Chapter 17

LAKE PERFIDY AND AGNES

After gobbling their breakfasts quickly, the employees of the Pittsburgh District, carrying their coffee cups, rushed to television sets to watch the NBC TODAY show. District Engineer Bert deMelker had visited Washington a few days earlier to discuss the Kinzua controversy with the TODAY show staff, and, on February 21, 1963, emcee Hugh Downs was to explain what he had learned on the network.

The people of Pittsburgh District eagerly waited until Frank Blair finished the newscast and the camera switched to Hugh Downs. Downs sat at his desk with a map of Kinzua Dam and Allegheny Reservoir tacked on the wall behind him. He began:

That brings us to the place that I've waited for for quite a while. We have, as you know if you follow the show, had much on this program about the controversy between the Seneca Indians and the Government, mostly the Army Corps of Engineers, in connection with a dam that is to be built, which is being built, on the upper Allegheny River near Kinzua, Pennsylvania. It's for flood control. It will cause water to back up to Salamanca, New York.

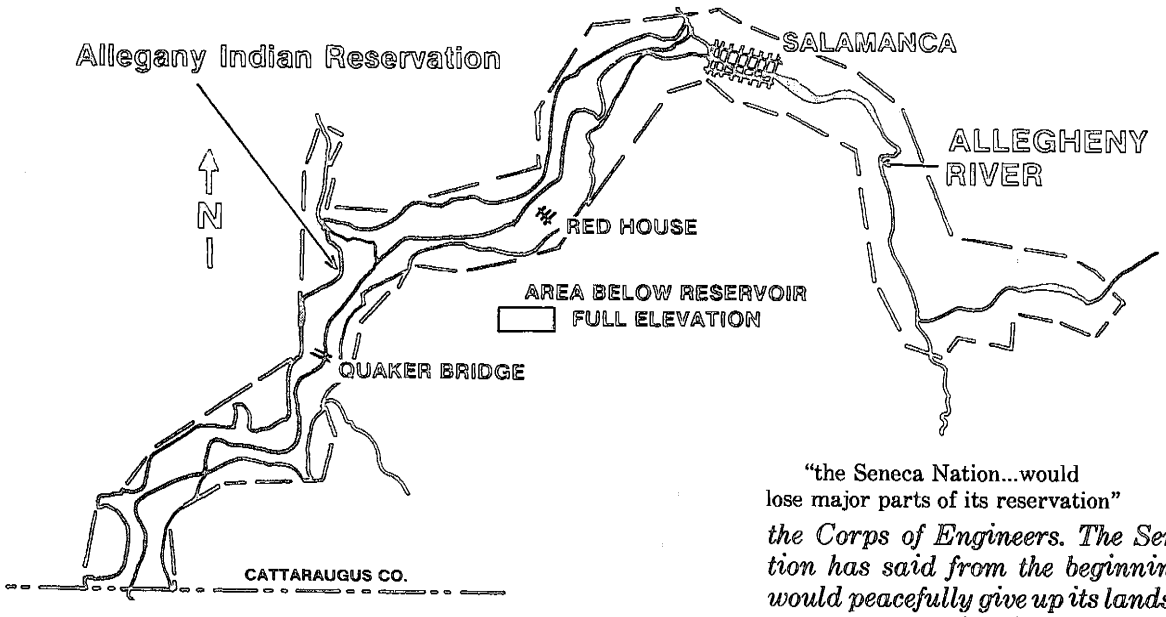
I want to explain the nature of the controversy first, the background, and then tell you what we found when we looked into it. We did look into it for quite a while, seemingly one-sided because we were able. We told the Indian story. We talked to representatives of the Indians and had Dr. Morgan on the program who had been retained by the Indians to investigate alternatives to this proposal.

In a trip to Washington, the Engineers explained that they did not want to bring a representative on the program but did want to give a thorough access to the facts and we could judge from the facts that they provided. So, that's what was done.

Hugh Downs explains

But first, as background, just to explain so we'll know what we're talking about when we mention the Kinzua Dam controversy, we find from these maps, I think you can see, this is a line between Pennsylvania and New York states. Kinzua is here. The dam will be constructed about here, and when the gate is closed a reservoir will be formed backing up along this river to Salamanca, New York. Now, the dark place outlined here is the Indian Reservation. This is the home of the last surviving Seneca Indians and this land was given to them in a treaty, the first treaty the United States made as a nation. I can give you a glimpse of the treaty. You can't read it from this, but it was signed by General Washington.

The reason the Society of Friends are involved in this present dispute is because the Senecas would not sign in 1794 unless the Quakers, who are the Friends, guaranteed the United States Government's word. So, today the Friends still feel committed to do what can be done for the Indians in this controversy. Now, the Quakers, the Indians, Dr. Morgan, everyone, has made clear that they are not going to stand in the way of something that would represent a clear and present danger to an awful lot of people in an area that could be flooded and has been flooded disastrously in 1936; that, if it were absolutely necessary the Indians would yield the land gracefully. The big bone of contention was whether or not this



"the Seneca Nation...would lose major parts of its reservation"

particular project was necessary to provide the people with adequate flood control.

Mr. Downs explained that the Seneca Nation, which would lose major parts of its reservation if the Kinzua project were constructed, had employed Dr. Arthur E. Morgan to devise suitable alternatives to the Kinzua project. The Corps of Engineers and an independent consulting engineer firm had reviewed five of the alternative plans suggested by Dr. Morgan and had reported them feasible but costly. Dr. Morgan then submitted a sixth alternative, involving diversion of flood water from the upper Allegheny basin through the Conewango and Cattaraugus Creek valleys to Lake Erie, and the Engineers again reported the alternative was feasible but would cost millions more.

During his meeting with the Pittsburgh District Engineer in Washington, Hugh Downs said several of his questions had been answered. He asked if the Corps had ever reported unfavorably upon the Kinzua site for a flood control project. The answer was yes, but that had been before the 1936 flood and the 1936 Flood Control Act had changed federal policies. He asked if the Corps had told Congress that construction of the Kinzua project would require breaking the Treaty of 1794 with the Seneca tribe, and the answer was yes, for Congress had been informed in the very earliest project reports, printed as congressional documents. He asked if President John F. Kennedy had been fully informed about the situation, and the answer was yes and the President believed the Kinzua project was necessary.

Now, where can the blame be placed if a wrong is being done to the Indians? I now believe it's not proper to load the blame on the Corps of Engineers. The Seneca Nation has said from the beginning that it would peacefully give up its lands and dissolve the treaty if it is really necessary for the safety of a great number of people.

What is truly necessary? The Corps of Engineers says that Dr. Morgan's plans are feasible but that the best of them would cost $91 million more. Dr. Morgan says it would cost millions of dollars less and I cannot settle an engineering dispute. The TODAY show is not an arbiter of engineering disputes.

But, let's assume the Corps of Engineers is right and Dr. Morgan is wrong. The feasible alternative would cost each American 51¢ more. In other words, the Treaty of 1794 could be saved and the homes of a small handful of Seneca Indians for about half a dollar apiece. But, since it seems unlikely that a majority of congressional leaders would ask this of their constituents, and also it is tragically unlikely that a majority of voters would vote them back into office if they did, we have to conclude that the national honor rests, as it always has, with the people and that it isn't regarded so highly now as it has been in the past, and should be.

Well, that is the end of that. We'll follow with interest what happens to the Indians. But, the Kinzua Dam will be built. Ten minutes before the hour, and a commercial announcement....

The people of the Pittsburgh Engineer District were pleased to hear Hugh Downs present their side of the controversy, for they had received a generous share of lumps because of those troubles. The Senecas and their friends had tagged Allegheny Reservoir, the lake to be formed by Kinzua Dam, "Lake Perfidy" because its construction required abrogation of an honorable treaty made in 1794. On

their radios, the Engineers heard singers moaning about the Kinzua project in a ditty entitled "Cornplanter Can You Swim," because the grave of the famed chieftain was located in the area that would be covered by the lake. Perhaps most irritating to the Engineers was the unmitigated corn of the Hollywood Indian stereotyped language used to dramatize the plight of the Senecas. It was said that General Washington, who never spoke with "forked tongue," had guaranteed in 1794 that the Senecas would possess their lands "as long as the sun shines and the rivers run," and that Kinzua Dam was needed only to "flush white men's toilets in Pittsburgh." Those words grated, because the Engineers knew the Senecas were an advanced and literate people.

After months and years of listening to friends of the Senecas and to Dr. Morgan attacking the plans and motives of the Engineers on the TODAY show and in other media, the people of the Pittsburgh District were gratified that at last their side of the controversy had been presented. They were also pleased by a letter from Hugh Downs, in which he said he was convinced the Corps of Engineers was innocent in the treaty-breaking matter and that he was "impressed with the individual consciences of many of the men in the Corps concerning the Indians."

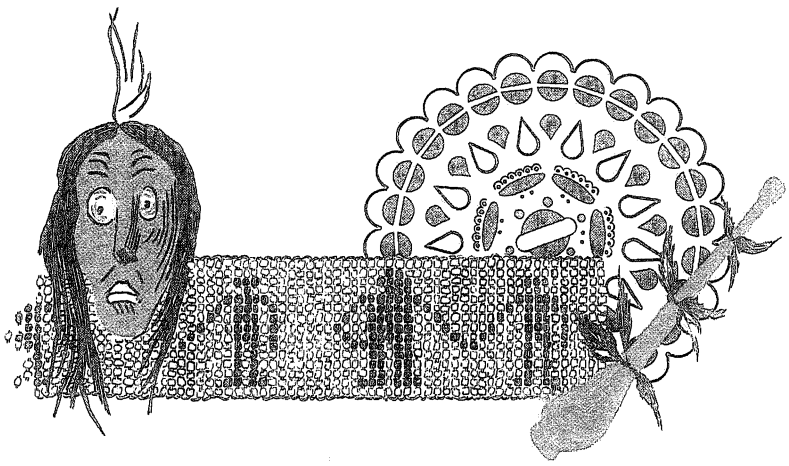
Planning for Kinzua The Pittsburgh District first studied a multipurpose dam and reservoir on the upper Allegheny River in 1928. Congress approved the Kinzua Dam, nine miles upstream of Warren, in 1936, with project modifications in 1938 and 1941.

Early opposition came chiefly from rivermen, such as Captain Fred Way of Sewickley and Harold C. Putnam of Warren, who did not want navigation to Olean blocked by a flood control dam. "What is proposed for the river above Warren is," said Harold Putnam, "to my way of thinking, a very poor substitute for the navigation dams we are entitled to." Putnam and his friends argued that flood control dams should be built only on tributaries of the Allegheny, or navigation locks should be placed in Kinzua Dam, but the Engineers could not conceive

Cornplanter monument - on the Cornplanter Grant, Pennsylvania

that commercial navigation to Olean would ever resume.

In their early reports, the Engineers warned Congress that construction of the Kinzua project would be contingent upon arrangements with the Seneca Nation, which had rights in the project area guaranteed by treaty. In testimony before the House Committee on Flood Control in March 1940, District Engineer W. E. R. Covell explained the Cornplanter reservation in Pennsylvania was held by Senecas under a state grant and could be acquired through exercise of eminent domain, but the Allegany reservation was a Federal grant. "In the Allegany Reservation it is what might be termed a Federal Indian Reservation, and it is quite complicated," Colonel Covell told the Committee. "The legal section of the Office of the Chief of Engineers is now studying as to whether it would be necessary to get an act of Congress to clarify the matter. My own personal opinion is that it probably would because they have a treaty. The Indians have the right of possession forever, and they cannot alienate that without the approval of the Federal Government."



Pennsylvania in 1791 granted Chief Cornplanter about 860 acres on the Allegheny River in Warren County, which passed on to descendants at the death of the chief in 1836. The Cornplanter reservation was still held by descendants of the chief at the time Kinzua Dam was planned. In the Pickering Treaty of November 11, 1794, the Federal Government had granted the Senecas reservations in western New York, one of which, the Allegany reservation, included 30,189 acres bordering the river in Cattaraugus County. In the 1794 treaty, the government declared it would never claim the Seneca lands, "but it shall remain theirs, until they choose to sell the same to the people of the United States, who have the right to purchase."

With help from the Society of Friends, the Senecas became farmers, laborers, and businessmen and established their own republican government in 1848, complete with elected president, legislative council, and judiciary. They leased lands of their reservations for railroads, highways, utility lines, and towns occupied mostly by whites. Except for stands marketing Indian crafts, the Seneca reservations by 1950 did not differ much from rural white areas, but the Senecas had preserved their heritage and the unique Handsome Lake religion and still collected small sums and "treaty cloth" from the Federal Government.

Indian legal status in the United States had also changed since 1794. Congress ceased making treaties with Indian tribes as separate sovereignties in 1871, and in 1924 declared all Indians born in the United States to be full citizens. Many Senecas had accepted full citizenship long before 1924 and had served their country well. Seneca sachem Ely Parker had served as Army Engineer officer, aide to General U. S. Grant, and Union Army general during the Civil War. Parker had written out the terms of surrender accepted by General Robert E. Lee at Appomattox in 1865. The Bureau of Indian Affairs classed the Senecas in 1950 as among the most advanced tribes in America, recommended an end to Federal supervision of tribal affairs, and closed its Salamanca office.

"Whites build up a fortune to find contentment or peace of mind. The Indian doesn't bother building a fortune; his contentment is right here and now," said George Heron, president of the Seneca Nation of Indians, explaining the Seneca life style in 1962. "Those who like a fast buck--no pun intended--are likely to become steelworkers. A lot of them work on the railroads; some stay here and farm, or just hunt and fish or pick up odd jobs. About twenty of them do a lot of drinking, and the people in Salamanca think that's what all of us do."

When the Pittsburgh Engineer District began negotiations with the Senecas in 1940, it quickly learned there was no hope of amicable settlement. In fact, negotiations went so badly that District Engineer Herbert D. Vogel was quite surprised in 1941 when he received a Christmas card from a member of the tribe. On the card, the Seneca explained that his mother had directed him to send it, and he wished Vogel all the blessings of the season to which "he might be rightfully entitled."

After Pearl Harbor, Colonel Vogel dropped preliminary work on the Kinzua project because the men were needed for the military construction mission. In postwar years, the District was busy with the East Branch of the Clarion and Conemaugh dams and did not concentrate attention to the Kinzua project until Hurricane HAZEL turned inland.

In October 1954, Hurricane HAZEL sent rains inland over the Pittsburgh District, causing a flood that, without the reductions made by the ten reservoirs then in operation, would have been the second greatest of record. The reservoirs lopped 8.7 feet off the 1954 flood crest at Pittsburgh and 9 feet off the crest at Wheeling, but heavy damages still occurred. The reservoirs in service in 1954 controlled about 23% of the watersheds above Pittsburgh, and water from the uncontrolled watershed areas

Indian home - Allegany Reservation

Mission house on Cornplanter Grant

crested at 32.4 feet on the Point gage, 7.4 feet above the 25-foot flood stage.

Leaders of Pittsburgh and other flooded communities began an intensive campaign in 1955 for construction of Kinzua. Further support developed in the aftermath of the March 8, 1956, flood, greatest of record at the proposed site of Kinzua Dam, which inflicted about $2 million damages on the Warren, Pennsylvania, area. President Dwight D. Eisenhower approved funding for Kinzua Dam in 1956, and Lawrence "Al" Layton and the Pittsburgh District Legal Branch started condemnation proceedings to obtain the parts of the Seneca reservations needed for the reservoir.

Most of the Cornplanter reservation was needed, and of the 30,189 acres in the Allegany reservation, 3,520 acres were to be purchased outright for inundation and easement acquired on another 5,557 acres that would be inundated to various extents when floods filled the reservoir. The Senecas could still use the acreage subject to only periodic flooding for hunting, fishing, and limited farming, but could not live upon it. Of the 177 homes on lands needed, 13 were empty and 26 were occupied by non-Indians. Relocation of from 200 to 300 Senecas would be necessary.

The U. S. District Court for Western New York decided on January 11, 1957, that Congress had been fully informed about Seneca treaty rights when it approved the Kinzua project and that it intended to take lands for the project regardless of the provisions of the 1794 treaty. That decision was not without precedent. The Seneca Nation appealed through a series of courts seeking injunction against the Kinzua project all the way to the Supreme Court, which, on June 15, 1959, denied the injunction.

While the court hearings were in progress, a wave of intense public sympathy for the Senecas rippled through the news media, but people at Pittsburgh and communities downstream of the dam site fumed at the delays. Editors of the *Pittsburgh Press* said the Senecas deserved no more consideration than the 2,500 whites, ten times the number of Senecas to be relocated by Kinzua, who had been forced to move to make way for the Conemaugh project. The editors had no sympathy for the view that "Indians were so poorly treated by white men that we shouldn't take their lands now--even to save ourselves from flood disaster--as if tender solicitude now could wipe out the ancient injustices." Editors of the *Pittsburgh Post-Gazette* declared: "This project has waited long enough. Flood waters are not nearly so patient."

At the May 1957 hearings before the House Public Works Committee, Sherman P. Voorhees of the Pittsburgh Chamber of Commerce said the fact that more than a hundred people had lost their lives to Allegheny River floods since 1937 proved the need for the Kinzua project. John T. Mansmann of East Liberty argued that the Senecas were Americans and that no Americans should be permitted to obstruct the building of Kinzua Dam. "Those of us who went through the flood of 1936," said Robert T. Griebling of Tarentum, "will never rest easy until *all* precautions have been taken."

The Seneca Nation employed Dr. Arthur E. Morgan and Barton M. Jones, eminent engineers who had designed the Miami River flood control project in southwestern Ohio and who had been principal organizers of the Tennessee Valley Authority in 1933, to study alternatives to the Kinzua project. Morgan and Jones devised a plan to achieve flood control by diverting floods from the upper Allegheny basin through a canal into the Conewango basin, where the water would be stored in a reservoir for subsequent diversion into Lake Erie or for release into the Allegheny during droughts. The plan was not entirely new. The Pittsburgh Flood Commission had studied a reservoir on Conewango Creek in 1911, the Pittsburgh Engineer District had looked into the matter in 1928, and Nelson M. Fuller

of Olean in 1945 had proposed such a reservoir as part of a navigation canal between the Allegheny and Lake Erie.

Cornelius V. Seneca, president of the Seneca Nation, told the House Committee on Appropriations on May 10, 1957, that he could not see why Kinzua Dam should be built and the Seneca lands taken if Dr. Morgan's plans might be equally as effective. In view of that statement and public interest in Dr. Morgan's proposed alternatives, the Army Engineers contracted with Tippetts-Abbett-McCarthy-Stratton (TAMS), a well established firm of consulting engineers of New York City, to make an independent review of the storage potential and economics of a project in the Conewango basin. The Seneca Nation and its consultants concurred in the selection of that firm for the review.

TAMS studied five alternative plans. Three were versions of Dr. Morgan's proposal, involving construction of a diversion dam on the Allegheny River, a diversion channel through the divide between the Allegheny and Conewango basins, a dam on Conewango Creek near Waterboro to create a storage reservoir, and a control structure and outlet channel to convey flows exceeding reservoir capacity into Lake Erie. Two other plans called for a bigger dam on Conewango Creek to eliminate diversion into Lake Erie. In April 1958, TAMS reported that all five plans were feasible as engineering projects, but any of the five would cost at least 25% more than the Kinzua project, would require taking at least 51% more land, and would require the relocation of at least 150% more people.

Dr. Morgan responded with an attack upon the integrity of TAMS and its review report. He said that at the time the firm was selected he had not known that three members of the firm had been employed by the Corps of Engineers at various earlier times, nor that the firm frequently performed engineering studies under contract with the Engineers. He claimed the TAMS review had not considered all possibilities nor developed the best plan. Morgan suggested a sixth plan, somewhat similar to one of the plans studied by TAMS, but changing the outlet to Lake Erie from Silver Creek to the Cattaraugus Creek valley. He insisted the sixth plan could be built at less cost than the Kinzua project.

When Dr. Morgan said that lands in the Conewango basin were swampy and of such little value that "it would be a good fortune to the owners of land in this area to have it purchased as a reservoir," the Conewango Flood Control Association immediately protested, asserting the Conewango valley was valuable agricultural land; about a third highly productive bottomland with hills suitable for grazing. District Engineer W. W. Smith's studies showed that Dr. Morgan's sixth plan would affect about 32,000 acres in the Conewango basin, plus property in the Cattaraugus Creek valley, and would require relocation of 4,490 people, as compared with displacement of 1,780 people by the Kinzua project.

Dr. Morgan presented his sixth plan to Chief of Engineers Emerson C. Itschner in Washington in October 1958. After review of the plan, General Itschner concluded it had little more merit than the earlier proposals. "Dr. Morgan is a very fine and eminent engineer," the General told the House Committee on Public Works. "In making a study of the type he has attempted to make, he has not had the means of making an elaborate report such as we would make. I am sure he is very sincere in the report he has submitted."

Senator Wayne Morse of Oregon introduced Dr. Morgan's proposals into the *Congressional Record* in 1960. But Senator Joseph S. Clark of Pennsylvania, a proponent of Kinzua Dam, countered with a warning that Congress should not suffer the delusion that Dr. Morgan, a paid consulting engineer hired by the Senecas, was impartial. At a hearing before the Committee on Indian Affairs, while Dr. Morgan was present, Senator Clark went so far as to describe Dr. Morgan as an "irresponsible publicity seeker," whose plans were little more than a nuisance.

That attack upon his integrity deeply wounded Dr. Morgan, and, blaming it upon a Corps con-

spiracy to discredit him, he embarked upon a study that resulted in publication in 1971 of an interesting book entitled *Dams and Other Disasters: A Century of the Army Corps of Engineers in Civil Works.* In it, he wrote off the Army Engineers as a narrow-minded military bureaucracy, and concluded that all Corps officers since the founding of the Republic, with the possible exceptions of Generals Robert E. Lee, Lytle Brown, Harold C. Fiske, and Herbert D. Vogel, were incompetent at best and blundering idiots at worst.

The Seneca Relocations Halsey W. Harmon, Engineering Division project engineer for the Kinzua project, took the stand at the District Court at Erie, Judge Joseph P. Willson presiding, on March 24, 1964, to explain the steps taken to relocate the Cornplanter cemetery, containing the grave and monument of the great chief. Harmon had come to court in company with District Engineer Bert deMelker and District Counsel Al Layton. Merrill W. Bowen, president of the Cornplanter branch of the Senecas, had brought about thirty of his clan and three attorneys with him to present his side of the dispute over the cemetery relocation.

As early as 1956, Jim Neill and Al Layton of the Pittsburgh District had attended a reunion of the Cornplanter Indians to explain plans for removal of the cemetery to higher ground. Halsey Harmon told the court the District had considered ten sites for the relocation, eliminating some sites because they were inaccessible or the Cornplanters had not wanted them. George Heron had offered the Cornplanters space in the Seneca Nation cemetery, but the clan had not been interested.

Because the Riverview and Corydon cemeteries were to be located to a new site across the Allegheny from the Cornplanter reservation, the Engineers recommended in 1962 that the Cornplanter cemetery be moved to the same spot, contiguous to the white cemeteries but separated by an access road, a separation the Senecas wanted. George Plesko of the District Real Estate Division visited the descendants of the people interred in the Cornplanter cemetery and obtained the written consent necessary for relocation of the cemetery to the Riverview-Corydon site for about 95% of the graves. One of those who signed a consent form was Merrill W. Bowen, president of the Cornplanters.

Merrill Bowen admitted to Judge Willson that he had signed the consent form, but he and other clan members had not been entirely happy with the Riverview-Corydon site, preferring an entirely separate cemetery with space available for reunions and other communal functions. He had asked the Engineers to let the clan keep certain hilly parts of the reservation that would not be flooded for burial and communal purposes, and the Engineers had agreed but would not build an access road for entry to the site. In the autumn of 1963, Latham Weber, publisher of the Salamanca newspaper, had donated to the Cornplanters 65 acres of land located adjacent to the Allegheny Reservoir near State Line Run. Bowen accepted the offer and circulated a petition among the clan for relocating the cemetery to the Weber site.

When District Engineer Bert deMelker took the stand, he testified that the Engineers had bent regulations to allow the Cornplanters to keep parts of the reservation, but before the cemetery could be relocated to the site the Indians would have to organize a legal cemetery association to provide perpetual care and build an access road. He explained that without authorization from Congress the Engineers could not build a quarter million dollar road with the taxpayers' money to provide access to land worth much less. Since the Indians had not organized a cemetery association under law and had not the funds to build the access road, the District had proceeded with the Riverview-Corydon plans, obtained signed consent from Cornplanter descendants, and sent final plans to Washington.

In September 1963, when Colonel deMelker learned of the Weber gift of land to the Cornplanters, he immediately wrote Merrill Bowen to explain that site could not be used as a cemetery because it was to be acquired as a project

Colonel Bert de Melker

recreational area. Bowen had continued his plans, however, obtaining signatures on a petition of many of the tribe who, like himself, had earlier signed consent forms for removal of the cemetery to the Riverview-Corydon site. The Engineers thereupon went to the U.S. District Court at Erie for settlement of the dispute.

Both the Engineers and Bowen claimed they had the signatures of a majority of the Cornplanter clan. Judge Willson asked a vote in the courtroom, and of the thirty Indians present, 20 favored the Weber site and 10 the Riverview-Corydon site. Colonel deMelker contended that the Corps had been patient but time had run out. Kinzua Dam would be closed in October, begin storing water, and the cemetery had to be moved before it was flooded. The Indians could not afford an access road to the hilly parts of the reservation, the Weber site was reserved for recreation of the living, and the Indians had no definite plans for cemetery relocation and had not organized a legal cemetery association to provide perpetual care for the graves.

"I think we should mention," District Counsel Al Layton told the court, "that any of the next of kin of these deceased, who are not satisfied with the Government plan, have the right to have a relocation to another cemetery, and we will pay up to the amount we would have paid to relocate in accordance with the Government plan. Any next of kin who wants to take a body somewhere else can do so."

At the end of the day, Judge Willson summarized: "It seems to the court it is too late to do anything. In any event, now there is no formulated plan, it is just a nebulous hope of some kind, a great thought in the minds apparently of the descendants. They hate to see the land taken. That destroys their heritage in the communal land and so on in the reservation. I don't blame them; I sympathize with them, but the court can do nothing about it. That is in the hands of Congress." Judge Willson ordered that the Government plan for relocation to the Riverview-Corydon site proceed.

Relocation of the Cornplanter cemetery began on August 26, 1964. To prevent controversy over the handling of the remains of Chief Cornplanter, the District arranged for several descendants of the chief, a former president of the tribe, and an expert archaeologist to be present when the grave was moved. The archaeologist identified the body in the grave as that of an old man afflicted with rheumatism, a disease that Chief Cornplanter had suffered. In spite of precautions, a rumor of improper handling with disrespect of the body circulated afterwards, and so did a contradictory rumor that the body of the chief had been spirited away by descendants for secret interment and the body in the grave was not that of the chief.

Relocation of the living presented as many problems as relocation of the dead. Senecas, including Calvin John, Donald Kenjockety, Earl Redeye, Webster Lee, DeForest Billy, and Warren Jimerson, were recruited for some jobs in connection with the relocation and every effort was made to learn what the Senecas wanted.

At the recommendation of President John F. Kennedy, Congressmen James A. Haley and John P. Saylor introduced House bill 1794, by coincidence echoing the date of the Pickering treaty, in 1963 to fund relocation, rehabilitation, and the further economic and social development of the Senecas. Brill Engineering Company had prepared a report for the Bureau of Indian Affairs recommending, among other features, construction of an educational and historical institution, similar to Colonial Williamsburg in Virginia, on the Seneca reservation near the reservoir to demonstrate Indian cultural contributions and provide employment opportunities for the Senecas.

Pittsburghers worried about the bill, fearing it might delay Kinzua. "It is another step in the long fight of a small group of bleeding hearts to block the largest of Western Pennsylvania's flood control projects," fulminated the *Pittsburgh Press*. "This group isn't fighting for justice for the Indians, for

Typical new Indian home

they are assured of that by law. They are fighting to knock out the flood control project."

"I can't remember hearing anyone say a word," wrote columnist William A. White, "about helping the hundreds of other persons in the Kinzua reservoir ares, aside from the Indians, except by offering them going value for properties they are losing." The Seneca rebuttal pointed out that the Pennsylvania Railroad would receive about $20 million for relocation of its track that was on rights-of-way leased from the Senecas.

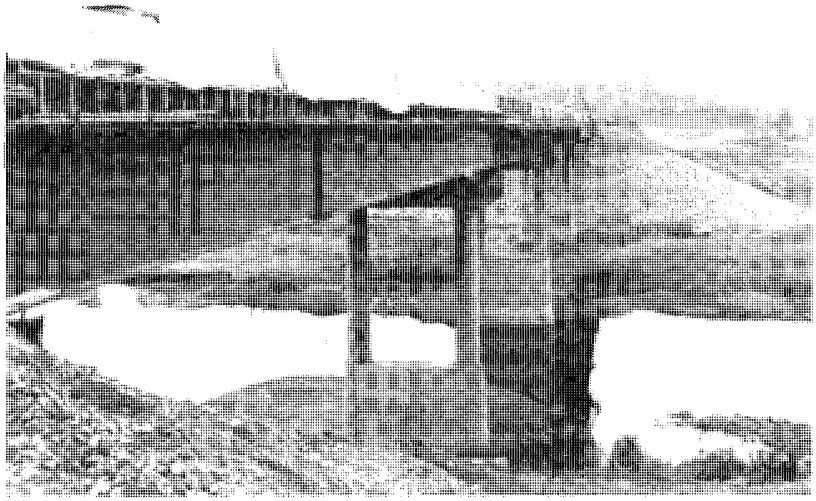
The bill making a $15 million payment to the Senecas passed on August 18, 1964, without delaying the Kinzua project. District Engineer James Hammer, Al Layton, George Baker, and Halsey Harmon presented the first payment to George Heron at Salamanca in September. "We are stepping into a completely new era," said Heron, "one that I am sure will bring prosperity--at least employment and a decent standard of living--to the Senecas."

Heron conceded the new ranch-type homes, replete with fireplaces, paneled dens, modern kitchens, and carports, built for the 100 Seneca families that relocated in the Jimersontown and Steamburg communities, were the best Indian housing in America. Each new home was located on three acres of land, but some Senecas commented that it was *only* three acres, hardly breathing space for an Indian, and said they sadly missed the rabbits that had romped around their old homes.

Alvin M. Josephy, Jr., a noted historian of Indian cultures, published in 1968 an article highly critical of the role of the Pittsburgh District in the Seneca Indian controversy. "In working with the leadership of the Senecas," he commented, "the engineers behaved properly and according to orders and regulations, but many Senecas today remember only their cold and officious manner and recall them as the Sioux recall Custer." That may be true. On the other hand, the Cornplanter Indians at their annual reunion in 1965 formally adopted George Plesko of the District Real Estate Division into the tribe, giving him the Seneca name "Ha-jo-dos."

Kinzua Construction Beneath a canopy of red, yellow, and brown leaves, a crowd gathered in the yard of Mrs. Blanche Brownell's home on October 22, 1960, to break ground for Kinzua Dam. Mrs. Brownell's ancestors had operated a ferry and hotel for raftsmen at the site as early as 1826. Though she was to lose her home to the project, she graciously consented to use of her home and yard for the ceremonies.

The "last train" to Kinzua had brought 1400 people from Oil City to Mrs. Brownell's yard, where they gathered to hear brief remarks by Merl Kremer and William Chase, of the Warren and Pittsburgh Chambers of Commerce, State Senator L. E. Chapman, Pennsylvania Senators Hugh Scott and Joseph Clark, Governor David L. Lawrence, and Secretary of the Army Wilbur M. Brucker. After the usual speeches, the dignitaries turned spades of earth from the yard to launch construction of the dam, and the Cornplanter Drum and Bugle Corps lowered the flag to end the ceremonies. Shuffling around the yard, the crowd carried away in matchboxes, envelopes, and pockets all the freshly turned earth. Someone even stole a ceremonial shovel. So began construction of Kinzua Dam,



Relocation of New York Southern Tier Expressway bridge

largest civil works project in the history of the Pittsburgh Engineer District.

Relocation of a highway from the construction area had begun in February 1960. A total of 37 miles of rail track, 83 miles of highway, 34 miles of pipeline, 65 miles of power lines, and 66 miles of telephone lines were eventually relocated.

Final inspection of the abutment geology took place during freezing weather and a blinding snowstorm on December 1, 1960, when District geologist Shailer Philbrick and his assistants inspected the rock strata. With pumps running to clear the hole of water, Philbrick boarded a steel cage held by a winch and A-frame and descended 149 feet down a 36-inch drill hole for first-hand inspection. He pronounced the rock strata excellent.

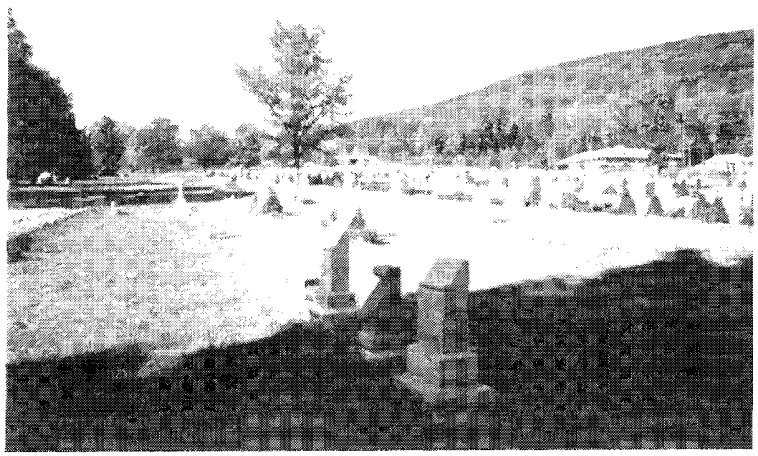
Hunkin-Conkey Construction Company won the contract in 1961 for building the dam. The resident engineer at Kinzua was Joseph P. Renouf, assisted by Ed Kovanic, and Armando C. Lardieri was Construction Division project engineer. Larry Sowles was project manager for Hunkin-Conkey.

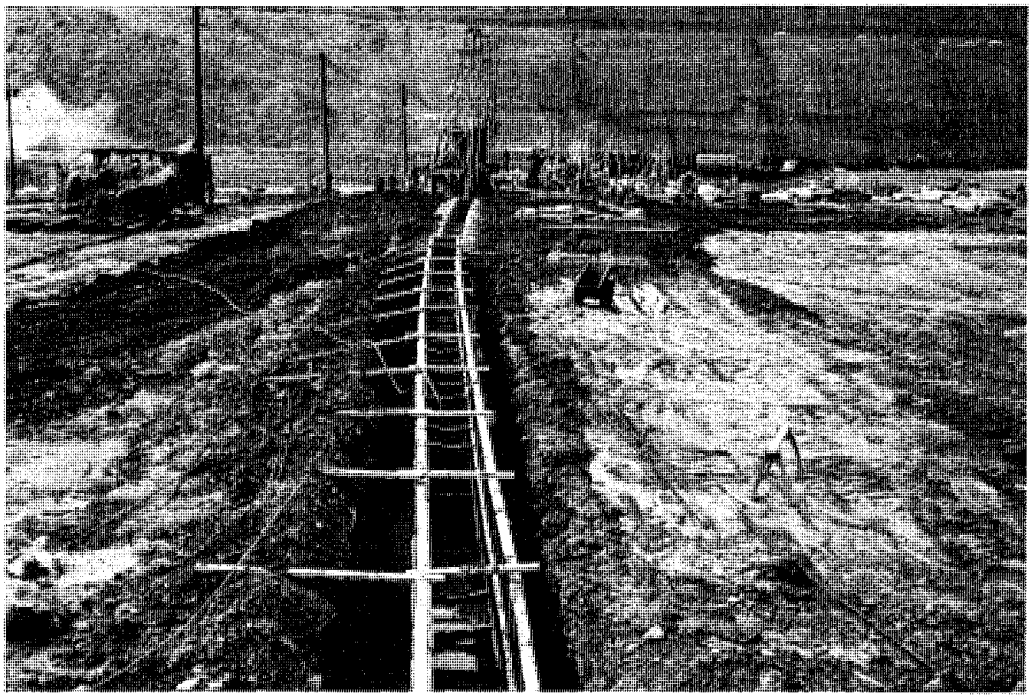
After a dizzy swirl of bulldozers and carryalls completed excavations behind the cofferdams, the contractors began, on August 3, 1962, placing concrete into the monoliths of the dam. A. C. Lardieri explained that because the solid rock foundation dipped sharply on the north side of the valley at the site, Kinzua was a combination concrete and earthfill dam, with concrete placed where the rock foundation was nearest the surface and earthfill on the north side. Kinzua Dam, he pointed out, contained enough concrete to build 300 miles of two-lane highway and the earthfill section represented 300,000 trips by 20-ton dump trucks.

Probably the most significant engineering innovation at Kinzua Dam was the concrete cutoff wall built upstream of the earthfill section. The reason the wall was built, according to Garth A. Fuquay, chief of the District Foundations and Materials Branch, was that the natural foundation of alluvial materials, 150 feet deep at places, was more pervious, or subject to seepage, than the earthfill dam section.

Professor Arthur Casagrande, renowned soil mechanics consultant from Harvard University, was called in as consultant on the foundations treatment methods. The Engineers considered such methods as driving sheetpiles down to rock to form a wall, placing a blanket of impermeable materials over the reservoir floor upstream of the dam, drilling holes and pumping cement grout into the foundation, and cutting a deep open trench in the founda-

Relocated Willowdale Cemetery - Bradford, Pa.





"a trench three feet wide and 1,100 feet long"

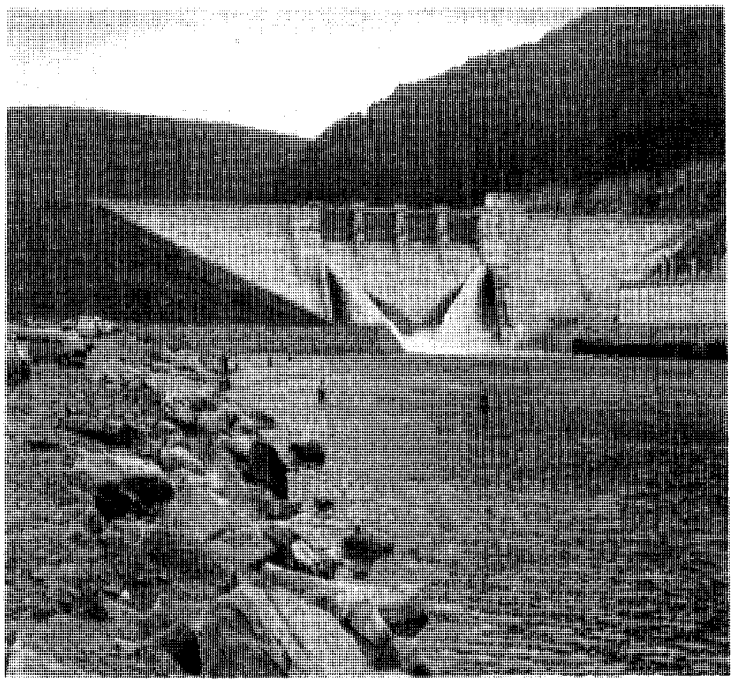
tion and filling with impermeable materials. In the spring of 1964, the District rejected conventional methods and selected the then relatively new ICOS method, never before used by the Corps, for building a concrete cutoff wall upstream of the earthfill dam section.

The ICOS (Impresa di Constuzioni Opere Specializate, Milano, Italy) process somewhat resembled a method used by men drilling for water, who pump a mud or slurry down the drill pipe into the bore hole to prevent caving in of the sides of the bore hole. The slurry supports the sides of the hole until the drill pipe is removed and the well casing inserted.

During late 1964, the contractor, Icanda, Ltd., of Montreal, using percussion drill rigs and special clamshell buckets, dug a trench three feet wide and 1,100 feet long upstream of the dam. The trench went as much as 160 feet straight down! That feat was accomplished by filling the trench with the mud, bentonite slurry, to prevent its sides caving in as the digging went deeper. After the trench reached rock bottom, concrete was pumped down through pipes and as the trench filled with concrete the mud slurry was forced up and out of the trench, the concrete forming when it set a 30-inch wide curtain to prevent seepage under the earthfill dam section. A blanket of dense materials was also placed upstream of the dam, filling depressions in the reservoir floor, as further protection against seepage.

Albert Jones, leader of the cult of Handsome Lake, appeared at the Seneca Long House in a cornhusk mask when work began at Kinzua, predicting the "little people," the gremlins of Seneca lore, would prevent construction of the dam. "We Indians got something to protect us," said Jones. "We'll do some little things and there'll be a lot of people dead down there at the dam, without anybody touching them." Nothing of the sort occurred; nonetheless, the project, perhaps as a result of its sheer physical size, did seem to have more than a normal share of problems.

Colonel James Hammer

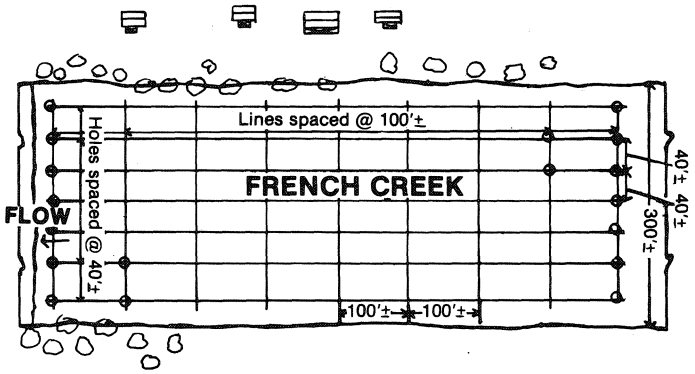


Kinzua Dam

Halsey W. Harmon noted there were scattered incidents of vandalism and mysterious fires in the Kinzua project area, and the culprits were never apprehended. Harmon recalled one night, when he and District Engineer James Hammer were in Warren, he answered a knock at the door and confronted two carloads of armed men, who appeared to be Indians and were drinking. They asked the whereabouts of the Colonel, and Harmon lied that he didn't know. The men then raced away to continue their search, but if they intended harm to the Colonel they never found him. Colonel James Hammer, a precise, militarily correct officer, who had participated in the Rhine River crossing in 1945 and was also a veteran of the Korean War, served as District Engineer while Kinzua Dam was built. He made a convenient target and bore patiently the barbs thrown his direction by those who opposed the Kinzua project.

On September 16, 1966, Governor William Scranton and other dignitaries formally dedicated Kinzua Dam. A true multipurpose project, the dam and reservoir provided flood control, low flow and water quality augmentation, and recreational benefits. During the summer recreation season it held a 24-mile long lake with a 12,000 acre surface area. Under license from the Federal Power Commission, the Pennsylvania Electric Company and the Cleveland Electric Illuminating Company built the Seneca Power Plant for pumped storage at Kinzua Dam. Penstocks, or tunnels, from the dam carried water to the powerhouse, which pumped the water through an underground tunnel up to a reservoir atop a hill on the left bank, some 800 feet above the powerhouse. Water stored in the hilltop reservoir was released during peak demands for electric power to flow back down through the tunnel and spin turbines generating up to 400,000 kilowatts of power sent through transmission lines to people in five surrounding states.

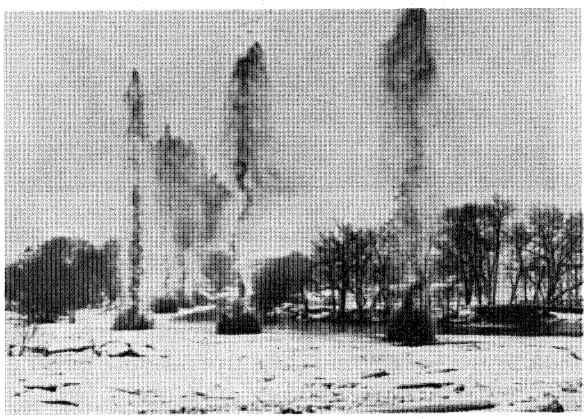
Benefits from the $108 million Kinzua project accrued slowly for seven years until June 1972, at which time it promptly reimbursed the taxpayers' investment in full.



FRENCH CREEK
VICINITY OF MEADVILLE, PA.
LAYOUT PLAN

Scale: 1 Unit = 100'

The Peak of Flood Control Construction The spring thaw came quickly in 1959. Heavy rain fell on snow-covered ground and ice-packed streams in the northern sector of Pittsburgh District on January 21, causing serious flooding in the Allegheny and Beaver River basins. Ice 16 inches thick barrelled out of the Allegheny, breaking 124 barges from their mooring and carrying them downstream to smash against bridge piers and Emsworth, Montgomery, and New Cumberland dams. Some were recovered 200 miles down the Ohio. Sharon and Youngstown were hard hit by floods, and ice gorges on French Creek dammed the stream, threatening to back water into Meadville.



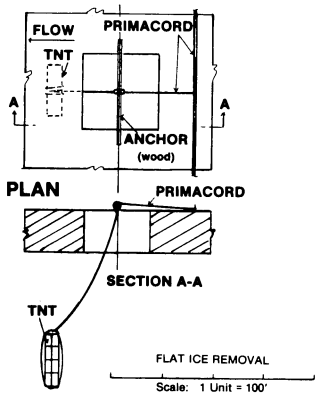
Operation Ice Crusher

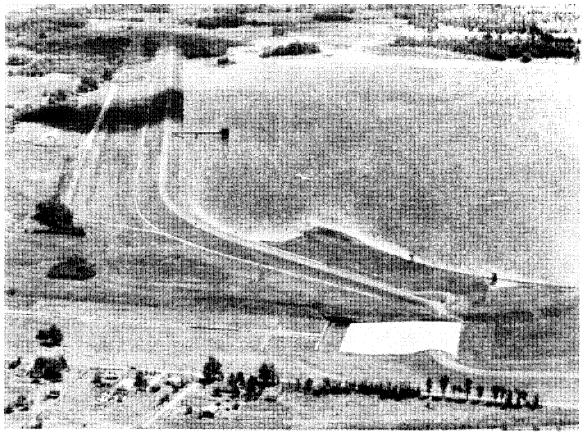
The Pittsburgh District started emergency operations on the morning of January 22. District Engineer W. W. Smith and Emil Schuleen headed northwest to inspect the flood situation at Youngstown, Warren, New Castle, and Sharon. Jim Neill and Jacque Minnotte checked the barge retrieval work on the Ohio. Richard "Dick" Thalimer, Fred Burfoot, Joe Murray, Ed Reed, and Bob Conley took off for Meadville to organize "Operation Ice Crusher."

French Creek had crested at 62.5 feet at Meadville, equalling the flood of record, and piled ice into two gorges, one at Meadville and the other near Cochranton. Working with local authorities, the Engineers decided to blast channels through the gorges, which was not a novel method. During the 1918 ice gorge on the Monongahela, District Engineer Horton W. Stickle and his assistant William D. Fairchild had cleared a gorge at Brownsville by chiseling holes in the ice, dropping in dynamite to shatter the pack, and ramming continuously with the steamers *Swan* and *Slackwater*.

Dick Thalimer and the Engineers used helicopters to clear French Creek, beginning at the Cochranton jam. A helicopter landed on the ice pack, a "shooter" jumped out, planted explosive in the ice, lit the fuse, and reboarded the helicopter in one helihurry. The helicopter flew up and hovered until the charge exploded, then returned for placement of another charge. While results were spectacular, the job didn't go fast enough. Demolition teams from the 19th Engineer Battalion at Fort George Meade landed from helicopters on January 28 to work at the Meadville gorge. The combat engineers divided into teams, one group cutting holes in the ice with chainsaws, another preparing and delivering TNT charges, and a third placing and firing the charges, while the helicopters hovered downstream to make sure floating ice did not again jam. In a few days, with 1,800 pounds of dynamite, 22,300 pounds of TNT, the crews cleared a 200-foot wide channel through the four-mile long icepack. Meadville was safe.

A few days after the January 1959 flood, Congressman Mike Kirwan called Chief of Engineers





Michael J. Kirwan
Dam and Reservoir

Emerson C. Itschner to account before the House Committee on Public Works. Kirwan was upset by what he thought was slow progress on the multipurpose dams planned on the West Branch of the Mahoning and the Shenango rivers. Sharon and Youngstown and other Beaver basin towns had been flooded twice in three weeks in early 1959. "They were hardly back in the homes," Kirwan complained, "before they had to evacuate them again in boats."

General Itschner's defense was that the ten reservoirs in the Pittsburgh District had prevented flood damages of nearly $79 million in January and February 1959, and the $32 million damages resulted chiefly from floods coming from uncontrolled tributaries. He said the Berlin and Mosquito Creek dams, built in 1942-43 at a cost of $10.3 million, had cut 5.3 feet off the 1959 flood crest at Youngstown, preventing $34 million in damages. He estimated that a dam on West Branch of the Mahoning could have prevented $3.3 million damages in the Warren and Youngstown area, and the proposed dam on the Shenango River would have averted $6.6 million damages, mostly at Sharon and New Castle.

Congressman Kirwan admitted that Berlin and Mosquito Creek dams had done their jobs, but demanded early attention to construction of the West Branch of Mahoning Dam. Kirwan was specially interested in that project because the steel industry in the Mahoning valley, plagued by water supply shortages, was willing to contribute a substantial part of the costs of building the dam so as to improve the flow of the Mahoning.

Kirwan had won approval in 1955 for an engineering study of the West Branch of Mahoning project, as substitute for a project in the adjoining Eagle Creek basin where high-grade silica deposits would be inundated by a reservoir. Fearing that the Eagle Creek project might become part of "Kirwan's Big Ditch," the Lake Erie and Ohio River Canal, Pennsylvanians had opposed the Eagle Creek Dam, and they opposed the West Branch project for the same reason. The Board of Engineers for Rivers and Harbors in its 1957 review report, however, found that additional flood control and low flow storage was desperately needed in the Mahoning basin and that the West Branch Dam could not contribute to the proposed canal project. Congress approved the West Branch Dam and Reservoir in the Flood Control acts of 1958 and 1960.

Congressman Kirwan presided over ground breaking ceremonies at Wayland, Ohio, on April 27, 1962, and land acquisition and relocation work started. Construction of the rolled earthfill dam, nearly two miles long and 83 feet high, began in May 1963. Dick Thalimer was Engineering Division project engineer and Rudy Kroft was resident engineer for the District.

When the earth embankment had been raised to within five feet of its planned crest in November 1964, rapid spreading and settlement of the outlet works occurred. According to Ed Thomas, assistant chief of the District Engineering Division, the contractor had placed a greater load on the foundation than planned and a 60-foot clay stratum in the foundation reacted under the pressures. That problem was solved, Thomas said, with an electro-osmotic stabilization system, engineering jargon for placing electrodes in the clay stratum and passing electric current between them to dry out the clay.

West Branch of the Mahoning Dam was completed in November 1966, backing a ten-mile reservoir through Portage County, Ohio, to a point near Ravenna. The $20.6 million project was later renamed by Congress the Michael J. Kirwan Dam and Reservoir in honor of its chief proponent, who died in 1970.

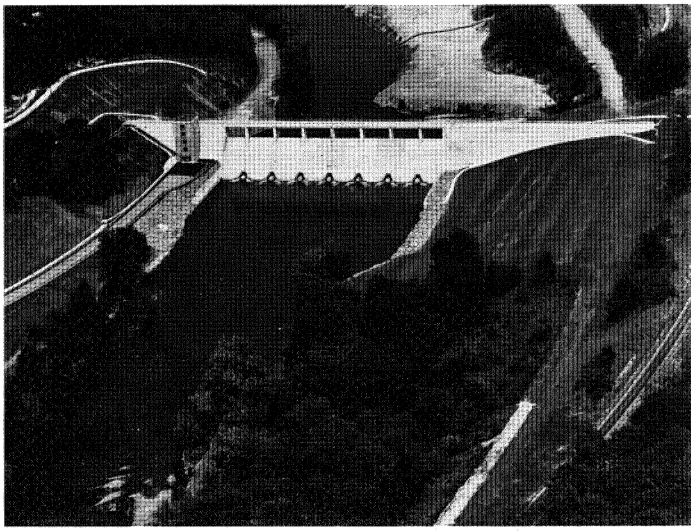
First interest in building a dam on the Shenango River, which joins the Mahoning at New Castle to form the Beaver River, came after Easter Sunday rains in 1913 sent an 18.6-foot flood seething through the streets of Sharon and destroyed an old canal dam on the river at Sharpsville. The old canal dam no longer served commercial traffic but was

important for area recreation, and George Mahaney, a Sharpsville businessman, launched a single-handed campaign for restoration of the dam.

For twenty years, Mahaney sought restoration of the Sharpsville dam without success, but after the 1936 flood he gained several allies, notably Henry A. Roemer, president of Sharon Steel Corporation, who wanted a dam built on the Shenango for flood control. Roemer had been in New York trying to negotiate a loan for plant expansion when news of the damages at his plant done by the March 1936 flood frightened investors and killed his hopes for a loan. Roemer concluded the prosperity of his company and the industrial-economic development of the Shenango basin rested on adequate flood control, and he and Mahaney began a series of trips to Washington to lobby for an Engineer project on the Shenango.

After rains from Hurricane HAZEL devastated the Shenango valley in October 1954, Mahaney and Roemer gained strong support from various Shenango valley civic groups; and Senator Edward Martin in 1955 pushed an appropriation for study funding through Congress. Serious flooding in June 1958 and the spring of 1959 generated more public interest in the project, and in the autumn of 1959 Congress appropriated funds for construction of Shenango Dam over the veto of President Dwight D. Eisenhower.

The dam, to be located just below the confluence of Pymatuning Creek with Shenango River, would back a lake up the Shenango to New Hamburg in Mercer County, Pennsylvania, and up Pymatuning Creek to Kinsman in Trumbull County, Ohio. In 1960, the Pittsburgh District began the relocation of 11 miles of railroad, 20 miles of highway, and utility and pipe lines from the Shenango Reservoir area. Better than a thousand graves were moved and about 600 people, mostly from the Clark, Big Bend, New Hamburg, and Orangeville communities, went to higher ground; thus, more dead than living people were dislocated by the Shenango project.



Shenango Dam

The John G. Ruhlin Construction Company in March 1963 began building the concrete dam in eighteen monoliths. The resident engineers for the Pittsburgh District were Vance T. Aitken and John C. Staples, and the office engineer was Peter P. Kuzma.

On a sunny September 17th in 1965, Shenango Dam, 720 feet long and 68 feet high, with a strikingly sculptured appearance, was dedicated by Congressman Joseph P. Vigorito, Secretary of the Army Stanley R. Resor, Chief of Engineers William F. Cassidy, and Ohio River Division Engineer Walter P. Leber. But the men of the hour were Henry Roemer and George Mahaney.

Congressman James Weaver had asked Congress to name the dam on the Shenango after George Mahaney, but policy did not permit naming a dam after a living man. Mahaney quipped that he was not at all disappointed. He preferred living. Besides, during his half century fight for Shenango Dam, he had been called more names than any man in Mercer County. Mahaney told of receiving a letter saying, "Since you got the appropriation for this dam, I hope you are the first to drown in the lake." At the request of the Shenango Valley Chamber of Commerce, a recreation area at the dam was named for George Mahaney.

East of the Shenango, in the French Creek basin, the Pittsburgh District recommended a very large dam for flood control on the main stem of French Creek in 1936, but the plan was intensely opposed by landowners and the people of the town of Cambridge Springs whose property would have been inundated by the project. After an April 1947 flood set records in the upper French Creek basin, new interest in securing some measure of flood protection for the basin developed, and Congress directed the

Pittsburgh District to restudy French Creek and come up with a plan that might be substituted for a main stem dam. Those studies were still in progress when the January 1959 flood and ice jams caused damages at Meadville and other points along the stream. In 1960, the District proposed a three-phase plan to provide partial flood protection for the people of the French Creek basin. The plan called for construction of three dams, one at Union City near the head of French Creek and two on tributary streams, Woodcock Creek and Muddy Creek.

Congress approved the three-phase plan in 1962, and the District began construction in 1968 of the Union City Dam near Erie, Pennsylvania. Because there was no interest in recreational and conservational features when Union City Dam was planned, the District designed its first detention dam at the site. Detention dams have the sole function of flood control and therefore have no summer pools for recreation or other purposes. They impound water only during floods for slow release after the danger of downstream flooding has passed. Such dams are not new, for Arthur E. Morgan built five of them in 1919-22 in the Miami River basin of Ohio.

S. J. Groves and Sons won the contract for building the Union City Dam, and John C. Staples was resident engineer. They finished the rolled earthfill dam, 88 feet high and 1,420 feet long, on September 24, 1971.

While the dam was under construction, District Engineer Edward C. West at a Union City public meeting learned that the people of Erie County had become interested in a permanent pool for recreation. The District redesigned the sluice intake of the dam to allow future construction of a control room and installation of sluice gates to hold a summer pool. Speaking at dedication ceremonies in 1971, Congressman Joseph P. Vigorito said he would seek congressional approval for a conservation pool at the project.

Construction of Woodcock Creek Dam and Reservoir, the second phase of the French Creek basin program, began in July 1970. Lane Construction Company was the contractor and John C. Staples and Jerry McDaniels the resident engineers. Located in Crawford County about three miles northeast of Meadville, 4.1 miles above the mouth of Woodcock Creek, the 90-foot high, 4,650-foot long rolled earth dam was completed in July 1973. Most of its storage capacity was reserved for flood control, but a small summer pool for water quality control was maintained and recreational facilities were developed. The Chief of Engineers awarded the District the Award of Merit in the landscape-architectural design category in 1974 for the aesthetic effects achieved at the Colonel Crawford Recreation Area on the lake.

Fifteen years after Congress approved the three-phase program for the French Creek basin, the Union City and Woodcock Creek dams were in operation. In December 1977, however, the District reported that "a dry-bed reservoir on Muddy Creek cannot be justified under present conditions of development in the Meadville-Kerrtown districts," and, basing the decision on the then-current project costs and benefits, recommended that the Muddy Creek dam project be placed in the inactive category.

AGNES Was No Lady In his office in the federal skyscraper on Liberty Avenue in Pittsburgh, Tom Reilly pondered the weather reports and forecasts. He had been watching carefully the progress of AGNES, first hurricane of the season, for several days, for precipitation from hurricanes had caused flooding and damages in the Pittsburgh Engineer District on several occasions since he had joined the District in 1935. When AGNES slammed into the Gulf Coast on June 19, 1972, danger to Pittsburgh had seemed remote, but the following day, while the storm center was still over Florida, its currents forced moist Atlantic Ocean air inland, dropping widespread rains on Pennsylvania. A cool air front was approaching the Pittsburgh District from the west.

The cold front stalled on June 21 along the Ohio and Pennsylvania border and AGNES moved into

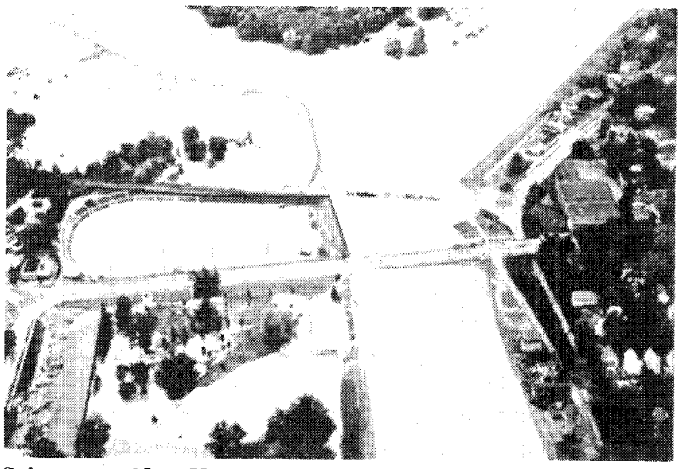
North Carolina, its counterclockwise circulation sending increasing amounts of moisture inland. When reports of intense rain over the upper Allegheny and Clarion River basins arrived at the District office, Reilly concluded the Pittsburgh District was about to have a flood. He deployed his hydrologists to the northeast sector of the District to secure first-hand reports on the flood situation and alerted the Reservoir Regulation Center. The damtenders at District reservoirs were directed to stand by for flood action.

AGNES arrived over New Jersey on June 22. It had lost its hurricane winds and become a tropical storm, but its rains hammered New Jersey, Delaware, Pennsylvania, and New York all that day. Storms such as AGNES commonly moved up the coast and passed out to sea off Cape Hatteras, but AGNES was uncommon. It moved west and inland on Thursday night, and when Pittsburgh District employees donned their raingear and splashed to their work on Friday morning, June 23, AGNES was centered directly over the upper Allegheny basin and its rains were lashing the entire District. In three days as much as 11 inches of rain fell on parts of the District, averaging from 5 to 9 inches in a 50-mile band along the western slope of the mountains from a point south of Pittsburgh to New York state. Tom Reilly's analysis of the reports flowing across his desk indicated the floods moving down swollen tributary streams on the way toward Pittsburgh and Wheeling would bring the region the greatest flood in its history.

While the wipers slapped monotonously back and forth across the windshields, the men Reilly had dispatched from the District office to measure precipitation and stream flow eased by downed power lines and around road washouts into the flood-stricken towns northeast of Pittsburgh. Paul Hein, Paul Yeloushan, Ralph Falino, and Walter Leput on June 22 pulled up and parked outside Eldred in McKean County. Water was three feet deep over roads into town, so they found a boat and went in to warn the mayor the water was rising two inches an hour, with no end in sight.

Ralph Mucci and Joe Violi boated into Eldred the following day. They found water seven feet deep in the main street and someone firing a gun to signal for rescue. "We are completely isolated," said Mrs. William Luce of Eldred. "The only way in is by helicopter or boat. I've never seen anything like this before. And it's raining hard here yet!"

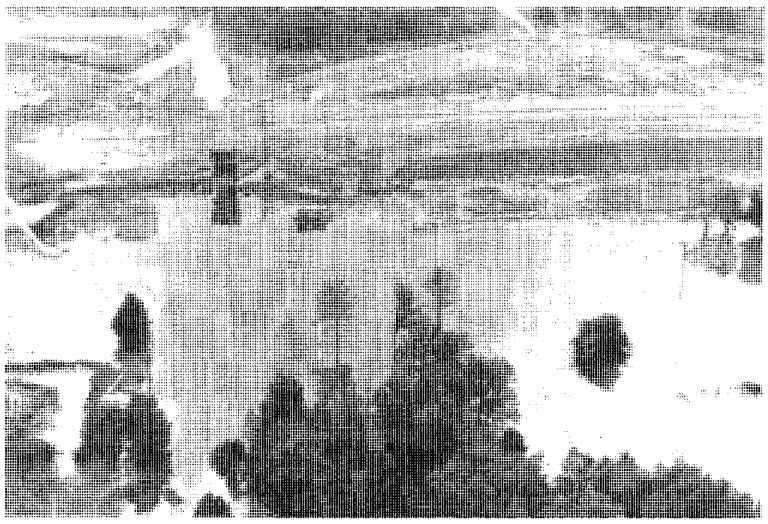
Carl Hackett and Werner Loehlein of the Hydrology Branch went into Brookville and Punxsutawney, where the District had built local protection projects. Better than 6 inches of rain had fallen at Punxsutawney, but the project had held damages there to a minimum. The same was true at Brookville, where rainfall had exceeded 7 inches. They also made it into DuBois and found several feet of water standing in the business district. A local protection project was authorized for DuBois, and Joe Butchko of the District Construction Division was in town at the time of the flood. He waded out with pictures of the high water.



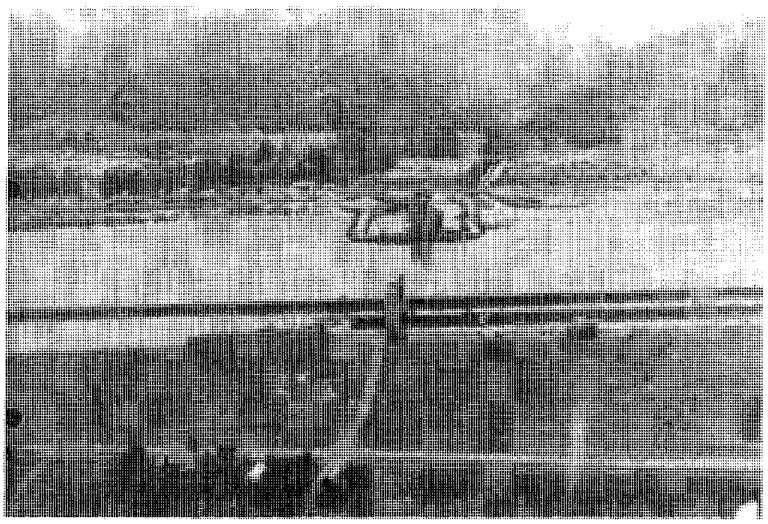
Salamanca, New York - June 1972

Paul Hein and friends drove into Salamanca on the Allegheny, where the District had built dikes and walls to protect against floods of record. Hein reported the river at Salamanca was 7.5 feet higher than ever before known. It had overtopped the dike by two feet and left the town in shambles. The District Engineering Division sent Ed Kovanic to Salamanca to help with sandbagging and pumping out the flood water.

"Woodcock Creek Dam...reduced flood damages at Meadville."



Flooded cofferdam at Hannibal



Francis Duffy and Clayton Ott were sent to Olean and Portville on the Allegheny, where the river was within a foot of overtopping the dikes. They boated into Olean, met with local officials, arranged continuous patrol of the dikes, and had sandbags sent in from Pittsburgh District. When a leak under the dike developed, 6,000 people were evacuated from low-lying sections of Olean. Duffy and Ott directed hasty construction of an emergency dike around the leak to hold the water while it was pumped back into the river.

On June 24, Duffy and Ott set out for Portville. Roads were flooded, so they made a harrowing ride on a section car along a railroad embankment with water up to the ties on both sides. On arrival at Portville, they found water 8 inches from the top of the dikes and interior runoff accumulating behind the dikes. They obtained more pumps to handle the interior drainage.

Reports coming into the District office from the south also looked bad. Uniontown, Connellsville, and West Newton had serious damages. Fayette City, Sutersville, Masontown, Brownsville, McKeesport, and other communities were partially under water.

The District opened its emergency operations center, under C. Dayle Miller, on the morning of June 23. By the end of that day, the District had fifteen engineers and technicians in the flooded areas helping fight the flood, collecting hydrologic data, and estimating the amount of damages. Runoff into the reservoirs was continuing at alarming rates. The reservoir on East Branch of the Clarion River was soon completely full, with water discharging through the spillway. Tom Reilly knew the dams were safe, however, and decided to keep the dams closed and hold the water until the flood crest was passing Pittsburgh.

The first concern of Jacque S. Minnotte, chief of the Engineering Division, was preservation of the District's projects, especially Hannibal Dam on the Ohio and Woodcock Creek Dam near Meadville, which were then under construction. Orders went out to move construction equipment to safety and flood the cofferdam at Hannibal before the flood waters arrived. Resident engineer Jerry McDaniels at Woodcock Creek called Ralph Weise and Halsey Harmon at the District office on June 23 to warn that flow into the reservoir was greater than the outlet conduit pipes could pass and water was rising fast behind the half-finished dam. It appeared the flood would go over the top and damage the dam. The engineers at the District office debated whether to let the dam be overtopped and repair the damages later, cut a diversion ditch, or bulldoze a temporary dike into place atop the dam.

McDaniels, in the meantime, sent men to the streams pouring into the reservoir to measure their flow, allowing estimation of the rate and amount of

rise that could be expected at the dam. When McDaniels reported the reservoir would rise to a point about two feet over the unfinished dam, the office engineers told him to put a four-foot temporary earth dike atop the dam.

McDaniels put the contractor's bulldozers to work at noon and by 2:45 p. m. they had pushed a temporary dike, about 4 feet high and 250 feet long, into place. The reservoir level climbed up the dam, onto the dike, and crested two feet up the side of the dike at 5:45 that afternoon. Fast work had prevented damage to the dam. And incidentally reduced flood damages at Meadville.

Dams in the District were storing immense water volumes. East Branch of the Clarion was more than full. Water was within three feet of the top at Kinzua Dam. Tygart Reservoir was 85% full, and other dams had stored water to 90% of their capacity. The deluge falling over uncontrolled streams still pushed the rivers at Pittsburgh and Wheeling to flood stage and beyond.

Some very nervous men waited it out in the Equitable Life Assurance Society's Pittsburgh office. Equitable had, since 1948, invested millions in the Gateway Center for the revitalization of the Golden Triangle after the Corps of Engineers promised that control of major floods would be achieved. Equitable had floodproofed the buildings in the Gateway Center, locating first stories about a foot above the level the Army Engineers had predicted major floods would reach after the upstream reservoirs had cut off the crests. There was still the question of whether the Engineers had been right.

People in the Golden Triangle watched apprehensively as the flood crept up the Point and into Fort Pitt Museum. Mayor Pete Flaherty asked all businesses to get their employees out of the downtown area. Equitable executives Vince Gieger and Bill Mueller roused their maintenance staff for flood duty. They bolted steel flood doors over entrances to underground garages, closed low level vents, trucked in and stacked sandbags, shut down elevators, and moved switchboards, computers, and other equipment to higher floors in the Gateway Center buildings.

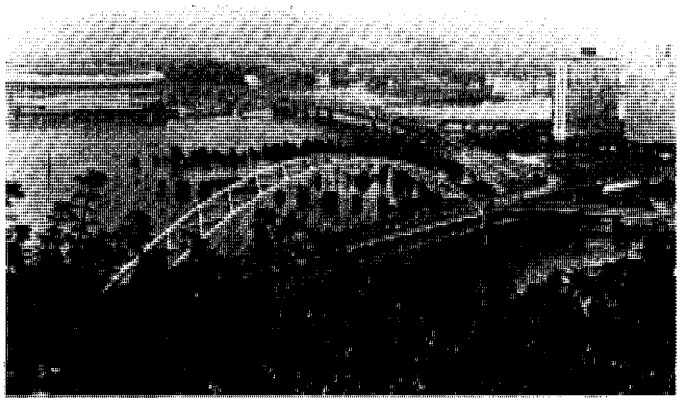
The AGNES flood crested on June 24 on the Pittsburgh gage at 35.85 feet, eleven feet above flood stage, and Pittsburghers, especially the executives of Equitable, watched with great relief as it began to recede. A headline in the *Pittsburgh Press* the next day read: "The Engineers Were Right."

The flood wave moved on down the Ohio, heavily damaging McKees Rocks, Coraopolis, Wellsburg, Wheeling, and unprotected towns all along the upper river. At noon on June 24, Tom Reilly, noting another rainstorm developing in the west, ordered releases from the District reservoirs to begin. Water released from the dams would not reach flooded areas until after the flood crest had passed, and reservoir flood control storage had to be regained before more rains arrived.

President Richard Nixon, on June 23, had declared Florida, Virginia, Maryland, Pennsylvania, and New York to be major disaster areas, qualifying them for federal assistance. After reports came in from the Pittsburgh Engineer District, he added parts of West Virginia and Ohio. The Army Engineers established the Susquehanna District for emergency and recovery work east of the mountains. The Ohio River Division called Jacque Minnotte at Pittsburgh on Saturday, June 25, to ask if the District wanted the help of military officers for the recovery effort. Minnotte thought it over quickly and asked for thirteen officers and some civilians on temporary duty from other Districts.

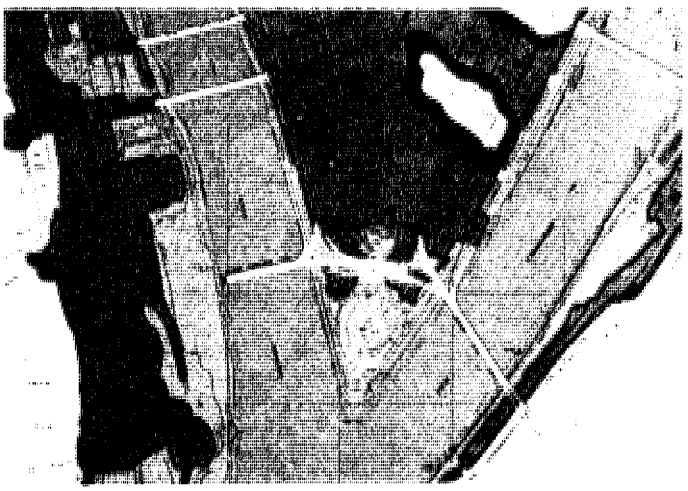
District Engineer Norman G. Delbridge confirmed Minnotte's decision when he arrived on June 26. Colonel Edward West had retired on April 30 and Colonel Delbridge was scheduled to take over on July 1. He reported several days early for service during the emergency.

Someone had told Delbridge before he came to Pittsburgh that "once you get up there it won't take



June 24, 1972 - Pittsburgh Point

Green - March 1936 Flood
Yellow - June 1972 Flood (Actual)
Brown - June 1972 Flood (No Flood Control)



you long to get your feet wet." Delbridge later quipped, "They must have known something I didn't know." He was, at that, more fortunate than an earlier District Engineer, W. E. R. Covell, who had not arrived at Pittsburgh in time to join in the March 1936 flood fight, but who had sent his furniture on ahead and it did. He lost it all.

During and after the AGNES flood, District personnel were constantly on the road performing "windshield surveys," meaning assessing the costs of repairing the flood damages and reporting to local civil defense officials, who forwarded the information to General George "Abe" Lincoln, a former Engineer officer who was director of the Office of Emergency Preparedness. When the Corps officers from West Point and the Engineer School at Fort Belvoir arrived at Pittsburgh, Colonel Delbridge sent them to field offices, staffed by District personnel and men loaned from other Districts. Field offices opened at Olean, New York, Smethport, Pittsburgh, Uniontown, Kittanning, and Meadville, Pennsylvania, and Wheeling and Kingwood, West Virginia. Those offices helped local government with urgent recovery work, then began flood damage surveys of buildings and service utilities eligible for federal assistance. They laid plans for repair and restoration work and employed local contractors for the work. Those offices and the Pittsburgh Engineer District completed 1,509 damage surveys and contracted for repairs totalling $1.6 million, contributing materially to quick recovery from the flood.

By Sunday, July 2, the rivers had returned to their banks, the sun had begun to dry things out, reservoirs were returning to normal levels ready for the next flood, and the Pittsburgh District was helping people dig out from under the mud and debris. That afternoon at watersoaked Point State Park, Thomas Hutchins' old outfit, the Royal Americans marched again. A column of soldiers clad in scarlet and blue marched across the parade ground to the tune of fifes and drums, just as Hutchins' 60th Regiment of Foot might have done after the flood of 1763.

AGNES was no lady. It killed 122 people and caused catastrophic damages, especially in eastern and central Pennsylvania where even Governor Milton Shapp had to evacuate his Harrisburg mansion. The AGNES flood would have crested at Pittsburgh two feet above the 46.0 foot record stage set on the day after St. Patrick's Day in 1936, had it not been for the upstream reservoirs. They clipped about twelve feet off the top of the flood, holding it ten feet below the record set in 1936. More gratifying to the Engineers was that fact that not a single person died in the District as a result of the greatest flood of record.

The Pittsburgh District announced that its reservoirs during the AGNES flood had prevented $849,-219,800 in damages, nearly four times what it had cost to build the projects, and, adding local protection projects, the flood damages prevented swelled to better than a billion dollars. Kinzua Dam on the Allegheny, built at a cost of $108 million, saved people living downstream of the dam a tidy $247 million.

District Engineer Max R. Janairo during the 1976 bicentennial year reported that Pittsburgh District projects had provided flood control benefits aggregating five times their costs, not including benefits credited to recreation, navigation, water quality and other functions. Men and women of the Pittsburgh District with forty or more years of service, who had participated in the District's flood control work since the beginning, saw their life-long labor bear its greatest fruit during AGNES, a privilege rarely granted to most mortals on this earth.