



THE NEWSLETTER OF THE U.S. SECTION, PIANC

Permanent International Association of Navigation Congresses

Winter 1997/98

Inside this issue:

Partnering Cuts Costs	4
Water Injection Dredges	5
Lock Automation at St. Louis	8

In each issue:

New Members	12
Activities	13

NOTES FROM THE SECRETARY

- After 95 years of being known as the Permanent International Association of Navigation Congresses, we are changing our name to the *International Navigation Association*. The English and French abbreviations-- PIANC and AIPCN-- which are based on the former name and were adopted in 1902, will be retained as symbols of the Association. The U.S. Section will continue to use printed stationary bearing the former name until our large supply has been exhausted
- In response to requests, the **Special Commission for Sport and Pleasure Navigation** will be upgraded to the status of a permanent commission and renamed. In the new name, the word *pleasure* will be

PORTS '98 - REGISTER NOW

The next in the series of specialty navigation conferences jointly sponsored by the U.S. Section of PIANC and the ASCE will be **PORTS '98** held from March 8-11, 1998, in Long Beach, California. The previous opportunity to attend a **PORTS** conference was in 1995. Plan to be with us in Long Beach in 1998! The preliminary program and registration form is available. If you or a colleague would like additional copies of the program, contact the Office of the U.S. Section.

replaced by the word *recreational*. The new name is the **Permanent Commission for Sport and Recreational Navigation**.

- The **Spanish Section**, which is guiding the development of the **South American Section**, is making working group reports available in Spanish beginning with PTC II, Working Group 30, *Approach Channels: A Guide for Design*.
- The final announcement and registration forms for the **29th International Navigation Congress**, which will be held in The Hague, The Netherlands, September 6-11, 1998, will be distributed in February 1998. A list of the titles and authors of the U.S. Section National Papers, which have been submitted for presentation at the Congress, was published in the Summer 1997 issue of the newsletter. Proposals for

The U.S. Section, PIANC Newsletter is published quarterly by the U.S. Section of the Permanent International Association of Navigation Congresses. Send address corrections or other correspondence to Editor, U.S. Section, PIANC, ATTN: CEWRC-ZA, Casey Building, 7701 Telegraph Road, Alexandria, Virginia 22315-3868, or telephone (703) 428-6286. The Newsletter is an independent publication of the U.S. Section, PIANC and does not necessarily represent the view of the Army Corps of Engineers or any other agency of the United States Government.

the **30th International Navigation Congress**, which will be held in 2002, have been received from Australia and Portugal. A decision on the location is expected to be announced by the Secretariat by the end of 1997.

- Lock automation was the subject of the technical session sponsored by the U.S. Section at the September 1997 annual meeting of the National Waterways Conference, Inc. The presentation and demonstration, which was given by Colonel **Thomas J. Hodgini**, Commander/District Engineer, St. Louis District, was the first presentation of lock automation, made to a public audience. During the demonstration, **Colonel Hodgini** and electrical engineers from the St. Louis District, using computer technology and video links, ran through a complete operating cycle of the Melvin Price Lock on the Upper Mississippi River from the hotel conference room in Houston, Texas. Remotely operated locks are operational in several European countries. The St. Louis District obtained information from a PIANC technical bulletin, *Advanced and Automated Operation of Locks and Bridges*. In addition there are plans for site visits to supplement knowledge of the subject as applications of automated lock operations are studied. Two related articles on this subject appear elsewhere in this issue of the newsletter.
- In October, the U.S. Section held a very successful annual conference in Wilmington, North Carolina. The host for the conference was **Eric Stromberg**, Executive Director of the North Carolina State Ports Authority and a former National Commissioner. To mention just a few of the speakers, the program was opened by three speakers who set the theme-- **Kurt Nagle** (President of AAPA), followed by

Richard Dornhelm (Vice-President, Moffat & Nichol Engineers) and then **Harry Cook** (President, NWC). Their respective presentations addressed *dredging and ports, recreational boating, and assuring the capacity of inland waterways* as the new century approaches. **Ms. Jennifer Irish**, gave a presentations on the Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) system that is used to survey coastal bathymetry, beaches, navigation channels and structures. She also presented the paper she wrote on "*Sensitivity of Channel Sedimentation Prediction to Wave-field Characteriation*, which was selected as the recipient of the 1997 Gustave Willems International prize. The luncheon talk on October 28 was given by **Michael A. Bragale**, Transition Planner, Panama Canal Commission. His subject was *The Panama Canal in Transition -- Steaming Toward the 21st Century*. On the final day of the conference, **Major General Russell L. Fuhrman**, Director of Civil Works and the President of the U.S. Section, presented an *Overview of the U.S. Army Corps of Engineers Civil Works Program*.

- **Don Waldon**, Commissioner from the Central Region, has been elected President of the Mississippi Water Resources Association. Congratulations!
- **Dr. G. Edward Dickey**, who served as U.S. National Commissioner of PIANC from 1987 to 1995, retired on December 31, 1997. Dr. Dickey was the Chief of Planning, HQUSACE.
- After 31 years of employment with the Corps of Engineers, **Anson G. Eickhorst**, has retired. He serves as the Principal U.S. Representative to the Permanent Technical Committee I, Inland Waterways and Ports,

and as the Co-Chairman of the U.S. Section Committee on Shallow-Draft Waterways and Ports. Although Mr. Eickhorst left the Corps, he intends to continue serving in both PIANC positions.

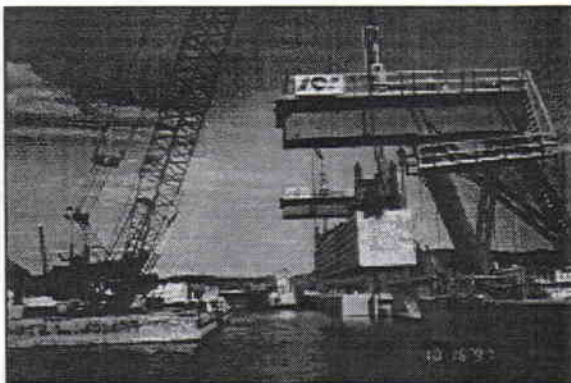
- Botanist **Hollis H. Allen**, who is with the Environmental Laboratory, WES, presented a technical paper on *Bioengineering with Geotextiles in Coastal and Riverine Environments of the United States* in Rheims, France, on October 7, 1997. The one-day conference on Geotextiles and Geomembranes in River and Maritime Works was sponsored by PIANC International with support from the International Geosynthetics Society. Since 1987, PIANC has published three working group reports on the use of geotextiles. The purpose of the conference was to present recent state-of-the-art applications in a rapidly changing field. Papers presented will not be published; however, copies of the eleven papers may be purchased for 1500 BF from the General Secretariat in Brussels.
- Information about the **Lisbon '98 World Exposition**, which will be held from May 22-September 30, 1998, on the **Oceans a Heritage for the Future** may be found on the Internet at <http://www.expo98.pt>. Information about a related conference, which is being sponsored by the Portuguese Section of PIANC June 7-9, 1998, on **Rehabilitation of Harbour Areas** may be found on the Internet at <http://www-dh.lnec.pt/npp/pianconf98.html>.
- **John P. Basilotto**, a Professor at the Texas A&M Transportation Institute, has been appointed Chairman of the Shallow-draft Committee of the U.S. Section. He succeeds **Charlie Lehman** who served for over two years and was the first Chairman of the Committee. **Anson Eickhorst** will continue to serve as Co-Chairman.
- Beginning in February 1998 the Texan Transportation Institute will open a clearinghouse on maritime information. **Mermaid** -- Maritime Economic Resources & Marine and Intermodal Directory -- is the first cyberguide to combined information related to both the maritime industry and NAFTA. The **Mermaid** search engine will allow you to seek information throughout the industry or within one of seven categories. Look for it in February at <http://maritime.tamu.edu>.
- The National Research Council (NCR) has published a book entitled *Contaminated Sediments in Ports and Waterways: Cleanup Strategies and Technologies*. **Dr. Robert M. Engler**, Chairman of the Permanent Environmental Commission, PIANC, served as the Corps of Engineers liaison with the NCR. Issues addressed in the book will be a major feature of a national symposium on contaminated sediments which will be held in Washington, D.C., May 27-29, 1998. A form, which may be used to order the book, can be found on page 14 of this newsletter.
- The U.S. Army Engineer District, St. Louis, has published Volume 1, Issue 1, of a newsletter entitled *Applied River Engineering Center*. Additional information is available online at <http://www.mvs.usace.army.mil/river/river.htm> or by telephoning the district office at (314) 263-4714.
- "One of the greatest urban planning opportunities in the world," write the authors of *The New York Waterfront: Evolution and Building Culture of the Port and Harbor*, a new book edited by Kevin Bone and published by The Manacelli Press. The essays in the book treat past engineering

projects, the current situation and opportunities for the future of New York's shoreline.

- The Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin has published two reports of interest: *Port-Related State Programs and Federal Legislative Issues* and *State Programs for Financing Port Development*. The project manager for both reports was **Dr. Leigh B. Boske**, Professor of Economics and Public Affairs. Dr. Boske was a speaker at the 1997 meeting of the National Waterways Conference. Additional information about these reports is on page 12 of the newsletter.

WINFIELD LOCK PARTNERSHIP PROMOTES DESIGN INNOVATIONS

by Jason C. Merritt, P.E.



Winfield Additional Lock Construction: Upstream Guard Wall Beam Placement. Al. Johnson/Massman Construction Company (VSL Inc.)

On November 21, 1997, the Huntington District, U.S. Army Corps of Engineers, dedicated the new Winfield Main Lock, and in the process, cleared a navigation industry bottleneck from the Kanawha River in the heart of West Virginia's low sulphur coal region. This lock is the first of many future Corps projects which will strive to cut costs while still maintaining the high level of

dependability and quality that the navigation industry requires.

The new main lock chamber will be 110 x 800 feet, while the existing 56 x 360 feet twin locks will remain active as auxiliary locks.

There are several innovative features in the new Winfield Main Lock which help to cut overall project costs. For example, a "direct connect" tainter gate has hydraulic operating cylinders attached to the gate instead of an operating system of electric motors with gears, line shafts, and cables. This change simplifies design, construction, and maintenance of the tainter gate, improving approach conditions. Also, a redesigned emergency closure system completely eliminates half of the necessary operating machinery by using a single leaf system instead of the double gate leaves.

While these changes provide substantial project savings, the most significant improvement at the Winfield project is the new lock upstream guard wall. Traditionally, the guard wall, which serves as an alignment and rubbing surface for tows entering the 800-foot long lock chamber, would have been built using consecutive, mass concrete monoliths founded on a continuous cellular sheet pile structure. To speed construction and save money, the Corps decided to build the wall using 52-foot-long precast concrete beams simply supported on circular sheetpile cells, cutting costs for the wall by about \$10 million (compared to traditional wall designs). Plans and specifications were prepared and construction began on the project in December 1993.

During subsequent design work by the Corps on other navigation structures, it became apparent that even more economical guard

wall designs were feasible. However, changes to the Winfield design would be difficult since construction was underway. At about the same time, the Winfield additional lock contractor, Al Johnson/Massman Construction Company, inquired about submitting a Guard Wall Value Engineering (VE) Proposal. (The Corps' VE program allows contractors to submit improvements to project designs and share in the monetary benefits.)

Since both the contractor and the Corps wanted to reduce construction time and save money by improving the guard wall design, cooperation was the key. A partnering agreement was reached between designer, builder, owner, and user to everyone's benefit, including the taxpayers. The improved design was developed by the Corps, Al Johnson/Massman and the navigation industry. The new guard wall incorporates prestressing strands into the precast concrete beam design. Prestressing allows the span length to increase to 112 feet, thus eliminating half the required number of supporting cells.

Extensive collaboration and sharing of information between these partners resulted in a dependable, quality product with a cost savings of about \$2.75 million. This technology has already been applied to future

Corps projects and will produce even more cost savings for the government.

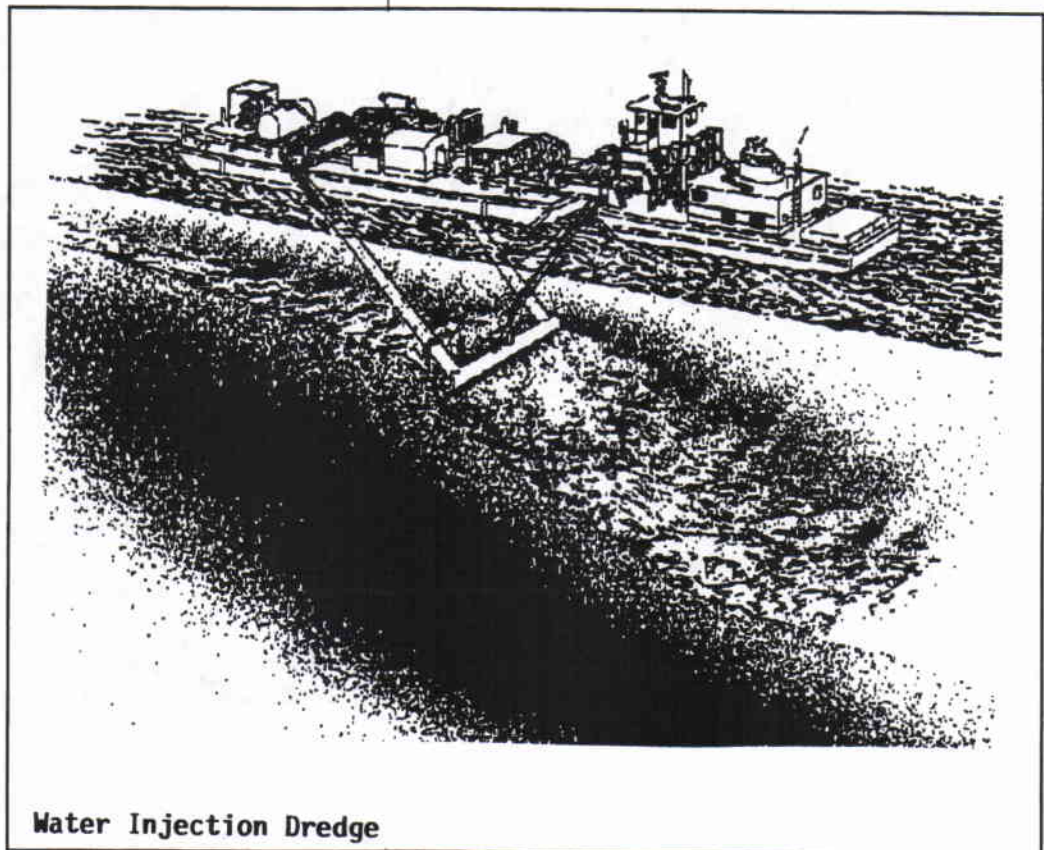
Jason C. Merritt is a structural engineer in the Design Branch of the Engineering Division at Huntington District. He can be reached @ (304) 529-5741.

NEW ORLEANS POISED TO USE INNOVATIVE WATER INJECTION DREDGING TECHNOLOGY

by Edmond J. Russo, Jr.

Originally developed and used in Europe, the Water Injection Dredge (WID) recently entered the United States dredging market. The WID has largely gained work at private dock facilities located on the Mississippi.

Catching the eye of Corps dredgers, the New Orleans District (NOD) recognized the WID's potential for cost-effective employment along the New Orleans harbor wharves on the



Water Injection Dredge

1997 Annual Meeting Wilmington, NC



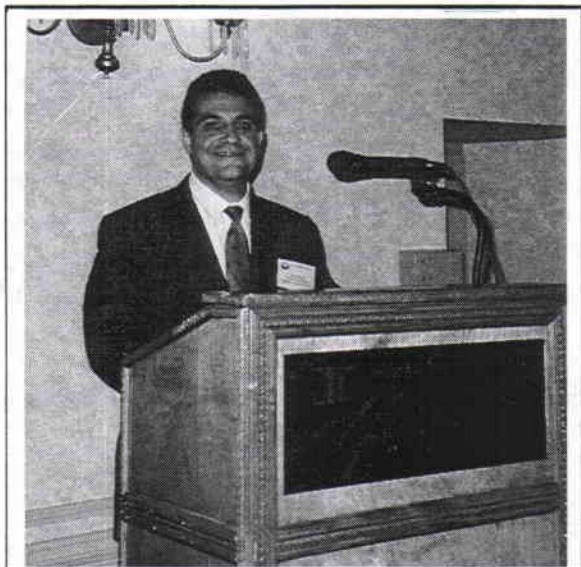
From left: Mr. Frank L. Mach (Ports & Intermodal Officer, MarAd, Norfolk, VA), Ms. Virginia Pankow (Water Resources Support Center, Navigation Data Center, USACE), Mr. Mark Pointon (Water Resources Support Center, Institute for Water Resources, USACE) and Ms. Joan B. Yim (Vice President, Parsons, Brinckerhoff, Quade & Douglas).



From left: Mr. Mark D. Sickles (Executive Director, Dredging Contractors of America), Mr. Kurt J. Nagle (President, American Association of Port Authorities and Commissioner of the U.S. Section of PIANC), Ms. Cindy Marr, Wilmington Hilton, and Mr. Erik Stromberg (Executive Director, North Carolina State Ports Authority).



Exploring Beneficial Uses - From the left: Thomas R. Patin, *Moderator*, and *panel members* Ms. Sharon Lin (Environmental Engineer, USEPA), Dr. Mary Landin (Research Biologist), Dr. C.R. Lee (Soil Scientist, USACE, WES), and Dr. James R. Houston (Director, Coastal & Hydraulics Laboratory, USACE, WES)



Mr. Michael A. Brageles, Transition Programs Planner, Panama Canal Commission, speaking on *The Panama Canal in Transition: Steaming Toward the 21st Century*, at lunch on October 28, 1997, in Wilmington, North Carolina.



Major General Russell L. Fuhrman, Director of Civil Works and President of U.S. Section of PIANC presents gift to Mr. Erik Stromberg, Executive Director of the North Carolina State Ports Authority and retiring U.S. National Commissioner of PIANC.

Mississippi River.

Historically dredged by cutterhead dredges on average about two times per year, the New Orleans harbor work represents a relatively large amount of annual dredging work--generally between 1 to 3 million cubic yards of silts and sands. The WID's performance on non-Corps Mississippi River projects made its use practical for this New Orleans harbor work. The recent inclusion of the WID in bidding for New Orleans harbor dredging raised the prospect for saving money on the project.

The movement of the WID-generated slurry out of the dredging area is governed in large part by a density gradient. In general, this means that the heavier-than-water slurry causes an imbalance in static forces between the slurry and the surrounding water. This results in movement of the slurry away from its original location to a lower elevation in the waterway.

To generate the slurry, the WID uses twin articulated training arms that suspend a horizontal pipe over the dredging location. This pipe is outfitted with a series of nozzles that point towards the channel bottom. The nozzles discharge the water into the shoal material at high volume and low pressure. When this technique is used on a relatively high point along the bottom of the waterway, the slurry seeks a deeper elevation in the waterway. The result at the dredging location is an area cleared of shoal sediments. In general, the finer the sediments, the greater the WID's effect.

The WID uses only a fraction of the equipment and labor necessary by cutterhead dredges to accomplish essentially similar dredging jobs. During implementation, the result is likely to be more cost effective dredging as compared to conventional

DEATH OF PIANC MEMBERS

JAKE REDLINGER

Jacob "Jake" F. Redlinger, Jr., died suddenly while on a business trip to New Orleans, Louisiana, from a heart attack. He was 54 years of age. An employee of the Corps of Engineers since 1966, Jake was a longtime, active member of the U.S. Section. His last official PIANC activity was serving as a member of the 1997 Nominating Committee. He is survived by his wife Fran and five children.

HERBERT R. HAAR, JR., COL USA, (RET.)

On December 30, 1997, Colonel Haar died of heart ailments in Washington, D.C. Colonel Haar's association with PIANC included service as a U.S. National Commissioner from January 1977 through December 1984. He was a Commissioner Emeritus of the U.S. Section. He had served for six years as an official observer to the London Convention representing the American Association of Port Authorities and the International Association of Ports and Harbors. Colonel Haar was a former Deputy Director of the Port of New Orleans and was a past Chairman of the National Waterways Conference, Inc. Immediate survivors are his wife, Dorothy, of Chevy Chase, Maryland, two children, Herbert R. Haar, III, and Susan H. Gordon.

ST. LOUIS DISTRICT DEMONSTRATES LOCK AUTOMATION

Major General Robert B. Flowers, Commander of the Lower Mississippi Valley Division of the Corps of Engineers, visited the St. Louis District last December. District