

**Figure 1. Ground plan of High Bank Works as drawn by Squire and Davis (1848:Plate XVI).**

As recorded in the mid-nineteenth century, the walls of the Octagon were about twelve feet (ca 3.7 meters) high and enclosed 18 acres (ca 7.3 hectares). The attached Great Circle walls surrounded a slightly larger space but were only about five feet (ca 1.5 meters) high (Squire and Davis 1848:Plate XVI ). By the end of the century the walls were much degraded and the easterly side of the Great Circle was not easily followed on the ground. Also, by this time, a farm lane was in use that cut across portions of the octagon, circle, and the short neck that joined them. This wagon path has been enlarged and is now used by modern vehicles including trucks and large farm equipment (Figure 2).

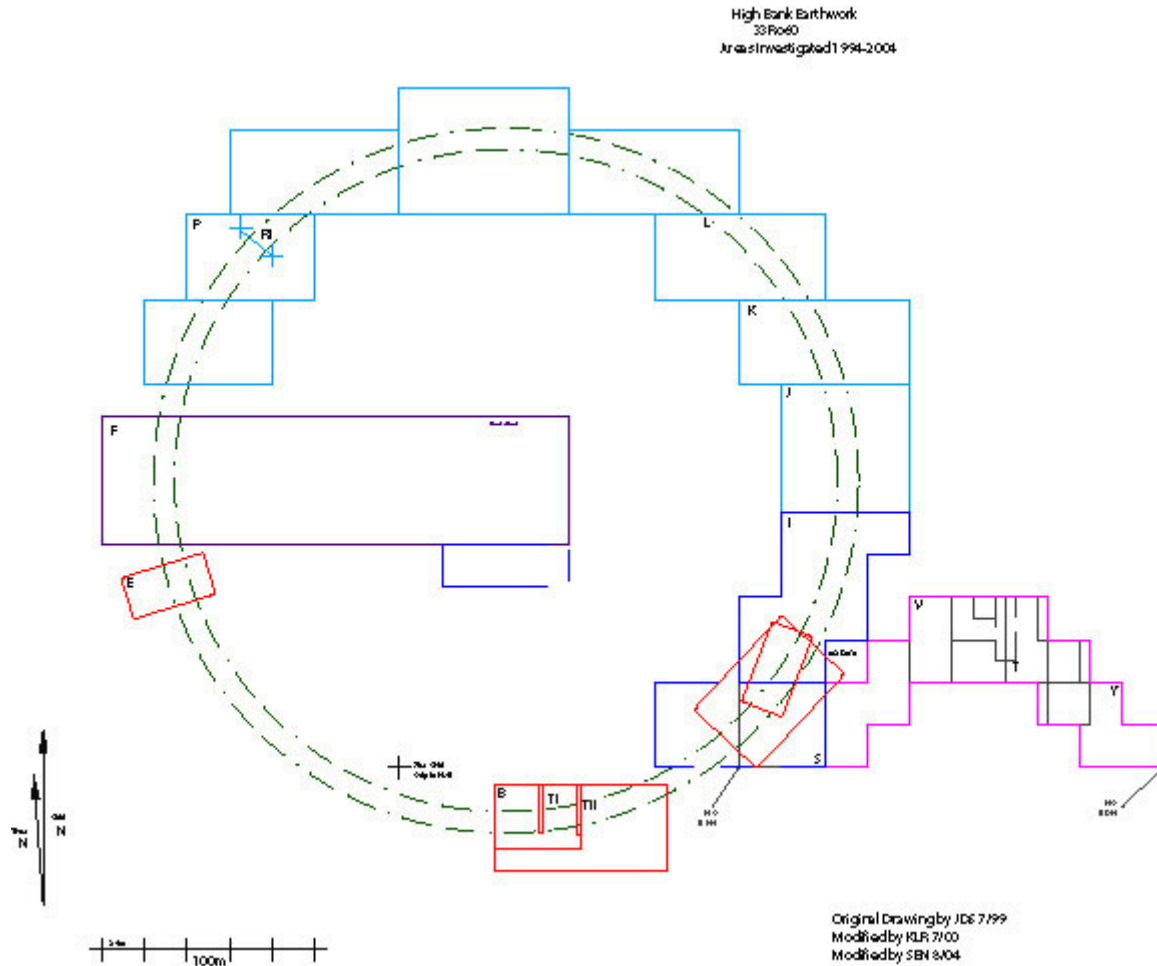


**Figure 2. Aerial view of the High Bank Great Circle and Octagon. View taken in 1938. Note the farm lane that crosses the walls.**

Field work this past season continued studies that are part of long term research aimed at placing enclosure sites into the context of both other types of structural remains such as buildings and mounds, and the well known artifacts. Since 1994 a combination of geophysical surveys and limited excavation and coring has produced details of the design and construction of the Great Circle wall (Greber 1998, 1999, 2002).

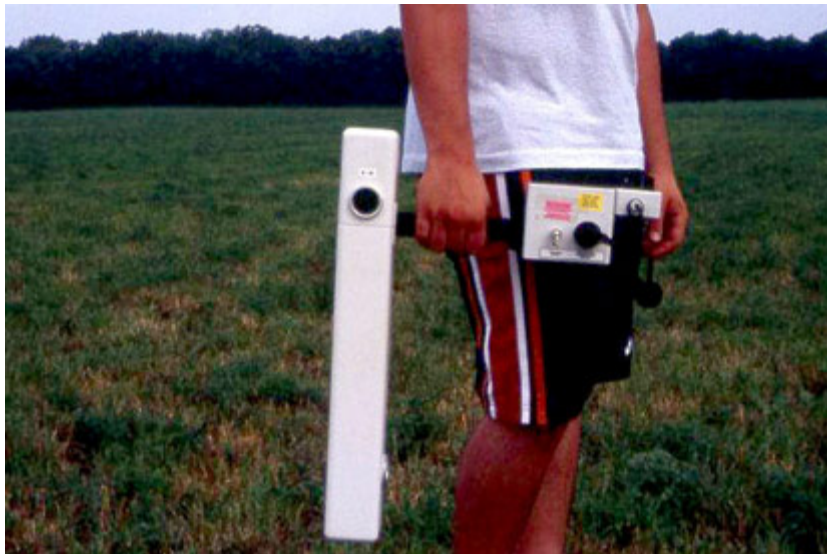
## Field Work

During June and July 2004 geophysical survey was undertaken over the segments of the Octagon walls north of the farm lane, a portion of the site currently part of Hopewell Culture National Historical Park (Figure 2). A goal for the short season was to obtain geophysical data from the Octagon walls for comparison with geophysical and excavation records of the Great Circle wall and 1972 excavation profiles of the Octagon (Greber and Shane 2003).



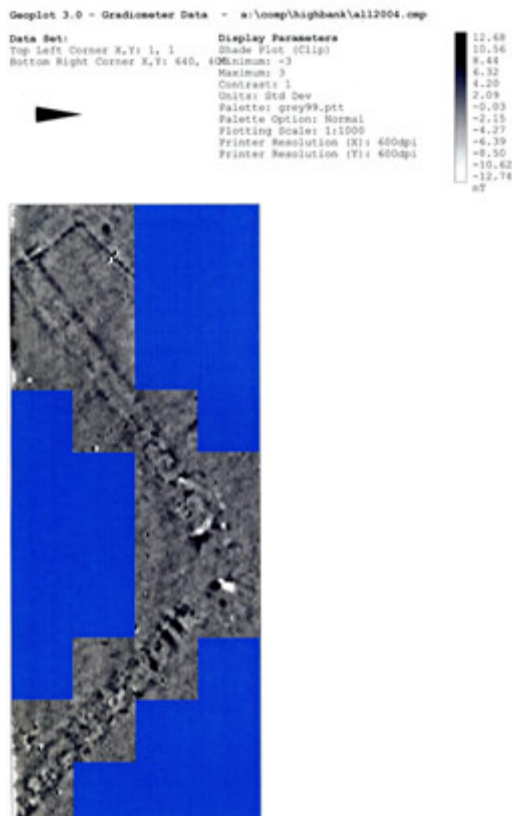
**Figure 3. A stylized circle wall superimposed on the location of geophysical study areas, Cleveland Museum of Natural History, 1994-2004.**

The geophysical survey blocks were located in the CMNH site grid and labeled S through X in a continuation of the practice of previous surveys (Figure 3, above). In each sub-block (i.e. S1, S2,...) transects were set at one meter intervals. Magnetic readings were taken in zig-zag fashion using a FM 36 gradiometer (**Figure 4**).



**Figure 4.** The FM 36 gradiometer owned by the University of Akron and used in the 2004 survey. Held here by CMNH Kirtlandia Intern Stuart Neilis.

**Figure 5**, based on data from the recent survey, a magnetic map of portions of the remnant walls north of the lane. As a control, Block S was set to overlap portions of Block H recorded in the 1999 magnetic survey. The 2004 results completely reproduce the earlier data.

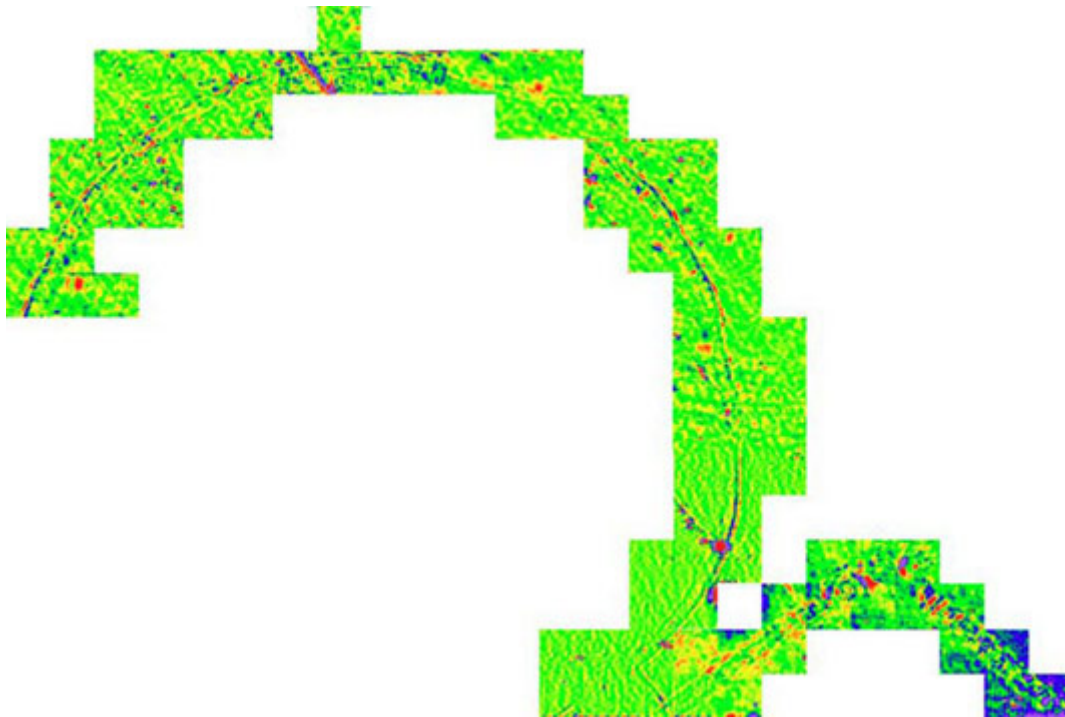


**Figure 5.** Geoplot map of 2004 survey area.

John Weymouth combined data from 1999, 2001, and 2004 (Figure 6) that show the distinctive usual trace of the Great Circle wall. The signals from the outer edges of the wall are more pronounced than those from the inner side. This contrast apparently represents the contrast in the composition of the inner



and outer lowest strata that extend along major sections of the Great Circle wall. These strata were identified in small scale test trenches (Greber 1999, 2002). The easterly side of the two short parallel walls that join the Great Circle and portions of two segments of the Octagon are also visible. The pattern seen in the data from the Octagon walls differs from that of the major portion of the Great Circle.



**Figure 6. Compilation of 1999, 2001, and 2004 magnetic survey data prepared by Dr. John Weymouth, University of Nebraska.**

There is not as great a contrast in the signals from the outer and inner sides of the segments and the internal signals are more “jumbled”. This pattern is consistent with the wall profiles recorded in the three test trenches excavated in 1972 across two separate wall sections of the Octagon south of the lane (Greber and Shane 2003). An anomaly, located between the ends of the two wall segments, is at the point where lines extending from the ends of the wall segments would cross. Thus, the anomaly may indicate a corner point of a regular octagonal shape marked by the original builders as part of the original design and possibly used in planning the construction of the Octagon walls.

### **Comments**

This season’s field work continues to demonstrate the usefulness of intertwining the results of geophysical surveys and the ground truth obtained in small scale excavations. The new geophysical maps appear to be consistent with the results of the early 1972 excavations. They also provide new information suggesting a direction for possible future work. The apparent existence of an anomaly between the ends of the Octagon walls should be corroborated by additional geophysical surveys. This is a significant point in the ground plan design. Future studies of the area might answer questions concerning the original construction methods and possibly reveal features that would be of particular interest in astronomical research such as that Ray Hively and Robert Horn have begun at High Bank (1984).

## Acknowledgments

Dean Alexander, Superintendent of Hopewell Culture National Historical Park, gave access to Park land at High Bank. As always the entire Park staff welcomed and supported our work. In particular, Jennifer Pederson arranged for living accommodations and helped with other practical matters, Kathy Brady-Rawlins gave instructions in the use of a total station, Dawn Walters was a gracious and hard working addition to the field crew. The total station, FM 36 gradiometer and lap top computer used by CMNH Kirtlandia Intern Stuart Nealis for the magnetic survey were loaned to the project by Dr. Timothy Matney, University of Akron. Dr. John Weymouth, University of Nebraska, continues to share his expertise in explaining theoretical geophysics to archaeologists and his time in putting together data from separate surveys. I thank them all.

## References Cited

Greber, N'omi B.

1998. Geophysics and Archaeology: A Case Study from the High Bank Earthworks, Ross County, Ohio. Invited paper presented at the Fryxell Symposium, Annual Meeting of Society for American Archaeology, Seattle, March 1998

1999. Combining Geophysics and Ground Truth at High Bank Earthworks, Ross County, Ohio. *The Ohio Archaeological Council Newsletter*, 11(1):8-11.

2002. A Preliminary Comparison of 1997 and 2002 Limited Excavations in the Great Circle Wall, High Bank Works, Ross County, Ohio. *Hopewell Archeology: The Newsletter of Hopewell Archaeology in the Ohio River Valley*, Volume 5, Number 2:1-6.

Greber, N'omi B. and Orrin Shane III

2003. Studies of the Octagon and Great Circle, High Bank Works. Paper presented at 68<sup>th</sup> Annual Meeting of the Society for American Archaeology, Milwaukee, Wisconsin April 2003.

Hively, Ray and Robert Horn

1984. Hopewellian Geometry and Astronomy at High Bank. Supplement to Volume 15, *Journal for the History of Astronomy*: S85-S100.

Squier, Ephraim and Edwin Davis

1848. *Ancient Monuments of the Mississippi Valley: Comprising the Results of Extensive Original Surveys and Explorations*. Smithsonian Contributions to Knowledge 1. Washington, D.C.