

# The Grapevine



Newsletter

November 13, 1992

FOR CULTURAL RESOURCES MANAGEMENT

Vol 2:10

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#### \* STATE NEWS

#### Florida

In Palm Beach County, Florida, the County Commission has recently signed a contract with a "treasure hunter" to look for treasure in Palm Beach County Parks along the coastal area. This agreement, which set a precedent in Florida, invites the unregulated exploration of public lands for private gain. Under terms of the agreement. the "explorer" is allowed to keep ten percent of any findings and the Commission may dispose of, sell, or give away their ninety percent at their discretion. Despite letters from Florida State University, Florida Historical Society, the Florida Anthropological Society, and many others, the county is still allowing the exploration to However, the treasure hunter must be accompanied by archaeologist Scott Lewis, adjunct with Florida Atlantic University. Excavations will not be permitted until proper documentation and research designs are drafted by Lewis.

It is obvious that professional ethics have been violated here. If you wish to add your voice to those already registering their protest, address your concerns to:

Ms. Karen Marcus, Chairman Palm Beach County Commission 301 N. Olive Avenue West Palm Beach, FL 33401 Copies of the contract are public documents and may be requested through Commissioner Marcus' office or from the county clerk at the same address.

#### New York

During excavations on Ellis Island, archaeologists uncovered portions of Fort Gibson, a nineteenth-century fort destroyed 101 years ago. Twenty-five feet of Fort Gibson's crescent-shaped battery have been unearthed so far and test bores indicated another 100 feet still lie below the surface.

#### **REQUESTS FOR INFORMATION**

The Mississippi Association of Professional Archaeologists (25 strong) has appointed three members, representing the public sector, the academic sector, and contract services, to constitute a committee on professional standards. The committee is charged with investigating methods used by other states in evaluating credentials of persons desiring to perform archaeological services within the state in question, and also to develop guidelines for uniform report preparation, particularly for CR surveys under Section 106 where no sites are located. If your state has a system for board-certifying or licensing archaeologists and/or has developed a format other than a letter-report for this situation, the MAPA Committee would appreciate hearing from you. Please send comments to:

E.M. Boggess, Ph.D., ARCHAEOLOGISTS UNLIMITED, PO Box 1756 Natchez, MS 39121-1756.

The Atwater Kent Museum, the History Museum of Philadelphia, is currently embarking on the task of organizing and cataloging its collection of artifacts excavated from historic sites in the Philadelphia area. It is the hope of the curators and conservators to enter the artifacts into a database, so that their information may be useful to others. Any information you have regarding databases useful for this purpose would be most helpful. Please send any recommendations or advice to Amber Bennett, 15 South 7th Street, Philadelphia, PA 19106, 215-922-3031.

#### \* HAZMAT INFORMATION

# HAZMAT TRAINING

By Connie Farmer

This past August I had the opportunity to attend the "Hazardous Materials Incident Response Operations Course" presented by the U.S. Environmental Protection Agency at their Cincinnati training facility. This course meets the U.S. Occupational Safety and Health Administration's (29 CFR 1910.120) requirement of a minimum of 40 hours of classroom safety training for hazardous waste site workers. The course is a one-week intensive training program which includes both lecture and hands-on use of personal protection equipment.

I had convinced my boss that it would be profitable for someone on our staff to be certified as a hazardous waste site worker. This training could then be a viable commodity to market to our clients, many of whom are engaged in the energy industry. There are very few firms engaged in CRM activities at hazardous or potentially hazardous sites, and my personal interest in environmental science and hazardous waste remediation made me the likely candidate to explore the training requirements for this type of work.

The course itself was a very intense experience. My classmates came from all over the country, and most of them were government employees. Many are engaged in HAZMAT work already, and are required to attend. I was, of course, the only archaeologist in the crowd. The lecture portion of the course was pretty straightforward. We learned about hazard recognition, which is probably the most important element in dealing with hazardous waste. We learned how to use air monitoring equipment, and discussed toxicology and exposure limits briefly.

The level of intensity went up when we were divided into teams to participate in mock response exercises. The second day of the course found us donning full-face

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Editorial address:

The Grapevine Newsletter 1318 Main Street Cincinnati, OH 45210. = 513-287-7700 PAX 513-287-7703 respirators with splash suits, which is categorized as "Level C" protective garb. I had never used a gas mask before, and decided it was something I could tolerate.

The next step was for us to dress out in "Level B" protective garb, which includes the splash suit, two layers of gloves, boot covers, hard hat, and a selfcontained breathing apparatus (SCBA). I am not a scuba diver and this was all new to me. Breathing through a full-face mask with a tube attached to a tank was a little disconcerting, but after the first wave of panic passed I was fine. We conducted an investigation of a mock very dark, abandoned warehouse, with unidentified barrels of chemicals in it. Our assignment was to carry out a site characterization of the hazards present. setting was as real as the instructors could possibly make it seem. We got readings on all of the monitoring equipment at our disposal, and had to report the results of chemical tests carried out. Two of my classmates bailed out as soon as the lights went out: claustrophobia reared its ugly head! Neither of them dressed out the rest of the week, preferring to provide support services to those who were more daring.

The big test came when we donned "Level A" protective gear, which includes the SCBA, hard hat, and a fully encapsulated suit like the astronauts wear. I was fine until the instructors came around to zip us into the suits and told us to "go on air." There is no way out of these suits from the inside, unless you have enough experience to know to carry a knife, which I didn't have. A wave of claustrophobic panic came over me as they zipped me into that thing. I had to ask for a minute to regain my composure. When I was sure I wasn't going to asphyxiate myself in it, they finally sealed me in. They took us up to the gym where we ran an obstacle course, used tools to remove nuts and bolts from a board, and shot some hoop. It was quite a sight to see 18 people running around playing basketball in moon suits. This exercise was child's play compared to what they had in store for us later in the week.

The final exercise was done as a single group. The trainers brought in actors to set the scene for the grand finale of our hands-on training. The scenario was that several barrels of an unknown nature had been found by neighborhood children. We were to determine the seriousness of the hazard and to try and identify the contents of the barrels. The team coordinator and other advisory personnel decided that the first approach should be in "Level A" protective gear. We had to establish a decontamination line to clean up the entry team when they came out of the cordoned-off area. We had to clear the area of unauthorized people, and deal with the neighbors as they filtered out to see what was going on. The actors brought the exercise to life complete with press corps and local government officials.

The exercise was videotaped so we could see how miserably we had done. It proved to be much harder to get all the steps right than we initially suspected,

# CALENDAR OF MEETINGS

November 20-21 - First Discovery of America: A Conference on Ohio's Early Inhabitants, Columbus, OH. Sponsored by the Ohio Archaeological Council, the conference will be held at the Ohio Historical Center. The theme will be research on the Paleo-Indian and Early and Middle Archaic periods. Contact: Bill Dancey, OAC Conference Coordinator, Dept. of Anthropology, The Ohio State University, 245 Lord Hall, 124 W. 17th Avenue, Columbus, OH 43210-1364.

December 6-12, 1992 - International Conference on Environment and Archaeology, San Juan, P.R. Conference themes include Interpretation and Interpretive Planning, Technology and Technology Transfer, Information Management, and Network Development. Registration fees: \$200 (by 10/15) or \$225 after 10/15. For additional information contact: Gus Pantel, \$809-792-2456, or Kent Schneider, \$404-347-7250.

If you have a meeting you would like to include on our calendar, The Grapevine will be glad to list it for you. Please remember to submit your listing by the 10th of each month.

and we all came away with great respect for the people who do this kind of work on a daily basis.

The most important thing I think I came away with is the ability to more easily recognize potentially compromising situations when I am out doing routine field work. Protecting my crew from stumbling into something unknown is important to me. I have to admit that the prospect of doing HAZMAT archaeology appeals to me because I will be able to combine my two areas of interest in an exciting industry that is sure to grow over the next several years.



#### PROJECT DAY-GLOW: A HAZMAT EXPERIENCE

by Elizabeth M. Boggess, Ph.D.

Projects Director, Archaeologists Unlimited

Archaeologists Unlimited recently completed a Level One survey as a subcontractor on a NEPA Remedial Investigation and Feasibility Study on a federal reservation "somewhere in the Deep South." The nature of the project required strict confidentiality about location and other factors affecting the work and the results of the survey. The archaeologists were one of four teams involved in the over-all evaluation of conditions in the area, the others being concerned with

wetlands, wildlife and endangered species, and physiography.

The terms of the contract specified certain types of The original contract documents safety clothing. advised that clean-suits might be necessary. This would have severely limited the field time that any member of the crews could have worked (summer temperatures in the area range between 90 and 100 degrees F with extremely high humidity. Ice-vests inside Tyveck suits would not have helped much). The requirements for the survey were modified during discussions between the federal agency, the SHPO, and the contractor, so that no shovel testing or other disturbance of the surface was permitted, thus minimizing exposure to possible hazardous substances. This also included a prohibition against removal of artifacts for analysis and identification, but this proved not to be a serious problem as the work proceeded.

The contractor required certain types of insurance documentation in addition to the company's usual coverage, as well as certain waivers and disclosures. Archaeologists Unlimited, in turn, required all employees working on this project to sign contracts including equivalent waivers and disclosures. contractor conducted an OSHA safety school for all participants on the first day in the field. Thereafter. each team was checked several times during the day by the contractor's health-and-safety officer, and "tailgate" safety inspections for contaminants were conducted each afternoon before leaving the area. The archaeologists encountered no difficulties in performing the survey other than from natural causes such as extreme heat and humidity and an extraordinarily numerous population of copperheads and rattlesnakes, who seemed to prefer us to the herpetologists. Nevertheless, the CRS documented one HRHP-eligible site, two possibly eligible, four single artifact sites, and six areas which should be shovel-tested prior to disturbance.

#### ▶ PHOTOGRAMMETRY

# PHOTOGRAMMETRY IN THE FIELD: POSSIBILITIES AND PROBLEMS

## By Tim King

In the field of archaeology the use of photography has been limited to aesthetic and illustrative purposes. At present, photos of sites are primarily used to educate the public and/or to document the site visually. One of the most important aspects of an archaeological excavation is the information recovered from the site's stratigraphy. Jennings (1989) states, "The stratigraphic principle that layers in the earth are laid down slowly though time, with the earliest being the deepest and each successive layer relatively younger, is crucially important here and forms the basic evidence for most

archaeological chronology." In other words the validity and authenticity of a site rely heavily on the stratigraphic data recovered from the site.

The standard method of recording a site's stratigraphy is manually drawn profiles. This method has been practiced since the early days of archaeology. Thomas Jefferson was one of the first individuals in the U.S. to conduct archaeological research using the aforementioned technique of profiling and stratigraphic interpretation (Thomas 1991:15). Realizing that a site can cover acres and include hundreds of units, the need for a more efficient and objective method is needed. By merging a photograph of the profile with computer and digital image technology, these "illustrative" photos can become an interpretive aid to today's archaeologist. The ultimate goal of this undertaking would be the eradication of manual profiling in the field. A profile photo could be scanned into a computer system that would be able to discern not only stratigraphic data but color differentiations and possibly grain size. extracted the data from the photo, an accurate representation of the stratigraphy and/or any other relevant information could be printed, FAXed, and correlated with sites around the world.

During a 10-week summer project, the "ideal" outcome was looked at from a number of different perspectives. Some of the questions that needed to be answered before beginning were:

- What type of equipment would be available on an archaeological site?
- 2. What would be a tolerable amount of error allowed in the photograph?
- 3. What could be accomplished in 10 weeks?

In answer to the first question, it was determined that all archaeological excavations have access to the necessary equipment, i.e., camera, tripod, meter scales, bullseye levels, etc. The margin of error was set at 1-5 percent. While this margin may be debated, the wide margin of error that can be incurred with a number of individual's manually drawing profiles, this number falls within an acceptable limits. Finally, given the time constraints of this project, it was determined that the most useful undertaking would be to study the amount of error in the photographic process and suggest possibilities for further research.

Since all photographs contain some measure of distortion, usually referred to as barrel or pincushion distortion, the mathematical and geometrical problems involved in photographic distortion are of extreme importance. Since the discussion of such matters is beyond the scope of this article, a succinct and helpful summary of these problems is discussed in Photogrammetric Evaluations in Clinical Generics: Theoretical Conditions and Results (DeLiberti & Olson 1991).

For this project, an experiment was devised to test the accuracy that could be attained using available equipment. A 50x70cm grid was constructed on posterboard. This was placed on a wall and photographed. A total of 36 photographs were taken at varying distances and angles from the grid. Seven different combinations were photographed. Usable information was gained from the photos themselves, along with basic statistical principles. Of the 36 photos, 3 exposures were selected for 8x10 enlarged prints. A random sample of 28 10x10cm squares were numbered on each photograph. Twelve of these squares were measured along their horizontal (a/b) and vertical (c/d) planes. This allowed for three separate squares on each of the four levels of the grid. Given the ratio of the actual grid as 1:1, by determining the mean ratio and standard deviation of x and y axes of the sample, the amount of error inherent in the photographic process was gleaned. information would also determine the feasibility of using inexpensive and readily available equipment.

Results of this study indicated that the mean ratio of both the horizontal and vertical axes throughout the grid had a limited amount of distortion. These results were surprising considering the number of factors that affect the development process. Also noteworthy is the relative lack of skew errors on all three photographs.

The results of this experiment are only the beginning of what could be done with the use of photogrammetry in the field. The first obstacle, photo error and distortion. has been satisfactorily addressed for the needs of archaeology. In the future, the results obtained in a controlled environment will have to be taken into real This would entail the testing of world situations. photo/computer-derived measurements with those of archaeological field technicians. The easiest way to extract the information from future unit photographs would be by constructing a grid similar to that used in this experiment. This grid would need to be rigid. portable, and somewhat inconspicuous, so as to not conceal a large portion of the unit profile.

With the advent of enhanced computer software for digital image processing, the possibilities for success are well within reach. Stratigraphic profiling and its interpretation is essential to all archaeological fieldwork. There will be some who continue using manual profiling, as opposed to the use of a process like the one discussed here. Yet the methods of archaeology are destructive. Once a site has been excavated there is no way to return to resolve stratigraphic differences between field notes This technique once perfected will enable archaeologists to reexamine entire sites from the comfort of their favorite computer terminal.

#### \* FOR YOUR INFORMATION

Dr. Barbara Little joined the staff of the National Park Service in the National Capitol Region offices on November 2nd. As Archaeologist, Barbara's responsibilities include developing a regional survey plan for the NPS's new National Archaeological Survey Initiative (NASI). Maybe we can get Barbara to tell our readers about NASI in a future issue of the Grapevine.

\* \* \*

In late October, Laura Galke, former Associate Research Archaeologist at Manassas Battlefield National Park, joined the staff of Gray & Pape's Richmond office, in the capacity of Archaeologist.

\* \* \*

Congratulation to **Dan Hayes** and **Karen Ryan Hayes** on the birth of their son, Daniel Patrick Hayes.

#### EDITOR'S CORNER...

The Grapevine is one year old. During this past year, the staff of The Grapevine has enjoyed bringing our readers the latest CRM news.

Now it is time to hear from our readers. How are we doing? In our next issue we will give you the chance to voice your opinion. The December issue of The Grapevine will include a questionnaire for our readers to tell us what they would like to see in the next year's issues. Then, in January, we will publish the results of our survey.

#### POST CARDS FROM THE EDGE OF THE FIELD

Dear Sis,

Arrived safely at my next job. Not much trouble on the way here, just a new fuel pump in Beckley, W VA. Had to wait overnight while they shipped a rebuilt one in from Charleston. Couldn't get a new one for a '70 Dodge Dart.

Isn't a motel within 50 miles of the site, so we're staying at a youth hostel. There isn't much of anything else around either. And the county is dry. So is the next county. Had to drive sixty miles for beer. Naturally, we stocked up. We quickly learned can't have beer in a youth hostel; so we keep it in our cars. The work isn't bad. We are excavating at a state park. There are no camping facilities, only picnic grounds & some old plantation buildings to tour. Can't understand why anyone would drive all the way out here to have a picnic. Great crew, except for Felix, a graduate student trying to get some real field experience. He won't make it. He gets fancy foods in packages from his mom & mails his dirty laundry to his granny. Wonder what he'll do over Thanksgiving when the mail doesn't run regularly.

If you talk to mom, tell her I'm fine. There is only 1 pay phone nearby, down by the granary, but someone stuck gum in the coin slot. I'll try to call when I go on a beer run this weekend.

Love, Syd



Sissy La Bland 123 Boardom Way St. Salive, UT 00100

#### JOIN THE

# Utah Professional Archaeological Council

An association important to all archaeologists working in Utah and surrounding states.

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For application or information contact Stan MacDonald, UPAC Vice-President, Manti-LaSal National Forest, 599 W. Price River Drive, Price, UT 84501, **2** 801-637-2817.

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FAX 513-287-7703

Contact: Kevin Pape
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