaw
120	ASTERACEAE	*Elephantopus tomentosus*	Common people, Dr. Rabb
263	ASTERACEAE	*Helianthus mollis*	Howard
254	ASTERACEAE	*Prenanthes autumnalis*	Choctaw (Alikchi chito)
133	ASTERACEAE	*Verbesina virginica*	Chickasaw
35	ASTERACEAE	*Vernonia noveboracensis*	Judge Money
13	BALSAMINACEAE	*Impatiens capensis*	Howard
215	BORAGINACEAE	*Onosmodium bejariense var. hispidissimum*	Howard
113.1	CAMPANULACEAE	*Lobelia siphilitica var.*	Texas
103	CAPRIFOLIACEAE	*Triosteum angustifolium*	Individual (no name provided)
107	CELASTRACEAE	*Euonymus atropurpurea var. cheatumii*	Howard, Botanic physicians
225	CUPRESSACEAE	*Taxodium disticum var. imbricarium*	Lincecum
294	FABACEAE	*Orbexilum pedunculatum var. pedunculatum*	Black Doctor
188	FABACEAE	*Tephrosia onobrychoides*	Native American Indians (group not specified)
148	GERANIACEAE	*Geranium maculatum*	Choctaw
145.1	IRIDACEAE	*Iris virginica*	Botanic physicians
234	JUGLANDACEAE	*Juglans nigra*	Dr. D. Lipscomb of Mississippi, Dr. D. Lipscomb,
306	LAMIACEAE	*Dracocephalum moldavica*	Dr. Beach

Accession	Family	Taxon	Origin of Ethnobotanic Use
170	LAMIACEAE	*Marrubium vulgare*	Common Usage
77	LAMIACEAE	*Salvia lyrata*	Root Doctors
305	LILIACEAE	*Asparagus officinalis*	Sydenham, Allopathic physicians
187	MALVACEAE	*Callirhoe triangulata*	Choctaw
147	MALVACEAE	*Modiola caroliniana*	Spaniard in Texas
284	MELIACEAE	*Melia azedarach*	Common Usage
23	OPHIOGLOSSACEAE	*Botrychium virginianum*	Chickasaw
97	OROBANCHACEAE s.s	*Aureolaria pectinata*	Chickasaw
169	OROBANCHACEAE s.s	*Aureolaria pectinata*	Chickasaw
206	OSMUNDACEAE	*Osmunda regalis var. spectabilis*	Matson
57	POLEMONIACEAE	*Polemonium reptans*	Howard, Botanic Physicians
79	POLYGONACEAE	*Polygonum aviculare*	Choctaw
311	RANUNCULACEAE	*Cimicifuga racemosa*	"The books"
47.1	RANUNCULACEAE	*Hepatica nobilis var. acuta*	Vendors of patent syrups
66	RUBIACEAE	*Cephalanthus occidentalis*	Choctaw
135	RUBIACEAE	*Galium pilosum*	Choctaw
136.1	RUBIACEAE	*Galium triflorum*	Choctaw
142	RUBIACEAE	*Galium uniflorum*	Choctaw
22	SAXIFRAGACEAE	*Heuchera americana*	All Southern Indians, "The books"
116	SOLANACEAE	*Datura stramonium*	Allopathic physicians
55	SOLANACEAE	*Hyoscyamus niger*	Allopathic physicians
15	SOLANACEAE	*Lycopersicum esculentum*	Allopathic physicians
14	SOLANACEAE	*Nicotiana tabacum*	Lindley, Allopathic physicians
18	SOLANACEAE	*Solanum ptychantum*	Botanic physicians
5	SYMPLOCACEAE	*Symplocos tinctoria*	Creek (Muskogee), Indians of Southeast
24	VERONICACEAE	*Digitalis purpurea*	Allopathic physicians
217	VITACEAE	*Vitis aestivalis var. lincecumii*	Choctaw

published in 1820 (Gathercoal 1942). Lincecum's citations noting three species in "common usage" provide evidence of the widespread utilization of medicinal articles, including simples, compounds, and patent remedies, for the provision of health care within households often according to instructions provided in herbals published in both Europe and the United States (Rothstein 1972). Lincecum cites Dr. Mattson [sic], author of "Matson's Vegetable Practice" that was published in 1839, for the use of *Osmunda regalis* (Osmundaceae) stating "Mattson [sic] speaks in very favourable terms of this article so does a number of other writers on the subject." This publication was not available to the author for confirmation of this citation for the ethnobotanic data provided by Lincecum.

Lincecum documents the use of the North American native species *Panax quinquefolium* (Araliaceae) according to "Chinese" practice. This species was utilized as a substitute for the Chinese native species *P. ginseng* within Chinese medicinal practice (Blumenthal et al. 2000, Grieve 1974). The exportation of *Panax quinquefolium* from Canada and colonies of the United States during the early eighteenth century engaged Native American labor for the collection of the roots to supply the export market (Vogel 1970).

The medicinal use of a single species is cited to an African American source. The ownership of slaves by the Lincecum family across three generations is documented within Lincecum's autobiographical manuscripts and potentially provides exposure to African American cultural practice. Lincecum's reference to the use of *Orbexilum pedunculatum* var. *pedunculatum* (Fabaceae: Faboideae) provides an early account of the use of this species within African American medicinal practice. Maisch (1889) states that *Orbexilum pedunculatum* var. *pedunculatum* (as syn. *Psoralea melilotoides*) "is said to have been much and very advantageously employed by the Negros *[sic]* in an affection of the digestive organs, known to them by the name of poison, and is usually given in the form of infusion with the addition of a little chamomile and Canadian hemp." As the

Gideon Lincecum Herbarium is considered by this author to have been made during the period 1830 to 1852, this ethnobotanic reference provides documentation of the medicinal use of a decoction of this species by African Americans in the southeastern United States from as early as the second quarter of the nineteenth century.

Lincecum provides a single reference to medicinal plant use from Spanish sources. Lincecum's residence in the northeastern region of Mississippi until 1848 may have separated Lincecum from more extensive Spanish influence, and it is therefore noteworthy that Lincecum documents that he obtained the ethnobotanic data regarding the medicinal use of *Modiola caroliniana* (Malvaceae) from "a Spaniard in Texas" during his visit there in 1835. No further reference to the medicinal use of Modiola caroliniana in North America was identified.

All the species that Lincecum cited to the allopathic physicians were documented elsewhere in the allopathic literature. For the medicinal use of *Juglans nigra* (Juglandaceae) Lincecum cites Dr. D. Lipscomb of Mississippi who was educated as a physician under the preceptorial system (Geiser 1948) and is most likely an allopathic physician. The medicinal use of this species was documented solely in the ethnobotanic literature for the Cherokee Indians (Moerman 1998). Six taxa that Lincecum documents to have been utilized by botanic physicians were not found in the botanic texts referenced including *Helianthus mollis* (Asteraceae: Heliantheae), *Euonymus atropurpurea* var.

cheatumii (Celastraceae), *Onosmodium bejariense var. bejariense* (Boraginaceae), *Iris virginica* (Iridaceae), *Polemonium reptans* (Polemoniaceae), and *Solanum nigrum* (Solanaceae). The absence of these taxa in the 2nd and 4th editions of Howard's "An Improved System of Botanic Medicine" (that were available to this author for reference) may indicate that Lincecum was utilizing the first or third edition of this work, which were printed in 1831 and 1854 respectively (Howard 1833, 1861). Lincecum stated that *Salvia lyrata* (Lamiaceae) was utilized by the "root doctors" and is not included in the pharmacopoeia of the botanic physicians referenced.

ANALYSIS OF THE PHARMACOPOEIA OF GIDEON LINCECUM

Of the 286 taxa in Lincecum's pharmacopoeia the use of 264 taxa was documented in one or more of the other pharmacopoeia referenced. Due to the difference in the size of the pharmacopoeias assessed, the total number of taxa present in Lincecum's pharmacopoeia that are also present in each of the other pharmacopoeias is given followed by the proportion of the total number of medicinal articles documented in the corresponding pharmacopoeia. The Gideon Lincecum Herbarium contains 184 taxa whose use was documented for Native American Indians within the southeastern United States (26.1% of the Native American Indian pharmacopoeia), 143 taxa whose use was documented for allopathic physicians in the United States (16.7% of the allopathic pharmacopoeia), 106 taxa whose use was documented in European pharmacopoeia (data not available), and 68 taxa whose use was documented for American botanic physicians (35.6% of the botanic pharmacopoeia) (Table 4.2).

The Gideon Lincecum Herbarium contains 184 taxa that were utilized by Native American Indians from the southeastern United States (Bushnell 1909, Moerman 1998, Mooney 1932, Taylor 1940). The most comprehensive census of the Native American Indian pharmacopoeia, that of Moerman (1998), documents the use of 2582 species by Native American Indians of North America north of the Rio Grande; however, the pharmacopoeia of any single tribe contains only a fraction of these medicinal plants with the number of plants utilized limited by both floral diversity of a region and the ethnobotanic knowledge of the population (Duffy 1977). For the purpose of this study the southeastern Native American Indians for whom medicinal plant use has been researched has been limited to the Alabama, Catawba, Cherokee, Chickasaw, Choctaw, Creek, Delaware, and Natchez Indians, who were included as a result of their proximity to Mississippi and Texas during the period in which Lincecum was practicing as a physician. Medicinal plant use by the Cherokee has been documented in the literature review to provide a more comprehensive overview of the use of medicinal plants within the southeastern United States and to reflect the significant influence of this tribe in the southeastern United States during the nineteenth century. In the calculation of the proportion of taxa utilized by both Lincecum and the Native American pharmacopoeia within the southeastern United States, the large number of taxa utilized by the Cherokee that have been

TABLE 4.2. SUMMARY STATISTICS FOR TAXA IN LINCECUM'S PHARMACOPOEIA CONTAINED IN MULTIPLE PHARMACOPOEIAS.

Pharmacopoeia	Number of taxa shared with Lincecum's	Percentage of Lincecum's pharmacopoeia (286 taxa)	Number of articles in pharmacopoeia	Percentage of pharmacopoeia utilized by Lincecum
Allopathic - Porcher	111	38.8	500	19.8
Allopathic - USP	70	24.4	357	25.4
Allopathic (Total)	**143**	**50.0**	**857**	**16.7**
Botanic - Howard	66	23.1	134	55.2
Botanic - Thomson	28	9.7	57	56.1
Botanic (Total)	**68**	**23.7**	**191**	**35.6**
European – Brande	16	5.5		
European – Grieve	98	34.2		
European (Total)	**106**	**39.7**		
Native American Indian - Exclusive of Cherokee Usage*	81	28.3	226	35.8
Cherokee	149	52.0	478	30.5
Native American Indian (All southeastern United States)	**184**	**64.3**	**704**	**26.1**

extensively researched by Hamel and Chiltoskey (1975) (in Moerman 1998) overwhelm the number of taxa utilized by other southeastern Native American tribes with whom less extensive research has been conducted. In order to obtain some resolution within this pharmacopoeia statistics of the taxa utilized were calculated including and excluding the pharmacopoeia of the Cherokee.

While distinct medical traditions were recognized in the United States during the nineteenth century, the early colonial pharmacopoeia contained botanic remedies that were "composites of several distinct traditions intermixing, tempered by the American environment with its own flora" (Gifford 1978). The large number of taxa utilized by Lincecum that are contained in the pharmacopoeia of other medical traditions reflects the extent to which allopathic, botanic, and Native American medical traditions during the early nineteenth century utilized a shared pharmacopoeia. Twelve species in Lincecum's pharmacopoeia are found in all the pharmacopoeia included in the comparative analysis including four native species: *Asclepias tuberosa* (Asclepiadaceae), *Lobelia inflata* (Campanulaceae), *Humulus lupulus* (Cannabaceae), and *Sassafras albidum* (Lauraceae), and eight exotic taxa: *Foeniculum vulgare* (Apiaceae), *Tanacetum vulgare* (Asteraceae; Anthemideae), *Taraxacum officinale* (Asteraceae; Lactuceae), *Chenopodium ambrosioides* (Chenopodiaceae), *Marrubium vulgare* (Lamiaceae), *Mentha spicata* (Lamiaceae), *Mentha* x *piperita* (Lamiaceae), and *Linum usitatissimum* (Linaceae). Cowan (1983) considers Serpentaria (*Aristolochia serpentaria*) to be one of eight taxa derived from the Native American Indian pharmacopoeia that were extensively prescribed by allopathic physicians in North America during the nineteenth century. The presence of two additional species whose use is considered to be derived from Native American Indian pharmacopoeias, *Sassafras albidum*, and *Lobelia inflata*, in all the pharmacopoeias reflects their incorporation in the pharmacopoeias of diverse medicinal traditions both in North America and Europe during the nineteenth century. Eighteen taxa in Lincecum's pharmacopoeia were present in all of the North American pharmacopoeias (Table 4.3) including *Arisaema* *triphyllum* (Arecaceae), *Eupatorium perfoliatum* (Asteraceae; Eupatorieae), *Ipomoea pandurata* (Convolvulaceae), *Hedeoma pulegioides* (Lamiaceae), *Xanthorhiza simplicissima* (Ranunculaceae), and *Veronicastrum virginicum* (Veronicaceae) in addition to the taxa previously listed.

TABLE 4.3. TAXA IN THE GIDEON LINCECUM HERBARIUM PRESENT IN ALL OF THE PHARMACOPOEIAS OF THE SOUTHEASTERN UNITED STATES.

Accession	Family Annotation:	Taxa utilized for medicine	Native/Exotic
230.1	ARACEAE	*Arisaema triphyllum*	Native
276	ASCLEPIADACEAE	*Asclepias tuberosa*	Native
255	ASTERACEAE	*Eupatorium perfoliatum*	Native
48	CAMPANULACEAE	*Lobelia inflata*	Native
239	CANABACEAE	*Humulus lupulus*	Native
109	CONVOLVULACEAE	*Ipomoea pandurata*	Native
160.1	LAMIACEAE	*Hedeoma pulegioides*	Native
271	LAURACEAE	*Sassafras albidum*	Native
10	RANUNCULACEAE	*Xanthorhiza simplicissima*	Native
154	VERONICACEAE	*Veronicastrum virginicum*	Native
198	APIACEAE	*Foeniculum vulgare*	Exotic
252	ASTERACEAE	*Taraxacum officinale*	Exotic
256	ASTERACEAE	*Tanacetum vulgare*	Exotic
54	CHENOPODIACEAE	*Chenopodium ambrosioides*	Exotic
170	LAMIACEAE	*Marrubium vulgare*	Exotic
161	LAMIACEAE	*Mentha spicata*	Exotic
21	LAMIACEAE	*Mentha x piperita*	Exotic
106	LINACEAE	*Linum usitatissimum*	Exotic

The best reflection of the extent of the overlap between the pharmacopoeia represented in the Gideon Lincecum Herbarium is documented by the number of taxa represented in two pharmacopoeias; 115 of the 143 taxa (80.4%) from the pharmacopoeia of allopathic physicians were also present in one of the other pharmacopoeias assessed, 67 of the 68 taxa (98.5%) from the pharmacopoeia of botanic physicians, and 121 of the 184 taxa (65.8%) from the pharmacopoeia of Native American Indians were also found in one of the other pharmacopoeias. Of the taxa present in Lincecum's pharmacopoeia that were documented in one other pharmacopoeia 63 taxa were shared only with the Native American Pharmacopoeia, 13 taxa were shared only with the European pharmacopoeia, 28 taxa were shared only with the allopathic pharmacopoeia, and 1 taxa was shared only with the botanic pharmacopoeia.

The presence of species within multiple pharmacopoeias does not require that the taxa are utilized within different medical traditions for the same medicinal effect or are prepared in the same manner. The use of the medicinal taxa that were present in all of the pharmacopoeias was assessed for consistency in their medicinal effect and application within each of the medical traditions. The medicinal use was consistent for all of the taxa with the exception of *Lobelia inflata* (Campanulaceae) and *Sassafras albidum* (Lauraceae). *Lobelia inflata* was utilized as an antispasmodic within all the medical traditions; however, it was not utilized as an emetic by allopathic physicians, which was the primary use of this article by botanic physicians (Thomson 1835). The bark and leaves of *Sassafras albidum* were applied topically within all of the medical traditions and variously utilized for their anti-septic, mucilaginous, and anthelmintic properties. Preparations taken internally were utilized for their diuretic and diaphoretic effect in the treatment of fever and rheumatism by Native American Indians (Cherokee, Choctaw and Houma), allopathic and European physicians, while utilization of preparations taken internally are not documented for botanic physicians.

The following additional taxa illustrate the consistent medicinal use of these taxa across distinct medical traditions. Lincecum documents the medicinal use of the root of *Frasera caroliniens*is (Gentianaceae) which was also utilized by the Cherokee Indians, botanic and allopathic physicians for its antiseptic properties. In all medicinal traditions a poultice of the plant was applied topically for the treatment of wounds and various preparations were taken internally as a stimulant tonic acting on the digestive system for the treatment of diarrhea and dysentery. *Sanguinaria canadensis* (Papaveraceae) was also present in each of the North American pharmacopoeias. The root was utilized in decoction and infusion for the treatment of disorders affecting the mucous membranes including catarrh, cough, croup and lung inflammation, and as a snuff for the treatment of nasal polyps.

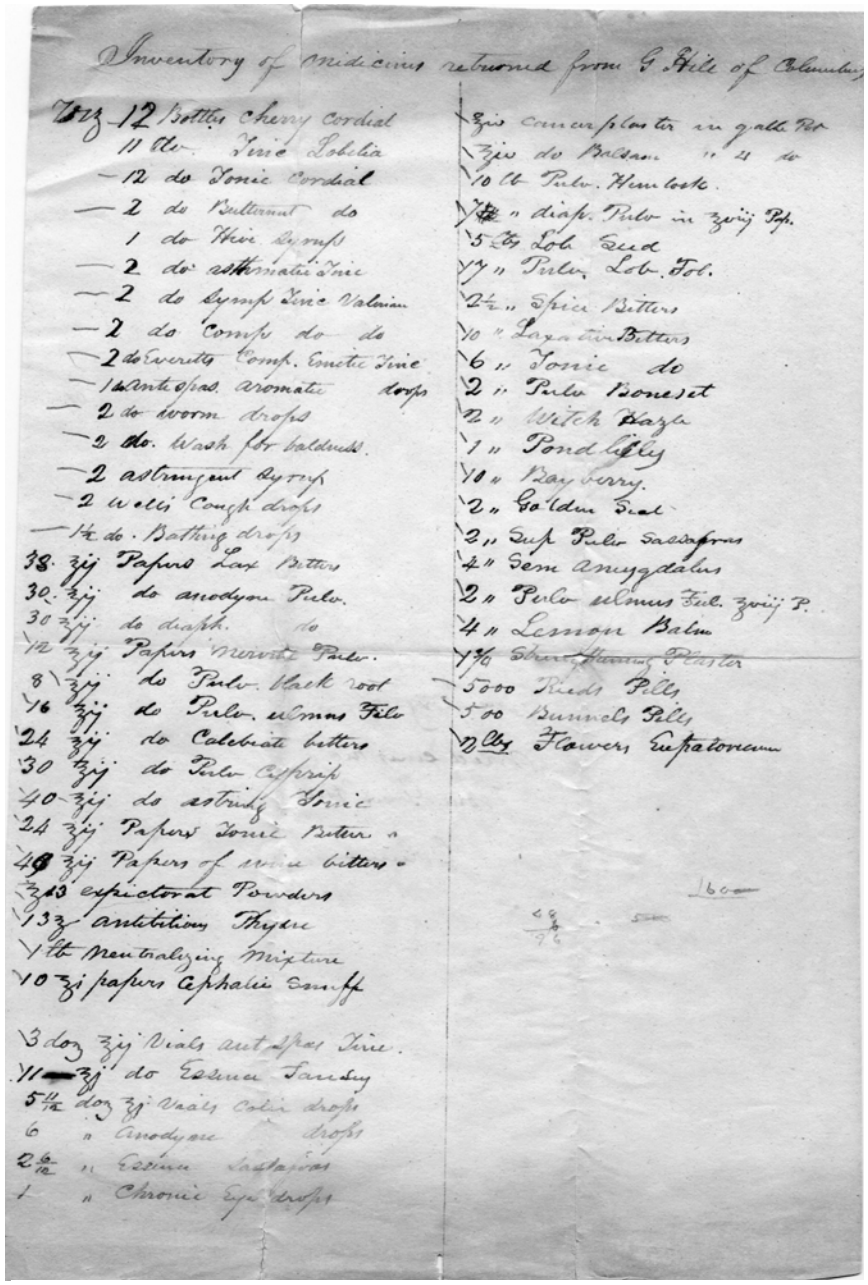
Rather than drawing from completely separate pharmacopoeia, during the first half of the nineteenth century allopathic and botanic physicians utilized a remarkably similar pharmacopoeia that differed most significantly by the exclusion of mineral articles and botanic articles considered “poisons” (those containing tropane alkaloids) from the botanic pharmacopoeia. Lincecum includes seven taxa in his herbarium collection that were utilized by allopathic physicians for medicine but which he considers to be poisonous; *Toxicodendron radicans* (Anacardiaceae), *Papaver somniferum* (Papaveraceae), *Digitalis purpurea*

(Veronicaceae), *Datura stramonium* (Solanaceae), *Hyoscyamus niger* (Solanaceae), *Nicotiana tabacum* (Solanaceae), and *Solanum ptychantum* (Solanaceae) all of which were official in the first edition of the United States Pharmacopoeia in 1820 (Gathercoal 1942). In the ethnobotanic data associated with *Nicotiana tabacum* Lincecum states that “I, with the assistance of another poison doctor (while I was practicing the old school medicines) killed one of my children 14 years old, by administering the tobacco smoke injection.” Lincecum documents the occasional use of *Solanum nigrum* (Solanaceae) by botanic physicians, which he considers poisonous on account of its narcotic properties, utilized externally in the form of a discutient ointment, but he states that the use of this article is “seldom resorted to.”

The ethnobotanic data within the herbarium collection contains several other features characteristic of the practice of botanic medicine during this time. Lincecum refers frequently to the use of *Capsicum annuum* (Cayenne pepper) in a compound article for its stimulant activity. Howard (1833) states that this taxa is “the most pure and powerful stimulants ever introduced into the practice of medicine.” While its use as a culinary herb was documented in the Edinburgh Dispensary (Thomson 1835) it was most extensively utilized as a medicine by botanic physicians and was incorporated into Thomson’s (1835) preparation “Number 2,” intended to “produce a free perspiration” which was considered according to humoral theory to facilitate the removal of the disease.

While Lincecum extensively utilized the pharmacopoeia of botanic physicians, a number of the taxa present in the botanic pharmacopoeia are not represented in Lincecum's pharmacopoeia. Howard's "An Improved System of Botanic Medicine" and Thomson's "New Guide to Health or Botanic Family Physician" were published in Columbus, Ohio, and Boston, Massachusetts, respectively and would therefore draw largely from the regional flora with which each of authors were most familiar. At least some of the taxa present in the botanic pharmacopoeia would not have been available to Lincecum for collection.

Letters in the Gideon Lincecum Collection indicate that after the conclusion of the Civil War Lincecum was required to recommence his botanic medical practice and in doing so recorded letters documenting attempts to obtain botanic items not available to him within the Texas flora. A list of articles obtained from "G. Hill of Columbus" (Figure 4.1) includes "simple" articles such as Hemlock, Lobelia, Boneset, and Witch hazel in addition to compounds and patent medicines such as "Everetts compound emetic tincture" and "Well's cough drops." The quantities provided follow the pharmaceutical convention consistent with the USP and the large quantities of several articles provided, including 10 pounds of pulverized Hemlock and 17 pounds of pulverized Lobelia, indicate both the size of Lincecum's inventory of botanic medicines and the articles extensively relied upon within his practice.



Inventory of medicines returned from G. Hill of Columbus

Viz 12 Bottles Cherry cordial
11 do. Tinc Lobelia
12 do Tonic Cordial
2 do Butternut do
1 do Hive Syrup
2 do asthmatic Tinc
2 do Syrup Tinc Valerian
2 do Comp do do
2 do Everetts Comp. Emetic Tinc
1 do Antispas. aromatic drops
2 do worm drops
2 do. Wash for baldness.
2 astringent Syrup
2 wells Cough drops
1½ do. Bathing drops
38. ℥ij Papers Lax Bitters
30. ℥ij do anodyne Pulv.
30 ℥ij do diaph. do
12 ℥ij Papers nervine Pulv.
8 ℥ij do Pulv. black root
16 ℥ij do Pulv. ulmus Fulv
24 ℥ij do Calebrate bitters
30 ℥ij do Pulv Capsicum
40 ℥ij do astring Tonic
24 ℥ij Papers Tonic Bitters
49 ℥ij Papers of [illegible] bitters
℥13 expectorant Powders
13℥ antilithic Thyme
1 lb neutralizing mixture
10 ℥i papers cephalic Snuff

3 doz ℥ij Vials antispas Tinc.
11 ℥j do Essence Tansy
5 11/12 doz ℥j Vials Colic drops
6 " anodyne drops
2 6/12 " Essence Sassafras
1 " Chronic Eye drops

℥iv cancer plaster in gallipot
℥iv do Balsam " 4 do
10 lb Pulv. Hemlock.
7 lb " diap. Pulv in ℥viij Pap.
5 lbs Lob Seed
7 " Pulv. Lob. Fol.
2½ " Spice Bitters
10 " Laxative Bitters
6 " Tonic do
2 " Pulv Boneset
2 " Witch Hazle
1 " Pond lilly
10 " Bayberry.
2 " Golden Seal
2 " Sup Pulv Sassafras
4 " Sem amygdalus
2 " Pulv ulmus Ful. ℥viij P.
4 " Lemon Balm
1 7/8 Strengthening Plaster
5000 Reeds Pills
500 Bunnels Pills
2 lbs Flowers Eupatorium

160
48
96

FIG. 4.1. INVENTORY OF BOTANIC MEDICINES PROVIDED TO LINCECUM BY G. HILL OF COLUMBUS (GIDEON LINCECUM COLLECTION (1821-1933), THE CENTER FOR AMERICAN HISTORY, THE UNIVERSITY OF TEXAS AT AUSTIN).

NEW MEDICINAL TAXA DOCUMENTED IN THE GIDEON LINCECUM HERBARIUM

The medicinal use of 23 taxa outlined in the Gideon Lincecum Herbarium that were not previously documented in the ethnobotanic literature is here cited to the Gideon Lincecum Herbarium (Table 4.4). Some of these (those utilized by Native Americans) have been previously published (Campbell 1951) based on the Gideon Lincecum Herbarium. An additional four taxa, *Ageratina aromatica* var. *aromatica* (Asteraceae: Eupatorieae), *Silphium perfoliatum* (Asteraceae: Heliantheae), *Tragopogon porrifolius* (Asteraceae: Lactuceae), and *Crotalaria sagittalis* (Fabaceae) are documented for the first time within the southeastern United States in the Gideon Lincecum Herbarium. Lincecum states that he considers the medicinal use of the oil obtained by distillation from the strobili of *Taxodium distichum* (Cupressaceae) to be his discovery and documents his use of this article from 1831. No other references were found documenting the anodyne, anti-venereal, and diuretic properties of the oil obtained from the strobili that Lincecum applied topically for the treatment of rheumatic pain, utilized as a tea for the treatment of urinary obstructions, and in tincture for the treatment of leucorrhea. The use of *Manfreda virginica* (Agavaceae) by the Creek Indians is documented by Swanton ([1928]2000) however no other references to the medicinal use of this species were found in the ethnobotanic literature. The Gideon Lincecum Herbarium therefore provides a second record of the use of this species by the Creek for the treatment of snakebite.

TABLE 4.4 MEDICINAL TAXA IN THE GIDEON LINCECUM HERBARIUM WHOSE UTILIZATION HAS NOT PREVIOUSLY BEEN REPORTED IN THE ETHNOBOTANIC LITERATURE.

Accession	Family	Original identification by Lincecum	Correct identification of specimen	Ethnobotanic source cited by Lincecum	Ethnobotanic substitutions noted by Lincecum
270	ARISTOLOCHIACEAE	*Aristolochia sipho*	*Aristolochia tomentosa*		"It is equal to the serpentaria (*Aristolochia serpentaria*) for the same purposes"
281	ARISTOLOCHIACEAE	*Asarum arifolium*	*Hexastylis arifolia*		
273	ASCLEPIADACEAE	*Asclepias amoena*	*Asclepias purpurascens*		"Same as (*Aslepias*) *syriaca* in its medicinal properties"
269	ASCLEPIADACEAE	*Asclepias connivens*	*Asclepias viridis*		"Same as *Asclepias tuberosa* in its action,"
40	ASTERACEAE	*Eupatorium ageratoides*	*Ageratina aromatica var. aromatica*	Choctaw, Chickasaw	
129	ASTERACEAE	*Arctium lappa*	*Arctium minus*		
264	ASTERACEAE	*Centaurea benedicta*	*Cnicus benedictus*		"It is used like the Boneset *(Eupatorium perfoliatum)"*
122	ASTERACEAE	*Rudbeckia purpurea*	*Echinacea purpurea*	Choctaw	
263	ASTERACEAE	*Helianthus pubescens*	*Helianthus mollis*	Howard	"It is very similar in its sensible properties to the *Helianthus hispidulus*"
254	ASTERACEAE	*Prenanthes virgata*	*Prenanthes autumnalis*	Choctaw (Alikchi chito)	
262	ASTERACEAE	*Silphium perfoliatum*	*Silphium perfoliatum*		
267	ASTERACEAE	*Solidago axillaris*	*Solidago caesia*		
265	ASTERACEAE	*Tragopogon porrifolius*	*Tragopogon porrifolius*		
181	BRASSICACEAE	*Brassica rapa*	*Brassica rapa*		

Accession	Family	Original identification by Lincecum	Correct identification of specimen	Ethnobotanic source cited by Lincecum	Ethnobotanic substitutions noted by Lincecum
96	BRASSICACEAE	*Lepidium sativum*	*Lepidium sativum*		"The seeds of this article are equal to the mustard seeds, perhaps more active as a senapism"
7	CAMPANULACEAE	*Lobelia cardinalis*	*Lobelia cardinalis*		
117	CONVOLVULACEAE	*Convolvulus batatus*	*Ipomoea batatas*		
225	CUPRESSACEAE	*Cupressus distica*	*Taxodium disticum var. imbricarium*	Lincecum	
192	FABACEAE	*Crotalaria sagittalis*	*Crotalaria sagittalis*		
185	FABACEAE	*Schrankia uncinata*	*Mimosa microphylla*		
195	FABACEAE	*Phaseolus proper var. nasus*	*Phaseolus vulgaris*		
188	FABACEAE	*Tephrosia elegans*	*Tephrosia onobrychoides*	Native American Indians (group not specified)	
187	MALVACEAE	*Malva hederacea*	*Callirhoe triangulata*	Choctaw	"In poultice and in every other purpose is equal to the Slippery Elm (*Morus fulva*)
6	RANUNCULACEAE	*Delphinium staphisagria*	*Delphinium carolinianum var. carolinianum*		
135	RUBIACEAE	*Galium boreale*	*Galium pilosum*		"Like all the other species of this valuable family of plants is a good diuretic, diaphoretic and deobstruant."
9	SAXIFRAGACEAE	*Hydrangea quercifolia*	*Hydrangea quercifolia*		
217	VITACEAE	*Vitis aestivalis*	*Vitis aestivalis var. lincecumii*	Choctaw	

EXPERIMENTATION IN THE UTILIZATION OF MEDICINAL PLANTS BY LINCECUM

The presence of "ecological and botanical analogues" (Gremillion 2002) to plant taxa in an established pharmacopoeia may facilitate the incorporation of new medicinal species into a pharmacopoeia. Gremillion (2002) proposed the concept of "ecological and botanical analogues in traditional agriculture" in reference to the diffusion of exotic species within the flora of North America through an association with native southeastern communities, stating that exotic species which possess recognizable characteristics or similar cultivation requirements to native species potentially become established as crop species more readily due to the minimal adaptation requirements for their cultivation and productivity, and the minimal risk of crop failure associated with crop transition. Additionally in order to minimize risk, introduced species added to rather than replaced established crops for the provision of food.

In his recognition of the medicinal properties associated with identified genera (examples include *Lobelia, Polygala, and Galium*), Lincecum identifies "ecological and botanic analogues" facilitating the utilization of congeneric taxa within his pharmacopoeia. Lincecum documents the use of several taxa distributed exclusively in the southeastern flora whose medicinal use parallels the documented medicinal properties of a congeneric species that is widely distributed in the eastern flora of the United States. In reference to the medicinal use of *Baptisia alba* (Fabaceae) Lincecum notes, "This plant answers very well in place of the species *tinctoria*." *Baptisia tinctoria* is not currently found in the southeastern states west of Georgia, while *Baptisia alba* is found throughout the southeast as far west as Texas (Kartesz 1999). The medicinal use of *Baptisia tinctoria* is documented by botanic physicians who utilized the root and leaves for their antiseptic properties as a poultice, wash, fomentation or ointment for the treatment of ulcers and mortification (gangrene) (Howard 1833). Lincecum documents the use of the root of *B. alba* in decoction as an anti-septic wash for the treatment of gangrene, extending the documented medicinal properties of *B. tinctoria* to the congeneric species *B. alba*.

Lincecum provides the sole medicinal reference found for the use of *Hydrangea quercifolia* (Saxifragaceae), documenting his use of a decoction of the bark of the root as a wash for the treatment of inflamed tumors and as a poultice for application to breast inflammation. Ethnobotanic references document the medicinal use of *Hydrangea arborescens* by allopathic physicians (Grieve 1974, Porcher 1869) and the Cherokee Indians (Moerman 1998). Lincecum's medicinal use of *Hydrangea quercifolia* parallels the medicinal utilization of *Hydrangea arborescens* by the Cherokee Indians, who utilized the bark of *Hydrangea arborescens* as a poultice applied to "swellings," burns, and ulcers. Congeneric species potentially function as "ecological and botanical analogues" within a pharmacopoeia and the medicinal use of *Hydrangea quercifolia* by Lincecum according to the medicinal properties documented for *Hydrangea* *arborescens* provides an example of the incorporation of new medicinal taxa into Lincecum's pharmacopoeia.

Lincecum provides further evidence within the Gideon Lincecum Herbarium of his experimentation to determine the medicinal properties of taxa present in the southeastern flora. In reference to the medicinal properties of *Calycanthus floridus* (Calycanthaceae) Lincecum notes "It (is) a plant possessing strong medical properties, and would pay well, I think, for experimenting. I do not think from the few experiments I have made with it, that it is poisonous." Lincecum frequently documents his recognition of particular plant families or genera as containing a large number of medicinal taxa which he utilizes as an indication that other closely related taxa also potentially possess medicinal activity. Lincecum employs the doctrine of signatures, commonly applied within herbals during the nineteenth century, for the identification of taxa with medicinal value. The ethnobotanic data associated with *Sebastiana ligustrina* (Euphorbiaceae) provides an example of this as Lincecum states, "I have preserved a specimen of it for the purpose of bringing it into notice, hoping, that it may attract the attention of the investigating practitioner who has time to analyze and discover it medical properties. I have no doubt myself of its being a vulnerable article. It belongs to a valuable family, and is boldly marked by nature".

CONCLUSIONS

Lincecum's pharmacopoeia, as represented in the Gideon Lincecum Herbarium, is significant for both the number of medicinal taxa that it documents and comprehensive ethnobotanic detail that it provides documenting the medicinal use of the vouchered botanic specimens. The ethnobotanic data provided by Lincecum are largely consistent with the ethnobotanic literature referenced by this author in completion of the literature review. The new medicinal taxa that it documents can therefore be considered an accurate record of Lincecum's use of these taxa within his medical practice.

Rather than representing a pharmacopoeia of a single medical tradition Lincecum's pharmacopoeia is a composite pharmacopoeia containing taxa utilized within the diverse medical traditions present in the United States during the nineteenth century. The small number of taxa that are present in all the pharmacopoeias analyzed include both native and exotic taxa, documenting the incorporation of Old World taxa into the pharmacopoeia of the United States and of New World taxa into the European pharmacopoeia. The small number of taxa in the Gideon Lincecum Herbarium that are present in only one other pharmacopoeia and the large number of taxa that are included in two other pharmacopoeias provides evidence of the extensive overlap found within the pharmacopoeias in North America during the nineteenth century.

The potential sources of ethnobotanic knowledge identified from manuscripts and autobiographical detail in the Gideon Lincecum Collection were supported by citations in the ethnobotanic data provided by Lincecum. Although citations for the medicinal use of taxa included in the ethnobotanic data of the Gideon Lincecum Herbarium are limited in number those citations accurately reflect the overall composition of Lincecum's pharmacopoeia. Lincecum's citations provide evidence of his access to and familiarity with contemporary medicinal theory including a small number of references to renowned Old World medical traditions, theorists, and practitioners and a larger number of references citing North American allopathic and botanic texts and practitioners. The miscellaneous references cited by Lincecum are informative as they reflect Lincecum's openness to a wide range of sources for his ethnobotanic information, integrating medicinal plant use according to individual informal sources in addition to formal and official ethnobotanic references.

This ethnobotanic analysis indicates that the Gideon Lincecum Herbarium shares the largest number of medicinal taxa with the Native American Indian pharmacopoeia, followed by the European, allopathic and botanic pharmacopoeia.

In proportion to the total number of taxa contained within a pharmacopoeia however, Lincecum utilizes the largest proportion of taxa from the Botanic pharmacopoeia. Lincecum's practice as a botanic physician is strongly reflected in the taxa present in his pharmacopoeia (including an absence of narcotic botanical articles) in addition to the content of his ethnobotanic data.

APPENDIX 1. REGRESSION ANALYSIS OF FAMILY REPRESENTATION BY MEDICINAL PLANT SPECIES IN THE GIDEON LINCECUM HERBARIUM AND TOTAL FAMILY REPRESENTATION IN THE FLORA OF THE SOUTHEASTERN UNITED STATES (MISSISSIPPI AND LOUISIANA ONLY) (BASED ON MOERMAN, 1991) (Y=0.0664X + 0.8472, CORRELATION CO-EFFICIENT = 0.8381) (FLORAL REPRESENTATION IN SOUTHEASTERN FLORA OBTAINED FROM KARTESZ AND MEACHAM, 1999).

Family	# Medicinal species in the GLH	Total # of species in Ms/La flora	# Species predicted	Residual	Rank of Residual
Agavaceae	1	6	1.24	-0.26	62
Anacardiaceae	2	7	1.31	0.69	27
Apiaceae	11	69	5.43	5.57	2
Apocynaceae	1	11	1.58	-0.58	73
Aquifoliaceae	1	11	1.58	-0.58	75
Araceae	1	8	1.38	-0.38	67
Araliaceae	2	4	1.11	0.89	25
Aristolochiaceae	4	6	1.25	2.75	7
Asclepiadaceae	5	34	3.10	1.90	10
Aspleniaceae	3	6	1.25	1.75	12
Asteraceae	33	420	28.74	4.27	3
Balsaminaceae	1	2	0.98	0.02	44
Berberidaceae	2	2	0.98	1.02	22
Betulaceae	1	7	1.31	-0.31	64
Bignoniaceae	1	5	1.18	-0.18	59
Boraginaceae	4	24	2.44	1.56	17
Brassicaceae	6	71	5.56	0.44	33
Bromeliaceae	1	2	0.98	0.02	47
Calycanthaceae	1	1	0.91	0.09	40
Campanulaceae	4	19	2.11	1.89	11
Cannabaceae	1	1	0.914	0.09	38
Caprifoliaceae	3	15	1.84	1.16	18
Caryophyllaceae	1	48	4.03	-3.03	88
Celastraceae	2	6	1.25	0.75	26
Chenopodiaceae	2	23	2.37	-0.37	66
Clusiaceae	1	27	2.64	-1.64	85
Convolvulaceae	2	36	3.24	-1.24	84
Cornaceae	1	9	1.45	-0.45	69
Cucurbitaceae	1	12	1.64	-0.64	76

Family	# Medicinal species in the GLH	Total # of species in SE flora	# Species predicted	Residual	Rank of Residual
Cupressaceae	3	6	1.25	1.75	13
Dioscoreaceae	1	4	1.11	-0.11	55
Dryopteridaceae	1	20	2.18	-1.18	83
Ebenaceae	1	1	0.91	0.09	39
Ericaceae	2	28	2.71	-0.71	79
Euphorbiaceae	2	70	5.50	-3.50	92
Fabaceae	12	219	15.38	-3.39	91
Fagaceae	3	40	3.50	-0.50	70
Gentianaceae	3	25	2.51	0.49	32
Geraniaceae	1	5	1.18	-0.18	60
Hamamelidaceae	2	2	0.98	1.02	21
Hippocastanaceae	2	3	1.05	0.95	23
Iridaceae	2	30	2.84	-0.84	82
Juglandaceae	3	15	1.84	1.16	19
Lamiaceae	28	89	6.76	21.24	1
Lauraceae	1	8	1.38	-0.38	68
Liliaceae	11	97	7.29	3.71	4
Linaceae	1	10	1.51	-0.51	72
Loganiaceae	1	5	1.18	-0.18	57
Magnoliaceae	1	7	1.31	-0.31	65
Malvaceae	6	34	3.11	2.90	5
Marantaceae	1	2	0.98	0.02	50
Meliaceae	1	1	0.91	0.09	41
Menispermaceae	1	3	1.05	-0.05	53
Moraceae	2	8	1.38	0.62	30
Myricaceae	1	3	1.05	-0.05	54
Nymphaeaceae	1	5	1.18	-0.18	58
Oleaceae	3	16	1.91	1.09	20
Ophioglossaceae	1	11	1.58	-0.58	74
Orchidaceae	1	50	4.17	-3.17	89
Orobanchaceae	1	3	1.05	-0.05	51
Osmundaceae	2	3	1.05	0.95	24
Oxalidaceae	2	8	1.38	0.62	29
Paeoniaceae	1	0	0.85	0.152	35

Family	# Medicinal species in the GLH	Total # of species in SE flora	# Species predicted	Residual	Rank of Residual
Papaveraceae	3	7	1.31	1.68	16
Passifloraceae	1	3	1.05	-0.05	52
Pedaliaceae	1	2	0.98	0.02	46
Phytolaccaceae	1	2	0.98	0.02	49
Pinaceae	1	6	1.25	-0.25	61
Platanaceae	1	1	0.91	0.09	42
Polemoniaceae	1	13	1.71	-0.71	80
Polygalaceae	3	23	2.37	0.63	28
Polygonaceae	6	47	3.97	2.03	9
Polypodiaceae	1	1	0.91	0.07	37
Pteridaceae	1	10	1.51	-0.51	71
Ranunculaceae	6	52	4.3	1.70	15
Rhamnaceae	1	7	1.31	-0.31	63
Rosaceae	10	112	8.28	1.72	14
Rubiaceae	6	42	3.65	2.36	8
Rutaceae	4	5	1.18	2.82	6
Salicaceae	1	12	1.64	-0.64	77
Saururaceae	1	2	0.98	0.02	48
Saxifragaceae	2	9	1.45	0.56	31
Scrophulariaceae	4	98	7.35	-3.36	90
Smilacaceae	2	15	1.84	0.16	34
Solanaceae	2	53	4.37	-2.37	87
Symplocaceae	1	1	0.91	0.09	43
Tiliaceae	1	4	1.11	-0.11	56
Trapaeolaceae	1	0	0.85	0.15	36
Urticaceae	1	12	1.64	-0.64	78
Verbenaceae	1	36	3.24	-2.24	86
Viscaceae	1	2	0.98	0.02	45
Vitaceae	1	14	1.78	-0.78	81

APPENDIX 2. INDEX OF THE SPECIES/SUBSPECIES IN THE GIDEON LINCECUM HERBARIUM.

Accession Number	Species/subspecies	Family
69.2	*Acer spicatum*	ACERACEAE
124	*Achillea millefolium*	ASTERACEAE
8	*Actaea pachypoda*	RANUNCULACEAE
85	*Adiantum pedatum*	PTERIDACEAE
201	*Aesculus glabra*	HIPPOCASTANACEAE
84	*Aesculus pavia var. pavia*	HIPPOCASTANACEAE
40	*Ageratina aromatica var. aromatica*	ASTERACEAE
95	*Agrimonia rostellata*	ROSACEAE
144	*Alcea rosea*	MALVACEAE
17	*Aletris farinosa*	LILIACEAE
302	*Allium sp.*	LILIACEAE
216	*Althaea officinalis*	MALVACEAE
30	*Amsonia ciliata var. texana*	APOCYNACEAE
93	*Angelica atropurpurea*	APIACEAE
125	*Antennaria plantaginifolia var.*	ASTERACEAE
258	*Anthemis cotula*	ASTERACEAE
31	*Apios americana*	FABACEAE
278	*Apocynum cannabinum*	APOCYNACEAE
101	*Aralia racemosa*	ARALIACEAE
129	*Arctium minus*	ASTERACEAE
43	*Argemone sp.*	PAPAVERACEAE
69.4	*Arisaema dracontium*	ARACEAE
218	*Arisaema dracontium*	ARACEAE
230.3	*Arisaema dracontium*	ARACEAE
230.2	*Arisaema triphyllum*	ARACEAE
68.3	*Arisaema triphyllum*	ARACEAE
230.1	*Arisaema triphyllum*	ARACEAE
277	*Aristolochia serpentaria*	ARISTOLOCHIACEAE
270	*Aristolochia tomentosa*	ARISTOLOCHIACEAE
182	*Armoracia rusticana*	BRASSICACEAE
257	*Artemisia abrotanum*	ASTERACEAE
260	*Artemisia absinthium*	ASTERACEAE
280	*Asarum canadense*	ARISTOLOCHIACEAE
274	*Asclepias amplexicaulis*	ASCLEPIADACEAE
273	*Asclepias purpurascens*	ASCLEPIADACEAE
276	*Asclepias tuberosa ssp. interior*	ASCLEPIADACEAE
235.1	*Asclepias variegata*	ASCLEPIADACEAE
12	*Asclepias verticillata*	ASCLEPIADACEAE
269	*Asclepias viridis*	ASCLEPIADACEAE
275	*Asclepias viridis*	ASCLEPIADACEAE
305	*Asparagus officinalis*	LILIACEAE

Accession Number	Species/subspecies	Family
209.2	*Asplenium pinnatifidum*	ASPLENIACEAE
204	*Asplenium platyneuron*	ASPLENIACEAE
209.1	*Asplenium rhizophyllum*	ASPLENIACEAE
208	*Athyrium filix-femina var. asplenioides*	DRYOPTERIDACEAE
169	*Aureolaria pectinata*	OROBANCHACEAE s.s
97	*Aureolaria pectinata*	OROBANCHACEAE s.s
289	*Baptisia alba*	FABACEAE
130	*Bidens aristosa*	ASTERACEAE
178	*Bignonia capreolata*	BIGNONIACEAE
244.5	*Boehmeria cylindrica*	URTICACEAE
23	*Botrychium virginianum*	OPHIOGLOSSACEAE
184	*Brassica oleracea*	BRASSICACEAE
181	*Brassica rapa*	BRASSICACEAE
173	*Calamintha nepeta*	LAMIACEAE
140	*Callicarpa americana*	VERBENACEAE
187	*Callirhoe triangulata*	MALVACEAE
82	*Calycanthus floridus var. floridus*	CALYCANTHACEAE
221	*Carya alba*	JUGLANDACEAE
232	*Castanea dentata*	FAGACEAE
231	*Castanea pumila*	FAGACEAE
304	*Caulophyllum thalictroides*	BERBERIDACEAE
50	*Ceanothus americanus*	RHAMNACEAE
49	*Celastrus scandens*	CELASTRACEAE
66	*Cephalanthus occidentalis*	RUBIACEAE
282	*Cercis canadensis var. canadensis*	FABACEAE
296	*Chamaelirium luteum*	LILIACEAE
163	*Chelone glabra*	VERONICACEAE
54	*Chenopodium ambrosioides*	CHENOPODIACEAE
155	*Chionanthus virginicus*	OLEACEAE
311	*Cimicifuga racemosa*	RANUNCULACEAE
308	*Citrus aurantium*	RUTACEAE
44	*Clematis virginiana*	RANUNCULACEAE
264	*Cnicus benedictus*	ASTERACEAE
251	*Conyza canadensis*	ASTERACEAE
88	*Coriandrum sativum*	APIACEAE
69.3	*Cornus alternifolia*	CORNACEAE
64	*Cornus florida*	CORNACEAE
222	*Corylus americana*	BETULACEAE
53	*Cotinus coggygria*	ANACARDIACEAE
192	*Crotalaria sagittalis*	FABACEAE
102	*Cynoglossum virginianum var. virginianum*	BORAGINACEAE
236	*Cypripedium parviflorum var. pubescens*	ORCHIDACEAE
68.2	*Cypripedium sp.*	ORCHIDACEAE

Accession Number	Species/subspecies	Family
191	*Cytisus scoparius*	FABACEAE
116	*Datura stramonium*	SOLANACEAE
90	*Daucus carota*	APIACEAE
92	*Daucus carota*	APIACEAE
87	*Daucus pusillus*	APIACEAE
6	*Delphinium carolinianum var. carolinianum*	RANUNCULACEAE
24	*Digitalis purpurea*	VERONICACEAE
242	*Dioscorea quaternata*	DIASCOREACEAE
245	*Diospyros virginiana*	EBENACEAE
306	*Dracocephalum moldavica*	LAMIACEAE
98	*Drosera brevifolia*	DROSERACEAE
122	*Echinacea purpurea*	ASTERACEAE
120	*Elephantopus tomentosus*	ASTERACEAE
272	*Eriogonum longifolium*	POLYGONACEAE
244.7	*Eriogonum longifolium*	POLYGONACEAE
199	*Eryngium yuccifolium*	APIACEAE
107	*Euonymus atropurpurea var. cheatumii*	CELASTRACEAE
255	*Eupatorium perfoliatum var. perfoliatum*	ASTERACEAE
127	*Eupatorium rotundifolium var. rotundifolium*	ASTERACEAE
119	*Eupatorium serotinum*	ASTERACEAE
27	*Euphorbia corollata var. paniculata*	EUPHORBIACEAE
81	*Fagopyrum esculentum*	POLYGONACEAE
249	*Ficus carica*	MORACEAE
198	*Foeniculum vulgare*	APIACEAE
37	*Fragaria virginiana*	ROSACEAE
67	*Frasera caroliniensis*	GENTIANACEAE
134	*Galium aparine*	RUBIACEAE
100	*Galium circaezans*	RUBIACEAE
136.2	*Galium obtusum ssp. obtusum*	RUBIACEAE
135	*Galium pilosum*	RUBIACEAE
136.1	*Galium triflorum*	RUBIACEAE
142	*Galium uniflorum*	RUBIACEAE
244.4	*Gamochaeta falcata*	ASTERACEAE
211.2	*Gentiana saponaria*	GENTIANACEAE
42	*Gentiana saponaria*	GENTIANACEAE
211.1	*Gentiana villosa*	GENTIANACEAE
148	*Geranium maculatum*	GERANIACEAE
168	*Glechoma hederacea*	LAMIACEAE
146	*Gossypium hirsutum var. hirsutum*	MALVACEAE
58	*Hackelia virginiana*	BORAGINACEAE
137	*Hamamelis sp.*	HAMAMELIDACEAE
160.1	*Hedeoma pulegioides*	LAMIACEAE

Accession Number	Species/subspecies	Family
149	*Hedeoma reverchonii var. reverchonii*	LAMIACEAE
3	*Helenium autumnale*	ASTERACEAE
263	*Helianthus mollis*	ASTERACEAE
268	*Helianthus pauciflorus var. pauciflorus*	ASTERACEAE
71	*Hemerocallis fulva*	LILIACEAE
47.1	*Hepatica nobilis var. acuta*	RANUNCULACEAE
47.2	*Hepatica nobilis var. obtusa*	RANUNCULACEAE
22	*Heuchera americana*	SAXIFRAGACEAE
281	*Hexastylis arifolia*	ARISTOLOCHIACEAE
196	*Hibiscus moscheutos ssp. lasiocarpos*	MALVACEAE
259	*Hieracium gronovii*	ASTERACEAE
239	*Humulus lupulus*	CANABACEAE
9	*Hydrangea quercifolia*	SAXIFRAGACEAE
309	*Hydrastis canadensis*	RANUNCULACEAE
55	*Hyoscyamus niger*	SOLANACEAE
20	*Hypericum hypericoides*	CLUSIACEAE
174	*Hyssopus officinalis*	LAMIACEAE
138	*Ilex opaca*	AQUIFOLIACEAE
13	*Impatiens capensis*	BALSAMINACEAE
266	*Inula helenium*	ASTERACEAE
117	*Ipomoea batatas*	CONVOLVULACEAE
109	*Ipomoea pandurata*	CONVOLVULACEAE
145.2	*Iris germanica*	IRIDACEAE
145.1	*Iris virginica*	IRIDACEAE
158	*Jasminum officinale*	OLEACEAE
224	*Juglans cinerea*	JUGLANDACEAE
234	*Juglans nigra*	JUGLANDACEAE
246	*Juniperus virginiana*	CUPRESSACEAE
244.6	*Juniperus virginiana*	CUPRESSACEAE
250	*Juniperus virginiana*	CUPRESSACEAE
123	*Krigia dandelion*	ASTERACEAE
99	*Laportea canadensis*	URTICACEAE
164.1	*Lavandula angustifolia*	LAMIACEAE
176	*Leonurus cardiaca*	LAMIACEAE
96	*Lepidium sativum*	BRASSICACEAE
152	*Ligustrum vulgare*	OLEACEAE
300	*Lilium candidum*	LILIACEAE
106	*Linum usitatissimum*	LINACEAE
227	*Liquidambar styraciflua*	HAMAMELIDACEAE
310	*Liriodendron tulipifera*	MAGNOLIACEAE
63	*Lithospermum latifolium*	BORAGINACEAE

Accession Number	Species/subspecies	Family
110	*Lobelia appendiculata*	CAMPANULACEAE
11	*Lobelia appendiculata*	CAMPANULACEAE
7	*Lobelia cardinalis*	CAMPANULACEAE
48	*Lobelia inflata*	CAMPANULACEAE
113.2	*Lobelia siphilitica var. siphilitica*	CAMPANULACEAE
113.1	*Lobelia siphilitica var. siphilitica*	CAMPANULACEAE
51	*Lobelia spicata var. leptostachys*	CAMPANULACEAE
56	*Lobelia spicata var. spicata*	CAMPANULACEAE
15	*Lycopersicum esculentum*	SOLANACEAE
157	*Lycopus americanus*	LAMIACEAE
74.1	*Lycopus rubellus*	LAMIACEAE
74.2	*Lycopus rubellus*	LAMIACEAE
75	*Lycopus uniforus*	LAMIACEAE
297	*Maiathemum racemosum ssp. racemosum*	LILIACEAE
162	*Majorana hortensis*	LAMIACEAE
19	*Manfreda virginica ssp. virginica*	AGAVACEAE
170	*Marrubium vulgare*	LAMIACEAE
279.1	*Matelea carolinensis*	ASCLEPIADACEAE
279.2	*Matelea obliqua*	ASCLEPIADACEAE
284	*Melia azedarach*	MELIACEAE
194	*Melilotus sp.*	FABACEAE
179	*Melissa officinalis*	LAMIACEAE
237	*Menispermum canadensis*	MENISPERMACEAE
161	*Mentha spicata*	LAMIACEAE
21	*Mentha x piperita*	LAMIACEAE
185	*Mimosa microphylla*	FABACEAE
65	*Mitchella repens*	RUBIACEAE
147	*Modiola caroliniana*	MALVACEAE
28	*Momordica charantia*	CUCURBITACEAE
150	*Monarda clinopodioides*	LAMIACEAE
73.2	*Monarda clinopodioides*	LAMIACEAE
73.1	*Monarda fistulosa ssp. fistulosa*	LAMIACEAE
76	*Monarda punctata var. intermedia*	LAMIACEAE
241	*Morella caroliniensis*	MYRICACEAE
228	*Morus alba*	MORACEAE
159	*Nepeta cataria*	LAMIACEAE
14	*Nicotiana tabacum*	SOLANACEAE
46	*Nymphaea odorata*	NYMPHAEACEAE
166	*Ocimum basilicum*	LAMIACEAE
60	*Onosmodium bejariense var. bejariense*	BORAGINACEAE
215	*Onosmodium bejariense var. hispidissimum*	BORAGINACEAE
61	*Onosmodium virginianum*	BORAGINACEAE
294	*Orbexilum pedunculatum var. pedunculatum*	FABACEAE

Accession Number	Species/subspecies	Family
86	*Osmorhiza longistylis*	APIACEAE
203	*Osmunda cinnamomea*	OSMUNDACEAE
206	*Osmunda regalis var. spectabilis*	OSMUNDACEAE
26	*Oxalis corniculata*	OXALIDACEAE
285	*Oxalis violacea*	OXALIDACEAE
290	*Oxydendrum arboreum*	ERICACEAE
121	*Packera aurea*	ASTERACEAE
307	*Paeonia suffruticosa*	PAEONIACEAE
41	*Panax quinquefolium*	ARALIACEAE
45	*Papaver somniferum*	PAPAVERACEAE
143	*Passiflora incarnata*	PASSIFLORACEAE
39	*Pastinaca sativa*	APIACEAE
91	*Petroselinum crispum*	APIACEAE
195	*Phaseolus vulgaris*	FABACEAE
139	*Phoradendron tomentosum*	VISCACEAE
283	*Phytolacca americana*	PHYTOLACCACEAE
89	*Pimpinella saxifraga var. saxifraga*	APIACEAE
105	*Pinus echinata*	PINACEAE
233	*Platanus occidentalis*	PLATANACEAE
29	*Platycladus orientalis*	CUPRESSACEAE
314	*Podophyllum peltatum*	BERBERIDACEAE
57	*Polemonium reptans*	POLEMONIACEAE
193.1	*Polygala boykinii*	POLYGALACEAE
190.2	*Polygala boykinii*	POLYGALACEAE
197.4	*Polygala boykinii*	POLYGALACEAE
190.1	*Polygala curtissii*	POLYGALACEAE
197.3	*Polygala incarnata*	POLYGALACEAE
197.2	*Polygala mariana*	POLYGALACEAE
190.3	*Polygala polygama*	POLYGALACEAE
197.1	*Polygala verticillata*	POLYGALACEAE
299	*Polygonatum biflorum*	LILIACEAE
79	*Polygonum aviculare*	POLYGONACEAE
80	*Polygonum punctatum var. confertiflorum*	POLYGONACEAE
207	*Polypodium virginianum*	POLYPODIACEAE
243	*Populus x jackii*	SALICACEAE
83	*Porteranthus stipulatus*	ROSACEAE
2	*Porteranthus trifoliatus*	ROSACEAE
36	*Potentilla simplex*	ROSACEAE
254	*Prenanthes autumnalis*	ASTERACEAE
312	*Prunus caroliniana*	ROSACEAE
16	*Prunus persica*	ROSACEAE
126	*Pseudognaphalium obtusifolium*	ASTERACEAE
141	*Ptelea trifoliata ssp. trifoliata var. trifoliata*	RUTACEAE
132	*Pyrrhopappus pauciflorus*	ASTERACEAE

Accession Number	Species/subspecies	Family
223	*Quercus alba*	FAGACEAE
183	*Raphanus raphanistrum*	BRASSICACEAE
118	*Rhus glabra*	ANACARDIACEAE
202	*Rosa carolina*	ROSACEAE
153	*Rosmarinus officinalis*	LAMIACEAE
114	*Rosmarinus officinalis*	LAMIACEAE
180	*Rubus argutus*	ROSACEAE
94	*Rubus occidentalis*	ROSACEAE
303	*Rumex altissimus*	POLYGONACEAE
298	*Rumex crispus*	POLYGONACEAE
301	*Rumex patientia*	POLYGONACEAE
291	*Ruta graveolens*	RUTACEAE
59	*Sabatia angularis*	GENTIANACEAE
248	*Salix nigra var. nigra*	SALICACEAE
151	*Salvia lyrata*	LAMIACEAE
77	*Salvia lyrata*	LAMIACEAE
72	*Salvia officinalis*	LAMIACEAE
156	*Salvia sclerea*	LAMIACEAE
313	*Sanguinaria canadensis*	PAPAVERACEAE
33	*Sanicula marilandica*	APIACEAE
271	*Sassafras albidum*	LAURACEAE
200	*Saururus cernuus*	SAURURACEAE
175	*Scutellaria elliptica var. elliptica*	LAMIACEAE
171	*Scutellaria ovata ssp. mexicana*	LAMIACEAE
164.2	*Scutellaria parvula var. parvula*	LAMIACEAE
160.2	*Scutellaria parvula var. australis*	LAMIACEAE
165	*Scutellaria parvula var. parvula*	LAMIACEAE
229	*Sebastiania fruticosa*	EUPHORBIACEAE
287	*Senna italica*	FABACEAE
286	*Senna marilandica*	FABACEAE
167	*Sesamum orientale*	PEDALIACEAE
288	*Silene caroliniana var. pensylvanica*	CARYOPHYLLACEAE
262	*Silphium perfoliatum*	ASTERACEAE
38	*Sinapis alba*	BRASSICACEAE
186	*Sisyrinchium langloisii*	IRIDACEAE
25	*Smilax glauca*	SMILACACEAE
108	*Smilax herbacea*	SMILACACEAE
247	*Smilax laurifolia*	SMILACACEAE
34	*Solanum pseudocapsicum*	SOLANACEAE
18	*Solanum ptychantum*	SOLANACEAE
62	*Solanum tuberosum*	SOLANACEAE
267	*Solidago caesia*	ASTERACEAE

Accession Number	Species/subspecies	Family
244.8	*Solidago odora*	ASTERACEAE
253	*Solidago odora*	ASTERACEAE
244.2	*Solidago odora*	ASTERACEAE
244.3	*Solidago odora*	ASTERACEAE
128	*Sonchus oleraceus*	ASTERACEAE
112	*Spigelia marilandica*	LOGANIACEAE
238	*Spinacea oleracea*	CHENOPODIACEAE
32	*Staphylea trifolia*	STAPHYLEACEAE
226	*Stillingia sylvatica ssp. sylvatica*	EUPHORBIACEAE
115	*Symphytum officinale*	BORAGINACEAE
5	*Symplocos tinctoria*	SYMPLOCACEAE
261	*Tanacetum parthenium*	ASTERACEAE
131	*Tanacetum parthenium*	ASTERACEAE
256	*Tanacetum vulgare*	ASTERACEAE
252	Taraxacum officinale	ASTERACEAE
225	*Taxodium disticum var. imbricarium*	CUPRESSACEAE
188	*Tephrosia onobrychoides*	FABACEAE
189	*Tephrosia virginiana*	FABACEAE
177	*Teucrium canadense*	LAMIACEAE
219	*Thalia dealbata*	MARANTACEAE
172	*Thymus vulgaris*	LAMIACEAE
214	*Tilia americana var. heterophylla*	TILIACEAE
293	*Tillandsia usneoides*	BROMELIACEAE
4	*Toxicodendron radicans ssp. negundo*	ANACARDIACEAE
265	*Tragopogon porrifolius*	ASTERACEAE
78	*Trapaeolum majus*	TRAPAEOLACEAE
1.1	*Trifolium pratense*	FABACEAE
1.2	*Trifolium reflexum*	FABACEAE
210.1	*Trillium cuneatum f. cuneatum*	LILIACEAE
210.2	*Trillium cuneatum f. cuneatum*	LILIACEAE
69.1	*Trillium cuneatum*	LILIACEAE
295	*Trillium erectum var. erectum*	LILIACEAE
210.3	*Trillium gracile f. gracile*	LILIACEAE
103	*Triosteum angustifolium*	CAPRIFOLIACEAE
104	*Triosteum perfoliatum*	CAPRIFOLIACEAE
220	*Tsuga canadensis*	PINACEAE
292	*Vaccinium corymbosum*	ERICACEAE
52	*Verbascum thapsus*	SCROPHULARIACEAE s.s.
133	*Verbesina virginica*	ASTERACEAE
35	*Vernonia noveboracensis*	ASTERACEAE
212	*Viburnum opulus var. opulus*	CAPRIFOLIACEAE

Accession Number	Species/subspecies	Family
154	*Veronicastrum virginicum*	VERONICACEAE
111	*Viburnum prunifolium*	CAPRIFOLIACEAE
217	*Vitis aestivalis var. lincecumii*	VITACEAE
10	*Xanthorhiza simplicissima*	RANUNCULACEAE
240	*Zanthoxylum clava-herculis*	RUTACEAE

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Vita

Joanne Lemay Birch was born in Wanganui, New Zealand on February 13, 1970, the daughter of Warren and Lorraine Birch. She completed her schooling at Tawa College, New Zealand before attending Victoria University of Wellington, New Zealand from 1987-1990, completing her Bachelor of Science in December,1990. Following an extended period living and working in London and traveling throughout England and Europe she moved to Austin, Texas where she attended the University of Texas at Austin completing her B.S. in Ecology, Evolution, and Behavior in August, 2001. During this time she worked as the Head Curatorial Assistant at the Plant Resources Center. She entered The Graduate School at the University of Texas at Austin in September, 2001 and received a College of Natural Sciences Dean's Excellence Award to accompany her admission. She taught Ecology and Evolution and Native Plants as a Teaching Assistant while at the University of Texas. She received a Graduate Student Professional Development Award from the Office of Graduate Studies and a Plant Biology Graduate Program Travel Award in support of her research.

Permanent Address: 12 Major Durie Place
Waikanae, New Zealand 6010

This thesis was typed by the author.