

RIVER AND HARBOR ACT OF 1899
Section 10

Sec. 10. That the creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is hereby prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines, or where no harbor lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of War; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor of refuge, or inclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of War prior to beginning the same.

Chapter 18

THE WATER CRISIS

An increasing number of pressure groups were politically active in the water resources field during the decade before the bicentennial year, 1976, and satisfying those interests made the work of the Pittsburgh Engineers more complex. Business and industry wanted more flood control and water supply while opposing stringent water quality standards. Waterways shippers wanted improved navigation facilities, while railroads opposed such projects. Environmentalist groups urged preservation of wilderness and streams, while leaders of riverside communities asked for more flood control, recreation, and water supply. Political progressives supported centralization of water resource development, asserting the Army Engineers were too responsive to public opinion and local interests. Others complained the Corps was an unfeeling bureaucracy running roughshod over local interests. The fixed amount of water resources in the face of growing and conflicting public demands sent the Pittsburgh Engineer District in several new directions in search of solutions.

Protecting the River Environment Major Charles F. Powell, Pittsburgh District Engineer in 1899, realized that news of the provisions of the River and Harbor Act of 1899 had reached the backwoods when he received a letter from a West Virginia lumberjack that read:

Mr. Major Powel,

I want to Rite you for some information in Reguard to and imstruction across a navenigle stream on the west fork River near Clarksburg. There is a mill damn across this River with out sloop or sluice. It is imposible to get over this dam with Raves or lumber of eny Kind with out taring it to peaces. This dam is 9 ft in hith perpendickier. On the loer side it stopes the navegeation of fish Boats and Crafts. It is a Bout half mile Below elk creek. This river is large enough to float Raves with 50,000 ft of lumber in a fleet. I want to know if and instruction like this wood come under the guberment controle. I am inersted in the lumber buisness from ten miles a Bov Clarksburg to Elizbowt and wood Bee Pleased to hear from you at once.

The lumberman's spelling left something to be desired, but his meaning was clear. He wanted the West Fork of the Monongahela protected as a navigable river of the United States under the River and Harbor Act of 1899, which directed the Army Engineers to prevent the obstruction of navigable waters.

Under authority granted in 1890, the Pittsburgh District had first embarked on a program to reduce encroachments upon navigable waterways. A Pennsylvania commission created in 1858 had established harbor lines at Pittsburgh beyond which encroachments were not to be permitted, but the limits set by that commission had not been observed. Encroachments continued to such an extent that John F. Cox, attorney for the workers who in 1892 shot it out with Pinkerton detectives on the river bank at the Carnegie Homestead plant, argued that his clients had a right to be on that bank because it was not company property but public property expropriated by the company for private use by dumping and filling into the Monongahela River. "An idea of the manner in which the river channel has been appropriated," said senior engineer John Arras in 1892, "may be gained from the stories of old residents who tell of having seen steamboats moored

RIVER AND HARBOR ACT OF 1899
Section 13

Sec. 13. That it shall not be lawful to throw, discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind, or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water; and it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water, or on the bank of any tributary of any navigable water, where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed: *Provided*, That nothing herein contained shall extend to, apply to, or prohibit the operations in connection with the improvement of navigable waters or construction of public works, considered necessary and proper by the United States officers supervising such improvement or public work: *And provided further*, That the Secretary of War, whenever in the judgment of the Chief of Engineers anchorage and navigation will not be injured thereby, may permit the deposit of any material above mentioned in navigable waters, within limits to be defined and under conditions to be prescribed by him, provided application is made to him prior to depositing such material; and whenever any permit is so granted the conditions thereof shall be strictly complied with, and any violation thereof shall be unlawful.

where the Pittsburgh and Lake Erie Railway depot stands.”

Colonel William E. Merrill directed John Arras to establish new harbor lines at Pittsburgh and to vigorously prosecute violators. Arras loaded the U. S. District Attorney and a grand jury aboard a boat and toured Pittsburgh harbor, obtaining some 50 indictments against people dumping into the three rivers.

Among the firms indicted in 1892 were Carnegie Steel Company, Republic Iron Works, Jones & Laughlin Steel Company, Oliver and Roberts Wire Company, Rosedale Foundry Company, and Pittsburgh Locomotive Works. Fines assessed by the courts ranged up to \$100,000. Public dumping ceased, but still the encroachments into the rivers mysteriously continued. Arras learned the companies were piling debris atop the banks during the day and pushing it into the rivers at night. He put a stop to that practice by sending Anson B. McGrew out in a fast boat with powerful searchlights on night patrol.

Imogene B. Oakley, secretary of the Women's Health Protective Association, complained in 1894 to District Engineer R. L. Hoxie that the cities of Allegheny and Pittsburgh were barging their garbage to Brunot Island and dropping it in the river. "Household garbage, refuse of wholesale commission and slaughter houses, wagon loads of decaying melons, fruit and vegetables, carcasses of animals, all go into the Ohio River above Davis Island Dam," she protested. She could get no help from the State Board of Health so she appealed to the Engineers.

Major Hoxie met with Mayor William M. Kennedy of Allegheny and Mayor B. F. McKenna of Pittsburgh, who objected that the complaint was exaggerated--very few dead animals were dumped in the river--and refused to stop the practice because the cities would have to build furnaces to dispose of the offal. Hoxie stopped it anyway, by prosecuting contractors who dumped the garbage in piles sufficient to obstruct boat traffic.

Though specifically exempting liquid discharges, Sections 10 and 13 of the 1899 Act directed the Engineers to prevent unauthorized changes in stream environments. Through court actions, the Engineers learned that to enforce the law it was necessary to prove that streams were navigable and that the dumping directly obstructed navigation. They could not prevent liquid pollution unless the discharges deposited materials in the stream channels. Unfavorable court decrees and meager funding limited the enforcement program generally to streams actually carrying commercial steamboat and towboat commerce.

Pittsburgh District Engineer Francis Shunk and the Ohio River Flood Board strongly recommended in 1914 that Corps jurisdiction be extended to include all streams, whether navigable or not, but the

reaction of Congress to that proposal was underwhelming and nothing was done in that regard for better than a half century.

As public concern for protection of the environment increased during the early 1970's, the Engineers began to search for ways to extend and improve the protection afforded streams by the 1899 Act. Because courts had defined navigable waterways as any stream that had ever been navigated by interstate commerce, be it canoes, flat-boats, floated logs, or steamboats, the Pittsburgh District in 1974 initiated intensive historical studies designed to extend Engineer administrative jurisdiction as far up streams in the District as possible. The District also contracted with H. R. B. Singer, Inc., for a pilot program to plan aerial surveillance with special equipment on streams to locate unauthorized changes made in stream environments.

The Corps of Engineers in 1976 proposed to extend its jurisdiction under Section 10 of the Rivers and Harbors Act of 1899 in three phases to practically all streams and waterways in the nation, without regard to their navigability. Just as there had been in 1914, however, there was in 1976 substantial political opposition to the expanded jurisdiction, and President Gerald Ford ordered the program delayed.

Patrol of the three rivers in the District that were navigated by commercial tows continued long after John Arras and Anson McGrew retired. In 1975, Lieutenant Al Whitehouse, chief of the District Surveillance and Enforcement Section, practically lived aboard a 44-foot houseboat, equipped with maps, aerial photographs, water quality equipment, and a communications network. The boat and its crew plied the waterways, stopping at riverside communities to get acquainted with people and hear their complaints and constantly searching for damage to the river environment.

Water Quality Thomas P. Roberts was sickened by the gross pollution of the Allegheny River he

saw during his 1879 survey of the stream. In his report to Colonel Merrill, he explained:

Next to the bridges, the rivermen complain most of the refuse from oil refineries and acid works which is permitted to be wasted into the river. The oil refuse is a tarry substance which contaminates everything with which it comes in contact. It does great damage to the rafts of sawed lumber, and even the shingles piled on the rafts are frequently damaged by this substance. The horses employed by the guyper men in the seasons of low water, in towing their boats of limestone, staves, barrels, etc., become smeared with this tar; while at other places the unfortunate animals have their legs cut with the acid. This acid, diluted as it is in the river, still accumulates in places sufficiently concentrated to disintegrate the fibers of cables, which frequently break as though cut with a knife. For a long distance below one of the manufactories, it is unsafe to bathe in the river. The case of a loss of life from this cause was reported last year at Oil City. It

Tidioute, Pennsylvania, on the Allegheny

Drake Well Museum



Aerial view of Pittsburgh, 1952, depicting Monongahela River pollution

Carnegie Library of Pittsburgh - Photographer, Paul Slantis

certainly is a gigantic nuisance to which thousands can testify, and which should be abated.

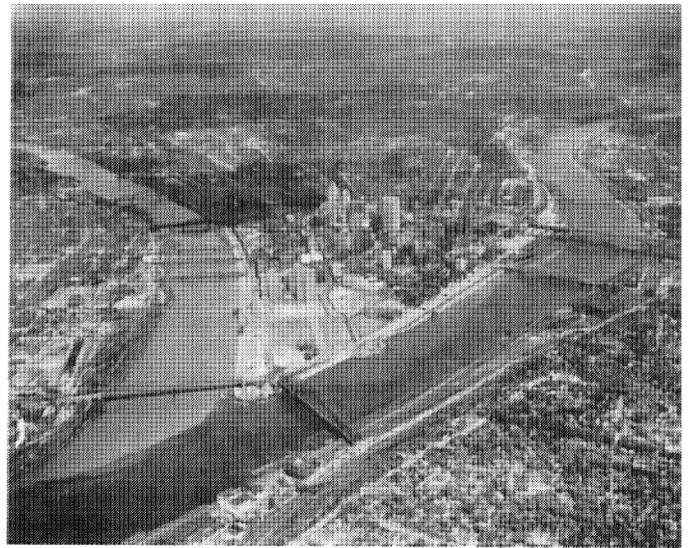
Many rivermen have called my attention to these annoyances, with the hope, I suppose, that mentioning them in a report might aid them in securing them relief.

Colonel Merrill could do nothing about the problem. Neither he, nor the Corps of Engineers, nor any other federal agency had the legal authority necessary to stop water pollution until nearly a century after the Allegheny rivermen asked that it be done. The 1899 Act specifically denied jurisdiction to the Corps of Engineers over liquid effluents.

Thomas Roberts tried to do something about acid pollution on the Monongahela River in 1911. He and his assistant Charles E. Ashcraft measured the acidity of the Monongahela at as much as 4.6 grains per gallon, meaning that about 64.5 tons of acid daily passed downriver. He learned the acid came from two sources: drainage from abandoned coal mines and discharges from steel mills. The Monongahela, he concluded, was the reverse of a cesspool, for its acids killed every living organism in it.

Roberts recommended that Congress enact legislation to prevent acid discharges into the rivers, following the reasoning that the acids corroded steamboat boilers, quickly ate away metal parts of navigation locks, and thereby formed a distinct obstruction to navigation. The Pittsburgh District Engineer concurred with Roberts' recommendation, but no remedial legislation was enacted. To reduce acid damage to locks and dams, the Pittsburgh District was forced to use metal parts clad in chrome or stainless steel.

The District's measurements in 1925 indicated that an average of 404 tons of free acid passed Dam 2 on the Monongahela each day, and that year the District participated in a pilot project to reduce acid drainage by sealing abandoned coal mines. During the Depression years, the Bureau of Mines and work-relief agencies such as the W.P.A. spent \$6



million to seal old coal mines, but the seals were later broken by natural forces and by bootleg miners who reopened the old mines when coal prices jumped. No completely satisfactory solution to the acid mine drainage problem was ever devised, and the trouble persisted where mining activity continued.

The U. S. Public Health Service in 1914 began the first official federal water quality studies in the Pittsburgh District. Those studies continued intermittently for thirty years without much result in the form of remedial action.

Chief of Engineers Edward M. Markham asked President Franklin Roosevelt in 1937 to let the Corps investigate water pollution in the Ohio River basin. He told the President the Engineers were completely familiar with streams in the basin; had the necessary basic information; and the personnel of the Districts, who spent most of their lives on the rivers, were vitally interested in reducing water pollution. "The feasibility of using this organization becomes apparent," said General Markham, "when it is realized that the solution of the pollution problem is an engineering matter."

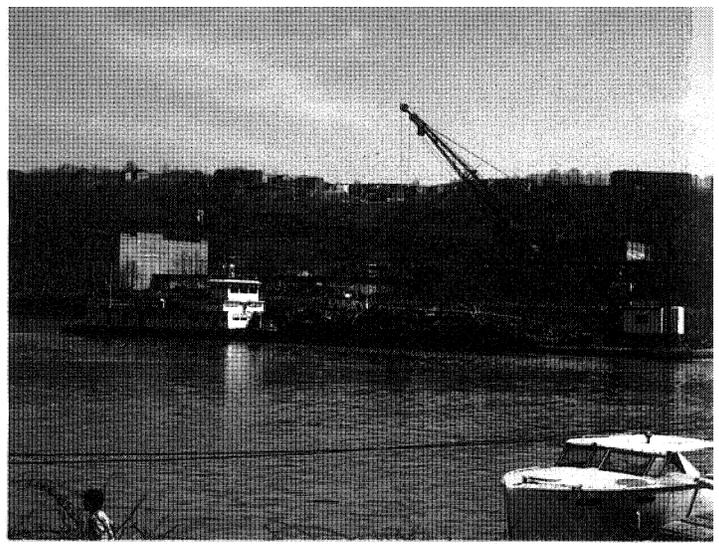
The President ordered a joint study effort by the Corps and the Public Health Service and appointed a supervisory commission composed of Dr. Abel Wolman, consulting engineer of Baltimore, Ralph Tarbett, Public Health Service sanitary engineer, and General Max C. Tyler, succeeded by General Thomas M. Robins, for the Corps of Engineers. Pittsburgh District Engineer W. E. R. Covell and Don D. Rait took that commission on a tour of the District's rivers in December 1937, travelling aboard the towboat *Tecumseh* commanded by Captain Raymond C. Peck, to plan the study. Colonel Covell assigned a small staff to the collection of data and water samples and converted the Quarterboat *Kiski* into a floating water quality laboratory. That work continued for five years.

The *Ohio River Pollution Control* report, widely acclaimed as the best of its sort ever written, detailed the extremely serious water quality deterioration in the Pittsburgh District and elsewhere in the Ohio River basin, pointing out that resulting damages were far more widespread than previously thought. "In addition to direct economic damages, there are other less tangible damages of a more or less psychological nature," the report said. "For example, aquatic recreational facilities convenient to large population centers are of value to public morale, may lessen juvenile delinquency, and in other ways contribute to the general public welfare. It follows that their destruction by stream pollution is detrimental to public welfare in these respects."

In its report, the Corps of Engineers recommended that the Federal Government contribute matching funds to state and local governments for construction of waste treatment plants, support the cooperative regional pollution reduction efforts of state governments, fund continued research and education by the Public Health Service, fund the Bureau of Mines program to reduce acid mine drainage, and permit the Corps to operate its flood control reservoirs to provide maximum summer flows. The report received little attention when it appeared in 1943, but in postwar years most of its recommendations were implemented.

In 1948, eight states joined in the Ohio River Valley Sanitation Commission (ORSANCO) with headquarters in Cincinnati. When ORSANCO organized, only 1% of all communities in the basin had sewage treatment facilities; the other 99% discharged raw sewage into the rivers. The ratio had been reversed by 1967: only 1% of municipalities in the basin discharged untreated sewage into streams. As part of its "Renaissance," Pittsburgh and 71 nearby communities formed the Allegheny County Sanitary Authority (ALCOSAN) in 1946 and built a county-wide sewerage system that ended all raw sewage discharges in 1959.

Control of industrial water pollution was attempted by state governments, with minimal



District plant joins river clean-up, April 1973

federal assistance, until 1965 when a Federal Water Pollution Control Act amendment established water quality standards, providing legal means for action against polluters. "Today, we proclaim our refusal to be strangled by the wastes of civilization. Today, we begin to be master of our environment," proclaimed President Lyndon Johnson when he signed the 1965 act.

The Army Engineers had no direct role in the water pollution fight until 1970, when a federal court reinterpreted the word "refuse" in the 1899 Act to apply to all foreign substances and pollutants. President Richard Nixon signed an executive order for a permit program in December 1970, directing the Engineers to force people or businesses discharging effluents into rivers to meet federal water quality standards or face legal action.

The Pittsburgh District had long operated a small water quality laboratory for testing water samples in connection with project operations. Tom Reilly obtained new laboratory space in 1972 for work in connection with the permit program. The new lab began running hundreds of chemical and biological tests in May 1972, and a water quality network and computer program were added to support the effort. Data for thousands of actions against polluters was collected by the District before the job was turned over to the Environmental Protection Agency (EPA) in February 1973.

After transfer of the permit program to EPA, the District Water Quality Laboratory in the Federal Building continued in operation under section head Alex Barna, who reported to Gene Armocida, Chief of the Hydrology and Hydraulics Branch. Biologists and technicians of that lab travelled from stream to stream throughout the District during summers, collecting water samples for laboratory analysis.

District Engineer Francis R. Shunk, in a 1914 report, commented: "There appears to be no great

necessity for regulation of fishing from the lock walls in this District as there are very few fish. It may be that fishing will be found possible at some of the lower dams but the acid conditions of the waters around Pittsburgh has left nothing but a few catfish, usually caught near the mouths of sewers."

If fish life can serve as an index to water quality, then improvements since 1914 have been significant. The Environmental Protection Agency reported in 1972 that the Ohio River fish population had doubled in fourteen years. Aquatic biologist H. R. Preston also noticed astounding improvements on the Monongahela. In 1967, he found not a single fish in the three-acre chamber of Maxwell Lock; in 1973, he found fish weighing 91.5 pounds in the lock, including 16 different species and about 25% were largemouth bass. "The Monongahela River fishery, once dead," declared the West Virginia Fish and Wildlife Division, "is now on the active list and coming back strong." Thomas Roberts would have been pleased.

Ecological Considerations Just after enactment of the National Environmental Policy Act (NEPA) in 1970, when *ecology* was a relatively new word in most people's vocabulary, the Engineer District executives who regularly gathered around Al Layton's table at Stouffers for lunch tried to improve upon Webster's definition. Ed W. Thomas, assistant chief of Engineering Division, offered, "The relationship which exists between living organisms and their environment--ecology--is comprised of a delicately balanced series of interactions, through which no species fails or succeeds entirely by its own hand." Executive Assistant Frank R. Stocker suggested, "Ecology has become a rallying cry for a return to primitive wilderness, which is obviously impossible. What is really important is to start from where we are now to avoid future mistakes and, where possible, to repair past damage."

While the word may have been new to most Americans, the concept was not. In 1912, worried by the disappearance of fish from Pittsburgh's rivers, Thomas Roberts had commented: "There is such a

thing in nature, the biologists tell us, as an equilibrium of beasts, birds, fish, insects, preying on each other in the happiest manner imaginable to the great relief of the boss animal, man; but if the series be disturbed by the elimination of certain of the predatory species, other and perhaps very objectionable life forms, free to propagate, may come to afflict us."

Most human activities alter the environment to some extent. Building a home ordinarily destroys vegetation, insects, earthworms, and changes the configuration of the land, but those damages are accepted because people must have shelter to survive. But, as the population and the needs of the technological civilization of America increased, environmental damages multiplied. In 1960, General Omar Bradley commented: "Year after year our scenic treasures are being plundered by what we call an advancing civilization. If we are not careful we shall leave our children a legacy of billion dollar roads leading nowhere except to other congested places like those they left behind. We are building ourselves an asphalt treadmill."

As public concern about environmental damages swelled after 1960, attacks by environmentalist groups upon the Army Engineers' water resource development program received wide media coverage. They accused the Engineers of having a "beaver complex," of conjuring up benefits to gain approval for projects, of exploiting and destroying the natural environment. Supreme Court Justice William O. Douglas described the Corps of Engineers as "Public Enemy No. 1."

The Army Engineers were shocked. Because of their attention to scientific management and use of water, they had for years thought of themselves as heirs of the conservation movement begun early in the 20th Century by Theodore Roosevelt, Gifford Pinchot, and others.

To men like Roosevelt and Pinchot, however, water conservation commonly meant storing water behind dams for beneficial economic and social pur-

poses, rather than letting it waste in annual floods. The heritage of the environmentalists, on the other hand, came chiefly from men such as John Muir, founder of the Sierra Club, who urged preservation of an undisturbed environment, rather than management of resources for the service of technological society. The preservationists questioned the equation of industrial and economic growth with social progress and were inclined to view resource management simply as resource exploitation and destruction. Through publicity, public protests, and legal action, environmentalists sought suspension or reassessment of water resource projects.

Public support for environmentalist views climaxed in 1970 with enactment by Congress of the National Environmental Policy Act, making environmental protection a national goal and requiring that federal agencies, including the Engineers, give full consideration to project impact upon natural features, both zoological and botanical. An Environmental Impact Statement (EIS) was to be prepared for each dam, channel rectification, or other project to assess both beneficial and adverse impacts and to consider feasible project alternatives including the alternative of no project at all. The EIS was to be part of each project feasibility study, along with engineering and economic aspects, for public review and for submission to higher authorities and Congress.

“After reading recent Corps of Engineers publicity wherein we are increasingly pictured as Public Enemy No. 1 or worse, I fully expected to grow horns shortly after reporting for duty,” quipped Colonel Edward C. West in 1970, when he succeeded Colonel Wayne Nichols as Pittsburgh District Engineer. “For the long run, our major objective and involvement is clear,” West continued. “I am of course referring to the significant problems we have with environment, ecology, pollution and recreation. I challenge you to come up with the fresh thoughts and new ideas that will make the Pittsburgh District the leaders. I feel strongly that environment is where our future lies.”

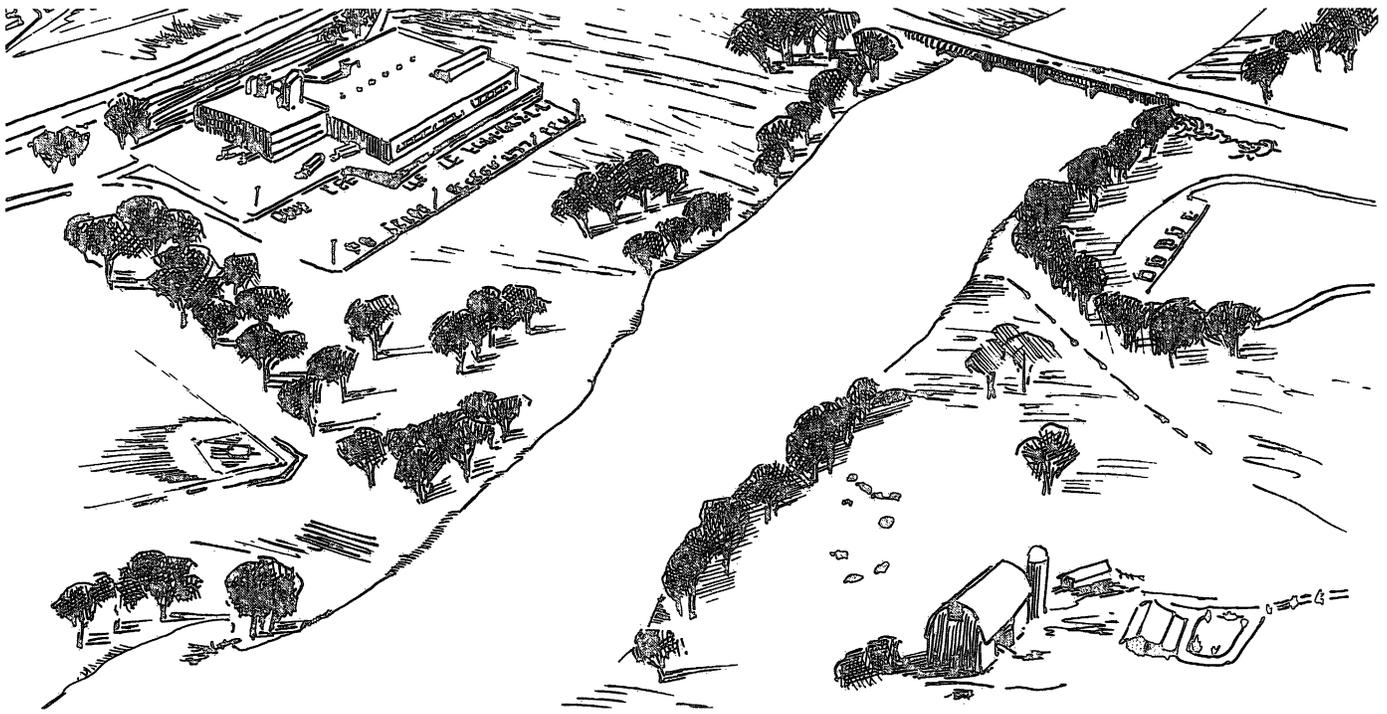
After enactment of NEPA, General Frederick J. Clarke, Chief of Engineers, had directed Corps personnel to get out in the field, listen to what environmentalists had to say, and involve them in planning processes. He directed Engineer Districts to comply not only with the letter of NEPA but also with its spirit by preparing Environmental Impact Statements not only for projects begun after enactment of the law but also for projects then under construction.

District Engineer Edward West established an Environmental Council in the District and began a series of public meetings with environmentalist groups. He pushed environmental studies and preparation of EIS reports at a feverish pace. District oldtimers, such as the voluble Ben Netzer, plunged into the environmental whirl to their necks.

The backlog of environmental studies and impact statements in the District had been pared down by 1973, when public attention was diverted from environmental concerns to a growing energy crisis. NEPA was permanent, and most Engineers admitted, much needed legislation. It opened the door for a fresh mission for the Corps.

Various new facets of the District mission growing out of the public demand for environmental protection included application of the permit program to water pollution, more concentrated study of non-structural flood control methods, waste water management and urban studies, and, in 1974, an Environmental Resources Inventory. The latter represented an effort to identify and locate natural, scenic, and historical-archaeological resources throughout the District. With the cooperation of universities, museums, the academic community, and even school children, the resources inventory sought to develop a reference source for conducting environmental assessments and preparing impact statements.

Non-Structural Flood Control and Urban Studies In 1762, after reviewing flood damages at Fort Pitt, British Army Engineer William Eyre



A floodplain

predicted that floods would again occur and recommended that the fort either be relocated to higher ground or its buildings raised so their floors were above the flood of record. In 1884, Colonel William E. Merrill made similar recommendations after the major flood of that year. He said buildings in the floodplains should be reserved for business and industry and be constructed with the strongest foundations to withstand flooding. "The most important point," Merrill said, "is to get the laboring people away from the flooded district so as to lessen the appeal for charity, which cannot always be met with the abundant resources that were poured out this year."

Relocating residential areas from floodplains to higher ground and allowing only "floodproof" buildings in low-lying areas were not at all new concepts, but people of the rugged headwaters district found them controversial. The people built on the level floodplains where the need for hauling and pumping water supply up mountain sides was avoided. Though the Pittsburgh and other Districts often considered floodplain evacuation as an alternative for local protection projects, in very few cases were communities interested in relocating.

By 1956, the Engineers had become aware that the benefits of flood control dams were being offset by continuing development in the floodplains. In spite of reservoir reductions in flood crests, the amounts of flood damages still increased. That year, Emil Schuleen of the Pittsburgh District and General Herbert D. Vogel published papers urging more use of non-structural flood control, meaning floodplain zoning and flood proofing of buildings.

Congress directed the Engineers in 1960 to provide, at request, floodplain information reports to communities for rational floodplain zoning. The reports were to show possible flood heights and frequencies, areas inundated, potential damage zones, and related information. Armando C. Lardieri, Chief of the Pittsburgh District Flood Plain Management Services Branch, explained: "In the past, the decision to occupy the lowlands was left largely to the individual. Often without realizing the risk, new developments were constructed in the flood hazard areas. To escape the dismal cycle of losses, partial protection, and further induced development, old attitudes had to be transformed into positive actions."

The Engineers hoped the floodplain reports would be used by communities to decide where, because of high flooding potential, construction should not be permitted and the land used for parks or other purposes, where only floodproofed buildings would be allowed, and where construction would be flood free. Zoning regulations and building codes were sensitive local political issues, however, and the Engineers had no power to dictate that floodplains would be evacuated or floodproof buildings constructed. Because of political complications, local governments often failed to act upon the flood information reports after they had been furnished.

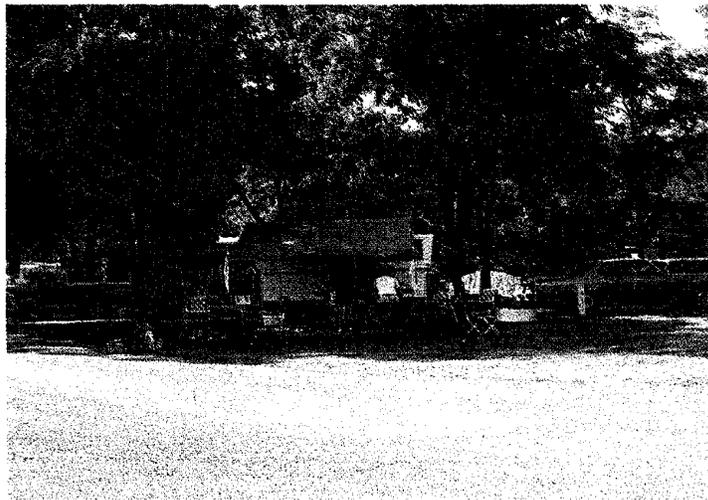
After the Hurricane AGNES disaster in 1972, Congress put teeth into the non-structural flood control program by requiring that communities adopt proper floodplain zoning regulations before they became eligible for low-cost Federal Flood In-

insurance. By the end of 1977, the Pittsburgh District had prepared 55 community floodplain information reports, providing detailed flood hazard information for communities in the Allegheny, Monongahela, and Upper Ohio Valleys, including many major tributary areas. Flood hazard information was provided to more than 3,000 business and property owners. The Department of Housing and Urban Development employed the District to prepare Flood Insurance Studies. One of the most widely distributed publications of the Corps of Engineers was the "Flood Proofing Regulations" booklet prepared by the District in 1972.

In 1976 the District's nomination for a pilot Expanded Floodplain Information Study was selected as one of 10 nationwide research and development efforts intended to display the hydrologic, economic, and environmental impact associated with land use changes on a basin wide scale. The study area selected was the Upper Sewickley Creek Basin in Westmoreland County, Pennsylvania, primarily because of the Volkswagon development near New Stanton. A Plan of Study was completed in January 1977, the study started in August 1977, with the scheduled completion near the end of 1979.

The Corps Cares Three-quarters of a million people visited Tygart Dam, first reservoir project in the Pittsburgh District, while it was under construction. The contractor bulldozed off a level parking lot for the visitors at his own expense and let them use the toilets he furnished for his workers. When the job was done, he took his equipment, including the toilets, with him.

"We have a mess up at Tygart," Colonel W. E. R. Covell told the Chief of Engineers. He said that as many as a thousand automobiles came to the dam in good weather almost every day, and on one day 25,766 visitors had been counted. Their cars cut ruts in the unpaved parking lot after every rain, their feet beat muddy paths to the dam. And the stench around nearby bushes was becoming intolerable, perhaps even a health hazard. Colonel Covell asked permission to pave the parking lot and footpaths and



build toilets and a concession stand for the visitors. The Chief turned him down, explaining that Congress had not approved use of public funds to serve a fun-seeking public. Colonel Covell managed to arrange provision of public facilities at Tygart and other projects, however, through cooperation with the Works Progress Administration.

After 1945, an unexpected surge in public recreation at reservoir projects overwhelmed the limited facilities. The people cut new roads and trails across public lands to get to the lakes everyday. They were coming, regardless of whether the Corps was ready or not. Thanks to increased leisure time and the mobility afforded by the automobile, public use of Engineer projects during the decade after 1945 grew at a rate six times the rate of population growth. About a million people visited Pittsburgh District reservoirs in 1949, and the number had more than tripled by 1958.

"At the time we built our projects," Ohio River Division Engineer John L. Person told a Senate committee in 1957, "we did not anticipate and I think could not have anticipated the very extensive and growing use and enjoyment by the public of the water areas in these reservoirs. They are used for fishing, boating, swimming, camping, picnicking, and related activities."



General Person and other Engineers asked Congress to allow them to provide more facilities for public recreation and to consider recreation in project planning. Perhaps, through cooperation with local and state governments, they could meet the needs of the people swarming like lemmings to the lakes in the summer and even winter. In 1962, Congress approved Corps plans for expanding recreational features at water projects, and in 1965 approved a plan for recreational development through cost sharing with local and state agencies.

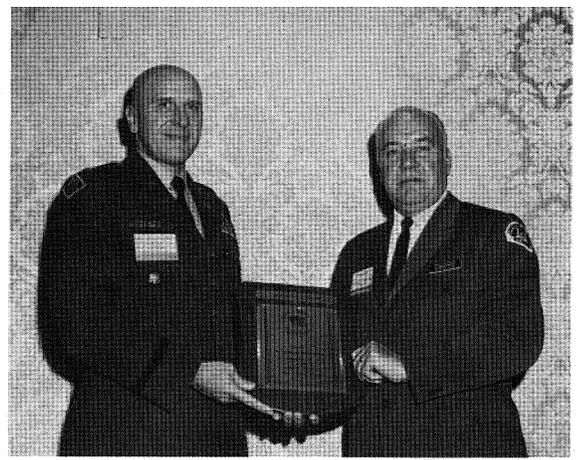
Symbolic of the growing emphasis on recreation was the bill, sponsored by West Virginia Senator Jennings Randolph in 1967, that changed the names of Engineer reservoirs in his state to "lakes." Senator Randolph thought the word "lake" was more clearly identified with recreation than "reservoir." Tygart Reservoir thereby became Tygart Lake. That policy was applied nationwide in 1970, except where Congress had specifically named a project a "reservoir" by law.

Another new feature of Pittsburgh District's environmental protection mission was the urban study program begun in 1973 as an outgrowth of earlier waste water management studies. Justice William O. Douglas, an acid critic of the Corps flood control program, suggested in 1969 that the technological expertise of the Engineers should be directed toward devising improved sewage disposal methods instead of dam building. Other critics of the Corps made similar suggestions. Congress, while unwilling to surrender the flood control work, found the idea attractive and in 1972 assigned the job to the Engineers. The Corps launched pilot waste water management studies at eight metropolitan areas scattered across the nation. The Engineers learned that waste water management could not easily be separated from such urban problems as water supply, floodplain management, recreation, and similar water-based activities. Study scope therefore expanded to all aspects of urban water use problems, and Congress funded such studies for additional cities.

The Pittsburgh District began its first urban study in 1974 at Wheeling. An Urban Studies Unit, composed of Jack Goga, Jim Mershimer, Mark Gera, and Ardelle Hopson, was established in the District Planning Branch, headed by George Cingle. The Urban Studies Unit conducted a complex study in cooperation with other federal agencies, and state and local governments in Belmont County, Ohio, and Marshall and Ohio Counties, West Virginia, which include the Wheeling metropolitan area. Maximum public involvement in the search for various short and long range solutions to the water resource needs of the Wheeling area was sought through frequent open meetings that were continuing in 1977.

Engineer projects hosted about 410 million people in 1977, more than any other federal agency including the National Park Service. That year, the Engineers were operating over 2,400 day-use and camping areas and managing some eleven million project acres. The fifteen Pittsburgh District lakes that year were visited by 12 million people. Berlin

Colonel Norman G. Delbridge, Burl McVicker and the Keep America Beautiful award



led with 1.46 million. Kinzua, Mosquito Creek, Shenango, and Youghioghenny lakes each had better than a million visitors.

During the first decades of reservoir operations, the District merely provided the most basic facilities, such as access roads and boat-launching ramps. The passive program changed to an active policy about 1965. Eventually, the District organized a recreation resource management branch and employed rangers, wildlife experts, foresters, and environmentalists to help the projects better meet public demands.

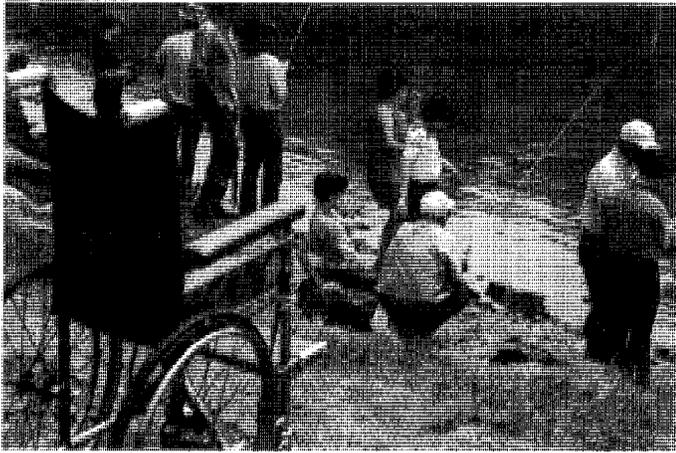
At Mahoning Creek Lake, for instance, built in 1938 in a rugged wilderness area strictly for flood control, simple facilities for fishing, hunting, canoeing, bicycling, and back-packing were furnished at low-cost through cooperation with local government, the Pennsylvania Game Commission, and the American Youth Hostels. County government supplied day-use areas for hunters and fishermen, the wildlife agency opened access to Mahoning and Little Mahoning creeks at the head of the reservoir for canoeists, and the American Youth Hostels, after initial reluctance resulting from exposure to anti-Corps literature, marked hiking trails on project lands and provided trail-side shelters for back-packers.

At Shenango River Lake, as another example, the District developed two public recreation areas and three campgrounds. The Engineers reforested 65 acres of open project lands with pine and spruce, planted autumn olive and multiflora roses to feed and shelter pheasants, quail, rabbits, and squirrels, and, with the help of the Pennsylvania Fish Commission, stocked the lake and tailwaters with 4 million walleye, pike, bass, muskie, catfish, blue gill, and trout. In June 1976, District Engineer Max Janairo and Pete Colangelo, Chief of Recreation Resource Management, opened the District's first nature trail, named for conservationist Seth Myers of Sharon, at Shenango Lake. The trail was a foot-path laced with flowers and trees, with rustic bridges, seventeen marked natural attractions, and guidebooks for the convenience of visitors.

Burl McVicker, resource manager at Youghioghenny Lake, took advantage of public concern about the environment in 1967 by organizing a cleanup day involving the public in litter removal from the lake and shoreline. It became an annual event at the lake, including boat parades, beauty contests, musical entertainment, and civic activities. The event became so popular that similar activities were organized at other lakes in the District and across the nation, merging with the "Johnny Horizon" environmental program. For that work, Burl McVicker was awarded special recognition in 1973 by the environmentalist organization named Keep America Beautiful.

Another annual event begun in 1973, which District Engineer Norman G. Delbridge described as a real embodiment of the Engineer civil works motto "The Corps Cares," provided recreational opportunities for handicapped children. With the cooperation of the Western Pennsylvania School for Blind Children, the Pittsburgh Home for Crippled Children, the Easter Seal Society of Fayette County and other agencies, District recreation personnel organized fishing derbies, boat rides, swimming and other outdoor activities for the children. Many District employees volunteered their own time for that project.

Recreational use of the Allegheny, Monongahela, and upper Ohio rivers intensified as fishing and water quality along those streams improved. Al Rogalla, Chief of the Waterways Management Branch, said that approximately 34,000 pleasure boats were registered in 1977 in southwestern Pennsylvania and that most of them seemed to converge on the three rivers on summer weekends. In 1977, which was not atypical, Pittsburgh District locks handled about 46,000 pleasure boats in 25,000 lockages. That recreation traffic, mixed with the 102,000 commercial lockages in 1977, caused some hazardous situations. Small boats crossing in front of commercial tows were run down, or swamped by the wake from the big towboats. The District joined with the local Coast Guard auxiliaries, power squadrons, and other agencies to promote safer handling of small craft.



Perhaps symbolic of the revitalization of the three rivers at Pittsburgh was the *Gateway Clipper*, that began excursion tours in May 1958 from the Monongahela wharf. The Three Rivers Improvement and Development Corporation (TRIAD), a nonprofit group headed by Arthur V. Harris, began its annual "River Renaissance" festival in June 1968. Except when interrupted by AGNES in 1972, the festivities drew thousands of spectators to the rivers each summer to watch boat parades and water ski shows, listen to concerts, and join in other activities.

A Dense Haze of Knowledge Major Lewis H. Rand received orders in 1913 from the Chief of Engineers to submit a comprehensive report on multipurpose water resource development in his District. Major Rand thought the idea lacked merit. "A survey which would contain *all* the information with the absolute accuracy that seems to be desired would be so expensive in time and money that no one would be willing to start it with the positive knowledge," the Major complained, "that it would never be available for his own purposes and would cost more than those purposes would justify." He predicted that such a survey would result in "so dense a haze of knowledge that the ordinary wayfarer would totally lose his way himself long before reaching the conclusion."

The Chief of Engineers had no funds in 1913 for comprehensive surveys and he thought they might be done by employees of the Districts in their spare moments. The reports he received were therefore very sketchy. Colonel Francis R. Shunk's report on all waterways in the Pittsburgh Engineer District was merely four pages long, and it was better than some. Major Rand, for instance, did not report at all, merely sending a letter commenting that comprehensive surveys would involve "an immensity of detail totally beyond the grasp of the human mind."

Handicapped Day



But if development of water resources for multiple purposes was desirable, then comprehensive surveys and planning to determine the extent of available resources and their optimum uses was imperative.

At the recommendation of the Ohio River Flood Board in 1916, comprehensive surveys of the Cheat, Tygart, and West Fork rivers began in the Pittsburgh District. Similar surveys of the Allegheny and Monongahela basins began in 1925, and were performed by a small staff in the District headed by Lieutenant Hugh J. Casey. Those studies merged into the "308 Reports," authorized by Congress in 1927 for 200 major river basins throughout the country. Those studies, performed through on-the-ground field surveys, meticulous map drafting by hand, and slow data and statistics compilation by clerical staffs without much assistance from business machinery, were completed during the Depression years and established a solid framework for the District flood control and multiple purpose water resource program that began at Tygart Dam in 1934.

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The comprehensive studies were cumulative. Information about smaller streams became part of the Allegheny and Monongahela basin reports, which in turn became part of the Ohio River basin reports, which, after 1960, became part of a nationwide water use planning program.

President John F. Kennedy established an *ad hoc* committee in 1961 to resolve conflicts in national water use policy, conflicts sometimes pitting city against farm, industry against wildlife, headwaters areas against lowlands, state against state, region against region, and federal agency against federal agency. Congress continued that program in 1965 by creating the Water Resources Council, composed of the chairman of the Federal Power Commission and the Secretaries of Army, Interior, and Health, Education and Welfare, to coordinate national water resource planning and the work of individual river basin commissions, which in turn were to coordinate federal, state, and local water resource planning.

The Engineers had begun a review of flood control planning throughout the Ohio River basin in 1955, and in 1962 that study merged into a framework study of all water needs undertaken cooperatively by the Corps, the Soil Conservation Service, the Federal Power Commission, the National Park Service, and other federal agencies. The Ohio River Division at Cincinnati printed that cooperative study, fourteen volumes entitled the *Ohio River Basin Comprehensive Survey*, in 1968. The summary pamphlet for public distribution was entitled *2020 AD* because the report projected trends in transportation, industry, agriculture, and population in the basin a half century into the future, to the year 2020 A. D., allowing assessment of future water needs. The report estimated, for instance, that the population of the Ohio River basin, 20 million in 1965, would be 35 million in fifty years. To keep pace with population growth, the study estimated that 50 million additional acre feet of water storage would be needed.

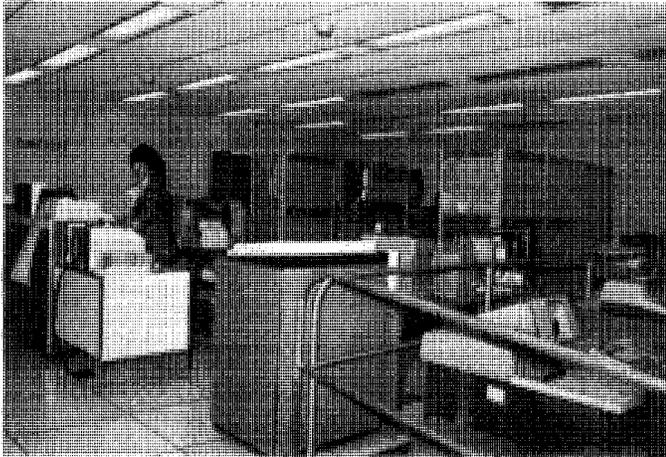
After the Water Resources Council approved the comprehensive framework report, the Ohio River

Basin Commission (ORBC), headed by Fred E. Morr, was established in 1971 at offices in Cincinnati. The ORBC took up consideration of specific water problems at local levels, holding public workshops throughout the basin--at Bradford, Beaver Falls, and Wheeling in the Pittsburgh Engineer District.

While the Ohio River basin survey was in progress, the Pittsburgh Engineer District also became involved in the Appalachian Studies, authorized under the 1964 Appalachian Regional Redevelopment Act, part of the "War on Poverty" of the Lyndon Johnson administration. Many people thought water resource development the key to the solution of the economic woes of Appalachia, the mountain region stretching from north Alabama to New England where per capita income was half the national average. Kentucky author Harry Caudill, for example, told Congress the forests of Appalachia had been plundered, its lands gouged out for coal, and its people systematically exploited. "Water research and development," he said, "are absolutely necessary to any program prescribed for Appalachia."

The Office of Appalachian Studies, headed by Colonel John C. H. Lee, opened at Cincinnati in 1965. With information supplied by the Engineer Districts and acquired from other sources, the Office of Appalachian Studies produced a 25-volume report in 1970 that recommended spending some \$2.4 billion on water resource development for conservation and enhanced economic growth in the thirteen state Appalachian region. By the time the report was finished, however, the national administration had changed and the "War on Poverty" had ended. The report went to the back burner where it remained.

As Major Rand had predicted in 1913, the sheer volume of data collected by the Pittsburgh Engineer District and other Engineer installations during a half century of comprehensive surveys and studies was mind-boggling. The Engineers turned increasingly to electronic aids to handle the information.



The Navy had developed the first crude electromechanical computer, Mark I, to generate firing tables in 1944, and in postwar years the Engineers and private industry entered the field of computer technology. UNIVAC, the first modern general purpose computer, was installed at the Census Bureau in 1951 to process the 1950 returns. In 1952, the Federal Government had five computers. By 1962, it had 1,000 and by 1974 it operated 7,800. Army Engineers put computers to work at a variety of repetitive tasks, including design and engineering jobs and production of engineering drawings.

The Pittsburgh District Automatic Data Processing (ADP) Center acquired a Harris Data Communications COPE 1200 computer terminal in 1975, gaily decorated in patriotic red, white, and blue paint. The District's computer terminal was able to communicate with a Univac 1108 computer at Chicago, a Honeywell 600 computer at the Vicksburg Waterways Experiment Station, an IBM 370/195 computer at St. Louis, and an ORD G3-437 computer at Cincinnati.

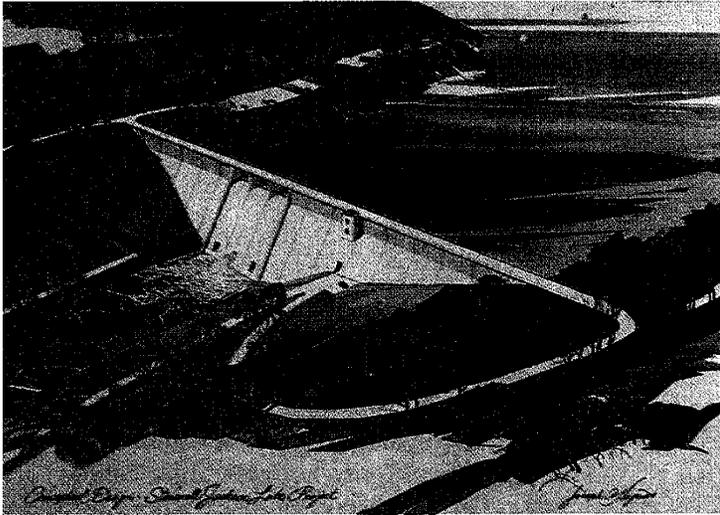
Though the District's computer could converse with other computers, it could not communicate directly with towboat captains, professors, canoeists, community leaders, and government executives. The District staff therefore found it necessary to continue the sometimes dreary round of executive meetings and public workshops in search of elusive public opinion.

District Engineer Edward West and project engineers Jack Goga and Jim Purdy began comprehensive studies of the Monongahela and Youghiogheny River basins in 1970 at meetings with executive boards composed of representatives of state and federal agencies concerned with water resource planning. To secure public input, they organized local advisory councils, with memberships consisting of civic leaders, environmentalist representatives, and people from the news media. A similar comprehensive study began in 1973 for the Beaver River basin.

Cynics asked just how comprehensive, coordinated basin planning was superior to uncomprehensive, uncoordinated planning. Was it merely semantics? Primarily, it was a matter of establishing priorities. Suppose on a single stream, a community located near its mouth wanted the Engineers to build a flood control dam, while farmers at the head of the stream wanted the Soil Conservation Service to build a series of small dams for water supply, and a group of canoeists wanted the stream preserved by the National Park Service as a wild and scenic river. The job of the river basin planners was to determine if the stream could serve all three purposes, and if not what purposes it could best serve. To do that, the planners had to assemble complete data on the stream, consider possible developments on adjacent streams, determine how the stream could fit into plans for the entire river basin, and coordinate planning with national policies set by the Water Resources Council and Congress. "Difficulties are great," said one river historian, "in engineering, in organization, in finance, in the plain selfishness and obstinacy of the human animal, but overall, river basin development is one of the most hopeful changes taking place in present-day America."

Sociologist Carl F. Kraenzel of the University of Texas thought river basin planning had wide social significance. He wrote:

Above all, then, it would appear that river basin development in the United States is symbolic of greater social justice,



greater opportunity for individual self-development and realization, both economically and socially, everywhere in the nation, but particularly in the disadvantaged areas. Viewed somewhat differently, river basin development is aimed at curbing the exploitation of one area by another and at introducing a greater measure of economic and social, as well as political, democracy than now prevails.

Unfinished Business “Let us cross over the river and rest under the shade of the trees,” were the last words of Confederate General “Stonewall” Jackson, who died at Chancellorsville in 1863. Perhaps he thought at that moment of the West Fork of the Monongahela, for he had played on that river as a child. He was a relative of General John G. Jackson, who had built a short-lived slackwater navigation project on the West Fork, the first slackwater project in the Ohio River basin, during the early 19th century. The Pittsburgh Engineer District had a multipurpose project named for “Stonewall” Jackson ready for construction in 1977 on the West Fork of the Monongahela.

After Congress first approved a dam for flood control on the West Fork in 1936, District Engineer W. E. R. Covell had called on Governor H. G. Kump of West Virginia to discuss the project. The Governor said he had heard opposition to the project from farmers who did not want to lose their lands merely to protect Clarksburg, Pittsburgh, and Wheeling from floods, but said he might support the project if a summer pool for recreation and low flow improvement were added. Colonel Covell had projects in Pennsylvania that had full public and state support,

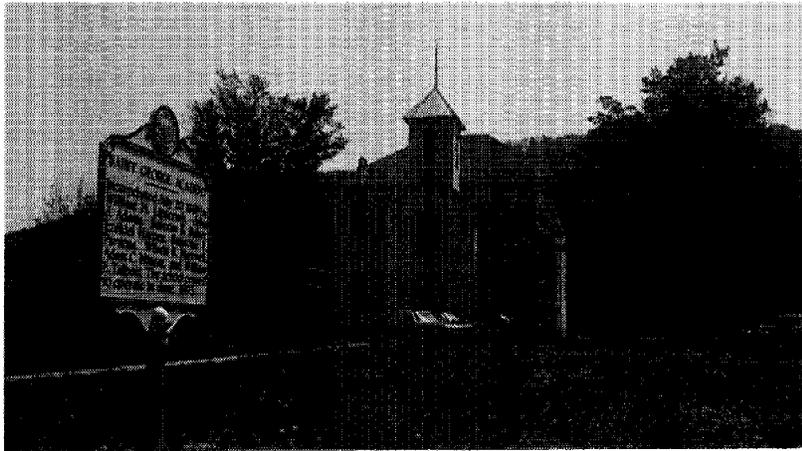
so he put the dam on the West Fork at the bottom of his list of priorities.

Scotland G. Highland and the Clarksburg Water Board launched a publicity campaign in 1939 for construction of the West Fork dam. They reminded people of the terrific flood damages the West Fork valley had suffered, especially in 1888 when most bridges and mills along the stream had been destroyed. They pointed out that during droughts Clarksburg had to import water in railroad tank cars, and they argued that water supply furnished by the proposed dam could be the key to area industrial and economic growth.

Pittsburgh District Engineer D. Lee Hooper held a public meeting at Clarksburg in 1941 and learned that the people of Clarksburg wanted the project but the farmers who would be relocated from the reservoir area were opposed. The conflict in Harrison and Lewis counties, between businessmen who wanted the project and farmers who opposed, persisted.

The Pittsburgh District surveyed seventeen separate sites for a dam on the West Fork and considered alternative development proposals for years, finally settling upon a site above Weston for the multipurpose Stonewall Jackson project. The plans required cost sharing with local and state government for water supply and recreation features. Weston and Clarksburg agreed to participate on a cost-sharing basis to obtain improved water supply, but cost-sharing for recreation proved an obstacle.

Federal policy demanded specific and continuing commitment for funding of recreational features from the state, but the West Virginia constitution prohibited one legislature from obligating future legislatures for debts. Senator Jennings Randolph, an ardent proponent of the Stonewall Jackson project, arranged amendment of federal policy to permit participation by West Virginia in recreational cost-sharing, and in 1975 Governor Arch A. Moore indicated he was ready to sign the cost-sharing agreement. The project was then held up by court action.



Historic St. George Academy in the proposed lake area - a focal point of the opposition to Rowlesburg Dam

The Upper West Fork Watershed Association filed suit in Federal Court in July 1974, alleging that the project's Environmental Impact Statement was inadequate. The Association urged the substitution of small watershed dams for the multipurpose project.

Judge Robert E. Maxwell of the Northern District of West Virginia made his decision on May 3, 1976. "The Court is satisfied that the EIS is adequate and meets the full disclosure standards and requirements of the National Environmental Policy Act," he concluded. "If the decision to construct the Stonewall Jackson Dam is reversed or modified," he commented, "this must be solely by action in the Congress." The Watershed Association appealed to the Fourth Circuit Court of Appeals, which, a year later affirmed the District Court's decision. In August 1977, the U. S. Supreme Court was petitioned to review the case. In January 1978, that highest court announced its denial of the petition.

The Pittsburgh District also had a second multipurpose project in West Virginia that was awaiting construction in 1977. Senator Jennings Randolph in 1936 obtained the original authority for a study of a dam on Cheat River at Rowlesburg to form a lake extending through Preston and Tucker counties to Parsons. No major opposition to the project was expressed during the early studies, and project proponents asked that the project have hydroelectric power production capabilities. Preliminary plans the Pittsburgh District completed in 1944 called for a multipurpose project at Rowlesburg, for flood control, water quality, and

power production. Public interest in the project languished until damaging floods occurred in the Cheat River valley in 1960, 1963, and 1964 and Congress authorized the project in 1965.

The Rowlesburg Dam Association, composed of representatives of local governments and business interests, organized in 1967 to lobby for the project. They presented their case to members and committees of Congress at every opportunity and in 1970 won an appropriation to begin land acquisition preliminary to construction.

At a public hearing at Parsons on February 27, 1971, Colonel Edward West and Senator Jennings Randolph heard the first significant opposition to Rowlesburg Dam. It came from the Cheat Valley Conservancy, which had the support of the Sierra Club, the Izaak Walton League, the Wilderness Society, and other environmental groups. They argued the Rowlesburg project would take too much land from Tucker County, that project benefits were overstated, that the Environmental Impact Statement was inadequate, and that it would ruin the wild and scenic Cheat River valley.

West Virginia Governor Arch Moore thereupon asked for a reevaluation of the Rowlesburg project. Since a university professor, who spoke for the opposition, had asked selection of members of the academic community to undertake an independent review of the plans for Rowlesburg Dam, the Pittsburgh District contracted with a firm composed of members of the faculty of the University of Massachusetts at Amherst to prepare a new Environmental Impact Statement.

THE
PITTSBURGH GAZETTE
SATURDAY, OCTOBER 26, 1793

Ohio Packet Boats

TWO BOATS for the present will let out from *Pittsburgh* for *Cincinnati*, and return to *Pittsburgh* in the following manner. viz.

First Boat will leave *Pittsburgh* on Monday next, the 21st instant, at eight o'clock in the morning, and return to *Pittsburgh* so as to be ready to fail again in four weeks from the above date.

Second Boat will leave *Pittsburgh* on Monday the 5th of November next, and return to *Pittsburgh* in four weeks as above.

And so on regularly, each Boat performing the voyage to and from *Pittsburgh* to *Cincinnati* once in every four weeks.

Two Boats, in addition to the above will shortly be completed and regulated in such manner, that one Boat of the four will let out weekly from *Pittsburgh* to *Cincinnati*, and return in like manner.

The Proprietor of these Boats having maturely considered the many inconveniences and dangers incident to the common method hitherto adopted of navigating the Ohio, and being in-

fluenced by a love of philanthropy and desire of being serviceable to the public, has taken great pains to render the accommodations on board the Boats as agreeable and convenient as they could possibly be made.

No danger need be apprehended from the enemy, as every person on board will be under cover, made proof against rifle or musket balls, and convenient port holes for firing out of. — Each of the Boats are armed with six pieces carrying a pound ball; also a number of good muskets, and amply supplied with necessary ammunition, strongly manned with choice hands, and the masters of approved knowledge.

A separate cabin from that designed for the men, is partitioned off in each Boat for accommodating Ladies on their passage. Conveniences are constructed of board each boat so as to render landing unnecessary, as it might at times, be attended with danger.

Rules and Regulations for maintaining order on board, and for the good management of the Boats, and Tables

accurately calculated of the rates of Freightage for passengers, and carriage of Letters to and from *Pittsburgh* to *Cincinnati*, also a Table of the exact time of the arrival and departure to and from the different places on the Ohio, between *Pittsburgh* and *Cincinnati*, may be seen on board each Boat. Passengers will be supplied with provision and liquors of all kinds, of the first quality, at the most reasonable rates possible. Persons desirous of working their passage will be admitted on finding themselves subject, however, to the same order and directions from the master of the Boats, as the rest of the working hands of the Boat's crew.

An OFFICE OF INSURANCE will be kept in *Pittsburgh*, *Limestone*, and *Cincinnati*, where persons desirous of having their property insured may apply. The rates of insurance will be moderate.

For Freight or passage apply at the Insurance Office, or to the Master on Board.

JACOB MYERS.

Pittsburgh, October 14, 1793.

Ohio River Division Engineer William L. Starnes told the Senate Committee on Appropriations that the Pittsburgh District would continue its study of Rowlesburg Dam and alternative plans. "This is an extremely important reservoir so far as flooding is concerned in the Pittsburgh area and on down the Ohio," the General said. "And, of course, that's also the problem with the project. In other words, the people who have to give up their land don't live in Pittsburgh or downstream on the Ohio. They live in Rowlesburg, and so it's a little difficult for them to see the particular logic."

In October 1977, District Engineer Max R. Janairo, Jr., submitted a summary of the District's re-evaluation studies to Moore's successor, Governor John D. Rockefeller, IV. By letter of November 9, 1977, Governor Rockefeller replied: "Having weighed carefully the benefits and drawbacks associated with this proposal, I have concluded that the costs in all aspects outweigh the benefits that could come from the Rowlesburg Project. I respectfully request that all planning on the Rowlesburg Project be terminated, and that it be placed on 'inactive status.'" After interchange of the appropriate in-house correspondence, Colonel Janairo was in a position to notify the Governor on January 25, 1978, that

Rowlesburg Lake, Cheat River, West Virginia, "has been reclassified from the active to the inactive category by the Chief of Engineers, Washington, D.C. on 9 January 1978." So Rowlesburg Lake was put on the shelf with Redbank Creek Reservoir in Pennsylvania, and Eagle Creek Reservoir in Ohio.

The Multipurpose Missions At the request of General Anthony Wayne and Secretary of War Henry Knox, General Rufus Putnam, the second Chief Engineer of the American Army and the founder of Marietta, Ohio, had contracted with Jacob Myers to deliver the mails swiftly and safely by river. After General Wayne had moved the American Army from Pittsburgh and Legionville to Cincinnati in 1792, to launch the Fallen Timbers campaign against the hostile Indians of the Northwest Territory, communications between the expeditionary force and headquarters had been broken on several occasions. Messengers following overland trails were waylaid, vital correspondence delayed, and the situation was intolerable, for then there were no other means of communication.

With temporary authority from the Postmaster General, Rufus Putnam arranged with Jacob Myers to move the mails in armed boats up and down the



Pittsburgh Bulk Mail Center

Ohio River in relays, with stops at some intermediate ports. Myers built small keelboats, about 24 feet long, with sides boarded up to protect heavily armed crews. Each packet would have a steersman and four sturdy oarsmen who would keep the boats moving fast at all times. His precautions paid off. Indians attacked the mailboats when they neared shore in 1794 and 1795, killing and wounding some of the crews, but the remaining crewmen were able to row to safety and deliver the mail on schedule.

Though an Army Engineer had organized the first regular mail service west of Pittsburgh in support of the operations of the frontier army, the Engineers were not again involved with the mail service in the Pittsburgh area until 1971, when the Pittsburgh Engineer District took on the job of building new facilities for the U. S. Postal Service. While awaiting the decisions of courts and the Congress on the Stonewall Jackson, Rowlesburg, and Muddy Creek projects, the Pittsburgh District undertook other work assigned it to take advantage of its engineering-construction expertise. Those jobs included work for the Postal Service, for the Bureau of Mines, and for the Nashville and the New Orleans Engineer Districts.

On September 26, 1970, the Postmaster General asked the Corps of Engineers to serve in a role similar to that of a general contractor for rapid construction of new mechanized postal facilities. Congress had reorganized the Post Office Department as the United States Postal Service, a public corporation expected eventually to operate on self-produced revenues. For the post office work, the Engineers would report not to Congress but to Postal Service authorities. The Chief of Engineers established the Corps of Engineers Postal Construction Support Office (CEPCSO) to coordinate the work at the national level.

Jacque S. Minnotte and a small staff in the Pittsburgh District familiarized themselves quickly with the unusual procedures and requirements of

the post office mission. They worked out design details and began contract negotiations, letting contracts for the \$7 million job at Akron, Ohio, in early 1972. By 1973, they had the Akron postal facility ready for use. It consisted of a main parcel distribution center and vehicle maintenance building, for service of postal service trucks, built in a new industrial park near Akron.

In August 1972, construction began at the \$38 million Pittsburgh Bulk Mail Center, located at Warrendale several miles north of the Golden Triangle. One of 21 similar centers built for the postal service across the nation, the Bulk Mail Center was built to permit mechanized handling of parcels for a four state area, and would handle the third largest volume of bulk mail in the nation.

Resident engineer Albert L. Zupon directed construction of the Center in three phases. About 600,000 cubic yards of material was first excavated to provide a level building site. Placement of the foundations and outer shell and installation of utility service lines began in April 1973. In the final phase, the roof was erected, the heating, cooling, fire alarm, and public address systems were installed, and \$9 million worth of bulk mail handling machinery was assembled and installed. Through aggressive construction management, the District completed the Pittsburgh Center on August 14, 1975, closer to schedule than any similar project in the country.

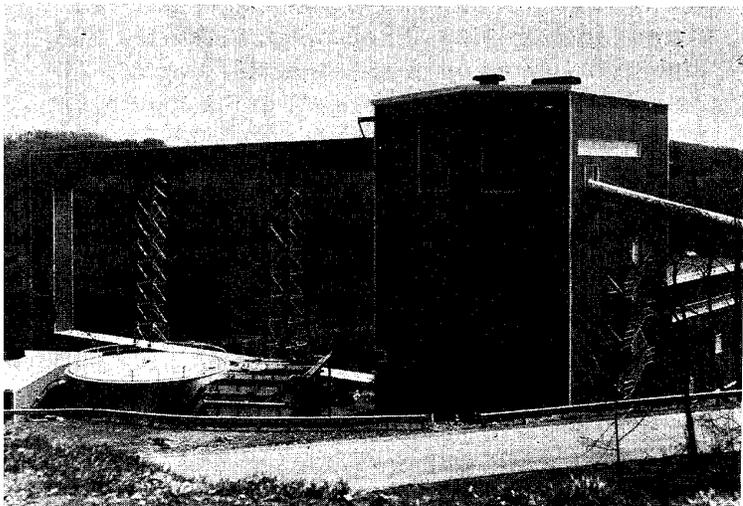
During the bicentennial year, 1976, the Pittsburgh District accepted two rather unusual engineering-construction jobs, one at Bruceton in Allegheny County and the other in Harlan County, Kentucky, on the headwaters of the Cumberland River.

"It will be the only one of its kind in the United States," said Major Mike Patten, resident engineer for the work at Bruceton. "When completed it will provide for the first time a complete testing area above ground for deep coal mining equipment and test new concepts in coal movement."

The U. S. Bureau of Mines assigned the \$10.3 million Bruceton project to the Pittsburgh District, which was to supervise the work of the contractor, Dick Corporation, and subcontractors beginning in the spring of 1977. Building the Mine Surface Test Facility and the Hydraulic Transport Research Facility would require construction of five buildings, access roads, utility lines, a power substation, and special equipment for testing purposes. The Bureau of Mines would use the facility to test support systems for the roofs of deep coal mines and to test the hydraulic transportation of bulk coal through pipes.

The Nashville Engineer District transferred the Martins Fork Dam and Lake project, located in rugged Harlan County, Kentucky, where Martins, Poor, and Clover Forks join to form the Cumberland River, to the Pittsburgh District for construction. Transfer of work between Engineer Districts to equalize workloads was a common practice, and at the time of the transfer the Nashville District was undertaking the massive Tennessee-Tombigbee Waterway project, linking the Tennessee River with the Tombigbee River and the port of Mobile on the Gulf.

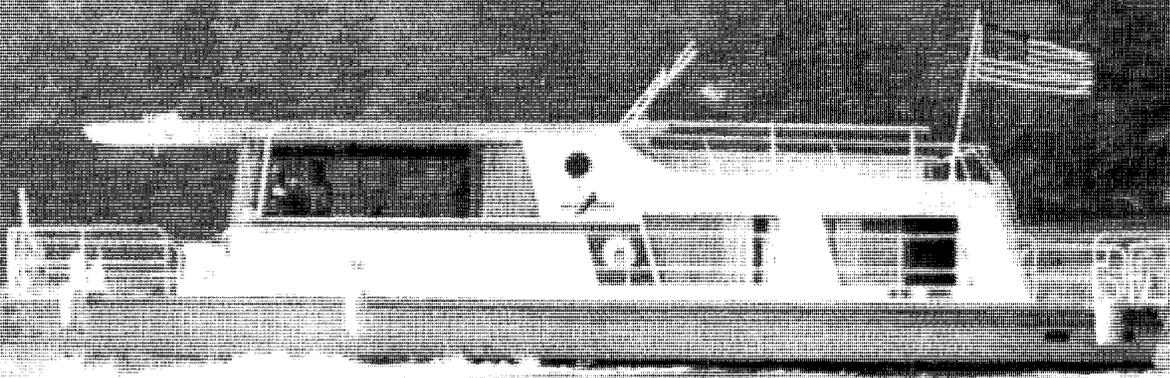
Hydraulic Research Transport Facility



Jacque S. Minnotte

The Pittsburgh District dispatched resident engineer Jerry McDaniels and a small group of employees to Harlan to direct the Lane Construction Company, contractor for the 97-foot high, 504-foot long concrete dam that was to form a lake on Martins Fork. The project was unusual in that it was one of the few water resource projects that grew out of the plans for redevelopment of the Appalachian region, but the actual work did not differ much from that at the dams previously built in the Pittsburgh District. The men and women sent there from Pittsburgh no doubt felt quite at home, for Harlan County is rugged coal mining country very much resembling parts of the Pittsburgh Engineer District.

A Glance at the Future The Army Corps of Engineers is a year older than the nation. Founded on June 16, 1775, when Richard Gridley was appointed Chief Engineer to the Continental Army, the Corps celebrated its bicentennial in 1975. During that celebration, Pittsburgh District Engineer Max R. Janairo reviewed the Royal Americans, Thomas Hutchins' old regiment, performing at Point State Park, and christened the new District survey boat the *W. E. Merrill*, in honor of the officer



The W. E. Merrill

who had planned the first Engineer locks and dams on the three rivers which meet at Pittsburgh.

"The Corps of Engineers takes great pride in its heritage and close ties which are anchored to the very foundations upon which this nation was established," Colonel Janairo said to a crowd assembled for the bicentennial festivities. He explained how Army Engineers had served in the vanguard of every American army in every war since the founding of the Republic. He described the historic role of the Engineers in the improvement of the nation's waterways and the development of its water resources. He pointed out that the Corps was a multiple service organization, which had explored and mapped the American West, planned and built some of the first roads, railroads, and canals, and built all sorts of facilities, ranging from airfields, hospitals, and post offices to radar systems, national monuments, and space-rocket launchers. "Our District covers 26,000 square miles in parts of five states," he said, "and I am not going to detain you by elaborating on all of our achievements because that would take a very long time." Indeed, he was right.

General John W. Morris, who in 1976 became one of the long line of colorful men who have served as Chief of Engineers, thought the Corps in 1976 was on the threshold of a new era. Looking back at the previous decade, he noted that two laws enacted by Congress in 1965 had been a sort of turning point. Over the years, Congress had passed a series of laws identifying individual purposes for water resource projects, beginning with navigation, continuing with flood control, hydroelectric power, fish and wildlife conservation, water supply storage, and water quality, and finally ending in 1965 with recreation on a cost-sharing basis. The Water Resources Planning Act of 1965 directed the blending of individual project purposes for optimum

resource development. "So we ceased," said General Morris, "looking at the pieces that made up the whole of water resource development and began considering water resources as a part of another bigger unit - our total natural resources."

"If I were to look into the future," he continued, "I'd say navigation may become the leader among program elements. I would hope we can develop a full national water transportation system. Flood control and power will grow, particularly when non-structural solution flood control is included. Water supply for people and industry will remain steady. Recreation facilities will slowly but surely deteriorate under present cost-sharing arrangements and newly applied constraints on federal investments. I would also say the specter of a water crisis remains over us. Therefore, use and full conservation of water is a number one water program objective."

Jacque S. Minnotte, successor to John Arras, Charles Wellons, and James Neill as senior engineer in the Pittsburgh District, shared General Morris's quiet optimism. After forty years of service under eighteen different District Engineers, Minnotte had seen rough waters on all the rivers in the headwaters district, and he viewed the troubles of the present and the challenges of the future with considerable equanimity.

"Within the Corps the Pittsburgh District has long enjoyed an enviable reputation for its high level of competence, and it has demonstrated on many occasions its ability to react to emergencies and to be responsive to changing public needs," Minnotte said. "I am confident that the Corps and the District will continue to be called upon to apply its many skills in the nation's efforts to solve some of its water resource and other problems."