Mapping the Dead

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Abstract

The Old Cohansey Baptist Cemetery, located in Western Cumberland County, New Jersey, provides invaluable information on 18th and 19th century funerary and cultural patterns, as well as insight on local Revolutionary War history. While researching the County Historical Society owned cemetery, it was discovered that there were no known maps of the cemetery. Detailed mapping and an archaeological typology were performed over a period of three years by a multidisciplinary group including a planner, a professor, a historian, and university students. The research presented takes a unique approach that focuses on GIS to create a variety of maps of the cemetery. Various methods have been employed including the use of a Total Station Theodolite, GPS, ArcView 3.2, and ArcGIS 8.3 and 9. This has facilitated a variety of analyses and eagerness for future preservation. The presentation will discuss the unique methods of mapping applied and interpretations based on those applications.

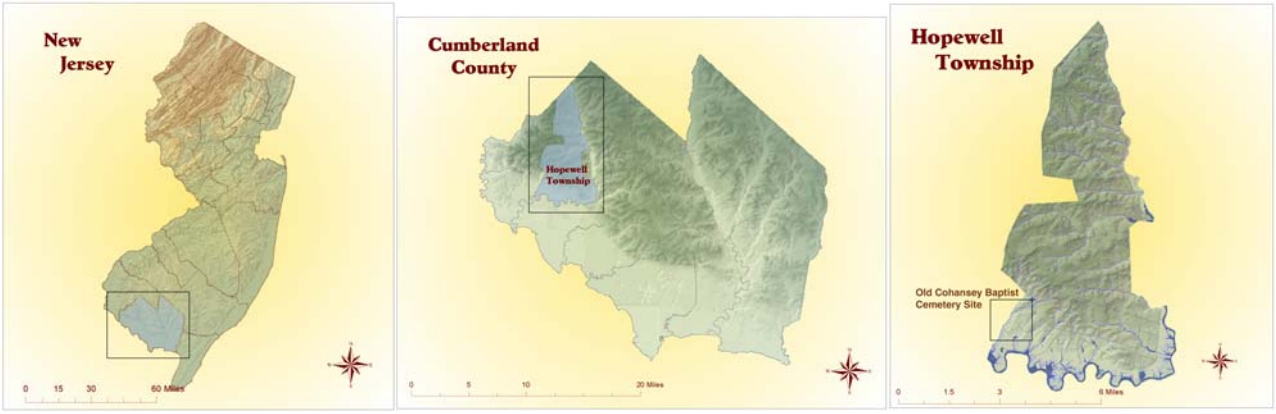
Mapping the Dead:
Analysis of the Old Cohansey Baptist Cemetery

The Old Cohansey Baptist Church, located in Sheppard's Mill, Hopewell Township, Cumberland County, New Jersey, was formally chartered in 1689 and was the first organized church in Cumberland County. The first Baptists in this region, immigrants from Tipperary County, Ireland, settled in Back Neck, about four miles south of the Sheppard's Mill location, in 1683. The original church to which the cemetery is associated was built in 1714. The first known grave in the Old Cohansey Burying Ground, as the cemetery is locally known, dates from 1735 and the last from 1854. In 1802 the church relocated to Roadstown, about three miles north. The cemetery is all that remains at the original site.

Designated and registered a county historical site in March of 1977, the cemetery is a unique historical artifact providing a wealth of information on 18th and 19th century gravestones used in genealogical, paleographical, historical, and archaeological typologies research. The first white female child born in Cohansey is buried in the cemetery, as well as Revolutionary soldiers from the area.

David Mulford died in a Revolutionary War battle

Deborah Swinney, first white female child born in Cohansey



Location of the Old Cohansey Baptist Cemetery

Research on the site began in 2000 by anthropology professor Dr. Maria Rosado, historian Kristie Lewis, planner Sharon Mollick and high school student Trisha McGahhey. There were no publications that systematically documented and mapped the cemetery in detail. Andrew's Cohansey Baptist Church burial registry, dated 1911, proved to be a beneficial compilation of inscriptions. His document gave complete transcriptions of the tombstone epitaphs; however, this work does not identify the stone markers with their location on the burial grounds. To date no research or publications address demographics, tombstone typologies, damage assessment, mapping and site layout, genealogies, and development of conservation protocols.

The cemetery project presented an opportunity to conduct spatial analyses by applying GIS (Geographic Information Systems) and the mapping sciences. The following applications were used:

Survey and grid map; Visual plot; GPS (Global Positioning System); Georeference; Add data

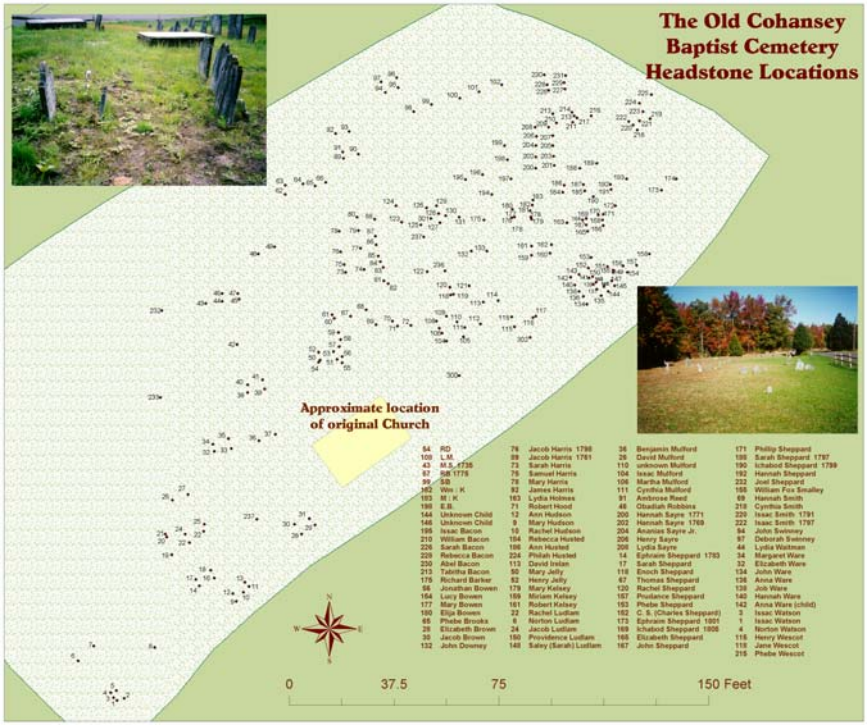
The cemetery was mapped and drawn by hand on graph paper using the standard employed in mapping archaeological sites by R. Rosado and K. Lewis. This procedure included choosing a reference point, or datum point (in this case the southwest corner of the fence) and the use of a measuring tape and a compass to locate the gravestones. A professional surveyor completed a topographical survey map. Each stone, including those thought to be just fieldstones, were located using a Total Station Theodolite. The survey data was then put into AutoCad to form a digital file. The two resulting maps were virtually identical.

Identifying and assigning numbers to stones on map.

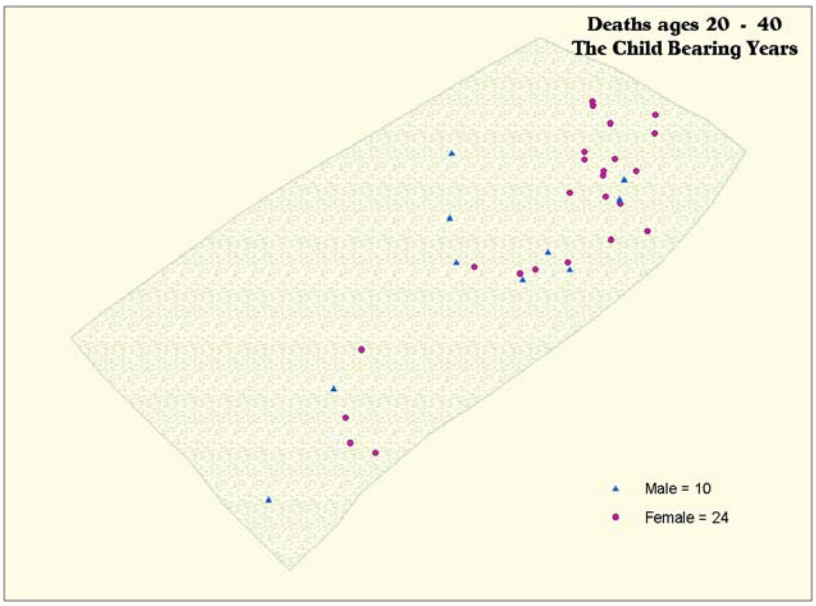
Before the two maps could be brought together in the GIS, each stone had to be identified on the AutoCad map**.** This task was accomplished by S. Mollick and T. McGahhey, walking the cemetery site and identifying each stone on the 24 X 36 inch printout of the AutoCad file, noting the person's name on the head stone and assigning each stone, no matter the type, a number. This data was later used to create the GIS database.

The next step was to obtain GPS (Global Positioning System) points. At that time points were collected in June of 2000, the only equipment available to the research team was a GeoExplorer2 GPS unit. The ten points captured at that time were the maximum that could be collected with the GPS unit because of the close proximity of the head stones and footstones. The GeoExplorer2 GPS unit has 4 meters (12 feet) precision; therefore, it would not be possible to differentiate between points separated by less than 4 meters. Most head stones and footstones average less than 2 meters apart. GPS points are spatially correct, that is, they are in the place they are supposed to be in relation to real world coordinates, while the AutoCad survey points were only correct in relation to each other. To get the two files to overlay each other and make the survey points spatially correct the CAD file had to be georeferenced. The GPS points were needed to accomplish this task. The points were captured from a variety of locations throughout the cemetery using a Trimble GeoExplorer 2 GPS unit made available by the Cumberland County Department of Planning & Development. The points were converted into an ArcView shapefile using the GPS software and the ArcView program. The GPS points, then, show on a map in the position they are in the real world.

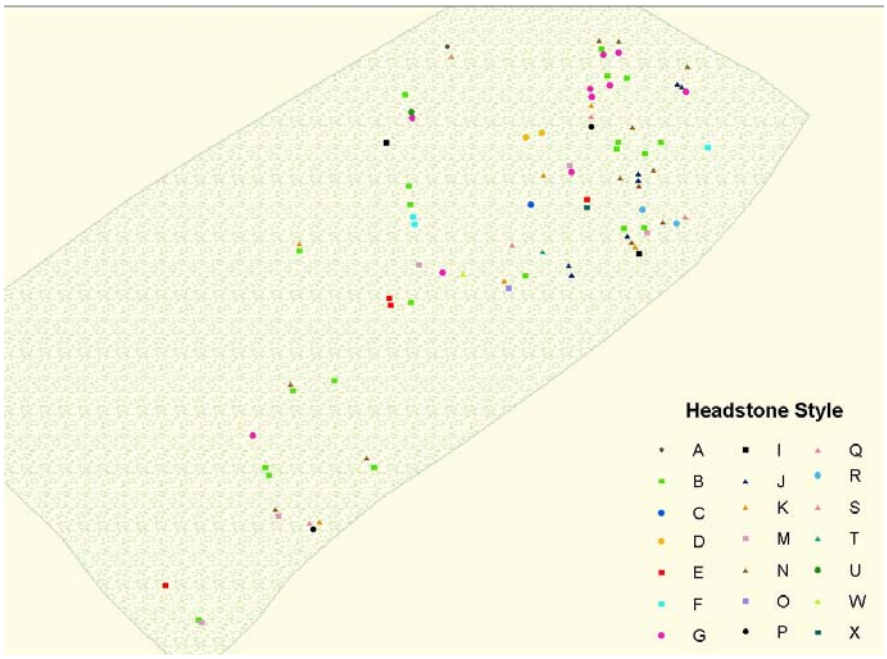
The final step was to bring the AutoCad drawing into the GIS software and georeference the CAD points so that they match the GPS points. Two ESRI programs were used-- ArcGIS 8.2 and ArcView 3.2. First, the CAD drawing was converted into a TIFF digital image. The image was then opened in the ArcMap component of the ArcGIS program. The shapefile containing the GPS points was brought into the same map. There were only 10 points in the shapefile, but all of the 237 points from the CAD file, which included any stones (head, foot or other), trees, and the modern monument, were shown on the TIFF image. A TIFF image will not locate the points in the correct place unless it has been georeferenced. Using ArcMap program, the TIFF image was georeferenced to the 10 original points. Once this was done the other points from the TIFF image were entered into the GIS layer using the TIFF image as a template. As the points were added, information was placed into a database. When the map was complete, it was possible to click on any point on the map and see the information on that stone.



The end result of the mapping application was the creation of a computerized map layer compatible with a GIS capable of performing geographic spatial analyses. This procedure facilitates analyses of tombstone distribution, genealogical (family plots) distribution, age and sex distributions, as well as many other analyses. This abstract of the project covers only a few of the analyses made possible with GIS.



Analysis showed twice as many females died during the ages of 20 – 40 than males. In the 1700's giving birth was one of the highest causes of death. In 1800, Hannah Ware gave birth to her sixth child – she died nine days later. Ananias Sayre's wife Hannah died in 1769 at the age of 38. His second wife, also named Hannah died two years later at the age of 24.



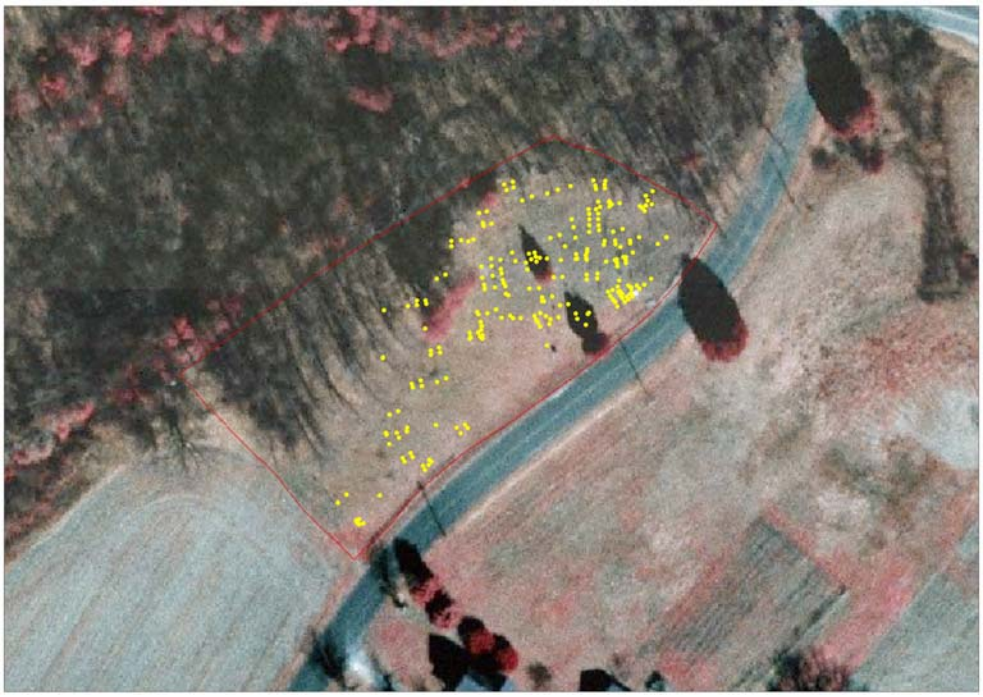
In 18th Century cemeteries, tombstone style is a distinctive date marker. There is no pattern of distribution. The stones seem to be picked for the style popular at the time. There were twenty-one styles of headstones identified.

Style B Style F Style U

Also included in the GIS database is type of damage. Analysis done by Dr. Rosado and K. Lewis found that the most frequent type of damage was caused by modern day lawn mowers. After the results of the analysis we were able to go to the township in charge of maintaining the cemetery and ask that a training program be set up to show maintenance workers how not to damage the head and footstones. The analysis on stone damage will later be generated on a map that shows distribution of damage, thus identifying the areas of the cemetery that need to be targeted first for conservation.

Above there are three examples of damage done to stones by lawnmowers.

Since 2000, advances in GPS units and the availability of Ground Penetrating Radar would make the work done on the Old Cohansey Baptist cemetery much easier and more accurate than the procedures used by the research group. Also new georeferencing methods to integrate the GPS points and the AutoCad points are available. As the group is without funding, most of the newer equipment available is financially out of our reach. Hopefully the cemetery will remain intact for future research and should funding be found, the new techniques can be utilized in this and the many other cemeteries in danger of disappearing. Although the methods used were basic and resources limited, the end result was a map that can be used into the future to locate graves should head and footstones be lost, as many in the past have.



Aerial view of the Old Cohansey Baptist Cemetery with the GIS layer of head and footstones.

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