

ST. LOUIS ARMY ENGINEER DISTRICT

ESPRIT

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Mandatory Center of Expertise for the Curation and Management of Archaeological Collections

Our historic legacy is accessible through memories, letters, diaries, stories, photographs, maps, and tangible items of every day life that connect those living today with relatives, friends, and people we may never have met. Where historians focus on written records to interpret our history, the knowledge of our past before written records is possible through study of the material objects of life,

which in many cases have long been forgotten. Archaeologists act as guides through their explanations of the remains of these tangible items known as artifacts. Through survey and excavation, archaeologists locate the mains of the past United States

that spans over 10,000 years. For over one hundred years, archaeologists have been active in North America attempting to explain how people lived the St. Louis District that people odons and woolly planted and gathered corn and homesteaded farms all within the Mississippi

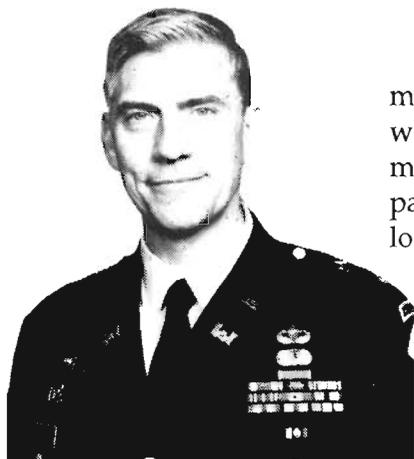


Erosion from flooding destroyed this archaeological site in the area of Ste. Genevieve Levee #2. (Photo by Terry Norris)

This and other articles on the activities of our MCX for the Curation and Management of Archaeological Collections continues on pages 6 through 10.



Commander's Perspective



COL Thomas C. Suermann

As we begin the holiday season, I wish to ask each of you to remember Mr. Louis Hurd and his family. Mr. Hurd died recently while performing his duty at Kaskaskia Lock and Dam. We will miss him in the District and his family will miss him as they prepare for the coming new year and the months ahead. He is no longer among us, but his memory will always remain with us.

There is never an appropriate time to have to accept the loss of a sincere, hard working family member and such a loss is particularly painful at this time of year. Mr. Hurd's death should remind each of us that we should always be situationally alert and that our health, our security and our relationships can change dramatically, often in a few short hours.

Please be alert, be cautious and be safety conscious during the weeks ahead as we close out 1995 and prepare for 1996. We should celebrate life and our successes this year, but we should never forget that the greatest successes are never achieved alone. We all share in the joy associated with reaching our goals and we all share the sorrow of whatever losses we experience. We should be more appreciative of each other, more cognizant of our frailties and more interdependent in the months ahead. If we are, we will improve our safety awareness in 1996. Incorporate safety checks in all your daily work habits - on the job and at home. Employ common sense applications in all that you do and raise your common personal safety standards to an uncommon new level of excellence. We should all seek to make this district the safest one in the entire Corps of Engineers.

My family and I wish you and your family a very happy, blessed and safe holiday season and a new year filled with excitement and a commitment to excell. Treasure this holiday season and remember that tomorrow can only be as good and can only be as safe as you, your family and your fellow employees make it.



**US Army Corps
of Engineers**
St. Louis District

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News Briefs

Carlyle Lake:

Storyteller

About 100 people came out to the Visitor Center to hear storyteller Linda Haake tell spooky Halloween tales. Linda was dressed as an obnoxious witch and told her stories by a campfire as her guests sat on bales of straw. Everyone left the evening with a lot of Halloween spirit.

Reservations

Carlyle Lake began accepting reservations, by telephone only, for picnic shelters and group camping on November 21. The number to call is (618) 594-4410 between 8 a.m. and 4 p.m.

Open rec. areas

Many recreation areas at the lake have closed for the winter, but some still remain open. All boat ramps except Coles Creek will remain open throughout the year weather permitting. Fish cleaning stations located in the recreation areas will close when temperatures drop below freezing. Honker's Point and White Tail Access Areas, which are closed during the summer, are now open. These areas and all other Hunter/Fisherman access areas will remain open throughout the hunting season. Interested groups may schedule programs at the Visitor Center even though it is closed for the season. Eldon Hazlet and South Shore State Parks will have areas open for camping throughout the winter season.

Haunted Hike

The Haunted Hike on the Little Prairie Nature Trail was visited by 800 people this year. This is the

fourth year for the hike, hosted by the Carlyle Lake Fireworks Committee on October 20 and 21. The event is held to help raise money for the 4th of July fireworks show at the lake.

Cormorants

Many large flocks of Double-Crested Cormorants were sighted migrating through the lake area during their fall migration. This species of bird may look like the Canada Goose because of its wingbeats, airspeed and flight formations. The birds were placed on the endangered species list in 1978, but were taken off in 1994 and listed as an Illinois threatened species. The lake staff invites everyone out to enjoy the watchable wildlife this winter season.

Wappapello Lake:

Rehab projects

Wappapello Lake has four rehabilitation projects in progress. Three began in June. Two are at Peoples Creek Recreation Area - one relocated electrical lines underground and the other improved the sewage disposal system. They are about 85 percent complete. The third involved preventive maintenance on the emergency spillway and is 95 percent complete. The fourth project is the Visitors Center. The center rehabilitation and displays installation project started in August and is slated for a May '96 completion date.

Festival of Lights

A special invitation is extended to any and all St. Louis District personnel to attend our 3rd annual Festival of Lights auto tour from November 25th through December 22.

Lake Shelbyville:

Bass fingerlings

In October about 27,000 large-mouth bass fingerlings were released into the lake by the Illinois Department of Natural Resources and the Corps. The 4 1/2 to 5 inch fingerlings were released from the Fin and Feathers Nursery Pond located 4 1/2 miles southwest of Sullivan.

The Fin and Feathers Nursery Pond began operation in the spring of 1994. Since the program began, 123,70 walleye and 72,000 large-mouth bass have been released from the pond. The Corps built the pond and the Illinois Department of Natural Resources Reservoir Program manages it. The American Angling Association, another partner, assists with fish releases and supplies fertilizer for the pond.

Werner thank you

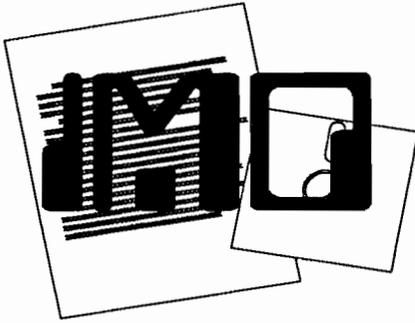
I want to express my thanks to everyone who helped me through my recent illness. All the cards, flowers, calls, etc. were greatly appreciated. Thanks to those of you who donated leave. It really helped keep me going as my husband had been off work and was only drawing strike pay. I especially want to thank those I work with at Lake Shelbyville. The support I received meant a lot to me. Thanks again.

Linda Werner

Internet access

A local computer company is providing local access to the Internet. Shelbyville will have a page that includes the Corps of Engineers, Lake Shelbyville and recreational opportunities.

(Continued on page 4)



Information transfer standards

Have you ever received a message from a coworker or from another Corps office which had an attachment that the E-Mail system would not read? So have I.

Recently I received a request to obtain a copy of a slide presentation and notes. Of course I was happy to accommodate, but immediately began having difficulty. It seems the presentation was not exactly in a format that was compatible with one of the graphics packages, such as Harvard Graphics, that are popular in the District.

I recently received some guidance being distributed from headquarters that may help to provide information related to transmitting data between USACE commands.

Word Processor. Word processing packages must be capable of importing and exporting files

in the American Standard Code for Information Exchange (ASCII). The most common packages currently in use at the Corps are developed by NOVELL/WordPerfect Corporation, Microsoft Corporation and Borland International. With the advent of the CEAP backbone network, document interchange and format conversion plays a predominant role in Corps day to day business. USACE commands are encouraged to use the WordPerfect 5.1 format for document exchange and interoperability with the Headquarters and across Divisions. Divisional/Directorate preferences can be any word processing package capable of this conversion. The Headquarters is predominately using WordPerfect 6.X as its standard.

Spreadsheet. Spreadsheet programs must be capable of importing and exporting data, formulas and macros in Lotus 1-2-3 WK1 format. The most common packages currently in use at the Corps are developed by Lotus Corporation and Microsoft Corporation. USACE commands are encouraged to use the Lotus 1-2-3 WK1 format for data interchange and interoperability. Divisional/Directorate preferences can be any spreadsheet package capable of this conversion. The Headquarters is predominately using Lotus 4.X as its standard.

Data Base. Database programs must be capable of importing and exporting data, reports, and macros in dBase III formats. ORACLE is the corporate DBMS standard for Corps-wide databases. To access the corporate databases an SQL language must be supported by the DBMS. USACE commands are encouraged to use the dBase III DBF format for data interchange and interoperability. Divisional/Directorate preferences can be any data base package capable of this conversion. The Headquarters is predominately using dBase as its standard.

Business Presentation Graphics. For general business graphics, the Corps has established format specifications and standards in a new release of the Visual Information Standards Manual, EC 25-1-90. Business presentation graphics programs must be capable of importing and exporting ASCII and Computer Graphics Metafiles (CGM). USACE commands are encouraged to use the CGM format for data interchange and interoperability. Divisional/Directorate preferences can be any presentation graphics package capable of this conversion. The Headquarters is predominately using Harvard Graphics as its standard.

News Briefs (cont.)

Festival of Lights

The Sixth Annual Lake Shelbyville Festival of Lights, showcasing 450 Christmas displays outlined by 800,000 colored lights, is now underway. The Festival of Lights is located at the Inn at Eagle

Creek State Park. Through January 15, 1996, the lights are on from dusk to 9 p.m. Sunday - Thursday, dusk to 10 p.m. Friday and Saturday. Admission is \$5 per car, \$8 per van, and \$1.50 per passenger for buses. Lake Shelbyville Visitors Association, corporate and local

businesses sponsor this event every year. In 1995, the Festival of Lights donated more than \$2,500 to the Shriners Hospital for Crippled Children, Ronald McDonald House and the Foster Families program of the Illinois Department of Children and Family Services.

(Continued on page 12)



Deep-water fish sampling taken to new depths

by Jerry Rapp, ED-HP

The success of the Bendway Weir as an innovative and cost effective means to maintain a safe and dependable navigation channel on the Mississippi River has been well documented. The weirs significantly improve navigation conditions around bends by creating desired navigation channel dimensions. There are over 100 of these structures in 13 bends of the Mississippi River.

The effects the weirs were having on the aquatic environment were unknown. Of particular concern was what effect the weirs were having on the pallid sturgeon. The pallid sturgeon is an endangered fish species and thus is protected under the Endangered Species Act.

In 1994 representatives of the St. Louis District, Lower Mississippi Valley Division, Waterways Experiment Station, U.S. Fish and Wildlife Service (F&W), Long Term Resource Monitoring Stations (LTRM), the Missouri Department of Conservation (MDC), the Illinois Department of Conservation (IDOC) and Southern Illinois University began developing plans to sample the number and type of fish using the Bendway Weir habitat. This data would be essential in determining the environmental assessment of the bendway weirs.

There was only one major obstacle. Sampling in a deep water and high velocity environment had never before been accomplished. Conventional sampling techniques, such as electro-fishing and netting has been limited to depths generally less than 20 feet and velocities below two to three feet per second.

In a Bendway Weir field, depths can exceed 50 feet and velocities can exceed six feet per second.

A committee was formed consisting of representatives of the aforementioned agencies and groups. The committee was labeled the Deep Water Sampling Group. Numerous meetings were held to develop different techniques to sample the deep, fast water environment. The final list of methods to be used included blasting, shocking, gill netting, trammel netting, trotlining and hoop netting.

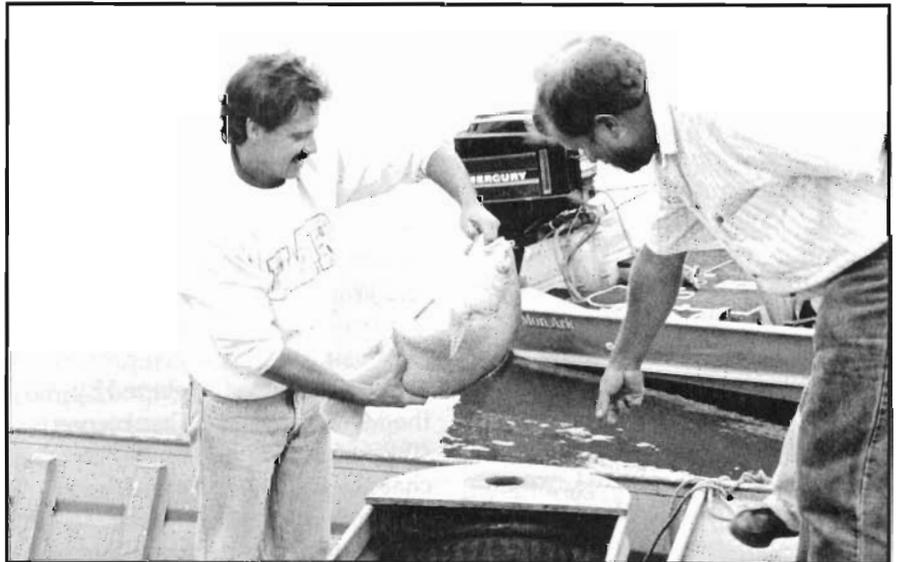
In order to accomplish these tasks in the deep, swift water, special techniques would have to be used. The placing of the charges for the blast, weighting for the nets and the anchoring of the trotlines would be done using conventional buoy blocks from the M.V. Pathfinder. The Pathfinder would also assist in collecting the nets. For the blast, each agency provided at least one catch boat to capture fish after

the charge was detonated. In the fast water, fish could surface many hundreds of feet downstream, so several boats would be required to sufficiently cover the area.

The highlight of the sampling occurred when a 300 foot section over a Bendway Weir field was blasted. Preparation for the blast (placing charges and catch nets) took about six hours. When the blast was set off the results were immediately apparent. Many fish began surfacing. In all, 217 fish were captured. There were 75 fresh-water drum up to 20 pounds, 58 gizzard shad, 24 blue catfish up to 35 pounds and many other species, including one sturgeon. A total of 13 different fish species were collected.

The other collection methods resulted in lesser catch rates. The method with the most promise consisted of rigging an electro-shocker on the bow of the M.V. Pathfinder. This shocker could be lowered to

(Continued on page 12)



Rob Davinroy and Jerry Rapp, ED-HP, look over some of the fish collected during a sampling of fish in the area of bendway weirs on the Mississippi.



Curation (cont.)

River valley. These activities left behind physical remains that are now located both above and below the ground surface. Archaeologists use these physical remains to reconstruct the activities that created them.

Identifying areas that may contain archaeological remains has become an integral part of Federal projects such as those associated with civil works and permitting activities. Those Federal agencies such as the Corps that manage land are required by law and regulation to minimize project impacts on archaeological remains. These requirements have resulted in the discovery and excavation of thousands of archaeological sites and associated artifacts.

Ensuring that the results of the archaeological work are available to the public, Federal projects also require that the physical remains, and the documentation associated with those remains, be curated in facilities that can properly care for these collections forever. In the U.S. Army Corps of Engineers, a Mandatory Center of Expertise for the Curation and Management of Archaeological Collections (MCX), located in the St. Louis District, was created to assist Headquarters, Divisions, and Districts in carrying out the curation requirements of the Corps civil works program. The MCX also provides technical assistance for curation and collections management to many other agencies, including the Department of Defense's Legacy Resource Management Program, the Navy, the Marines, the Air

Force, the Bureau of Land Management, the Bureau of Indian Affairs, and the U.S. Fish and Wildlife Service.

In addition to the curation and collections management technical assistance the MCX provides to other agencies, St. Louis District personnel are supporting the U.S. Army Central Identification Laboratory with archaeologists to help locate and recover the remains and personal effects of individuals unaccounted for from the Vietnam War. Furthermore, the MCX and the St. Louis District's Engineering Division have created a repository design program for the rehabilitation and/or construction of new facilities that can care for Corps archaeological materials and associated documentation.

MCX

by Marc Kodack, PD-C

In December 1994 Major General Genega established a Mandatory Center of Expertise for the Curation and Management of Archaeological Collections in the St. Louis District. The MCX is chartered to standardize the Corps' compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) and Federal and Corps-specific curation regulations. The MCX is directed by Dr. Michael Trimble and has a staff that includes archaeologists, collections managers, museum specialists, physical anthropologists, and an archivist. With this diverse staff, the MCX now oversees the entire Corps civil works program budget for, and compliance with, NAGPRA.

Advising the MCX on compliance with NAGPRA and curation

is a Curation Field Review Group (CFRG), which is composed of individuals appointed by each Division. The MCX meets with the CFRG at least once a year to discuss the progress of the Corps's compliance with NAGPRA and, in the future, curation.

At MG Genega's direction the MCX is implementing a national strategy for complying with NAGPRA through use of its own staff and contractors located across the U.S. These contractors work in three regions defined by the MCX--the Eastern, Middle, and Western--collecting data on human skeletal remains and artifacts using standardized procedures and forms developed by the MCX. The Corps has responsibility for the largest set of archaeological collections in the DoD and is a leader in the field of archaeological curation within the federal government.

Curation and collections management

by Kelly Holland & Ken Shingleton, PD-C

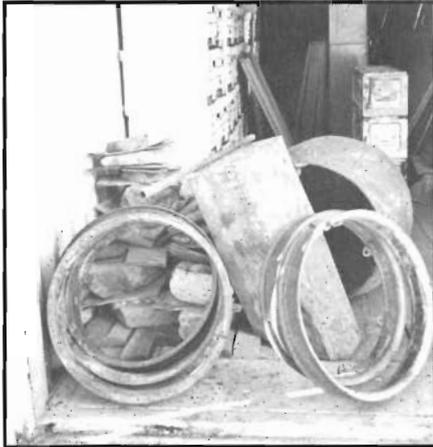
Federal archaeological materials and associated documentation are a legacy to the American public and their care and conservation has been required since the early part of the twentieth century. Current preservation and management procedures for many Federal archaeological collections are demonstrably substandard and does not meet the standards and guidelines required of these Federal agencies.

When the MCX accepts curation and collections management projects, we begin by determining the amount and location of that agency's archaeological collections. After the collections are located, an evaluation of the collections and the repositories that hold these collections is conducted. Finally, the



Management (cont.)

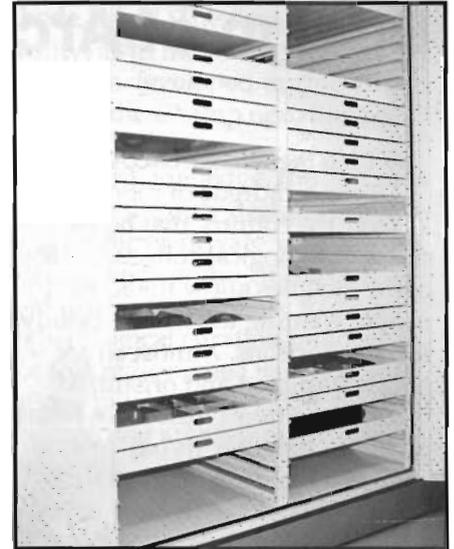
MCX provides the agency with a technical report that includes a summary of the existing condition of the archaeological materials and associated documentation and recommendations for the proper care



An example of an improper storage facility and conditions.

and rehabilitation of the artifacts and associated documentation.

One of the most recent MCX curation projects was conducted for the U.S. Navy's Engineering Field Activity, West (EFA West), a command that includes naval shore facilities in California and Nevada. Archaeological investigations have occurred on many of these facilities and our research located Navy artifacts and associated documentation at eight Navy and 23 non-Navy repositories. During our visit to each repository, we examined in detail the repositories' physical structure, security systems, fire suppression and detection systems, pest management, management policies and procedures, and the condition of the artifacts and documentation. The technical report that we provided to EFA West is being used to effectively manage the long-term



Santa Barbara Museum of Natural History storage facilities.

curation of archaeological materials generated from naval shore facilities under their footprint.

Native American Graves Protection & Repatriation Act

by Suzanne Griset, PD-C

Over the past one hundred years, and particularly within the past fifty years, Federal agencies have recovered millions of prehistoric and historic artifacts from Federal lands that are now housed in numerous universities, museums, contractor and Federal agency offices throughout the U.S. When Congress passed the Native American Graves Protection and Repatriation Act (NAGPRA) in 1990, every Federal agency and all museums that receive Federal funds were required to identify and inventory all the Native American, Native Alaskan, and Native Hawaiian human skeletal remains, funerary and sacred objects and objects of cultural patrimony in their archaeological collections. Un-

fortunately, prior to NAGPRA becoming law, few agencies had compiled inventories of where their collections were stored and even fewer had completed a physical inventory of the items in each collection. Federal agencies and museums also are required by NAGPRA to consult with Native peoples. For many Federal agencies this will be their first contact with Native peoples. As mandated by NAGPRA, consultation requirements continue in-perpetuity.

In addition to the Corps-wide compliance activities, MCX personnel provide assistance with drafting compliance documents, creating consultation guidelines, and additional ethnographic and prehistoric research to identify cultural affiliation. Currently, the MCX is administering four NAGPRA

projects, a multi-year project for the Corps, one for the U.S. Army Environmental Center, one for EFA-West, and one for the Headquarters of the Naval Facilities Engineering Command. For the active duty Army installations, we have identified and located the collections from approximately one hundred seventy installations. As we begin the second of an anticipated three-year project, we are completing a report for each installation and beginning the physical inventories of collections identified as potentially having NAGPRA-related materials. For the Navy facilities, we are conducting physical inventories of the archaeological collections to record the presence of NAGPRA-related materials.



Design of Archaeological Curation Buildings

by Rich Siemons, ED-DA

Of the hundreds of repositories all over the country that house Federal archaeological collections, few of the facilities allow for access by people wanting to view and study these collections. Almost all are so poorly designed and organized that finding items inside can be impossible. Imagine trying to find a book in a building that has a million other books in it. Now, imagine that the book you need has never been catalogued, never been put on a shelf, and has accumulated dirt and dust for fifty years. Now, imagine that the room the book has been kept in was so poorly designed and built that insects and rodents have been entering on a regular basis for years, feeding on the paper pages and cardboard covers; that the roof of the building leaks every time it rains or snows; that windows in the room are drafty and transmit sunlight that stains the pages of the book. Imagine further that the book you need is the only one in existence and so rare it is considered priceless; that the building containing the book is located in a part of the country that is prone to earthquakes, and the building cannot withstand even a minor tremor without collapsing. Even if you could find the building, would you enter it to search for the book? Could you find the book once inside the room? Would the book be readable once you found it?

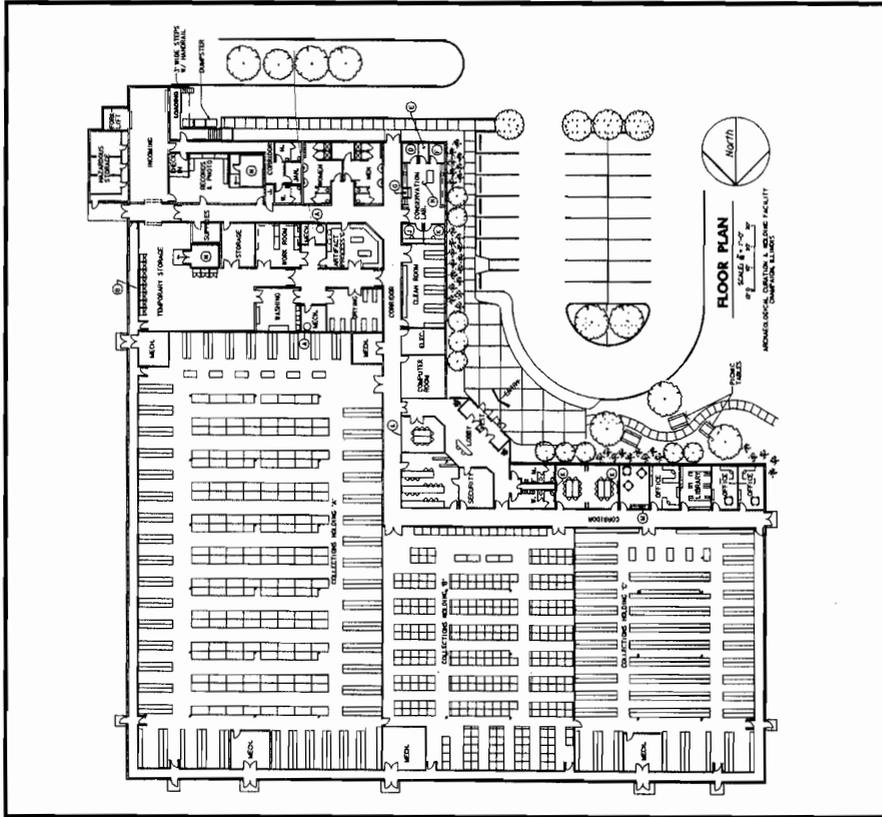
While this scenario may be hard to visualize with our present system of libraries, the current state of many repositories throughout the U.S. that contain Federal collections is succinctly described by this analogy. Few repositories exist that are adequate to accommodate both

people and the archaeological materials stored there. Some artifacts excavated in the 1960s still are encrusted with mud, and they have never been cleaned. Furthermore, they have not been analyzed, and no one knows where they are located. The collections are housed in inadequate buildings and structures with no heating, cooling, and relative humidity control. These structures generally were not built to withstand even minor earthquakes, and there are no pest control features. In the event of a fire, everything in the building will be lost. With few exceptions, this is the condition of repositories in the U.S. that hold Federal archaeological collections.

The first substantial repository design project by the MCX and the Engineering Division involved the development of an archaeological curation facility to be located in Champaign, Illinois. The project was supported by the U.S. Army through the Legacy Resource Management Program. The prototype design project involved a partnership with the University of Illinois and the U.S. Army Corps of Engineers Construction Engineering Research Laboratory (CERL), both located in Champaign. The facility was designed to care for and curate many types of archaeological materials and associated records as well as to provide for research. The building was not to be a major public facility, as say a visitor center building is; however, there was a need for space to accommodate scholars with legitimate needs to study the collections.

The Champaign, Illinois, facility presented a unique challenge to the design team. First, there are few buildings of this type in existence, therefore, the opportunities to

study the work by other designers is limited. Others have designed and constructed buildings with similar facilities, such as museums and interpretive centers; however, few have constructed the exact type of building needed for an archaeological curation facility. As a result, the design team was challenged to develop design methods that specifically address the needs of curation buildings. The team examined the human activities that would be conducted in the building, such as cleaning and processing. We then reviewed the types of archaeological materials that would be housed in the facility and the physical conditions of the artifacts and documentation prior to their entering the facility. We sought answers to a number of questions, such as what are the ideal environmental conditions needed to preserve historic documents and irreplaceable objects? What are the unique structural requirements for floors loaded with shelves and boxes full of lithic materials? How will people, artifacts, and records move through the building? What building features will produce the most efficient facility in terms of productive human activity and cost? How should the building relate to the neighborhood of which it will become a part? Should, for example, the building match other university buildings and blend with the campus, or should it make a unique visual statement of its own? Out of this collaborative process the design team developed the building design for the Champaign facility and the methods for the design of future archaeological curation facilities.



Archaeological Collections Center, Champaign, IL. A Legacy project

Shown above is the floor plan developed for the Champaign, Illinois, project. The facility was designed to include the following areas.

- * Incoming material and processing areas that are secure but separated from the employee and public entrances.
- * Isolated cleaning and conservation areas with appropriate environmental control systems for air movement, exhaust of toxic fumes, temperature, and relative humidity.
- * Secure collections, archives, and photographic records holding rooms, segregated by the type of material to be curated and the anticipated frequency of use.
- * Isolated hazardous storage room for holding chemicals used in the cleaning and conservation process.
- * Mechanical rooms that contain equipment for heating, ventilation and air conditioning, air monitoring and filtering; electrical distribution; and communications.

- * Task areas devoted to security, administration, and research.
- * Computer room for the electronic transfer and dissemination of data.

The District is currently working on another large curation building design project in partnership with Montana State University's Museum of the Rockies in Bozeman, Montana and the Legacy program. Work on this project has brought with it the additional challenge of understanding and incorporating the needs of paleontologists into the design of a single curation facility. The geographic location poses challenges in terms of engineering the building to withstand earthquakes and extreme temperature variations associated with the Bozeman climate.

The District is about to reach an agreement with the Rhode Island Department of Transportation for the design of an archaeological curation facility in an existing, historical train station in Woonsocket,

Rhode Island. The design of this facility, as in the others, follows the principles developed during our work on the Champaign, Illinois facility.

To our knowledge, the St. Louis District is the only design organization, public or private, that has developed and combined the specialized expertise necessary to design archaeological curation buildings. For this reason, the District is unique in the architectural, engineering, and archaeological communities.

Recovery of remains of American military personnel

by Charles Slaymaker, PD-C

The Department of Defense mandate to recover the remains of Americans killed on foreign soil is a top priority for senior military and civilian personnel in the U. S. Government. Recovery missions to Southeast Asia are the result of complicated and lengthy diplomatic negotiations between representatives of the United States, Laos, Cambodia, and Vietnam. The St. Louis District has been providing technical assistance to the U. S. Army Central Identification Laboratory, Hawaii (CILHI) and the Joint Task Force-Full Accounting (JTF-FA) since January 1994. The Central Identification Laboratory is under the direction of the JTF-FA while in-country in Southeast Asia. Both CILHI and JTF-FA work closely with the Defense Department's POW/MIA Affairs Office, the Defense Intelligence Agency, the Central Intelligence Agency, and the State Department. Situation reports are routinely sent to these agencies and the National Security Council, the Joint Chiefs of Staff, and the Secretary of Defense. Exemplary performance by MCX

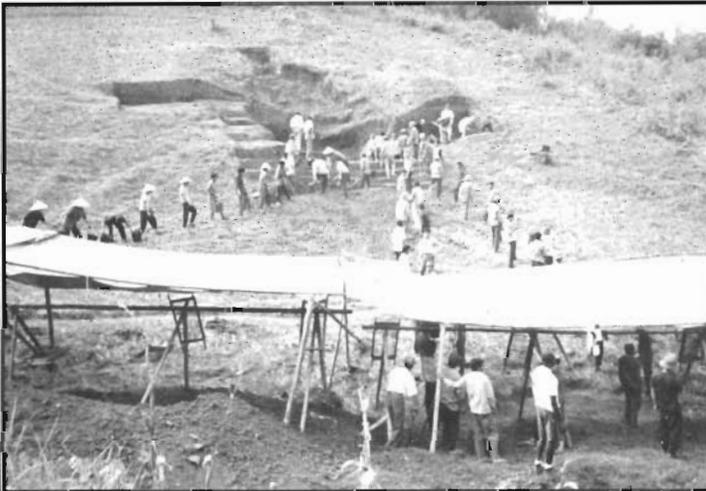
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Recovery (cont.)

personnel in assigned duties while members of CILHI teams gain international exposure for the St. Louis District.

Under a 1994 agreement with CILHI, the St. Louis District is obligated to provide technical support for up to 15, 30-50 day missions per fiscal year. Trained field archaeologists with experience in the excava-



A6A Intruder crash site in Son La Province, Socialist Republic of Vietnam, west of Hanoi near the Laotian border - October '95. (Photo by Dennis Danielson)

tion and recovery of human skeletal remains assist in the recovery of unaccounted-for American service personnel and their personal effects. The goal of each mission is to visit one or more aircraft crash sites and/or burial sites where the remains of Americans may be located. At each site, attention is directed toward the location of life-support equipment, personal effects, and human skeletal remains that could aid in the identification of the person or persons missing. Transportation in each country varies. If sites are accessible by road, team members drive to the site each day. Cambodia and Laos lack a solid road infrastructure and the majority of sites are in extremely remote areas, so teams access sites by helicopter. Throughout the recovery, MCX personnel provide

technical advice and support.

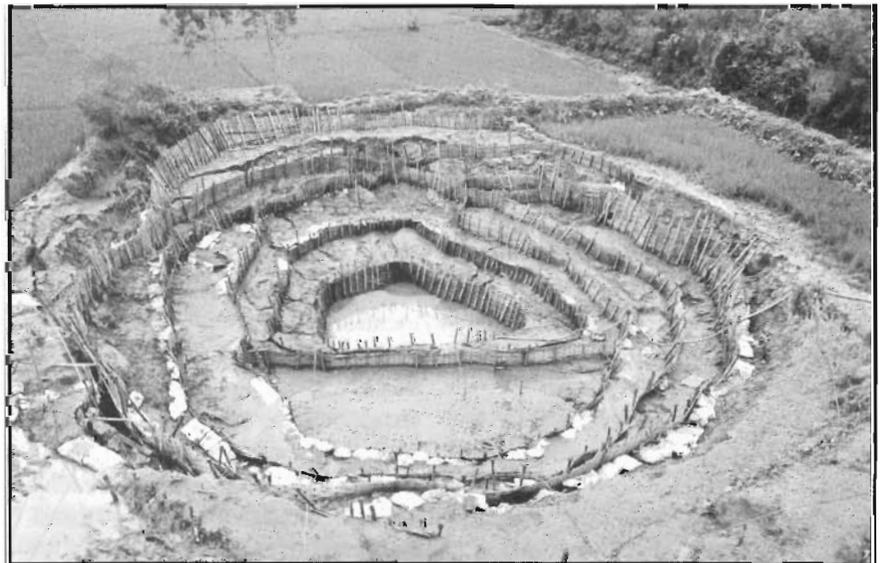
Recovered personal effects and remains are taken to CILHI for analysis and temporary storage while life-support equipment is stored at JTF-FA headquarters. The results of each recovery mission are presented in a formal report prepared in the field and at CILHI.

This report is presented to the family concerned as a documentation of the recovery mission. This report

and the data recovered to support it can be challenged by the family, so it is imperative that high professional archaeological standards are maintained in all as-

pects of each recovery mission.

The first three 1994 missions were supported by Marc Kodack,



A6A Intruder crash site in Vinh Bao District, Hai Phong Province, Socialist Republic of Vietnam - March 1995. (Photo by Dennis Danielson)

Christopher Pulliam, and Charles Slaymaker who went to Cambodia, Vietnam, and Laos, respectively. For succeeding missions, the District hired Dennis Danielson and Jeremy Goldstein. Since July 1994, Danielson has performed eight missions to Vietnam and Goldstein has performed five missions to Laos and one mission to Vietnam. The MCX has been called upon so often for assistance that it has augmented its staff with archaeologists from other Federal agencies for missions to Vietnam and Laos.

Of the missions supported by District personnel, one set of remains has been returned to the family. These remains were recovered from a crash site near Dien Truong village in northern Vietnam. Many additional sets of remains and personal effects, recovered during MCX supported missions are awaiting positive identification at CILHI. The MCX will perform nine more missions in FY96 and, according to the needs of CILHI, will continue providing technical support until all unaccounted-for American service personnel are returned from Southeast Asia.



District investigates soft copy photogrammetry

by Dave Kreighbaum and Dennis Morgan, ED-HG

Corps of Engineers, St. Louis District (SLD) is currently investigating "off-the-shelf" sensor systems for use with Soft Copy Photogrammetry and mapping systems. The project is funded by the Environmental Protection Agency (EPA) through an Inter-Agency Agreement with SLD. The Survey, Photogrammetry, and Mapping Section, the Corps' Technical Center of Expertise (TCX) for Photogrammetric Mapping, is conducting the research, with contract support provided by the Engineering Division Contract Management Section and the Contracts Branch of the Contracting Division. The Project Management Branch is coordinating the project between SLD and EPA.

EPA considered that conventional aerial photography was not necessarily the most cost-efficient method from which to monitor Superfund sites, and tasked SLD to investigate the use of Soft Copy Photogrammetry methods for environmental monitoring. A digital camera was flown over an EPA Superfund site near Desloge, Missouri, which had been previously mapped using conventional photogrammetric methods. The digital data from the flight were transformed and output as a map, which was compared to the previous mapping of the site.

Conventional cameras use photographic film to capture an image coming through a lens. The digital camera system uses an array of light-sensitive devices to transform

brightness values of reflected light into numbers, which are then processed by Soft Copy Photogrammetry systems into images and maps. Since the data is digital to begin with, no "hard copy" imagery is necessary for the processing and analysis, hence the name soft copy photogrammetry. The camera used in the mission is a KODAK MEGAPLUS camera, similar to the cameras used to take the "glamor pictures" of friends and loved ones.

For over a year, TCX employees Dave Kreighbaum and Dennis Morgan have conducted research and coordinated contractor activities for the project. After many site visits and meetings with the contractors who helped to acquire and process the data, the team was given their first chance to review the results of the digital mapping. EPA was continuously informed through briefings by TCX and PM personnel.

SLD gathered important information as the study progressed. Measurements within the digital camera were not known to the tolerances necessary to form precise photogrammetric solutions from the digital data. In conventional mapping cameras, internal calibration measurements are accurate to microns (10⁻⁶). Internal calibration of the digital camera was accomplished to millimeter accuracy. The final maps reflected this calibration difference, as computer-generated elevations differed up to 20 feet in places from the original conventional mapping. Greater accuracy can be expected in the future. Also, the contour lines (lines of equal elevation) generated from

the digital data were not as smooth as those generated by humans. Computers can only do what they are told, while humans use judgment in the science of mapping.

The study showed that data from digital cameras could be used to generate topographic mapping of the earth, and that maps could be generated by computer algorithms as opposed to manual methods. Information gathered during this project shows that products meeting National Map Accuracy Standards are possible for future projects. The Standards govern professional mapping and photogrammetry products in the U.S.

The final results proved that the study was a success. The information generated by the research team has led to the possibility of future EPA projects within the TCX. Proposals for funding a second Soft Copy study to incorporate the knowledge learned in this research are currently underway, and the team is excited about the possibility of a new methodology for cost effective mapping.

The TCX is involved in more than just research. A concurrent project through the TCX involves orthophotography of the entire Lower Mississippi River. Orthophotographs have been rectified to fit a map base, and are thus extremely important for river engineering projects. The TCX works in all facets of Mapping and Photogrammetry, and is the "team to call" when the job must get done.



Sampling (cont.)

depths exceeding 40 feet and a charge induced through the electrodes to stun fish. This worked exceptionally well when stationary. Further modifications will be required to allow more maneuverability. This procedure has potential for extended use in the future.

The other methods were not as productive. The initial consensus was that the velocity and sediment movement in the bends cause the nets to move too much, and the trotlines and hoop nets had a tendency to become silted over. These methods will be re-evaluated and modifications will be made before they are tested again. One significant catch was made in the nets - a sturgeon.

In summary, the representatives of the environmental community were very excited about the results. The fact that sturgeon were collected is evidence that sturgeons inhabit the bendway weir environment. The results of the activities will be prepared into professional papers and the methods will be further analyzed and refined to minimize complications.

The sampling event was a major breakthrough in both the engineering and environmental worlds. It was proven that many species and numbers of fish, including sturgeon, use bendway weirs as habitat, and it was demonstrated that fish sampling in deep, fast flowing water can be accomplished.

Quote of the month

Giving is the secret of a healthy life. Not necessarily money, but whatever a person has of encouragement and sympathy and understanding.

John D. Rockefeller, Jr.

Air bags can break misplaced arms

Keep your hands in the right place on the steering wheel and your arms won't get broken.

To prevent air bag injuries, hands should be on the wheel at the 10 and 2 o'clock position. Your arms won't be in the way when the air bag inflates at about 100 mph.

About 96 percent of injuries caused by air bags are minor abrasions, bruises and lacerations, but 3.2 percent are fractures, usually of the arms. If the arms are crossed across the center of the steering wheel, they can be injured when the air bag "blows up."

The story of air bags has been incredibly good, according to the University of Pittsburgh School of Medicine. They have saved thousands of lives, and people have walked away from crashes that would have killed them if the bag had not been installed. But some drivers and frontseat passengers may not be positioned properly in their seats, and that can put them at risk of injury from the bag itself.

The American College of Emergency Physicians says:

1. Keep hands on the wheel at the 10 and 2 o'clock position.
2. Sit at least 10 inches from the steering wheel. The air bag shoots 8 to 12 inches out of the steering column before it inflates. A person sitting closer to the wheel could be injured by the force of the explosion.
3. Place children in the back seat. Rear-facing infants seats shouldn't be put in the passenger seat of a car with dual air bags. The air bag will catch the back of the infant seat, driving it into the back of the adult passenger seat.
4. Fasten your seat belt. Air bags are meant to be used with seat belts for the best outcome in an accident.

Spend less for vitamins

About one-third of what is spent for vitamin, mineral and herbal supplements goes for products with no scientifically proven health value. Much is also spent for products whose potency has already expired.

According to the American Academy of Family Physicians, we need four supplements: Calcium (1,000 mg), vitamin C (500 mg), vitamin E (400IU) and a multivitamin. By shopping for the best prices, consumers can save up to half of the purchase price. Best deals are from chain stores or in drugstore private brands.

Extended warranties

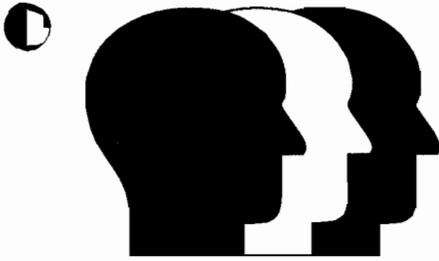
According to *Appliance Service News* today's products are the most reliable ever. If you don't have a problem in the first few months when the product guarantee applies, chances are you won't have one for another 12 years. At that time, the extended warranty will no longer be in effect.

News Briefs (cont.)

Mark Twain Lake:

Vietnam memorial

On Sunday, October 15, about 300 people attended the dedication of the Northeast Missouri Vietnam Memorial at Mark Twain Lake. The memorial, built at the M.W. Boudreaux Visitor Center, is a 45-foot sundial with an 11 foot tall gnomon. Monuments represent the 12 months and each lists the names and dates of deaths of Northeast Missouri men who died during the Vietnam era.



EEO matters

By Jean Stephens, EEO Officer

EEOC Maps Terrain for Employers on Disability-Related Inquiries of Applicants.

The EEOC has issued final guidance for employers on Americans with Disabilities Act (ADA) restrictions concerning pre-employment disability-related questions and medical examinations of job applicants.

The guidance is important because it explains what is and is not permitted of employers under ADA as people with disabilities seek jobs.

EEOC specifies that employers may not legally ask disability-related questions or require medical examinations until AFTER they have extended a conditional job offer to an applicant.

This is because applicants were often asked about their medical conditions in the initial job interview or on applications. This information was frequently used to exclude applicants with disabilities before their ability to perform a job was evaluated, even though many of them could have performed the job.

The final guidance document signed Oct 10, 1995 uses much of

the language from an interim guidance issued in May 1994 with several major revisions. Most importantly, the final guidance clarified that employers may ask an applicant certain questions about reasonable accommodation before offering the applicant conditional employment.

Under the final guidance, employers will be allowed to ask limited accommodation questions "if they reasonably believe that the applicant will need accommodation because of an obvious or voluntarily disclosed disability, or where the applicant has disclosed a need for accommodation." In addition, employers gathering relevant accommodation information must give applicants the chance to answer practical questions about how they can perform the job.

Employers may legally ask a wide variety of questions to evaluate an applicant's qualifications for a job. For instance, they may inquire about an applicant's ability to perform specific job functions and about non-medical qualifications such as education, work experience and required certifications and licenses.

They may also ask applicants to describe or demonstrate how they would perform job tasks. After

making a conditional job offer, employers may ask disability-related questions and may require medical examinations of all entering employees in a job category.

What is a disability-related question? A question that is likely to elicit information about a disability. At the PRE-OFFER STAGE, an employer CANNOT ASK questions that are likely to elicit information about a disability. This includes directly asking whether an applicant has a particular disability or asking questions that are closely related to disability. If there are many possible answers to a question and only some of those answers would contain disability-related information, that question is not "disability-related".

May an employer ask whether an applicant can perform the job? Yes, including whether applicant can perform job functions "with or without reasonable accommodation."

May an employer ask a particular applicant to describe or demonstrate how the applicant would perform the job, if other applicants are not asked to do this? When an employer could reasonably believe that an applicant will not be able to perform a job function because of a known disability, the employer may ask that particular applicant to describe or demonstrate how she or he would perform the functions. An applicant's disability would be a "known disability" either because it is obvious or because the applicant has voluntarily disclosed that she or he has a hidden disability.

— Earth Notes —

Rainfall shifting to downpours

Weather scientists confirmed many people's impression that a consistent pattern of annual rainfall increasingly is being replaced by one-day downpours, possibly because of global warming. Rainfall and temperature records were ana-

lyzed going back to 1910 in hundreds of places in the U.S., Canada, China, Australia and the former Soviet Union.

The trend is most notable in the northern hemisphere, according to data in the journal *Nature*.

Global warming is attributed to carbon dioxide and other gas emissions, causing the so-called greenhouse effect. The atmosphere holds increased amounts of water vapor which then falls as rain and snow.



To your health

For a healthy holiday break:

Get into the swim of things

When you love to walk, but hate the cold winter winds and slippery streets, swimming could be just the alternative you are looking for. According to *Success!* magazine, the number of regular swimmers is increasing steadily and winning over many former joggers.

Not only are swimmers less likely to be injured than joggers, but calories burned per hour are often greater. Depending on your pace, you expend 400 to

800 calories an hour while swimming.

Swimming is interruption-free: No phone calls, no visitors coming to call in the middle of your routine. With millions of pools available, you should have little trouble finding a convenient one.

To reduce stress, increase stamina, energy and aerobic capacity, take a healthy holiday break.

Take a swim.

December is Colorectal Cancer Education and Awareness Month

Aspirin and colorectal cancer

After carving out a role in heartattack prevention, studies now suggest aspirin may have a role in preventing colorectal cancer as well.

The Nurses' Health Study of 90,000 women by Harvard University researchers shows that rates of cancer were lower among women who took four to six aspirins a week for 10 to 20 years than among those who didn't. Last year researchers reported similar benefits in men.

It is aspirin's power to block prostaglandins, substances that regulate cell growth, that may give it the power to thwart tumors. A very low dose in the baby-aspirin range seems to do the job, but more study is needed before any recommendation is made. It's not a quick fix. It took a decade for protective

benefits to appear and two decades for them to become statistically significant.

The National Cancer Institute says aspirin therapy is not for everyone. Anyone who has aspirin sensitivity, a history of ulcers or bleeding or is taking anticlotting drugs should definitely not take aspirin. Others should consult their doctors about taking aspirin regularly.

The most frequently recommended tools used against colorectal cancer are a diet high in fruits, vegetables and fiber, and low in fat, plus exercise and regular screening after age 50. Regular screening is an important early-detection tool, especially for those with a family history of colorectal cancer.

Not all salads are healthy

A Caesar salad, the most popular salad served in restaurants, has more fat in it than a Big Mac. Typically, it contains 500 calories, 40 grams of fat, 215 mg of cholesterol and 1,075 mg of sodium, according to dietitians writing in *Self* magazine. Garden salad, fruit, chef and chicken salads are better nutritional choices if they are lightly dressed. Many restaurants now carry low-fat salad dressings.

Another reason to quit

A study reported in *The New England Journal of Medicine* shows that women who smoke one pack of cigarettes a day have five to 10 percent less bone mass than non-smokers by the time they reach menopause. It's enough of a loss to increase risk of bone fracture.

Vitamin D for winter

Vitamin D is needed by all for strong bones and teeth. Because the body makes it from sunlight, deficiencies are common in winter, especially in cold climes. Protect yourself by drinking two cups of D-fortified milk a day, or take a vitamin supplement. Don't take more than 400 IU per day.

Take fluids, stay warm

Drinking plenty of water and other fluids will not only keep the body from overheating in summer, it is also important in protecting against hypothermia, getting too cold, in winter. Water acts as a buffer against temperature changes.

Consider a large pot of water. It takes longer for it to heat up or cool down than it takes for a small container of water. Eight glasses of water or other fluid is the recommended amount, say health authorities.



Retiree Review

by the Retiree Correspondent

On November 16, 27 retirees attended our monthly luncheon. Since Marie and Pete Puricelli were in Florida, Elmer Huizenga was again the emcee.

We had one honored guest, Nicole Lutz, granddaughter of Bob and Barb Lutz. A very charming young lady. Come again Nicole.

The Bakers are leaving December 1 for California for the winter. The Wisemans are already in Arizona. Bob Maxwell is going to Florida. We'll miss you folks, but have a good time.

There were two District representatives present, Donna Zoeller and Marla Hayes. They brought us greetings from the District and plugged the District Dinner Dance. They had tickets for the dance. Don't know if they had any "takers." Good luck. I know it will be an enjoyable evening. I remember some from past years when I could attend.

Joe Bisher was with us again this month. He and Ellie had recently returned from a cruise. They got as far as Aruba. Joe said it was a delightful trip and recommends it for all of us.

Charlie Denzel and Paul Trauth were our November birthday "children." We sang Happy Birthday to them. Then Mike Cullen sang his version. Very clever.

Kate had a call from Bill Haynes. He's doing fine and hopes one of his daughters can bring him to our Christmas meeting. Will be glad to see him. She also talked to Neva Dickmann. Neva and her husband are each having cataracts removed shortly. Good luck.

Neva had talked to Ruth Ziden. Ruth is fine. Neither had heard from our friend, Mr. Knight. Let's hope no news is good news. However the last we heard it was not encouraging.

John Kalafatich is having a knee replaced December 13. They found his heart has been bothering him. He thought it was "old age," but the doctors said "no." He's doing better. Good luck, John.

John Jansen reported that Mary Jane has had some teeth extracted, which set her back. But she should be over the worst. We hope for the best.

John reported that Vince Blanford hoped to be at our meeting. He's in St. Louis taking treatments for face cancer. Sorry he couldn't make it. Good luck, Vince. We are sorry you didn't make the meeting as we would have liked to have seen you.

I'm sorry, I misunderstood about the Kugler's anniversary. It is 54 years. A long time. Congratulations and many more.

The lucky ones for our Pot-O-Gold were Ron Bockhorst, Joe Bisher and Helen Scheuermann. Congratulations.

Our next meeting will be our Christmas luncheon. We're looking forward to a large crowd. The menu sounds good and renewing friendships is always a great pleasure. Just wish all of you could be there. Wouldn't that be great.

Remember to mark your calendar for December 21 about 11 or 11:30 at the Salad Bowl. Renew old friendships, make new ones, reminisce and enjoy every minute. See you there.

Carry-ons and your back

Chiropractors say bag-toting travelers make three mistakes: 1. Leaning to balance heavy bags, which creates muscle tension, spasms or strain. 2. Lifting wide bags. This forces them to extend arms away from the body while lifting. It's very bad for the lower spine. 3. Lifting heavy carry-ons into overhead racks, which twists discs in the lower spine and may cause them to rupture.

Travelers should switch shoulders when carrying heavy garment bags, or get a long strap so it can be slipped over your head and across the chest, centering the gravity of the load.

Tracking ticketless travel

"Over the next five years or thereabouts, tickets for the most part will cease to exist," says Robert Crandall, chairman of American Airlines.

Though nearly every major airline has introduced or is studying a ticketless concept, the products being offered are not uniform.

Some operate like hotels. Bookings are processed and confirmation numbers are issued. Others are using self-ticketing machines that issue boarding cards but not tickets. While other carriers simply employ major credit cards.

While uniformity may come in the future, travelers seem pleased with ticketless travel so far.



Celebrating Hanukkah: December 18-25

Eight days of gladness

We have seen many transformations in the celebration of the eight-day Hanukkah celebration.

The festival commemorates the victory in 165 B.C. over King Antiochus and his armies who had occupied the Temple in Jerusalem, and the Hanukkah miracle, which holds that though it had oil enough for only one day, the sacred cruse burned for eight days at the rededication of the Temple.

At the Sholem Institute in Los Angeles a children's play reenacts the event. A seven year old "Judah the Maccabee" romps gleefully across the stage to repel the Syrian-Greek oppressors for the 2,160th time.



The clamorous performance is tempered by the sweetness of the musical portion of the show in which a child accompanies the singers on her recorder. The children sing "Hanukkah, O Hanukkah, eight days of gladness," with the audience joining in the chorus.

The festivity is a preview of the holiday that begins in the intimacy of family gatherings. There the high point of each of the eight nights will be the lighting of the menorah.

There will be gifts, but even this custom has been altered by time. In some families everyone receives gifts on the first night. Others follow older traditions where children receive Hanukkah gelt, or holiday coins from adults.

It's a holiday where fun prevails, ritual still lives and the gladness is the order of all eight days.

Kwanzaa begins with greetings, light

Habari gani. With this Swahili greeting, an estimated 18 million people of African descent in North America, England, Kenya and Zimbabwe begin the celebration of Kwanzaa, a seven-day holiday beginning December 26.

Unlike the religious and secular holidays of the season, Kwanzaa is not a time for gift-giving, and it does not mark a religious season. It is a celebration sparked when a doctoral candidate studying in California during the Watts riots began searching for a unifying force for Blacks.

Maulana Karenga rejected modern religious holidays in searching

for his unifying force because Blacks belong to various religions including Christianity and Islam. And he did not want his holiday commercialized.

So he reached back to the motherland of Africa and traditions of that country. He borrowed language, symbols and colors to create Kwanzaa, the Swahili word for first fruits. The purpose of the seven days of celebration is to recognize the role of family, community and culture in Black life. Each day of Kwanzaa honors one of seven principles.

Celebration begins in the evening when the family gathers

around a seven-cup candelabrum called a kinara. The kinara is made from driftwood or other natural materials. It sits on a straw mat adorned with fruit and vegetables. One candle is lit each night and the family discusses one of the principles of Nguzo Saba: Unity, self-determination, collective responsibility, co-operative economics, purpose, creativity and faith.

On the last night, friends and family gather for the Karamu feast. Gifts may be exchanged if the gifts are simple symbols of African heritage. Celebrants take care not to commercialize the festivities.

