



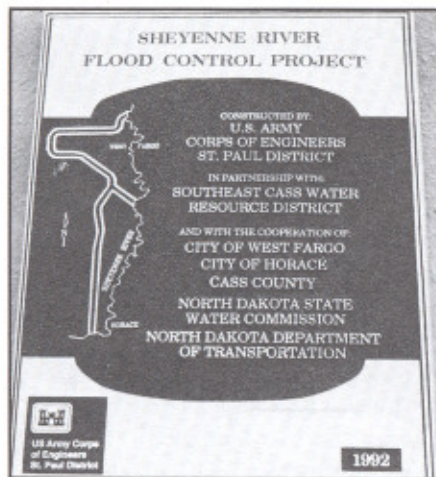
**US Army Corps
of Engineers**
St. Paul District

Crosscurrents

Vol. 15, No. 10

October 1992

Sheyenne River Flood Control Project dedicated



Photos by Ken Gardner

The above plaque commemorates completing the Sheyenne River Flood Control Project. The 1986 Water Resources Development Act authorized construction of the Sheyenne Project.

by Ken Gardner, chief of Public Affairs

More than 50 people gathered in West Fargo on September 14 to dedicate the first two units of the Sheyenne River Flood Control Project.

The project includes a diversion channel returned." The Sheyenne Project has one of the best benefits-to-cost ratios in the Nation, he said.



The St. Paul District sent a delegation on September 14, 1992 to dedicate the first of two units of the Sheyenne River Flood Control Project at West Fargo, North Dakota. The ribbon cutters, from the plaque to the right, are Florenz Bjornson, mayor of West Fargo; Sarah Vogel, commissioner of Agriculture; David Sprynczynatyk, state engineer; Col. Richard Craig; Richard Backes, commissioner, Department of Transportation; Fred Selberg, chairman of Southeast Cass Water Resource District; and Bill Spsychalla, the Corps' project manager.

The project includes 34 miles of levees, 14 miles of diversion channel, a new railroad bridge, two new interstate highway bridges and a number of weirs and control structures on the river. More than 3 million cubic yards of earth were moved during construction of the diversion channels and levees.

While acknowledging that many people in the Corps contributed to the successful completion of the project, Craig singled out three Corps members for their significant roles in the Sheyenne Project. They were: Bill

continued on page 3

Possible application to district projects

Corps and construction industry continue research program

The Corps' Construction Productivity Advancement Research (CPAR) Program late this summer approved 12 cooperative research projects, three of which may have application to projects in the St. Paul District. The Corps and 27 U.S. construction industry firms are taking part in the Fiscal Year 1992 program. The projects totaled \$12.23 million for the fourth year under the CPAR Program.

The three projects include:

Procedures and materials to eliminate excessive cold weather protection requirements for newly installed masonry:

This two-year project will develop and demonstrate new cold weather construction procedures and materials which eliminate excessive cold weather protection requirements for newly installed masonry and improve long-term durability of concrete masonry subject to freezing. Use of the procedures developed is expected to reduce the cost of cold weather protection for masonry by 75 percent.

The Army Corps of Engineers Cold Regions Research and Engineering Laboratory and the National Concrete Masonry Association, Herndon, Virginia, are partners.

Low-VOC (volatile organic compounds) materials for compliant coatings for thermal spray application:

This three-year project will develop and demonstrate high-molecular weight and commingled/post consumer recycled polymer (plastics) blends as low-VOC compliant coatings for thermal spray

application for protection of lock gates and other applications. The materials and specifications developed are expected to provide a cost-effective alternative to the use of high-VOC coatings currently being restricted by environmental concerns.

Partners on this project are the Corps of Engineers Construction Engineering Research Laboratory and SUNY-Stony Brook, Stony Brook, New York, Hoeschst Celanese, Short Hills, New Jersey, and others.

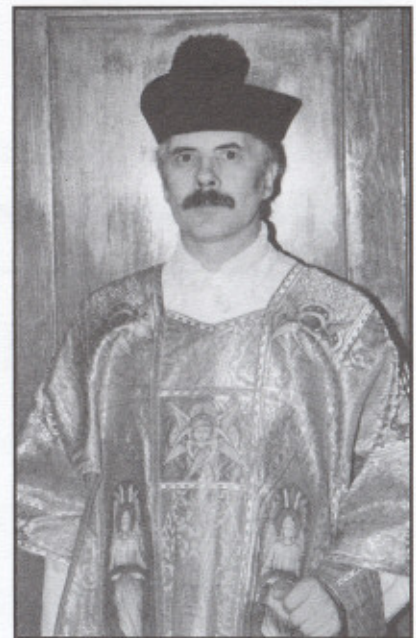
A system for single-person construction site real-time measurement coupled with CAD/CAE system:

This three-year project will develop and demonstrate a system for construction site productivity improvement through integration of line-of-site real-time position measurement and CAD/CAE.

Partners are the Waterways Experiment Station and the Civil Engineering Research Foundation. A consortium of private-sector companies will also participate.

The Corps plans to request ideas for the Fiscal Year 1993 CPAR Program late this year.

Pedersen ordained



Pedersen

"I have always wanted to be more than somebody who goes to church on Sunday, just once a week," said Bernard Pedersen, a computer specialist in Information Management.

Pedersen fulfilled his ambition at the cathedral of St. Paul, Saturday, September 26, when Archbishop John Roach ordained him and 11 other married men as deacons in the Catholic Church.

Pedersen and the others have each spent three years and over 2,000 hours to prepare for the diaconate.

In his duties as deacon, Pedersen will assist in liturgies and marry, bury, baptize and instruct church members.

"But more important will be working with youths, training altar servers and teaching Catholic Christian Doctrine to youth," Pedersen said.



Photos by Ken Gardner

District Engineer Col. Richard Craig (left) and Bill Spychalla, project manager, stand near Uncle John's cottonwood tree in North Dakota. The Corps built the Sheyenne River Flood Control Project around the tree. The 90-foot high tree is the second largest in North Dakota with a circumference of over 25 feet. The average crown for the tree is 79 feet.

Sheyenne Project, continued

Spychalla, project manager; Bob Penniman, engineering manager; and Dick Sundberg, resident engineer in Fargo.

Participants in the dedication included Dave Sprynczynatyk, North Dakota state engineer, Florenz Bjornson, mayor of West Fargo, Terry Heiden, mayor of Horace and Fred Selberg, chairman of the Southeast Cass Water Resource

District, which served as the project sponsor. Several members of the North Dakota State Water Commission also attended the ceremony.

Following remarks at the West Fargo City Hall, the participants were bused to the project inlet near Horace for a ribbon-cutting ceremony and a bus tour of the projects.



Participants in the dedication included Dave Sprynczynatyk, North Dakota state engineer (right), and Bob Post, chief, Engineering Division, St. Paul District.

Bulge in cribwall gets creative attention



Photo by Greg Dasovic

Ted Pedersen, survey crew chief (left), peers through the theodolite on the roof of the Ford assembly plant across the Mississippi River from Lock and Dam No. 1. The theodolite measured the precise distance across the river to the reflector on the cart on the cribwall. Keith Knoke, student trainee civil engineer, Engineering Division, Geology and Surveys Section, accompanied Pedersen.

by Brian Johnson, civil engineer

The discussion about the cribwall at Lock and Dam No. 1 on the Mississippi River at Minneapolis has run something like a popular beer commercial — “Tastes great,” some say. “Less filling,” insist others.

“The cribwall was built with a bulge,” some say.

“It was built straight, but has bulged out over the years,” insist others.

The answer to the debate may come from a recent survey of the cribwall, a 75-foot-high retaining wall built to protect the sandstone bluff from erosion. The wall is located just downstream of the lock.

The cribwall, built in 1953, is made up of interlocking concrete members much like “Lincoln logs.” The cribs that were formed were filled with gravel and sand. The cribwall was designed to be straight, laying back against the sandstone at a slope of six vertical to one horizontal (similar to the leg on a stool extending down to the floor at a slight outward angle for stability).

Periodic inspections revealed that the 39-year-old cribwall appeared to bulge outward near the middle of the full height. In 1987, an instrumentation plan was implemented to determine if the cribwall was either bulging out or just built with some curvature.

Analysis of the early instrumentation data led to the discovery of cross-sections of the cribwall in Map Files. (A cross-section gives a side view of cribwall and can be used to monitor changes.) The cross-sections were

taken in 1954, shortly after construction was finished. Comparing old cross-sections with current ones would resolve the question.

The objective was to safely obtain cross-sections of the cribwall as accurately as the 1954 cross-section survey. Loose rock and the sheer height of the cribwall made it risky for a person repelling down the cribwall, survey equipment in hand. Therefore, a safer alternative was devised.

The response came in a cooperative effort among the professionals from Geotechnical Design, Surveys, and Lock and Dam No. 1.

Teamwork created an innovative solution — a small wooden cart equipped with a survey reflector. The team decided to attach three ropes to the cart to control mobility and direction.

People at Lock and Dam No. 1 crafted the cart and rigged up ropes. The Geotechnical Design staff marked locations for the cross-sections. A crew from Surveys performed the actual survey.

The cart could be lowered from the top of the cribwall to specific locations, while a survey crew took measurements from across the river. The precise distances from the theodolite (the survey instrument) to the reflector on the cart would create the cross-section.

During three days in late June 1992, the crew measured 25 cross-sections. Using the cart saved time and money compared to reestablishing the survey control and method used in 1954.

So, was the cribwall born with a bulge, or did it develop during middle-age?

Initial analysis of the comparative cross-sections indicate that the cribwall has moved away from the sandstone bluff in many areas, while one particular area was built with a bulge.

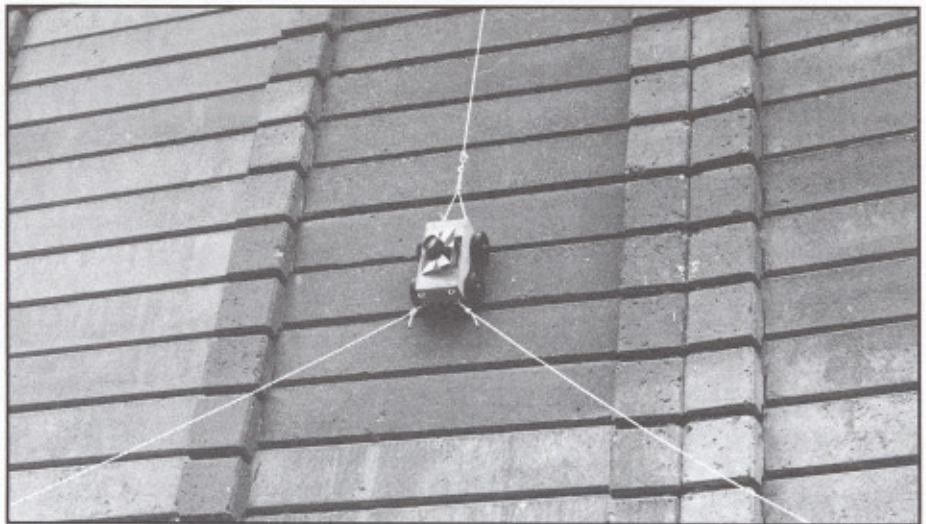
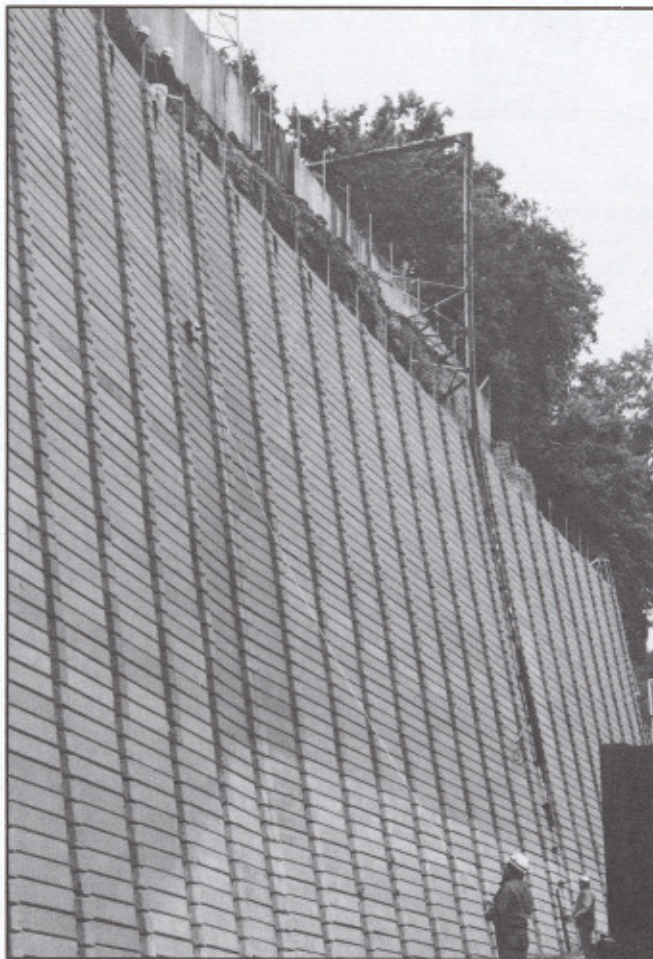


Photo by Greg Dasovic

The objective was to safely and accurately obtain cross-sections of the cribwall. This would determine whether the wall developed a middle-age bulge or was built that way. People at Lock and Dam No. 1 made a small wooden cart, attached a reflector, and rigged up three ropes to control the cart's movement.



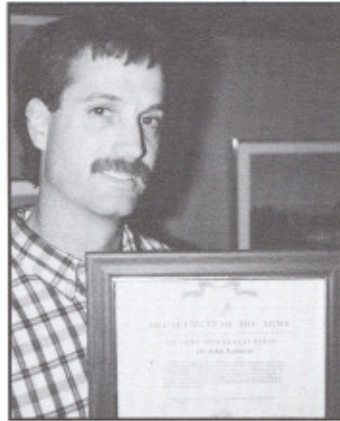
The 75-foot-high cribwall was built in 1953 to prevent erosion of the sandstone bluff. Standing atop the wall are Jason Afdahl, Survey Crew, and Brian Johnson, civil engineer. Jim Mueller, Survey Section, is at bottom left. Terry Jorgenson, chief of Surveys, Geology Section, stands at the bottom right.

Photo by Greg Dasovic

Anfinson receives Army Achievement Medal

District Historian John Anfinson, who works in Planning Division's Environmental Resources Branch, received the Army Achievement Medal during a recent staff meeting. The medal, presented by Col. Richard Craig, acknowledged Anfinson's contributions to further understanding and appreciation of the district's collection of Henry Bosse photos.

Bosse was a Corps "draughtsman" working on the Upper Mississippi River survey from 1875 to 1903. During this period, Bosse took hundreds of photos of the river. Because Bosse captured the Upper Mississippi River at a critical time in its transition, and because of his artistic ability, these photos are considered rare works of art. The district has one of five known sets. Photos from one set have been sold and re-sold in the past 18 months. Based on these sales, the district's set of 135 Bosse prints may be worth up to \$1 million.



John Anfinson

The district maintains a collection of 33 framed Bosse reproductions.

The award acknowledges that the Bosse photographs provide "a rare glimpse into the early history of the Corps of Engineers on the Upper Mississippi River."

Anfinson's certificate says, "Dr. Anfinson places Bosse's work into the historic context of changing Mississippi River landscape — a landscape that Bosse, a Corps of Engineer employee, was himself documenting in these rare photographs."

During the past 18 months, Anfinson has been involved in many efforts to develop the potential of the district's historic Bosse photographic collection.

The photos were shown at the Minnesota State Fair in 1991, and received broad attention in the documentary, "Mississippi, MN" on KTCA television.

Anfinson established a traveling exhibit of the photos. The Bosse photos have been shown in Guttenberg and Dubuque, Iowa and La Crosse, Wisconsin. The collection is scheduled for the Landmark Center in St. Paul early next year.

Birkenstock named NCD Planner of the Year

Terry Birkenstock, a wildlife biologist in Planning Division's Environmental Resources Branch, received the North Central Division (NCD) Planner of the Year award for 1991.

District Engineer Col. Richard W. Craig presented the award in September on behalf of Brig. Gen. Russell L. Fuhrman.

Birkenstock was recognized for exceptional ability in bringing the Geographical Information System (GIS) and remote sensing tools into productive use in the planning process. His skills have resulted in successful resolution of problems in a series of projects.



Terry Birkenstock

His innovations have been applied both to in-house planning and to coordination of these projects with the public.

The award acknowledged Birkenstock's contributions to implement GIS in the St. Paul District. Birkenstock worked to develop, expand, and maintain GIS technology to fit both the district and the division.

As district GIS coordinator, he contributed to the growth in use of GIS technology in training, the procurement of hardware and software, and applications. Applications include the Environmental Management Program (EMP), assessing visual and recreation impacts, assessing environmental hazards and droughts.

Birkenstock began his career in 1985 as a biological technician for the U.S. Fish and Wildlife Service in Kotzebue, Alaska. He has a degree in zoology from the University of Wisconsin-Madison, and a graduate degree in wildlife biology from the University of Minnesota.

Bits and Pieces



St. Paul District photo

The Corps in Newton's Apple

The Corps set up an exhibit at open house for Newton's Apple last Sunday, September 27, to celebrate the program's 10th anniversary. Newton's Apple is an Emmy Award-winning family science series. Joe Aguirre, lock and dam operator at Lock and Dam No. 1, and Kathryn Scott, a producer for the KTCA program, are shown discussing the item on the display about the Upper Mississippi River Environmental Management Program. A program on locks and dams, featuring Lock and Dam No. 1, is scheduled for broadcast Sunday, January 24, 1993 at 7:30 p.m. on channel 2.

Obituaries

Leland E. "Bud" Foster died Friday, September 25, in Rochester, Minnesota. Bud was a construction inspector for the Rochester Flood Control Project. The City of Rochester recently honored him by proclaiming "Bud Foster Week," September 21-28, in Rochester. Bud died from cancer.

Kenneth W. "Bullet" Harmon, Durand, Wisconsin, was the district's boring crew supervisor. He died Friday, September 18, 1992, from complications of cancer.



Photo by Peter Verstegen

Mahoney retires

Lt. Col. Mike Mahoney, deputy district commander, retired from active duty after 20 years of service. He came to St. Paul in 1989. District Commander Col. Richard Craig (left) presented Mahoney with various honors, including the Legion of Merit (certificate and medal), a Certificate of Appreciation, and a Certificate of Retirement. The Army also honored Cynthia Mahoney with a Certificate of Appreciation to acknowledge her support throughout her husband's career in the Army. Mahoney now works for Northwest Airlines.

Federal Women's Program takes on big wheels



Photo by Peter Versteegen

Danette Sammon (right), secretary in Project Management, and Leslie Rzeszut, a civil engineering technician with Engineering Division's Design Branch, were among those who attended the Federal Women's Program (FWP) car maintenance presentation in September. The FWP invited Peter Sieff, a representative of Mr. Tire Service, to give a 45-minute presentation to address car maintenance issues. During question and answers afterward, audience members asked Sieff about environmental issues and common practices his company took to dispose of transmission oil, engine oil, old batteries, dirty rags, and worn tires.

Hello

Construction-Operations Division:

Daniel J. Seemon, permits clerk (typing)

Engineering Division:

Pepito C. Albay, electrical engineer
Lee G. Jeanson III, surveying tech.

Good-bye

Contracting Division:

Laura C. Schillinger, student trainee

Engineering Division:

Connie J. Fenna, civil engineering technician
Roger A. Just, civil engineer, ret.

Construction-Operations Division:

Christopher A. Bloom, summer aid
Troy A. Boardman, summer aid
Cory M. Brandes, summer aid
Jesse C. Brone, summer aid
Tobin L. Clark, summer aid
Ryan K. Drinkwitz, summer aid
Robert D. Ducharme, summer aid
Christopher J. Fluekiger, summer aid
Terrance A. Fuekiger, summer aid
Donald T. Johnson, park ranger
Chad E Kibbler, summer aid
Anthony G. Kling, clerk-typist
Cheryl A. Linder, summer aid
Jennifer L. Luther, summer aid
Curtis J. Lypek, civil engineer
Corie L. Maynard, summer aid
Karen M. McCullough, civil engineering tech.
Chad W. Osthoff, summer aid
April M. Pream, clerk-typist
Larkin W. Young, summer aid

Information Management:

Amy J. Brossart, clerk-typist

Planning Division:

Carol Austra Anderson, supv. landscape architect



US Army Corps of Engineers
St. Paul District

Crosscurrents is an unofficial publication, authorized under the provisions of AR 360-81. It is published monthly by offset for the St. Paul District, U.S. Army Corps of Engineers.

Editorial views and opinions are not necessarily those of the Corps of Engineers, nor of the Department of the Army.

Crosscurrents

Address all inquiries to:

Editor, *Crosscurrents*
U.S. Army Corps of Engineers
180 East Kellogg Blvd., Room 1421
St. Paul, MN 55101-1479

District Engineer Col. Richard W. Craig
Public Affairs Officer Kennon Gardner
Editor Peter Versteegen