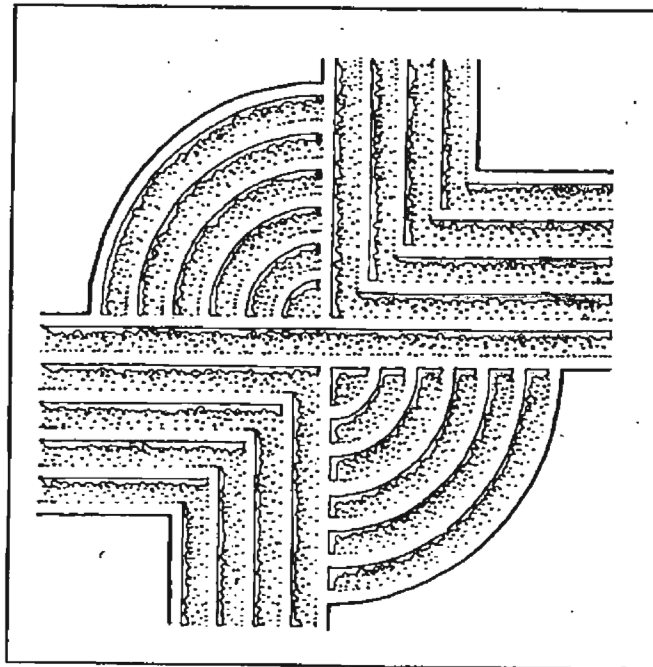


ETHNOBOTANICAL ANALYSIS OF SAMPLES FROM
THE JACKSON SHRINE, CAROLINE COUNTY,
VIRGINIA



RESEARCH CONTRIBUTION 9

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ETHNOBOTANICAL ANALYSIS OF SAMPLES FROM THE JACKSON SHRINE,
CAROLINE COUNTY, VIRGINIA

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Chicora Research Contribution 9

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August 1985

Introduction

During December 1983 archaeologists contracted by the National Park Service Denver Service Center continued test excavations at the Jackson Shrine site, Caroline County, Virginia. This site is situated in the Virginia Piedmont, about 10 miles southwest of Fredericksburg and represents primarily a historic farmstead of the late eighteenth through mid-nineteenth centuries.

While the property was granted to Major Francis Thornton in the 1670s, there is no historical evidence of structures on the Fairfield plantation prior to 1782 (Linck 1983:4). The Shrine structure is known to have stood since 1828, but archaeological evidence suggests that occupation may date to the mid-eighteenth century (Linck 1983:5). These archaeological data indicate that the structure and site area may be related to eighteenth century plantation activities or possibly to a tenant farmer. Consequently, the data are useful in the study of eighteenth century English plantation and farmstead lifestyles in Virginia. The structure receives its name, if not its importance, from having sheltered the Confederate General "Stonewall" Jackson during his last few days.

The archaeological investigations conducted in December 1983 further explored an unusual feature first identified by Linck in May 1983. Feature 8 is a roughly square pit which measures about 5 feet on a side and 1 foot in depth below the 1.05 foot deep plowzone soil. The pit fill was a dark mottled sand with abundant charcoal, bone, and pottery. No natural levels were observed in

the fill and three arbitrary levels were excavated: 1.05 - 1.40 feet, 1.40 - 1.80 feet, and 1.80 - 1.90 feet. The feature, however, evidenced considerable rodent disturbance, with shredded rubber found to the 1.80 foot depth.

Artifacts from the feature include delft, creamware, white salt-glazed stoneware, westerwald stoneware, and porcelain. These, and other datable eighteenth century ceramics, provide a Mean Ceramic Date (South 1977) of 1757 (Dana Linck, personal communication 1984). The feature, however, also contained 23 sherds of whiteware, which if added to the Mean Ceramic Date calculations would provide a date of 1772. While creamware and jackfield ceramics provide a TPQ date of 1765, the whiteware will provide a TPQ date of 1820. Consequently, the Feature 8 fill may be considered either mid-eighteenth or early nineteenth century, depending on whether the whiteware is viewed as intrusive or as a legitimate aspect of the fill. Other artifacts include Colono ware, pipestems, bottle glass, wrought nails, brass pins, knife blades, and a pewter spoon.

No function for this pit has been conclusively demonstrated, although the homogeneous fill and quantity of artifacts suggest that the hole was rapidly filled with domestic debris (see also Reinhard 1984:4). Linck (personal communication 1985) has suggested that it may represent a "root cellar" or interior, hearth-side storage area which was rapidly filled as the structure was abandoned.

The excavation of the feature and subsequent handling of the soil presents some analytic problems. Field conditions prevented any sifting or flotation of the fill when originally excavated, so the soil was allowed to air dry under cover, boxed, and shipped to Denver. All of the feature fill, or about 13.25 ft³, was collected. During this excavation process, however, some carbonized items were handpicked from the matrix. These items were bagged as "troweling." In Denver the soil was first screened through 1/4-inch mesh.

Obvious charcoal retained by the screening was handpicked and bagged as "sifting." The coarse material remaining in the screen was waterscreened through 1/16-inch screen. Charcoal was handpicked from this waterscreening and bagged as "waterscreening." Finally, the soil which passed through the 1/4-inch screening (approximately 10 ft³) was water floated with the light fraction poured off into geological sieves (numbers 30, 50, 100, 200). All of this material was bagged as "flotation."

Available for analysis, therefore, was virtually 100% of the material recovered from the feature, including the directly overlying plowzone soils. The total weight of ethnobotanical remains from Feature 8 is over 3045 g, of which the flotation sample accounts for 2416 g or 80%.

All of the handpicked "troweling," "sifting," and "waterscreening" samples were examined, but the flotation samples were too large to allow complete sorting. Consequently, only a sample of these remains was examined. The flotation from level 1.05 to 1.40 feet weighed 975.6 g and 57.08 g were sorted (5.9%). The 1.40 to 1.80 foot level produced 1391.9 g of floated remains, of which 69.94 g or 4.6% was examined in this study. The final flotation sample, from 1.80 to 1.90 feet, weighed only 46.46 g and all of this sample was sorted.

Procedures and Results

The three flotation samples were prepared in a manner similar to that described by Yarnell (1974:113-114) and were examined under low magnification (7 to 30x) to identify carbonized plant foods and food remains. Remains were identified on the basis of gross morphological features and seed identification relied on U.S.D.A. (1948, 1971), Martin and Barkley (1961), and Montgomery (1977). The float sample from the 1.05 to 1.40 foot level was approximately 5.5 ft³, that from the 1.40 to 1.80 foot level was 6.2 ft³, and the sample from the 1.80 to 1.90

foot level was slightly under 1.6 ft³. The results of this analysis are shown in Table 1.

Wood charcoal is the dominant component of each sample, with the incidence ranging from 50 to 97.1% by weight. The only food is wheat (Triticum aestivum) represented by two seeds from the 1.40 to 1.80 foot and 1.80 to 1.90 foot levels. Food remains include a small quantity of corn (Zea mays) cupule from the 1.40 to 1.80 foot level. A single seed of mullein (Verbascum sp.) was found in the 1.80 to 1.90 foot level. Two badly fragmented seeds were found in the samples.

It should be remembered, however, that these flotation samples represent only one aspect of the ethnobotanical remains from Feature 8. A large quantity of material had been removed before the soil was finally subjected to flotation, so that these samples are not representative of the feature. They, however, do suggest that the various screenings and handpickings were successful in the removal of most ethnobotanical components from the feature samples. Consequently, the handpicked specimens are more likely to provide a realistic reconstruction of the feature's ethnobotanical record than are the flotation samples.

The handpicked samples also were examined under low magnification (7 to 30x) with larger pieces of wood charcoal identified, where possible, to the genus level, using comparative samples, Panshin and de Zeeuw (1970), and Koehler (1917). Wood charcoal samples were broken in half to expose a fresh transverse surface. The seeds and food remains from the handpicked samples were identified on the basis of gross morphological features. The remains identified from these handpicked samples are tabulated in Table 2.

The wood charcoal from Feature 8 is primarily oak (Quercus sp.), although small quantities of hickory (Carya sp.), elm (Ulmus sp.), and dogwood (Cornus florida) were identified. Also recovered were fragments of carbonized

level	Wood Charcoal		Bone		Debris		Corn Cupule		Seeds		Total		seeds
	wt	%	wt	%	wt	%	wt	%	wt	%	wt	%	
1.05-1.40'	28.54	50.0	0.18	0.3	28.36	49.7			t	-	57.08	100	1 UID
1.40-1.80'	56.53	88.4			6.45	10.1	0.94	1.5	0.02	-	63.94	100	1 UID, 1 <u>Triticum aestivum</u>
1.80-1.90'	45.11	97.1	0.01	-	1.32	2.8			0.02	0.1	46.46	100	1 <u>Triticum aestivum</u> , 1 <u>Verbascum</u> sp.

t = less than 0.01 g

Table 1. Flotation sample components from Feature 8, Jackson Shrine, Virginia. Weight is in grams.

Samples	Wood	Walnut	Corn			Animal		Seeds
	Charcoal	Nutshell	Cob	Cupule	Kernal	Debris	Bone	
Plowzone (B-2, 3, 4, 5)	25.88	1.08						1 <u>Prunus</u> sp. 0.07 g 1 UID t
1.05-1.40' (B-6, 7, 18)	371.19	3.95		1.46	0.56 (10)	2.59	0.43	17 <u>Strophostyles helvola</u> 0.42 g 5 Leguminosae 0.15 g 1 <u>Pyrus communis</u> (?) t 1 <u>Ipomoea</u> sp. t 1 <u>Lathyrus latifolius</u> 0.01 g 1 <u>Triticum aestivum</u> 0.01 g 1 <u>Cucurbita</u> sp. 0.03 g 5 UID 0.61 g 1 plant part 0.12 g
1.40-1.80' (B-9, 10, 11, 19, 20, 21)	162.84	1.18	12.27	8.53	1.25 (8)	0.99	2.69	7 <u>Prunus</u> sp. 0.45 4 <u>Strophostyles helvola</u> 0.24 g 64 <u>Triticum aestivum</u> 0.39 1 <u>Setaria</u> sp. 0.2 g 20 <u>Citrullus vulgaris</u> 0.42 g 24 <u>Centrosema virginianum</u> 0.56 g 1 <u>Carpinus caroliniana</u> 0.01 g 1 <u>Euphorbia</u> sp. t 1 acorn shell fragment t 27 UID 1.19 g 2 plant parts 0.74
1.80-1.90' (B-13, 14, 16, 17)	15.27			0.07				10 <u>Vitis</u> sp. 0.05 g 1 <u>Citrullus vulgaris</u> 0.02 g 1 <u>Strophostyles helvola</u> 0.04 g 1 UID 0.02 g

t = less than 0.01 g

Table 2. Analysis of handpicked specimens from Feature 8, Jackson Shrine, Virginia. Weight is in grams.

bark and possible spruce needle pieces (Picea sp.) Walnut (Juglans sp.) nutshell fragments are found throughout the feature. A small sample of acorn shell was recovered from the 1.40 to 1.80 foot level.

Corn is present in small quantities in all levels of the feature. A total of three cob fragments were recovered from the pit, all from the 1.40 to 1.80 foot level. All of the cob fragments appear to be mature, mid-shaft specimens and circular in cross section. Two are 10 row corn, while one is 8 row. The cupules are paired, ranging from 9.8 to 10.9 mm in width and 3.3 mm in length (3 per 10 mm of length). Eighteen fragmentary kernels were identified from the collection. None evidence denting and the only well preserved specimen measures 19 mm in depth and 15 mm in width, yielding a w/d ratio of less than 1. Cupules are fairly common in the collections, usually in a highly fragmented condition.

The Feature 8 corn bears a strong resemblance to the Northern Flints, described by Carter and Anderson (1945), Jones (1949, 1968), and Brown and Goodman (1977). They are characterized by ears possessing eight to 10 rows of crescent-shaped kernels, short plants which are highly tillered, and ears which are frequently enlarged at the base. The cobs are large and grooves separate the cupules. The one measurable kernel from Feature 8 is deeper than it is wide, but this single attribute, from one specimen, is less significant than the row number, cob cross section, and absence of kernel denting. Brown and Goodman (1977:73) note that the Northern Flints "were, until the early 1800's, the dominant type of corn of eastern North America." During the early nineteenth century the 8 and 10 row Northern Flints combined with the many-rowed Southern Dents to produce the hybrid corn belt dents (Brown and Anderson 1947:16).

The handpicked samples also yielded 13 genera of seeds, the most common of which were wheat (Triticum aestivum), wild plum or cherry (Prunus sp.),

watermelon (Citrullus vulgaris), butterfly pea (Centrosema virginianum), and wild bean (Strophostyles helvola). Also recovered were minor numbers of pear (Pyrus communis) (identification tentative), everlasting pea (Lathyrus latifolius), squash (Cucurbita sp.), ironwood (Carpinus caroliniana), grape (Vitis sp.), morning glory (Ipomoea sp.), foxtail grass (Setaria sp.), and Euphorbia sp., a type of spurge. Also found in the flotation samples was mullein (Verbascum sp.).

Discussion

The ethnobotanical samples from Feature 8 provide considerable information on the plant foods used at the site, as well as the general site environs. Food plants and food remains may be divided into cultivated and wild species. The cultivated specimens include wheat, corn, squash, watermelon, and the possible example of pear. Wild specimens definitely include walnut nutshell, and probably include the plum or cherry and grape.

Wheat is a common cereal grain, grown chiefly for its use as flour, although it may be fed to livestock and the plant is useful as pasturage and hay. The typical variety grown in the South is winter wheat, which is sown in the fall. The wheat will be harvested when the grains are soft enough to be indented by the fingernail, but too hard to be easily crushed, usually in May or June (Duggar 1921:40-59).

Hilliard (1972:6, 161-162) notes that while corn was the major Southern cereal crop, wheat was common. He notes that "[1]ong before the end of the eighteenth century, an embryonic wheat belt had developed with its axis running southwest from the lower Hudson River valley into North Carolina (Hilliard 1972:6). Its principal area during the antebellum period was the Piedmont of Georgia, the Carolinas, Virginia, and Maryland. Wheat production in Caroline County, Virginia by 1840 was between 4 and 8 bushels per capita and over 120

bushels per square mile (Hilliard 1984:57-59).

The emphasis by Southern farmers on corn, also found in Feature 8, may be related to environmental factors. The annual rainfall in Caroline County is about 44 inches a year. When rainfall approaches 50 inches a year wheat is heavily affected by a rust fungus, greatly lowering its yields (Duggar 1921:60-61; Taylor 1982:21). Hilliard (1972:162), however, notes that corn was easier and less expensive to grow, and that corn found a more stable market than did wheat. Corn production in Caroline County, Virginia yielded 30 to 40 bushels per capita and over 1000 bushels per square mile in 1840 (Hilliard 1984:63-64).

Corn may be planted from April to June, or as soon as killing frosts are past. The harvest of corn may be delayed until the early fall, although rainfall and weevils can do considerable damage (Duggar 1921:168-169; Hilliard 1972:154). Hilliard (1972:150-160) discusses the cultivation of corn during the antebellum period.

Squash is uncommon in Feature 8, although a quantity of watermelon seeds were recovered. Hilliard (1972:173, 179) notes that both were regional crops, with squash grown as a garden crop and watermelon as a field crop. Squash bears fruit from May or June until the frost, while watermelon usually ripens in August until first frost. The cultivation of both plants is similar, being characterized by the abundant application of manure. Youman notes that "the land should be made deep and rich, the richer the better, particularly in the hills; the best manure being composted hen droppings" (Youman 1873:146).

Hilliard notes that while the South's climate favored fruit production, "[i]n practice . . . orchard crops did not attain the importance . . . expected" (Hilliard 1972:180). This same view is provided by Cummings, who states, "[f]armers suffered a lack of fresh fruits . . . [e]ven on the seaboard, it was noted in 1833, few farmers had many fruit trees" (Cummings 1970:21).

Consequently, while a pear seed has been tentatively identified from Feature 8, it is unlikely that it represents a major agricultural or economic investment.

Pears are generally a difficult fruit to produce. The trees require deep, well-drained soil in a location as frost-free as possible. They begin bearing from August through October several years after planting (Ridley n.d.: 13-15).

While plum, cherries, and grapes may be grown as cultivated crops, colonial farmers frequently took advantage of wild species (Hilliard 1972:180-182). Simmons notes in her 1796 cookbook that grapes "are natural to the climate; grow spontaneously in every state in the union" (Simmons 1984:17). Plums, found wild on woodland borders and abandoned fields, ripen from July through October, while cherries ripen slightly later than plums (Radford et al. 1968:565-569). Grapes, found in low woods and along streambanks, ripen from August through October (Radford et al. 1968:695-697).

Walnut trees are found primarily in rich, moist, but well-drained woods. Stands are common and the trees produce abundant crops perhaps twice in 5 years. The nuts ripen in September or October and drop shortly after the leaves fall (Fowells 1965:204). The walnut is very high in calories (628 calories per 100 g) and has about equal amounts of carbohydrates and protein (14.8 g carbohydrates and 20.5 g protein per 100 g) (Kirschmann 1979:220). Hilliard suggests that nuts were a frontier food, seldom "intended to supply a large portion of the needed food" but rather used for variety and winter food (Hilliard 1972:89). While this is certainly true, walnuts were also a delicacy. Rutledge's 1847 cookbook provides a recipe for "walnut catsup" (Rutledge 1979:184). The fruit was also an important food of the Indians and English colonists (see Harriot 1951:D). Walnut, however, is known to have a variety of herbal and medicinal qualities. The fresh green husk of the nut is used to treat ringworm and a decoction may be

taken as a vermifuge. The husk juice may be used as a dark brown stain (Morton 1974:85-86; see also Millspaugh 1974:628-630).

Feature 8 also produced a variety of plant seeds which are not normally considered food sources, such as the wild bean, morning glory, everlasting pea, butterfly pea, ironwood, spurge, foxtail grass, and mullein. Most of these today are considered weeds -- or plants unwanted by man. They are indicative of the environment surrounding Feature 8 and some of the plants may have herbal or medicinal uses.

The wild bean (Strophostyles helvola), which has no reported economic uses, is a herbaceous vine found in open woods and clearings. The plant fruits from August through October. The everlasting pea (Lathyrus latifolius) is a perennial herb with a climbing or sprawling stem. The plant is found in waste places or disturbed ground and fruits from May through September. The butterfly pea (Centrosema virginianum) is likewise a perennial herbaceous vine found in open woods and clearings. It fruits from July through October. Foxtail grass (Setaria sp.) is an annual or perennial grass found in fields or waste places. The plant fruits from May to October.

The morning glory (Ipomoea sp.) is a herbaceous annual found in fields, waste places, and at woodland margins. The flower fruits from September until the first frost. Of the morning glory species, several have been found to have economic uses. Morton (1974:83) reports that the root produces a mildly cathartic juice and that when roasted the root resembles sweet potatoes, but is slightly bitter. Millspaugh (1974:479-481) notes that a tincture of the whole plant may be used as a purgative. The spurge (Euphorbia sp.) includes a number of species which are annual or perennial herbs, shrubs, or trees. The plants may be found in old or cultivated fields and waste places. The date of fruiting depends on the individual species, but is usually from the late summer through mid-fall.

Plants of this genus all produce similar reactions. An infusion or a tincture of the plant is astringent and slightly narcotic. The plant is also reported to be an acrid poison and severe irritant of the mucous membranes (Millspaugh 1974:592). Mullein (Verbascum sp.), an erect perennial or biennial, is found in pastures and waste places. The plant fruits from June through September. Millspaugh (1974:430-434) notes that the family in which Verbascum is found is noted for its narcotic and poisonous species. Mullein seeds are employed to stupefy fish (Millspaugh 1974:434), but the principal use of this plant in medicine has been as an "anodyne-pectoral" and as a remedy for "diarrhoeas" (Millspaugh 1974:432).

The last species to be considered is hornbeam or ironwood (Carpinus caroliniana). The ironwood tree is found mainly in the understory on rich, moist bottomland soils. The plant fruits from August to October (Radford 1968:370). Although Carpinus is not reported to have herbal uses, a decoction of the heartwood of the related hop-hornbeam (Ostrya virginiana) is used as a tonic (Millspaugh 1974:638).

While the ethnobotanical remains from Feature 8 provide little information on the possible function of the pit, they do offer some information on the nature of the historical site and its occupants. The wheat, squash, watermelon, corn, and possible pear provide a view of the crops typically grown on a small farm in this region of Virginia. The presence of grape, plum or cherry, and walnut indicates the gathering of wild foods. The remainder of the seeds identified from Feature 8 are from primarily "weedy plants" and are therefore indicative of a disturbed habitat such as would be expected around buildings, pens, and cultivated fields. Some are known to have herbal uses, although such use cannot be documented in the ethnobotanical record.

The ethnobotanical evidence for a disturbed habitat is not greatly

different from that suggested by Reinhard (1984:6). Several of the wood charcoal species (oak and elm) are also observed in the pollen record, although pollen of hickory and dogwood were not identified. The presence of walnut, observed in the ethnobotanical record as nutshell fragments, also was recorded in the pollen study. Other species, identified from the pollen counts, such as maple, alder, ash, holly, cedar, sweet gum, pine, and cottonwood or poplar, were not found carbonized in Feature 8.

Zierden and Trinkley (1984:99) speculated that farmstead sites would not only produce larger quantities of ethnobotanical remains than urban sites, but that the remains would show more diversity. The analysis of ethnobotanical samples from Feature 8 at the Jackson Shrine supports this speculation. This work also documents the importance of the ethnobotanical record to historical archaeologists.

Sources Cited

Brown, William L. and Edgar Anderson

1947 The Northern Flint Corns. Annals of the Missouri Botanical Garden 34:1-20.

Brown, William L. and Major M. Goodman

1977 Races of Corn. In Corn and Corn Improvement, edited by G.F. Sprague, pp. 49-88. American Society of Agronomy, Madison, Wisconsin.

Carter, G. F. and Edgar Anderson

1945 A Preliminary Survey of Maize in the Southwestern United States. Annals of the Missouri Botanical Garden 32:297-322.

Cummings, Richard O.

1970 The American and His Food. Arno Press and The New York Times, New York.

Duggar, John F.

1921 Southern Field Crops. MacMillan Company, New York.

Fowells, H. A.

1965 Silvics of Forest Trees of the United States. Agricultural Handbook Number 271. United States Department of Agriculture, Washington, D.C.

Hariot, Thomas

1951 A Briefe and True Report of the New Found Land of Virginia. Reprinted. History Book Club, New York. Originally published 1588, London.

Hilliard, Sam B.

1972 Hog Meat and Hoecake: Food Supply in the Old South, 1840-1860. Southern Illinois University Press, Carbondale.

1984 Atlas of Antebellum Southern Agriculture. Louisiana State University Press, Baton Rouge. '

Jones, Volney H.

1949 Maize from the Davis Site: Its Nature and Interpretations. In The George C. Davis Site, Cherokee County, Texas, edited by H. Perry Newell and Alex D. Krieger, pp. 241-247. Memoir 5. Society for American Archaeology.

1968 Corn from the McKees Rock Village Site. Pennsylvania Archaeologist 38:81-86.

Kirschmann, John D.

1979 Nutrition Almanac. McGraw Hill, New York.

Koehler, Arthur

1917 Guidebook for the Identification of Woods Used for Ties and Timber.

United States Department of Agriculture, Forest Service,
Washington, D.C.

Linck, Dana C.

- 1983 Preliminary Report of Archaeological Testing - Jackson Shrine
Fredericksburg and Spotsylvania County Battlefields Memorial
National Military Park, Caroline County, Virginia. Ms. on file,
U.S. Department of the Interior, National Park Service, Denver.

Martin, Alexander C. and William D. Barkley

- 1961 Seed Identification Manual. University of California Press,
Berkeley.

Millspaugh, Charles F.

- 1974 American Medicinal Plants. Reprinted. Dover Publishers, New
York. Originally published 1892 under the title Medicinal
Plants, John C. Yorston, Philadelphia.

Montgomery, F. H.

- 1977 Seeds and Fruits of Eastern Canada and Northeastern United States.
University of Toronto Press, Toronto.

Morton, Julia F.

- 1974 Folk Remedies of the Low Country. E.A. Seeman, Miami, Florida.

Panshin, A. J. and Carl de Zeeuw

- 1970 Textbook of Wood Technology, vol. 1. McGraw-Hill, New York.

Radford, Albert E., Harry E. Ahles, and C. Ritchie Bell

- 1968 Manual of the Vascular Flora of the Carolinas. University of
North Carolina Press, Chapel Hill.

Reinhard, Karl J.

- 1984 Parasitological and Palynological Investigations of Soils from
Feature 8, Jackson Shrine, Fredericksburg, Virginia. Ms. on file,

U.S. Department of the Interior, National Park Service, Denver.

Ridley, John D.

- n.d. Growing Fruits at Home. Cooperative Extension Service, U.S. Department of Agriculture, Clemson University, Clemson, South Carolina.

Rutledge, Sarah

- 1979 The Carolina Housewife. Reprinted. University of South Carolina Press, Columbia. Originally published 1847, W.R. Babcock, Charleston, South Carolina.

South, Stanley

- 1977 Method and Theory in Historical Archaeology. Academic Press, New York.

Taylor, Joe G.

- 1982 Eating, Drinking, and Visiting in the South: An Informal History. Louisiana State University Press, Baton Rouge.

U. S. Department of Agriculture

- 1948 Woody Plant Seed Manual. Miscellaneous Publication 654, Forest Service, Washington, D.C.
- 1971 Common Weeds of the United States. Reprinted. Dover Publications, New York. Originally published 1970 under the title Selected Weeds of the United States, U.S.D.A., Washington, D.C.

Yarnell, Richard A.

- 1974 Plant Food and Cultivation of the Salts Cavers. In Archaeology of the Mammoth Cave Area, edited by P. J. Watson, pp. 113-122. Academic Press, New York.

Youman, A. E.

- 1873 A Dictionary of Everyday Wants Containing Twenty Thousand Receipts

in Nearly Every Department of Human Effort. Frank E. Reed,
S. J. Vandersloot, and Charles A. Stebbins, New York, Philadelphia,
and Providence.

Zierden, Martha A. and Michael Trinkley

1984 World Enough and Time: Ethnobotany and Historical Archaeology.
South Carolina Antiquities 16:87-104.

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