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A 7,290-YEAR-OLD BOTTLE GOURD FROM THE WINDOVER SITE, FLORIDA

Glen H. Doran, David N. Dickel, and Lee A. Newsom

A bottle gourd (Lagenaria siceraria) recovered from a burial context at the Windover site (8BR246) in east-central Florida has been dated directly to 7,290 ± 120 radiocarbon years B.P. This provides the earliest documentation of bottle gourds north of Mexico and demonstrates approximate contemporaneity with other eastern United States Cucurbitaceae. Investigations of wet sites such as Windover, while requiring substantially greater consideration of conservation than in typical dry sites, greatly expands the recovery of organic materials enabling broader insights to prehistoric processes.

Una calabaza vinatera (Lagenaria siceraria) descubierta en el contexto de un enterramiento en el sitio de Windover en la parte este de la Florida central ha sido fechada a 7,290 ± 120 años radiocarbonos antes del presente. Esto es la documentación más antigua para este tipo de cucúrbita en una localidad norte de México, y demuestra la contemporaneidad con Cucurbitaceae de la parte este de los Estados Unidos. Investigaciones de sitios majados como Windover, aunque necesitan más consideración de conservación que sitios secos, aumentan el descubrimiento de materiales orgánicos y permiten una mejor comprensión de los procesos prehistóricos.

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Wet sites are well known for their impressive preservative abilities (Coles 1988; Coles and Lawson 1987; Purdy 1988; Sears 1982). To a large extent, variability of water and peat chemistry determine which organic materials will be preserved. In bog settings plant material forms the bulk of the peat matrix. Acid peat bogs in Europe are known for their preservation of "bog bodies" with intact skin, hair, and fabrics, mostly from the last 2,500 years (Fischer 1980; Glob 1969). Bone usually is preserved poorly, and efforts to extract and isolate DNA from the preserved tissues have been unsuccessful (Hughes et al. 1986).

Florida wet sites have provided archaeologists with a large collection of cultural materials (MacDonald and Purdy 1982). Florida wetland sites also have produced burials with a minimum of 280 individuals older than 5,000 radiocarbon years B.P. (Beriault et al. 1981; Clausen et al. 1975; Clausen et al. 1979; Cockrell 1973; Wharton et al. 1981). However, no New World bog bodies have been discovered, though as early as the 1950s brain tissue had been identified from some of the saturated Florida sites (Royal and Clark 1960). Samples of brain tissue from Windover and Little Salt Springs have provided indentifiable segments of mitochondrial DNA (Doran et al. 1986; Paabo et al. 1989).

At the Windover site (8BR246) in east-central Florida, skeletal material representing a minimum of 168 individuals—91 with preserved brain tissue—were buried with stone, bone, wood, dentary, and antler tools (Dickel 1988; Doran 1988; Doran and Dickel 1988a). Additionally, over 30 individuals with fabrics were recovered in the chemically neutral peat and water matrix.

Windover subadult burial 150 contained the remains of a bottle gourd, *Lagenaria siceraria* (Molina) Standley. Based on dental maturation and osteological development the individual's age at death was 13 years. The individual was buried with arms folded under the body, hands near the head, and in a more-or-less face-down position. The gourd was recovered from the dorsal surface of the midthorax region of the semiflexed burial, near the left shoulder and partially was underlain by fabric (Figure 1). Around the perimeter of the burial were wooden stakes and stacked unmodified branches. A combination of stacked unmodified branches and stakes commonly are associated with the intact burials and probably helped hold the bodies in place in the poorly consolidated peat matrix.

Other items with this individual include two kinds of fabrics, including close diagonal twining with a paired S-twist weft and close diagonal twining with an unusual treble S-twist weft (Andrews et al. 1988). A small poorly preserved wooden bowl of live oak (*Q. virginiana*) also was interred with the individual and was in direct contact with the gourd. Large fish spines were recovered from the neck/chest area of the individual; they are not unequivocally cultural in nature, however.

The gourd (see Figure 2, field label "unidentified organic material") was removed as a unit and submitted to Newsom for detailed analysis. The rind varies from 2.55 to 3.45 mm in thickness, with a mean of 3.0 mm, and is approximately 18 cm long and 10 cm wide. The specimen is complete except for the stem or neck and seeds (Newsom 1988). No materials other than an isolated human incisor, which almost certainly had been deposited secondarily, were found within the cavity of the gourd. This may indicate the gourd functioned as a container and was either empty or held a fluid. An examination of botanical remains from the previous two field seasons produced two additional small *Lagenaria* fragments less than 2 cm square. Efforts to isolate and extract mitochondrial DNA from fragments of the bottle gourd from burial 150 proved unproductive (C. Dickel, personal communication 1988).

The bottle gourd fragments from burial 150 provided a radiometric assay of $7,290 \pm 120$ radiocarbon years B.P. (Beta-20450; Doran and Dickel 1988b). This date agrees with a suite of other dates on human bone, wooden stakes, and peat. The mean radiocarbon date of acid-extracted bone collagen from five different individuals (both standard radiocarbon and accelerator mass spectrometry dating) is 7,496 radiocarbon years B.P. The mean date of three wooden stakes is 7,403 years B.P., the mean of four peat dates slightly above, below, and in contact with bone is 7,837 years B.P. (Doran and Dickel 1988b). Thirteen additional peat samples from throughout the site also were obtained for chronometric control of palynological, petrographic, microscopic, and other studies. Close agreement of dates obtained with several methods from a variety of materials suggest shallow primary burial.

A whole *Lagenaria* gourd also has been recovered from a Middle Archaic context at Little Salt

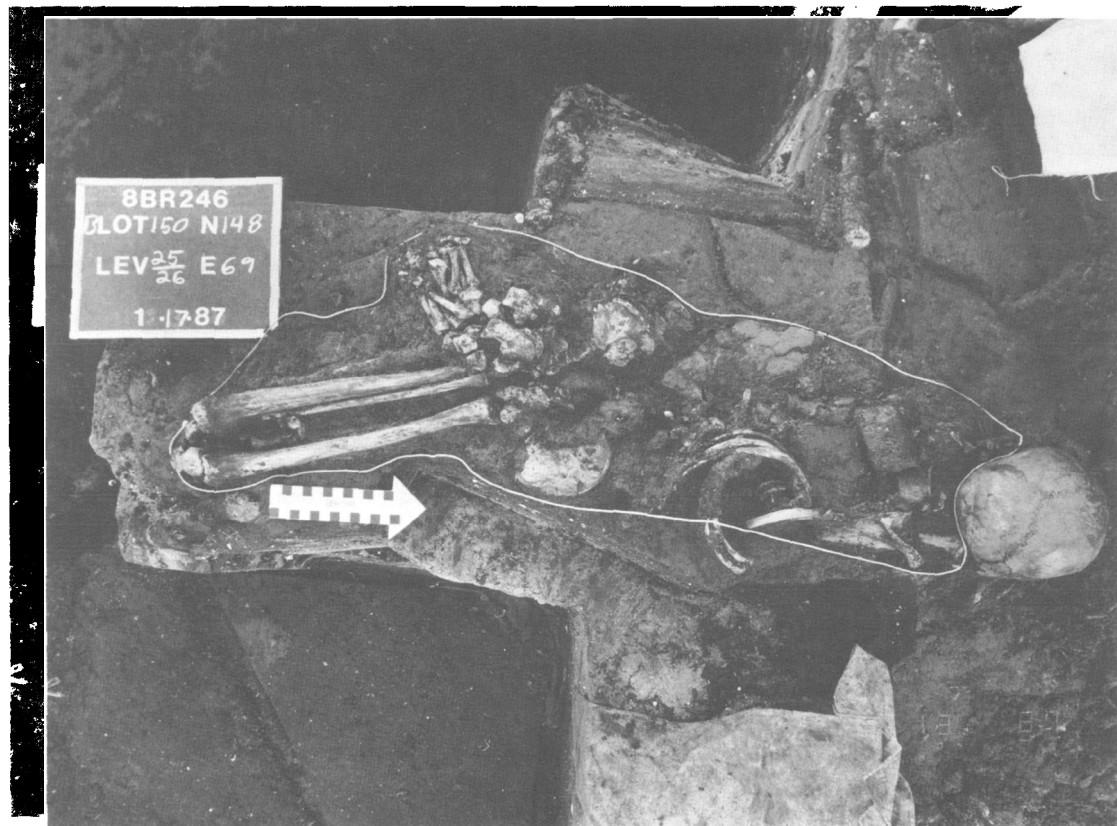


Figure 1. Burial 150 showing *Lagenaria siceraria* on dorsal portion of the body. The bottle gourd is the large, smooth oval-shaped item just above the ribs.

Springs, Florida, though it has not been dated directly (Newsom 1988). Bottle gourd rind also has been recovered by Newsom from an Orange period site (2000–500 B.C.) known as the Enterprise midden on Lake Monroe, 50 km northeast of Windover. Before Windover, the earliest firmly dated North American specimens of *Lagenaria* had been recovered from damp sediments at Phillips Spring, Missouri, with radiocarbon dates between 4220 ± 483 B.P. and 5070 ± 150 B.P. (Kay 1986). By contrast, squash remains have provided substantially earlier radiocarbon dates—Napoleon Hollow, Illinois, 7000 ± 250 B.P.; Koster, Illinois, 7100 ± 300 B.P. (Asch and Asch 1985; Conard et al. 1984:455). The Windover bottle gourd provides firm documentation that the North American appearance of this species is coeval with or slightly exceeds that of other Cucurbitaceae. Mesoamerica and South America have produced older *Lagenaria*: Guila Naquitz, Oaxaca—10,750 B.P. (Pickersgill and Heiser 1978) and in the Ayacucho Valley, Peru—8860 B.P. (MacNeish et al. 1970, but see Flannery [1973] for reservations on the dating). By 4000 B.P. *Lagenaria siceraria* was pandemic where environmental conditions allowed its growth (Clark 1962; Flannery 1973; Ford 1985; Richardson 1972).

Lagenaria often occurs as an early “domesticated” or “semidomesticated” prior to other evidence of significant reliance on cultivated plants; that is in hunting–gathering–fishing traditions (Bellwood 1985; Crawford and Yoshizaki 1987; Pearson 1986). There are numerous historic, ethnographic, and modern accounts of bottle gourd use in similar populations (Andrews and Andrews 1975; Heiser 1979; Milanich 1987). It has been suggested that the first “domestic” plants of the New World were not food sources, but utilitarian species, which provided hard, lightweight, durable utensils and containers (Moseley 1975; Pickersgill and Heiser 1978).

How *Lagenaria* arrived in the New World, presuming an Old World, specifically African, origin

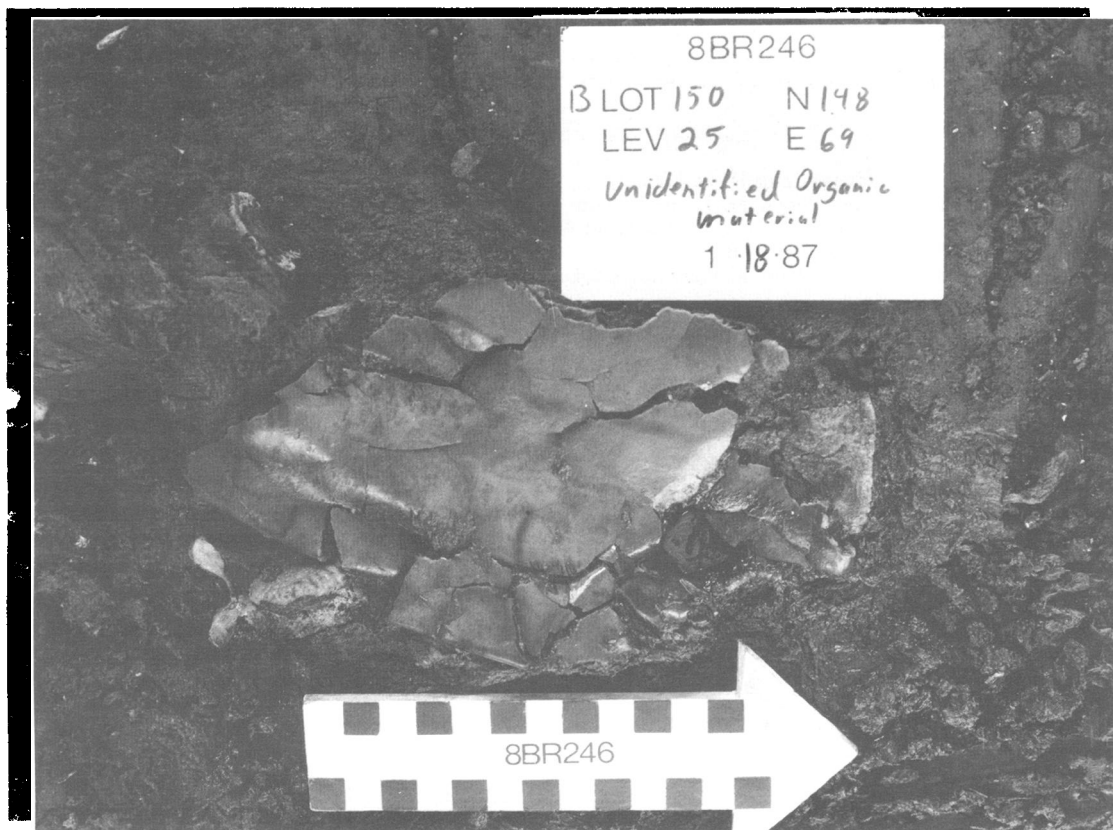


Figure 2. Closeup up of "unidentified organic material" prior to removal. Newsom provided the bottle-gourd ascription subsequent to fieldwork completion in late January of 1987.

(see Heiser 1989), is uncertain. The suggested possibilities run from transoceanic contact to natural oceanic drift (Camp 1954; Driver and Massey 1957; Heiser 1989; Jeffreys 1968; Lathrap 1973; Richardson 1972; Whitaker and Carter 1954). Heiser (1985:67) noted that the most likely places for ocean-transported gourds to make landfall were on the Brazilian or Central American coasts and sagely commented that "One might even, I suppose, conceive of an arrival in southeastern North America by ocean currents, if not from Africa then from tropical America." *Lagenaria's* early appearance in Florida does not resolve the question of arrival "down-the-line" by land, or by water (presumably unescorted). This may never be resolved, and in truth, it may not be critical. The early and widespread appearance of this multi-use species is important to our understanding of early plant utilization, perhaps manipulation, and is a more informative area of research.

Lagenaria's early appearance supports the proposition restated by Minnis (1985) that the incorporation of early cultivated plants into prehistoric economies, whether indigenous or introduced, caused barely a ripple. The transition to dependence on cultivated plants came later (King 1985; Watson 1985). The search for the earliest cultivated plant, or for that matter, the earliest fluted point, piece of fiber-tempered pottery, grinding tool, and so on, is, in and of itself, an unproductive goal, but attention to the basic time-space data is imperative (Watson and Kennedy 1990). Accurate perception of the temporal, cultural, and geographic patterning of such phenomena helps us understand the dynamics of trade networks, preadaptation, utilization and adaptation of cultivated species, and other sociocultural factors that are crucial to modern archaeological inquiry.

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Farms, Inc.), IBM, the National Geographic Society, the Ford Foundation, the Gannett Foundation, and the Jesse Ball DuPont Charitable, Religious, and Educational Foundation made the project possible. Bruce Smith arranged for the date on a gourd-rind fragment, and his interest and assistance are appreciated.

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REEVALUATION OF EARLY COCHISE ARTIFACT ASSOCIATIONS WITH PLEISTOCENE LAKE COCHISE, SOUTHEASTERN ARIZONA

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Materials belonging to the Sulphur Spring stage of the Cochise culture previously were identified on the prominent 1,274 m shoreline of Pleistocene Lake Cochise in southeastern Arizona. Dated ca. 12,000 to 11,000 years ago, the remains were suggested to represent an early Archaic manifestation deposited in ancient beach gravels, possibly contemporary with Clovis levels at the Lehner and Naco sites. New data based on stratigraphic analysis, correlated radiocarbon dates, together with artifactual remains indicate that the association of Sulphur Spring stage artifacts with the shoreline of Lake Cochise is problematical.

Los materiales pertenecientes a la fase Sulphur Spring de la cultura Cochise, fueron previamente identificados en la orilla prominente (1.274 m) del lago pleistoceno Cochise, en el sureste de Arizona. Se ha sugerido que estos restos, fechados alrededor de 12.000–11.000 años de antigüedad, representan una manifestación arcaica temprana, depositada en antiguas gravillas de playa, posiblemente contemporánea con los niveles Clovis de los sitios Lehner y Naco. Nuevos datos basados en análisis estratigráfico, fechas radiocarbónicas correlacionadas, y restos artefactuales indican que la asociación de los artefactos de la fase Sulphur Spring con la orilla del lago Cochise es problemática.

The Sulphur Spring stage of the Cochise culture was first described in the Sulphur Springs Valley in southeastern Arizona, from excavations at the Double Adobe site in Whitewater Draw (Sayles and Antevs 1941). In their reconstruction, Sayles and Antevs identified the Cochise culture as a long-lived, preceramic tradition in which Sulphur Spring represented the earliest stage of an Archaic people centered in the river drainages of southeastern Arizona.

Based on stratigraphic and environmental correlations (for a summary discussion see Dean [1987: 1, 10] and Waters [1986a]), Antevs originally dated the beginning of Sulphur Spring before 10,000 B.C. The artifact assemblage associated with the deposits was unremarkable in the sense that it contained no temporally diagnostic tools. Implements recovered from Double Adobe consisted of scrapers, thick knives, and choppers as well as handstones and milling stones that exhibited use marks, but otherwise were unaltered. The occurrence of grinding stones, with an apparent absence

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