

Professional Archaeologists of New York City, Inc.

PANYC

NEWSLETTER

No. 129

May 2007

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Next Meeting:	
Fall 2007 - Time and Location TBD	

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Professional Archaeologists of New York City (PANYC)
Minutes of the General Meeting, January 24, 2006

**Notice of Upcoming Meeting: Wednesday, March 21, 2007, 6:30 P.M.
Neighborhood Preservation Center (NPC), 232 E.11th Street**

Secretary's Report: There were no minutes to approve as November's meeting was a joint meeting with the Met Chapter. Norman Brouwer was the guest speaker.

Treasurer's Report: Spritzer announced that there is \$2516.88 in PANYC's bank account.

It was also announced that the NPC is going to start charging PANYC \$20/hour to meet. It has been decided that we will stay there until May 2007 with a new location being found by September's meeting. Tax deductible donations would be acceptable to help pay for the meetings until then.

President's Report: Dallal reported on the Spring Street Presbyterian Church excavation. Donald Trump's company encountered human remains in the churchyard while building a new hotel. A stop work order was issued and excavations began. Ultimately, four burial vaults have been uncovered with most remains found to be commingled. There were two churches on the site – the first dating from c.1811-1835 with stone burial vaults and the other post-1836 with brick burial vaults. The earliest church had a history of abolitionism and the burials are probably associated with this first church. There were no associated grave goods but there are shroud pins and a plaque dating to 1822. Excavations were to end on January 25th and the remains were going to be analyzed for a final report. The New York Presbyterian Church is organizing a reburial plot for the remains.

Elections will be held for the 2007-2008 year before the March meeting. Heaton, Martin and Rothschild have formed the election committee. A call for nominations mailing will be sent out before the actual ballot.

Committees:

Awards: Cantwell is expecting nominations for awards. A notice was placed in the January newsletter.

Events: Wall compiled a list of relevant events and they are included in the January newsletter as well.

MAS: Geismar wrote in that she had recently given a talk to the MAS Preservation Committee on preservation and archaeology and that the members had expressed surprise that archaeology isn't a consideration in historic districts. The legal committee appeared interested in getting archaeological concerns included in such designations.

Membership: Martin announced that a membership renewal notice mailing will be sent out shortly.

Met Chapter: Ricciardi, as its new president, reported that the members are now debating whether or not it should stay open. There is not much participation as of now but they plan to re-evaluate in a year. One of the problems is that dues have become more expensive and a large portion of those dues go to NYSAA, not the Met Chapter itself. He plans to announce PANYC's public program to the membership and to hold a Met Chapter meeting before it. Wall and Stone suggest that more combined meetings of PANYC and the Met Chapter might help membership and involvement as well.

Newsletter: Ricciardi has proposed the creation of a digital archive of the past newsletters. Members would each receive their own copy. Rakos thought to create a similar archive for the public programs, but was not sure if all of the flyers could be located.

Ricciardi also reported that the electronic version of the newsletter has gone over well. As of now, there are two paper copies being printed – one for a member and the other for the library.

There was a general discussion about the legal issues of re-printing articles in the newsletter. As of now we do not know the copyright laws well enough to say if there are new problems with sending articles in the electronic newsletter vs. printing them in the old paper form.

NYAC: Stone announced there will be an upcoming board meeting and has published a proposal that would update the monitoring guidelines originally developed by a joint NYAC/PANYC committee and formerly adopted as part of the NYAC standards in PANYC's January newsletter.

Parks: It was announced that the archaeologist hired by Parks has resigned and it is seen as doubtful that they will hire anyone else at this time.

Public Program: The public program is set to be held at Museum of the City of New York on Sunday, May 6th from 1-3PM. It's subject is Industrial Archaeology. Rakos has lined up various interesting speakers including Meta Janowitz, Joe Schuldenrein, and Rebecca Yamin. Wall suggested speaking with Betsy Kearns about becoming involved. The complete schedule will be set by the next meeting. Rakos plans to announce the program to the Roebling Chapter of The Society for Industrial Archaeology as well.

Research and Planning: Schuldenrein updated the members on his idea to create a discussion forum with archaeologists from London. There is the possibility of holding a symposium or workshop for archaeologists from New York and London. They would meet with the LPC and the New York legal community about London's impressive

history of archaeological work and how it could be held up as a model for New York City. NYAC is also interested in getting involved in this sort of program.

Repository: Stone announced that, as of now, all proposals for Governor's Island have been rejected and PANYC must start over. The Harbor School appears to be the only tenant and they won't be in until 2008. She thinks they are now working on drawing up plans for public spaces and landscaping which could draw in larger projects.

Website: Rothschild will check on its status on Columbia's website. There is still the link to our email address on the NYAC website.

New Business: The emergency screening for human remains related to the World Trade Center attacks found under manhole covers was brought up. It has been an emotional issue between the victims' families and the Mayor's office and Robin Nagle, an anthropologist from NYU, has been placed in charge of the project. All materials found are being brought to a location in DUMBO, Brooklyn for archaeological screeners to sort through. A general discussion was held about whether the project will become a systematic recovery effort (for example, will they use GIS to help them look on roofs and window ledges in the area, as well as under manhole covers) or will it continue to be an emergency response-based type of situation. Members wondered if there is a role here that PANYC should or could be playing. The protection of the health of the screeners was a large part of the issue here as well. Silver reported that although they were beginning to hire people, work had not started yet.

Professional Archaeologists of New York City, Inc.

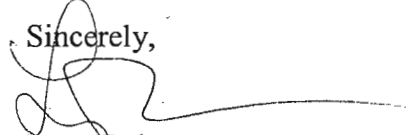
Ms. Lynn Rakos
PANYC President
230 6th Ave., Apt 4
Brooklyn, NY 11215
May 9, 2007

Honorable Eliot Spitzer,
Governor, State of New York
State Capital
Albany, NY 12224

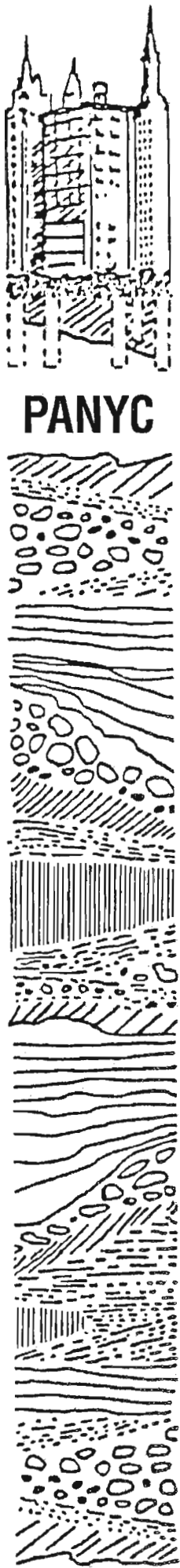
Dear Governor Spitzer:

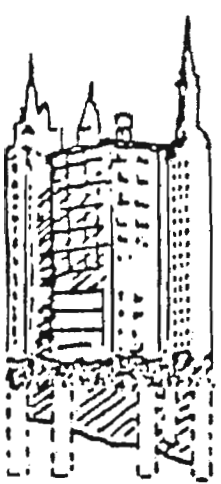
I am writing on behalf of Professional Archaeologists of New York City, Inc. (PANYC) to thank you for your intervention in the issue of preserving the Survivors' Staircase on the World Trade Center Site. As the sole surviving, if somewhat damaged, above ground architectural feature remaining of the World Trade Center complex, it is for many survivors of the 9/11 attack a symbol like no other. Taking this a step further, while not a buried archaeological resource *per se*, it is a ruin with significant historical meaning. We urge you to continue your efforts to see that it is preserved in the context of the World Trade Center site. And, again, we thank you for those efforts.

Sincerely,


Lynn Rakos
PANYC President

CC:
Michael Bloomberg, Mayor, New York City
Martin Connor, Senator, New York State Senate
Alan J. Gerson, Chairman Lower Manhattan Redevelopment Committee,
New York City Council
Avi Schick, Chairman, LMDC
David Emil, President, LMDC





Professional Archaeologists of New York City, Inc.

Ms. Lynn Rakos
PANYC President
230 6th Ave., Apt 4
Brooklyn, NY 11215
May 10, 2007

The Honorable Adrian Benepe, Commissioner
New York City Department of Parks and Recreation
The Arsenal
Central Park
830 Fifth Avenue
New York, NY 10021

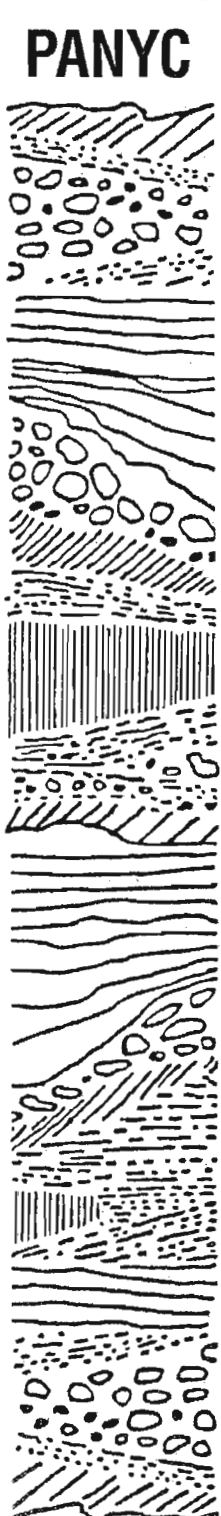
Dear Commissioner Benepe:

I am writing on behalf of Professional Archaeologists of New York City (PANYC). First, let me say that we have been impressed with the efforts of the New York City Department of Parks and Recreation (Parks) to incorporate the evaluation of archaeological resources in the planning phases of its projects. However, we have recently become aware of Parks' projects that make no provision to compensate the archaeologist for work done in the lab, that is, recording and analyzing artifacts, and writing the report.

We believe you are aware that, according to the Landmarks Preservation Commission's Guidelines for Archaeology, the archaeological process involves all three components: excavation, analysis and reporting. Excavation is merely the first step since the recovered artifacts only convey information when they have been identified and interpreted. Reports should include an inventory of all material found and an assessment of a site's significance based not only on the fieldwork, but also on analysis of the artifacts and documentary research. Assessment of a site's significance, a major part of any report, can, obviously, only be made once this analysis is complete.

It seems the problem stems from the inclusion of archaeological work in the construction contracts, and in the way Parks' billing system works for these contracts. During project construction, all work is necessarily done in the field, and the resident engineer, or other Parks Department representative, must sign in-field time sheets in order for contractors' personnel to be paid. However, as noted above, a major portion of archaeological work is not done in the field

We think it crucial that Parks' procedures be modified to allow for the conduct and compensation of all essential stages of an archaeological project. Possible solutions to this problem include contracting separately for the archaeological work during project planning and design phases, prior to construction. While this

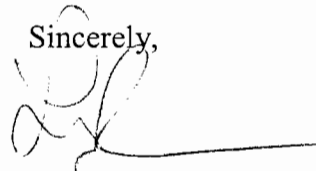


would be a superior solution from an archaeological standpoint, we understand this may be problematic from the standpoint of Parks' contracting process.

A second solution would be to continue to use daily time sheets to account for archaeological field work, but to put a separate amount in the construction contract for archaeological laboratory and report writing tasks. We know of at least one recent Parks project where this was done successfully. Whatever the best solution, we urge you to rethink and standardize the process to allow for compliance and for clarity.

PANyc would be happy to meet with you to discuss the archeological process. We have members with experience on all sides of this issue including consulting archaeologists and government agency employees who handle archaeological contracts on a regular basis. We anticipate your reply.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lynn Rakos', with a long horizontal line extending to the right.

Lynn Rakos
PANyc President
(917) 515-4154
PANyc2006@yahoo.com

CC:

Honorable Michael Bloomberg, Mayor

Ms. Amy Freitag, Parks, Deputy Commissioner, Capital Projects

Mr. Charles McKinney, Parks, Chief of Design

Ms. Deborah Howe, Parks, Assistant Counsel

Honorable Robert B. Tierney, Landmarks Preservation Commission, Chairman

Ms. Amanda Sutphin, Landmarks Preservation Commission, Director of
Archaeology



THE EMERGENCE OF GEOARCHAEOLOGY IN RESEARCH AND CULTURAL RESOURCE MANAGEMENT: PART II

Joseph Schuldenrein

Joseph Schuldenrein is Principal and President of Geoarcheology Research Associates.

In Part I of this two-part series on geoarchaeology in cultural resource management (CRM) that appeared in the November issue of *The SAA Archaeological Record*, the general concepts and principles of geoarchaeology were discussed, and fieldwork and sampling were introduced. In this final article, a detailed assessment of geoarchaeology's utility for compliance work in CRM is provided. Geoarchaeology can and should be integrated in each phase of the compliance process. Reference here is made to the discovery/survey (Phase I), testing (Phase II), and data recovery (Phase III) stages of an undertaking. Within these broad parameters, the degree to which earth science approaches are applied varies by specific Scopes of Work (SOW), regulatory requirements (federal, state, and municipal), and even by contractor. In this brief summary, I touch on some of the more critical elements of geoarchaeological application as they relate to the Section 106 compliance process.

Applications in the Compliance Process: Phase I and II

Most CRM archaeologists make their livings documenting simple artifact scatters and testing whether or not they extend into the substrate. It has been estimated that in excess of 80 percent of CRM projects do not extend beyond Phase I, and another 15 percent are concluded at the testing phase. For prehistoric projects in particular, it should be noted that landscape considerations factor significantly into the research strategies utilized for both phases.

Most teams consult U.S. Geological Survey (USGS) topographic maps to obtain broad guidelines for field relations—landforms and terrain gradients—and U.S. Department of Agriculture (USDA)/Soil Conservation Service (SCS) county soil maps to obtain a preview of subsurface “soil” composition in advance of shovel testing. Less frequently, aerial photos and/or bedrock geology maps are consulted. While these strategies remain relevant, they have been in use for well over 25 years and have major shortcomings. County soil maps, for example, are produced largely for agricultural purposes and have limited information regarding buried deposits below 3 ft, and they pay scant attention to depositional sources even in alluvial contexts. For archaeological purposes, the question of buried soils is paramount. Approaches should be reassessed in light of key mapping and technological advances made by the USGS, individual state geological surveys, and other planning agencies that assist in large-scale terrain analysis. Paper maps or online plots are widely available at minimal cost. Land use maps are also useful and can be supplied by clients (e.g., developers or engineering firms) who have done advance work on a given project.

Currently, the most valuable geoarchaeological resource for Phase I and II research is the surficial geology map, which presents the distribution as well as the age of surface sediments. These maps are typically issued by state geological surveys and represent the collective mapping efforts of staff experts in regional Quaternary and bedrock geology. In some states, only partial coverage is available. In states that are partially capped by glacial deposits, for example, detailed surface mapping may only cover glaciated regions.

It is necessary for the geoarchaeological consultant to be familiar with the map availability for a particular project area. Expedient application of this resource provides the researcher with a preview of the antiquity and composition of the terrain that his/her project is likely to encounter.

Figure 1 shows the application of this strategy to an extensive Phase I/II sewer-line expansion project that was done along a prehistorically sensitive terrace flanking a tidal reach of the Raritan River in northern New Jersey. Simple shovel testing was deemed inappropriate by regulators because of obvious disturbance to upper deposits. By superposing the footprint of the pipeline on the surface geology map (Stone et al. 2002), it was possible to identify areas of buried prehistoric potential based on mapped distributions and ages of Late Quaternary deposits and landforms (Phase I; Figure 1a). The next step was systematic placement of geoprobe cores that ground-truthed the mapping units and isolated pristine alluvial deposits that were sampled for dating purposes (Phase II; Figure 1b). It was possible to eliminate disturbed tracts from testing, to date buried deposits that conformed to the age of known Woodland occupations in the area, and to isolate the only intact buried segment of the landscape that could potentially preserve archaeological materials. All this was done without extensive subsurface disturbance. As a result, the sewer authority was able to determine if it wished to test for additional prehistoric site potential or to reroute a small segment of the line. They opted for

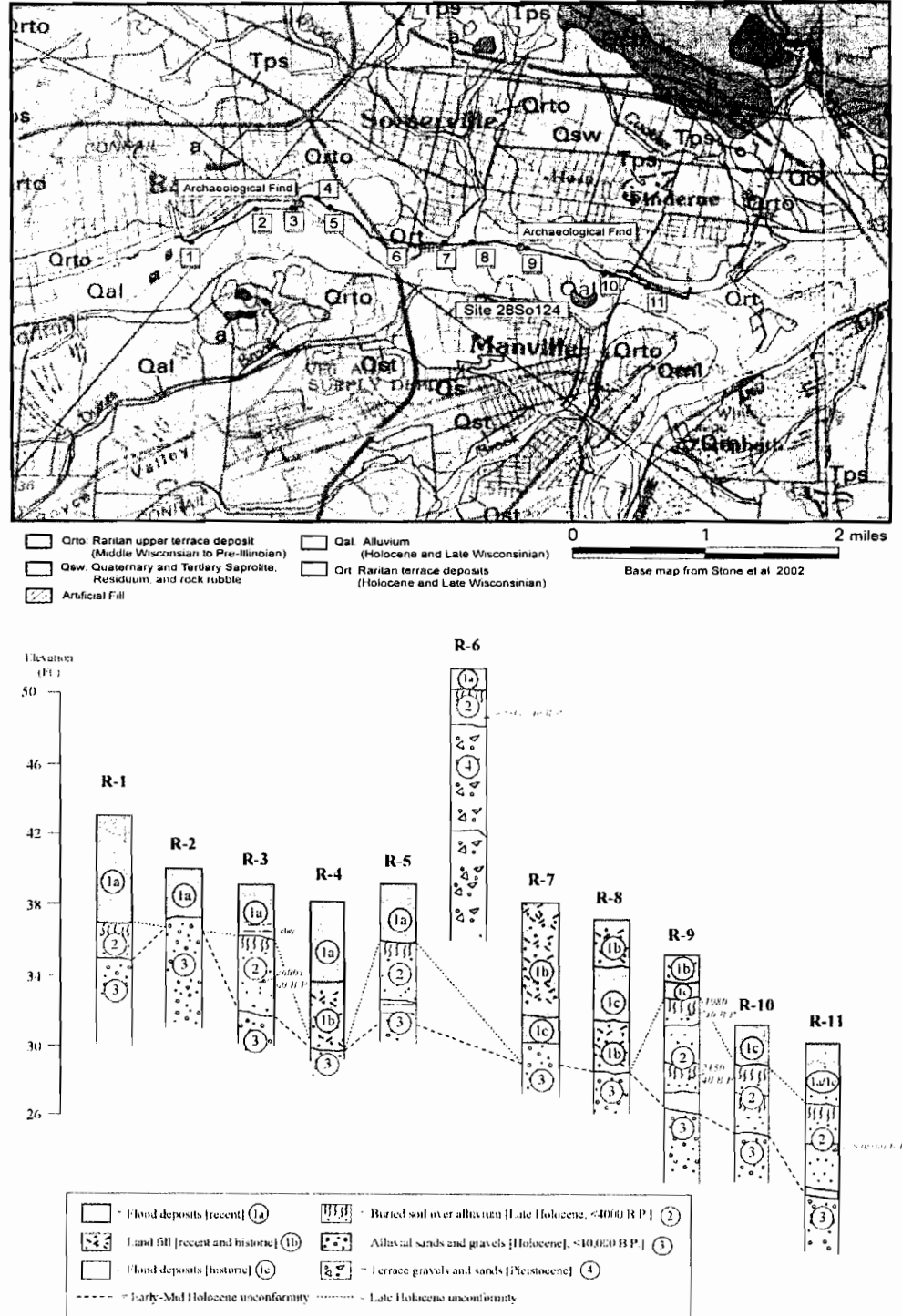


Figure 1: The use of surficial geology maps to preview the archaeological sensitivity of subsurface alluvial deposits for a Phase I/II sewer-line survey. The sewer line is superposed atop a map of Late Quaternary deposits to determine locations for subsurface testing: (a) synthesis of stratigraphy along locations tested with a geoprobe; (b) strata in blue indicate intact alluvial deposits of Woodland age. The segment R-9 to R-11 was deemed archaeologically sensitive.

the former, with the regulator's approval. The geoarchaeological survey and testing effort produced the baseline for a Phase III excavation that was both scientifically sound and cost-effective.

A second major issue for Phase I/II prehistoric endeavors is the question of "small site" formation process. Questions of site integrity are invariably raised when numerous prehistoric artifacts show up either on the surface or, more importantly, within the upper solum (or top 50 cm of formal soil). While surface artifacts are never considered *in situ*, there is considerable evidence that even repeated plowing displaces artifact assemblages only locally, to the point where activity areas can be recognized within the Plow Zone ("Ap" soil horizon). My experience is that most regulators will nevertheless tend to dismiss such concentrations at all but the largest sites. A more common red flag is the "perception" of site burial. Site burial can be the product of a broad range of processes, but the most common are accretion of sediment by earth surface processes (wind, water, gravity); upbuilding of the soil; and bioturbation either by rodent activity, vertical migration through the substrate, or "tree-throws."

Since the Phase I/II project may not afford latitude in the way of subsurface exploration—exposures may be limited to a series of test pits—the geoarchaeologist's exploratory window is minimal. In such cases, paradoxically, the pedostratigraphic perspective is most appropriate for synthesizing observations. Unless one is working on or near an active floodplain, dune, fan, or dynamic geomorphic setting, a classic artifact scatter will occur on a well-drained landscape feature, where at least meta-stable terrain conditions can be inferred. It follows that soil formation is sustained and extensive, such that soil horizonation can be traced. Limited depth of exposure will typically allow the geoarchaeologist to examine only the upper solum—A-E-Bw horizons in the temperate Eastern Woodlands; A-Bw-Bk horizons in the carbonate-rich surfaces of the Plains and Desert West—and to infer site formation on that basis.

Figure 2 illustrates a typical setting in the Eastern Woodlands for a Phase I site. The site contained a series of low-density artifact sets from different time frames on a meta-stable surface. The incorporation of the artifacts within the weakly cohesive fabric of the Cambic (Bw) horizon is a function of soil upbuilding, long-term weathering, and probable bioturbation that crosscuts both the Late Archaic and Woodland time frames without producing an extensive cover mantle (see Cremeens 2004 and Mandel and Bettis 2001 for discussion on soil development through time). This is a widespread signature for prehistoric sites that have been gradually buried by sediment in an environment that remains strongly pedogenic. It is for this reason that pedostratigraphic templates are preferable at many stand-alone Phase I and Phase II sites.

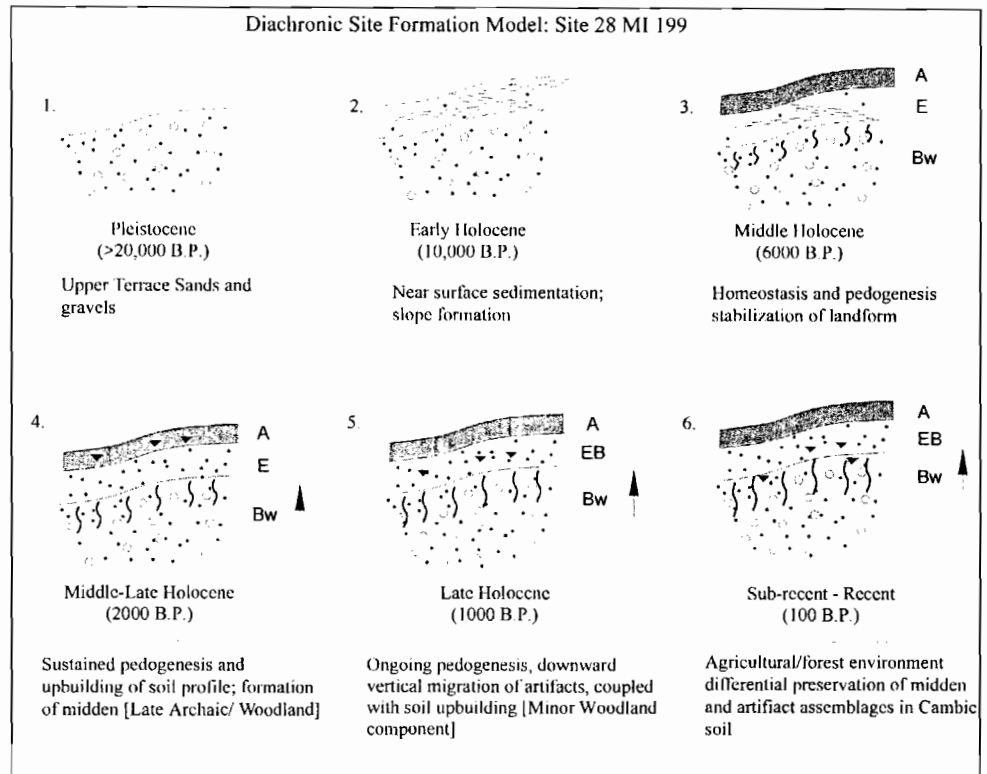


Figure 2: Diachronic model of site formation and preservation at a low-density, multicomponent prehistoric site (Phase I), Eastern Woodlands.

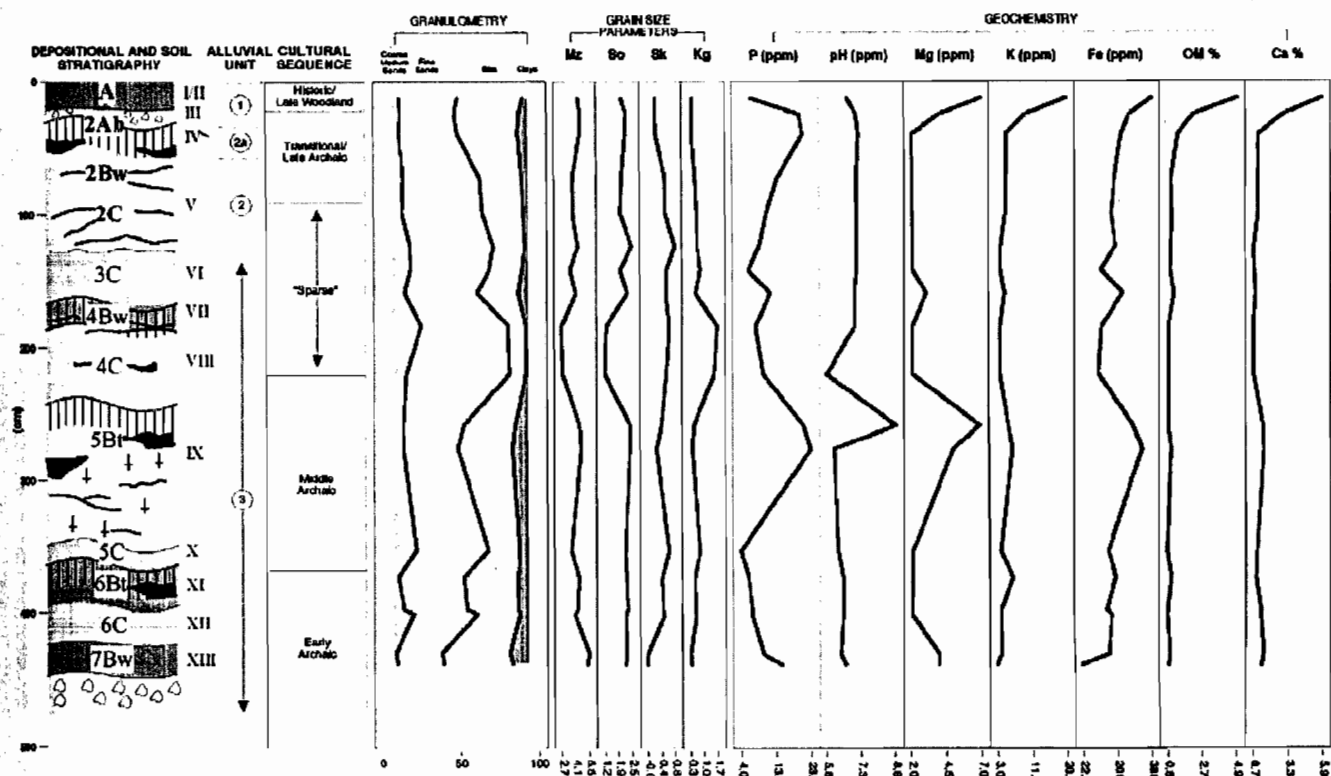


Figure 3: Composite stratigraphy and sedimentology, Sandt's Eddy prehistoric site, Delaware River (Phase III). Emphasis is placed on Early to Middle Holocene alluvial and cultural history of the valley (from Schuldenrein 2003).

Applications in the Compliance Process: Phase III

In the compliance process, the Phase III level of investigation is initiated when an undertaking cannot avoid impacts on the parcel of land deemed to contain an archaeological site of significance. Data recovery is initiated, and a systematic Research Design provides the basis for its implementation. Geoarchaeological inputs in Research Designs are increasingly solicited to maximize information yield at this final stage of the compliance loop. Geoarchaeological involvement is of use for both prehistoric and historic sites, albeit in slightly different ways.

Prehistoric sites

Since the early days of CRM, geoarchaeologists were summoned to help and even structure excavations at stratified, multicomponent sites in alluvial landscapes. Such sites remain the signature venue for geoarchaeological research in North America. However, increased awareness of the breadth of geoarchaeological interpretation is now beginning to resonate within the regulatory community. Whereas earlier projects stressed reconstructions of local floodplain geography and paleoenvironmental modeling, contemporary projects place increased focus on the synthesis of drainage-wide chronologies and stratigraphies that have implications for linked settlement and climatic models.

Operationally, a series of independently driven CRM projects form the basis for drainage-wide syntheses. A relevant example is drawn from two separate stratified site investigations along the Delaware River valley, at the margin of the terminal Wisconsinan glacial moraine. Each investigation called for detailed landscape reconstructions bolstered by appropriate laboratory analysis.

Figure 3 presents the composite stratigraphy and sedimentology of the 5-m-thick first terrace (T-1) of the Delaware at the Sandt's Eddy archaeological site on the eastern Pennsylvania border. It is one of the few Northeast sites preserving a near-continuous Holocene flood record, indexed by both radiocarbon dates (not shown in this column) and cultural horizons ranging from the poorly known Early and Middle Archaic through the better-documented Late Archaic and Terminal Archaic periods. As shown, the alluvial episodes (depositional) are punctuated by sustained intervals of soil formation and surface stability, cycles that extended for several thousand years. Following the Middle Archaic, limited occupation parallels a change in the landscape history as the Delaware was transformed from a dynamic and laterally migrating stream to one that was entrenched in its channel (after 6000 BP). An exponential reduction in sedimentation (see the minimal accumulations for the Late Archaic to Woodland periods) corresponds to stabilization of the 5-m terrace and the passage to an overbanking stream regime.

Such complex sites benefit by integrating the various stratigraphic frameworks discussed in Part I of this series. They allow for comprehensive interpretations of landform construction and dynamics (litho-stratigraphy); separation of sustained periods of landform stability (pedo-stratigraphy); and assessments of relative duration and patterns of site utilization by prehistoric groups (archaeo-stratigraphy). As noted earlier, a more comprehensive stratigraphic framework is afforded by allostratigraphy, which in this case is informally represented by the Alluvial Units (Figure 3). Detailed analyses of the sediments are presented on the righthand portion of the graphic, with peaks in various geochemical parameters signaling soil weathering and/or the impacts of human occupation (organic content, phosphorous). Vertical changes in grain size attest to changes in the stream energy of the Delaware through time (see Schuldenrein 2003 for detailed discussion).

Sandt's Eddy is unique as one of the few locations that preserve a detailed record of the Delaware's early Holocene sequence. More commonly, first terrace (T-1) complexes preserve the last 3,000 years of prehistory, recording the later Holocene when flooding produced largely overbank deposits as channels were typically confined to their banks, and only the most massive flood events are recorded on terrace tops. Figure 4 shows a typical late Holocene geoarchaeological sequence for the Delaware drainage, at Lower Black's Eddy, approximately 40 km downstream from Sandt's (Schuldenrein et al. 1991). Here, the fine-grained, overthickened, upper Holocene alluvium with an intermittent Bw horizon documents the transition from the Late Archaic to Woodland sequence and permits a detailed reconstruction for the Late Holocene, which was largely compressed in the capping deposits upstream at Sandt's. Geochemical indicators illustrate co-varying trends in organic and phosphorous enrichment consistent with human occupation on an already stabilized surface where organic compounds are actively disaggregating. The Archaic midden horizon represents the interdigitation of human waste products with a naturally humified organic horizon.

On a larger scale, the two stratigraphies are complementary: the upstream segment at Sandt's provides a rare succession of Early Holocene geomorphic and cultural events, while the downstream segment at Lower Black's Eddy offers a more typical glimpse at the long-term flooding behavior of the present stream. Comparisons with more fragmentary geoarchaeological sequences the length of the drainage have allowed us to develop a timeline that links temporal occupations with landform types and discrete soil and sediment complexes in near-surface and deeply buried contexts. These associations will eventually be fed into a GIS platform to allow planners to formulate strategies for future investigations of the alluvial archaeology of a key Eastern Woodlands settlement locus.

Historic Sites

Until recently, geoarchaeological applications to historic sites have been infrequent. Prevailing wisdom was that landform histories were more relevant to prehistoric environments where centuries and millennia, rather than decades and years, accounted for the environmental transformations that affected the course of human settlement. Moreover, the terrains of historic site investigations have often been con-

centrated in urban settings where deep accumulations of landfill limited accessibility and inhibited laterally extensive exposures. Finally, one of the traditional stratigraphic frameworks for historic site investigation, the Harris matrix (Harris 1993), has not been widely embraced by geoarchaeologists. Ambitious CRM projects in many cities across the U.S., however, have exposed the unique geoarchaeological signatures of calamitous and disastrous events. The San Francisco earthquake of 1906 is one example, and, more recently, Gould (2002) has called attention to the archaeology of the future in his dramatic excavations at the tragic site of the World Trade Center in New York City.

Just as historic archaeologists draw on different resource bases, datasets, and methodologies to approach urban sites, geoarchaeologists must utilize other avenues to structure this area of research. The most obvious sources for information on past urban environments are historic records, maps, and diaries. The latter are especially informative for the eastern U.S., as early colonial geographers, for example, provided painstaking documentation of the physical settings of their nascent cities prior to the extensive land-clearance efforts that heralded the Industrial Age in the early nineteenth century. Geoarchaeologists must also interact more closely with historic archaeologists who tend to be more familiar with the archived literature of their regions. Ultimately, the geoarchaeologist may be afforded the opportunity to synthesize even limited exposures of natural stratigraphies with landscape features depicted on maps or described in detailed historic accounts.

Figure 5 is a projection of landforms depicted on seventeenth-, eighteenth-, and nineteenth-century Dutch, British, and early American topographic maps of Lower Manhattan. Detailed descriptions of their shapes and dimensions have been further refined in archived accounts of local geographers, naturalists, and antiquarians of the same periods. The features are superposed on the grid of the current, flattened Manhattan streetscape together with the locations of major archaeological sites that have been excavated over the past two decades. The landforms identified as “Kalkhoek Promontory” and “Catimuts Hill” are depicted as hillocks on historic maps but were almost certainly vestiges of the Wisconsin kettle-and-kame topography that is preserved in upstate New York. The feature known as the Collect Pond conforms to a 5-acre, postglacial impoundment favored by the Dutch for ice skating in the winters and picnics in the summers. By the eighteenth century, the Collect was the center of the tanning industry in New York City, its spring-fed waters drawn upon for animal hide processing. In the early nineteenth century, the Collect became a health hazard, promoting diseases, such as typhus, when animal carcasses were routinely discarded along its margins. The Collect was backfilled shortly thereafter.

Archaeological excavations undertaken in the mid 1990s at the site of the MCC Tunnel (Figure 5, right side) incorporated a geoarchaeological component when preliminary geotechnical soundings extended into undisturbed sediment, at depths in excess of 5 m. While project construction schedules and OSHA

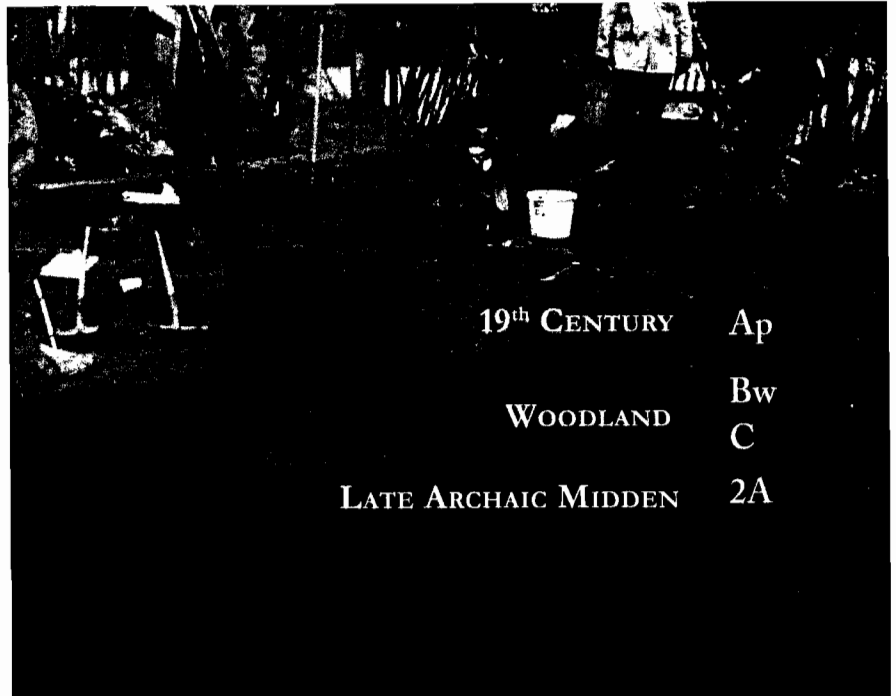


Figure 4: Alluvial sequence at the Lower Black's Eddy site, Delaware River. The stratigraphy registers a complex of Late Holocene overbank flood events disrupted by soil formation and Late Archaic to Woodland occupations in primary contexts (from Schuldenrein et al. 1991).

restrictions inhibited the extent of and accessibility to exposures, map research and geographer accounts, coupled with detailed micro-stratigraphic observation, facilitated a reliable reconstruction of the site formation sequence (Figure 6). Thus, the upward-fining stream deposits capped by an organic horizon with decomposed bark chronicled the emergence of the historic Collect. It was possible to track the drainage history from its beginnings as part of the early Dutch agricultural system, its transformation by natural and then by controlled sedimentation, and eventually its function as the site of the British tanneries. The upper 4 m of fill correspond to the well-documented, mid-nineteenth-century efforts by the New York municipal government to raise the land surface above the levels of marine inundation. In fact, two episodes of flooding are registered within the fill sediments themselves. Finally, radiocarbon specimens taken from the profiles confirm the late prehistoric to historic chronologies preserved in the entire column (Yamin et al. 1994).

In sum, even limited fieldwork in historic environments can yield productive landscape histories when appropriate background and archival research is performed. Historic archaeology opens up new vistas for productive geoarchaeological research and site formation modeling.

Cost Efficiency

It is my experience that smaller CRM firms rarely utilize geoarchaeologists, claiming that costs are prohibitive. As indicated, however, geoarchaeology is cost-efficient as a prospection (Phase I) as well as a data-recording technique (Phases II and III). It is optimally incorporated on the front end of project design, irrespective of Phase. In over three decades of work, I have found that fiscal outlays for the geoarchaeological component in Phases I and II should be 15–20 percent of the total project. When the method is utilized, the net costs for Phases I and II are reduced by 25–35 percent, much of the reduction coming in the form of labor cost savings because of the higher efficiency and dependability of geoarchaeological work (Schuldenrein 2000). Many State Historic Preservation Offices and federal regulators look upon the strategy favorably, accepting it as a viable alternative to standard pedestrian survey and testing. Phase III research designs almost invariably integrate a geoarchaeological component to streamline depth and extent of excavation areas. A geoarchaeological assessment of landform history will stratify landform segments in order of potential archaeological yield. For Phase III levels of effort, cost assessments are more variable, dictated by Scope and site context. However, a figure of 20 percent of the total budget is not untenable.

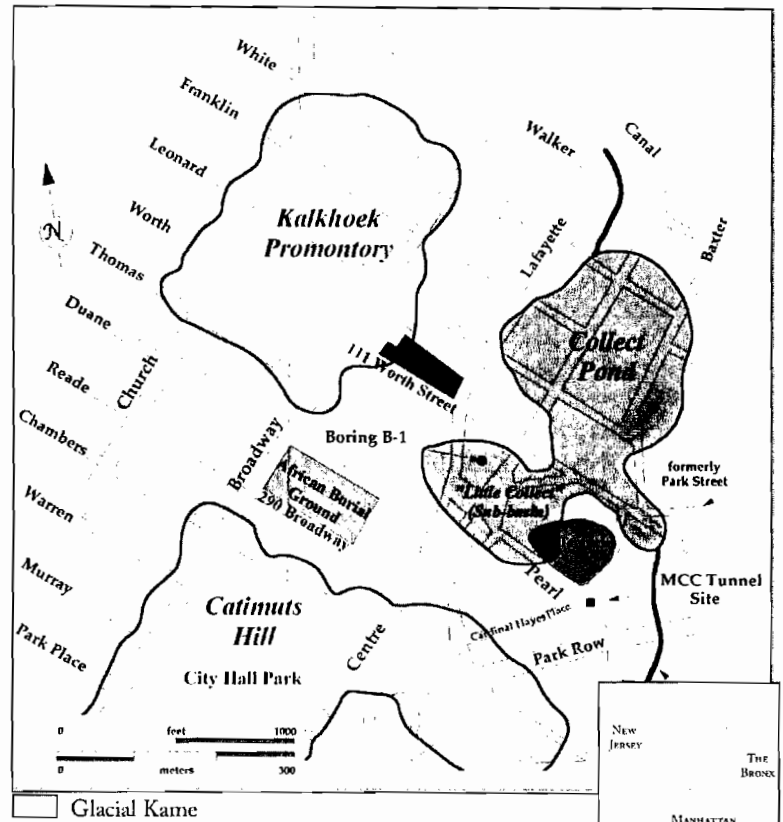


Figure 5: Projection of glacial age landforms superposed on the contemporary grid of Lower Manhattan. Catimuts Hill and Kalkhoek Promontory are glacial kames named by the Dutch settlers. The Collect Pond was an impoundment used for ice skating in winter and picnicking in the spring. It later became the prominent locus for the tanning industry. The graphic was prepared in conjunction with geoarchaeological testing for the MCC Tunnel project (from Yamin et al. 1994).

Training, Employment, and Future Directions

There is no codified structure for geoarchaeological certification. A few universities support geoarchaeologists in a variety of departments, typically in geology, geography, or anthropology, and more rarely in pedology or geophysics. Geoarchaeologists must be familiar with most of the subfields of the earth sciences. An advanced degree is necessary, preferably a Ph.D., which has become almost mandatory if a larger project is involved, and project liability issues are a factor.

It cannot be stressed more strongly that the geoarchaeologist must be strongly and formally trained in archaeology since the practitioner is invariably brought on site to answer archaeological questions. Until recently, there has been a tendency to utilize earth science professionals unversed in archaeology. A classic case is the recruitment of a structural geologist specializing in drainage histories to model floodplain evolution for a stratified site. He simply dismissed the need for Holocene sequence modeling as "a minor blip in the overall picture," thus leaving the archaeologists without the necessary site-specific reconstruction. Most CRM firms do not have in-house geoarchaeologists and hire outside specialists. It is necessary that the specialist be familiar with CRM problems and objectives. Experience is the key to success in geoarchaeological practice because of the lack of structured training programs.

Finally, as in most of archaeology, future opportunities for geoarchaeologists will surface in nontraditional venues. Academic geoarchaeology may open up incrementally but certainly not in line with the demands of the commercial sector. CRM will continue to solicit input from earth scientists, and especially those versed in high technology.

More critically, the future of geoarchaeology is inextricably linked to the demands of a modern world in which, for better or worse, applications of the natural sciences will be applied to cope with the fragility of

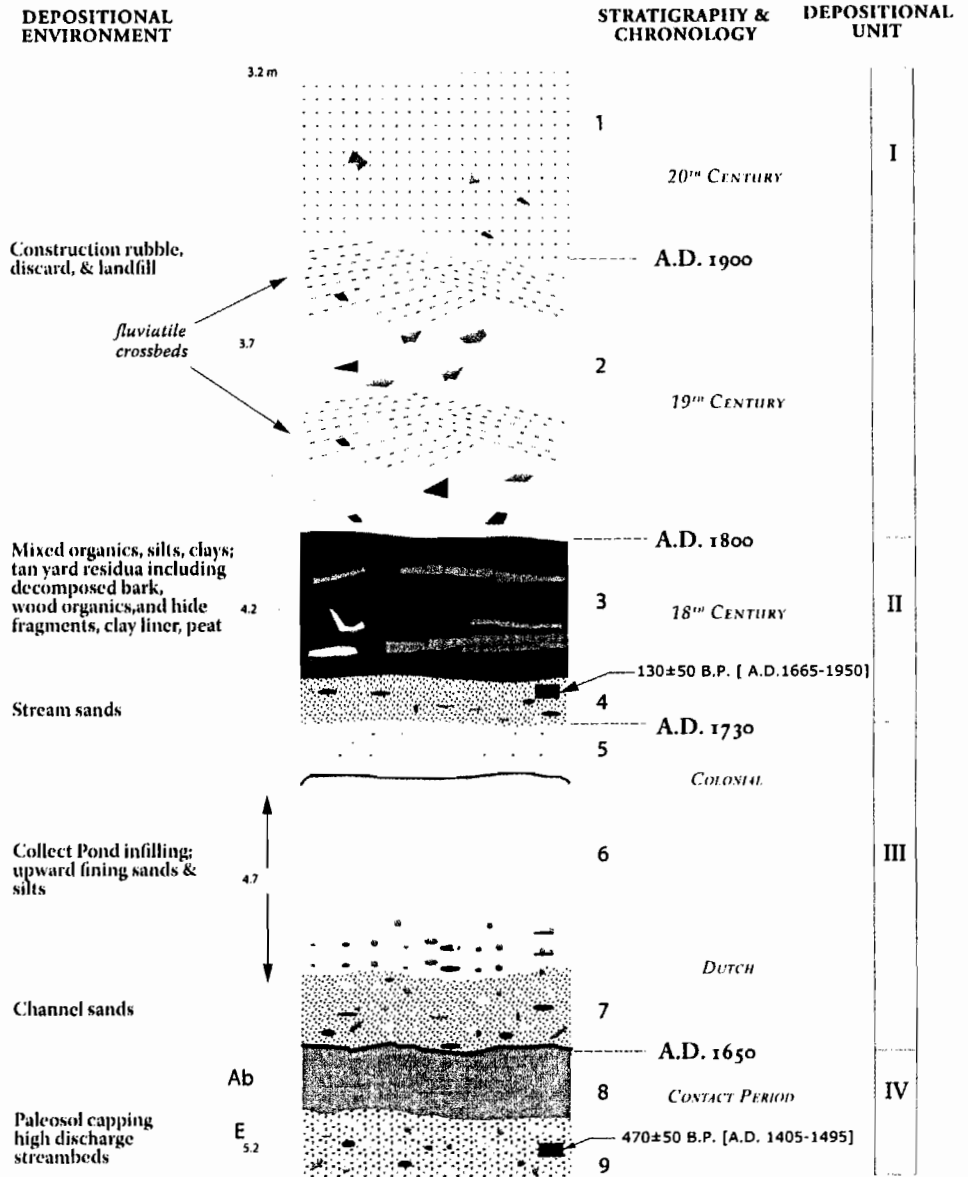


Figure 6: Stratigraphic reconstruction in the vicinity of the Collect Pond. The reconstruction was developed as a result of the integration of the historic map data (Figure 5) and a very limited field assessment (from Yamin et al. 1994).

the present eco-system. The effects of global warming, attendant natural catastrophes, and man-made disasters have already transformed human landscapes to a critical degree. It is probable that forensic geoarchaeology will be the wave of the future. Geoarchaeological techniques are as relevant to understanding the alluvial, estuarine, and marine stratigraphies left in the wake of Hurricane Katrina as they are to modeling the flood regimes of the Early Archaic. We will be all the better if the lessons of the past can be marshaled to understand and intervene in the management of the human ecological dynamic.

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PANYC Public Program:

PANYC held its 27th annual public program at the Museum of the City of New York on May 6th. The program, “Made in New York: The Archaeology of New York City’s Industrial Past,” presented five talks by seven professionals to an attentive audience. The talks explored a variety of historic industrial resources in our city as well as provide insight into the various techniques used to identify, understand and document these not always “archaeological” sites.

After a brief introduction on Industrial Archaeology by Lynn Rakos, the audience learned about a Dutch windmill on Governor’s Island, believed to date to 1625-26 from Holly Herbster of PAL. They heard about the influence of the landscape on the siting of an 18th century tannery near City Hall from Joe Schuldenrein and Becky Yamin. Meta Janowitz spoke of kiln furniture remains excavated from the African Burial Ground site and on what they can tell us about the potters’ craft. Mary Habstritt of the Roebbling Chapter, Society for Industrial Archeology, took the program into the 19th century with a talk on the historic ship repair facility in Red Hook, Brooklyn and the efforts to save the graving dock there. The last talk of the day was about the High Line, Manhattan’s 1930 elevated west side railroad viaduct soon to be a city park. This talk by Tom Flagg and Gerry Weinstein ended with Gerry entertaining the audience as he explained how to record industrial structures to the standards of the Historic American Engineering Record (HAER), all while he put together his large format camera. Perhaps a PANYC Public Program first – a live demo! The program was well received and well attended. Thanks to all who spoke and to those who helped me pull it all together and make the day a success.

Unfortunately, this year we had no awards. Please keep in mind the PANYC awards as you encounter people and projects this coming year that might deserve recognition from PANYC.

Lynn Rakos



Joe Schuldenrein and Becky Yamin



Meta Janowitz



Gerry Weinstein

If you are interested in joining PANYC or if you would like to subscribe to the PANYC Newsletter, please complete the form below and return it to:

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I wish to apply for membership to PANYC and would like to receive the application form _____

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I wish to make an additional donation to PANYC _____

EVENTS OF ARCHAEOLOGICAL INTEREST - Compiled May 2007

EVENT	SPEAKER	TIME	DATE	LOCATION	CONTACT INFORMATION	FEE
Exhibit: New York Divided: Slavery and the Civil War			Through 9/3/07	The New-York Historical Society	212 873-3400	\$10/7/5 adults/seniors, educators/students
Exhibit: Off the Map: Landscape in the Native Imagination			Through 9/3/07	George Gustav Heye Center, NMAI	http://www.nmai.si.edu/subpage.cfm?subpage=exhibitions&second=ny	free
Exhibit: Slavery in New York: Brooklyn Stories			Through 6/3/07	Brooklyn Historical Society	www.brooklynhistory.org	\$6/4/free adults/seniors, students/children
Exhibit: Gold			Through 8/19/07	American Museum of Natural History	www.amnh.org/museum/welcome/	pay what you wish, but something
Professional Meeting: SIA National Conference			June 7-10	Philadelphia	www.sia-web.org	

In addition, a new permanent exhibit, New Greek and Roman Art, has opened at the Metropolitan Museum of Art; other permanent exhibits relevant to archaeology include those at the Metropolitan and Brooklyn Museums on Egypt, at the AMNH's Hall of South American Peoples, and at the Metropolitan on Western Asia and the Far East; there are also permanent exhibits that might be of interest to archaeologists, including one on slavery at the New-York Historical Society and one on the history of Brooklyn at the Brooklyn Historical Society.

If anyone knows of archaeological events or exhibits which they would like listed, please contact Diana Wall either by e-mail at ddizw@aol.com or by mail at Department of Anthropology, The City College, New York, NY 10031.